



**Task Group Assignment Report**

**Special Events**  
**Permitting and Inspection of**  
**Temporary Structures**

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## Executive Summary

Special Events involving large crowds and temporary structures (i.e. tents, stages and bleachers) present specific challenges to local governments that are charged with safeguarding the public's health and safety. As a result, most major jurisdictions throughout the U.S. regulate these events and their components through various permit and inspection processes. These processes are typically based on a variety of individual State laws, local ordinances and policies with very limited fundamental guidance provided by the I-Codes. Consequently, there is a wide variety of different standards and requirements throughout the U.S. pertaining to Special Event permitting and inspection of temporary structures.

In this report, the MJC Task Group surveyed 15 major jurisdictions located throughout the country and examined how they regulated these events. The Group reviewed the following for each jurisdiction: respective codes/ordinances; responsible departments; permitting triggers; plan review and inspection requirements; public outreach and finally challenges and best practices. The diversity of strategies and approaches to their responsibilities is quite interesting and many best practices can be gleaned from the information and documents provided.

Some common themes and observations are listed below for consideration:

- Special Events are typically regulated and require permits for temporary structures
- Temporary is usually defined as less than 180 days
- State and/or local codes are likely based on I-Codes but significantly modified and augmented
- More than one Department is involved and Fire Department plays a prominent role with Building Department in supportive role
- Permit triggers for temporary structures are usually based on floor square footage
- Plan review and inspection requirements and processes are general in nature
- Design professionals and licensed contractors are typically not involved
- The number of Special Event permits and inspections is significant
- Regulation of these events is generally not well understood by the public and industry

Some recommendations for further study:

- ICC should consider expanding I-Codes to adequately address and incorporate specific provisions for Special Events involving large crowds and temporary structures
- Lead agency role (Fire and Building) should be better defined for permit and inspection purposes

The MJC Task Group would like to thank the various representatives of the cities and counties who graciously shared their knowledge and experience as well as provided significant insight into the challenges they face as well as what works well as a best practice. In addition, the Group thanks the ICC Major Jurisdictions Committee for its support and direction in this endeavor.

# Part 1

## **Assignment Overview, Problem Statement, and Scope of Report**

### **1.1. Assignment Overview**

At the 2012 ICC Codes Forum in Portland, the MJC considered new task group Assignments for 2013. Because they can be exceptionally challenging for the local AHJ, the topics identified included Special Events Permitting and Inspections. The MJC discussed and noted that this area of code enforcement can vary widely in enforcement practice, depending on the nature of the proposal, the environment to be occupied and local AHJ permitting and inspection practice. Consequently, the MJC felt it could significantly help jurisdictions across the country, if a Task Group could study and report on how major jurisdictions throughout the US are regulating (codes, permitting and inspections) special events, particularly those involving large crowds and temporary structure (e.g. large tents, stages/platforms, bleachers, etc). Subsequently, the MJC charged this Task Group with collecting information on AHJ problems, procedures and best practice with respect to special events. The specific charge from the MJC Steering Committee is as follows.

### **1.2 Problem Statement**

Problem statement as presented and reviewed at ICC-MJC Business meeting of October 23, 2012, includes the following:

- *The code provides ample guidance to customers proposing hard built vertical construction. However, when it comes to festivals or large temporary events (think Super Bowl, other sports tournaments or large national conventions and the related support they bring to town); there is often a divergent view between the customers and AHJ regarding public safety issues and how regulations apply to their special event. Whether huge tents, temporary concert venues or simply a street fair, local AHJ's often struggle to find a balance between what is practical in the short term and where real public safety issues exist and how to address them.*
- *This proposed topic could look at the full range of special event types and assemble approaches used by various authorities to manage them effectively.*

### **Key Parameters**

The following are some of the key issues or topics of discussion often occurring with customers during the special events permitting and inspection (P&I) process.

- *Crowd Control* in festivals with large bodies of attendees can be a huge challenge.
- *Temporary structures* such as band stages or vendor open sided tents.
- *Temporary structures* such as band stages vendor open sided tents bleachers or other raised viewing areas
- *Limited access vs. maintaining egress* at open air events with entry fees maintain secure perimeters, which may compromise egress in an event.

- *Utility supply* may involve safe secure feeds from public service distribution points, or control of energy source for portable utilities.

### **1.3 Scope of Report**

Study and report on how major jurisdictions throughout the US are regulating (codes, permitting, and inspections) special events, particularly those involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.

### **1.4 Task Group Participants List**

- John Barrios, Co-Chair
- James Bartl, Co-Chair
- Edward Kaminski
- Girard Page
- Scott Miller
- Bruce Faust

## **Part 2**

### **Abstract of Best Practices**

The following includes a brief overview of submittals received by the Task Group. For further detail on any of the following, refer to Part 3 of this report. Note that some submittals include further supporting documentation in the Appendix.

#### **Clark County, NV**

Special events are regulated by several County departments with the Department of Building and Fire Prevention playing a major role. A permit is required for tents greater than 400sf and canopies greater than 700sf, and inspections are performed by both Building and Fire Prevention staff. Temporary structures are limited to less than 180 days. Temporary Assembly Structures that have hard shell or glass sides that exceed 4,500sf also require specific review and permits. There are an extensive number of State and local regulations and policies governing special events and temporary structures. Detailed plan reviews are performed on all applications with the exception of structural reviews which is the applicant's responsibility. An extensive number of permits and inspections are completed each year. Several Department policies and guidance documents are included in the appendix.

#### **City of Las Vegas, NV**

Special Events group under the Public Works Department takes the lead on Special Event permitting. A permit from Fire Prevention is required for tents 200 sq. ft. or greater, sale of fireworks, open flame cooking and canopies 400 sq. ft. or greater. Permits from Building Department are primarily required for electrical work and structural grandstands. Detailed site plans illustrating structure layout, separation, fire department access, etc. is required. The Fire Prevention Division's Special Event Planning Guideline outlining general process and requirements is included in appendix.

#### **City of Phoenix, AZ**

Fire Prevention Division of Fire Department with cooperation from Building and Zoning Department is responsible for temporary structure permit. A permit is required for tents 800 sq. ft. or greater and canopies 1,200 sq. ft. or greater as well as any membrane structure. The recent edition of the IBC and IFC are in effect and chapter 17 of the IFC is amended specifically for temporary structures. Tent staking and ballasting must conform to the IAF Procedural Handbook for the Safe Installation and Maintenance of Tentage and IAF Pullout Capacity of Tent Stakes.

#### **City of Denver, CO**

Enforcement is led by the Fire Prevention Bureau of the Denver FD, which agency integrates inspection work by the building department, park & rec, police, zoning, excise and public works. Tent/membrane structures are regulated if > 200 sq. ft. or canopies > 400 sq. ft. with a 180 day limit. Anything greater than 1 story/55'ht./8500 sq. ft. triggers structural review. Best practice

notes include use of a dedicated team, historic file pre-approval on temporary structures and use of private sector structural PE's on short timeline projects. Supporting documentation in appendix includes Department policy on temporary occupancy in existing buildings, policy on temporary outdoor stages and platforms and policy on temporary fabric structures/tents/canopies/air inflated structures.

### **City of Indianapolis, IN**

Permit and inspection process Involves building, fire, park & rec and public works, with Code Enforcement the lead agency. Enforcement triggers include tent/structure size, occupant load and duration of event. Submittal criteria include site plans, structural plans and fire safety specs. Supporting documentation in appendix includes a pilot program outline in connection with Super Bowl XLVI, covering temporary tents, canopies and membrane structures, including those with heat and food service for assembly use. Other specific supporting documentation in appendix on ballasting tent structures, as well as a tent & canopy structure checklist and tent staking and ballast requirements.

### **Mecklenburg County, Charlotte, NC**

Outlines a joint City Fire, MCFM and County Code Enforcement strategy to deal with all special events and temporary structures. Documentation resulted from a Department appeal of state directive, resulting in a meeting of the minds supporting an historic approach to compliance. Described in three part documents:

1. Chart A: Special Events Key Agency Attributes
2. Chart B: Special Events Work Flow Processing
3. Special Events Permitting and Inspection process description.

The basic idea is to not force them into the typical P&I process and approach. On major events (DNC, etc.), they used a "special events team" more comfortable with subjective decisions and non-traditional service delivery; assigned to handle any small projects from start to finish (no handoffs to other inspectors) whether renovation projects, temporary structures or special events. Work closely with CFD.

### **City of Nashville, TN**

Special events are administered by Special Events Office, coordinating input from Public Works, Fire, Traffic, Health, Parks, et al. Separate criteria for park events vs other locations and applies to events both on public and private property. Submittals focus on site conditions and fire safety. Basic philosophy is to keep it simple, with heavy involvement by the Fire Department.

### **City of Orlando, FL**

Regulation of outdoor and special events involving temporary structures (less than 180 days) is primarily a joint venture between Office of Permitting Services (Building) and the Fire Department (embedded in the Building Department). Permit is required at 225 sq. ft. and special building and fire requirements, i.e. building/site plan, life safety plan, A/E sign and sealed, etc. In many cases, permits can only be issued to Florida licensed contractors. Typical fire inspections and trade inspections by the Building Department are required.

### **City of Tampa, FL**

Major special events (RNC, Super Bowl, etc.) located on public property (parks) or right of way are administered and permitted through the Special Event Division of the Parks and Recreation Department, with input and involvement from Fire, Police, Transportation, Public Works, Solid Waste, Construction Services and others as needed. In all other cases involving private property, the Fire Prevention Bureaus of the Fire Department is the lead agency for the issuance of tent and assembly permits for temporary structures of 100 sq. ft. or greater that are intended to be used for less than 180 days. When those temporary structures are 1,000 sq. ft. or greater, additional building permits and inspections are required and coordinated by a specialized staff team of the Construction Services Division.

### **City of Jacksonville, FL**

Special Events Division oversees special events and Building Department requires temporary structure permit under the following conditions: tent greater than 800 sq. ft., cooking in any size tent, sale of fireworks, and large assembly tents greater than 5,000 sq. ft. and 500 occupants requires plan and inspections to be certified by Florida registered engineer or architect. Several tent permits and over 50 inspections are performed per year. Receiving timely permit documents prior to an event has been a consistent challenge.

### **City of Los Angeles, CA**

Fire, Building and Parks & Recreation Departments are all principally involved in regulating special events based on both local and state codes and regulations. A Building permit is required for tents 200sq ft or greater and a Fire permit is required for tents greater than 450sq ft or larger than 12ft in length or width. Detailed site and building plans are typically required and the City issues in excess of 3,000 permits annually and performs over 6,000 fire inspections annual on these permits.

### **City of Anaheim, CA**

Fire and Rescue Department takes the lead with involvement from Building, Planning, Code Enforcement and Business License. A Fire permit is required for tents 400 sq. ft. or greater and canopies 700 sq. ft. or greater. A Building permit is required for bleachers and no permit is required for stages and platforms. A detailed site plan along with fabric fire retardant certification is typically required. Over 200 permits and corresponding inspections are completed each year.

### **City of San Diego, CA**

Office of Special Events works alongside of Fire-Rescue and Building Departments to administer and regulate special events. California Fire and Building Codes are the primary source for regulations. A permit from Fire-Rescue is required for tents greater than 200sq ft or and canopies greater than 400sq ft. A building permit is typically required for other structures, e.g. bleachers, stages, etc. and other trade permits are required for electrical, HVAC or other installations. Pre-event fire inspections are required on-site Fire Watch personnel may be



required in some instances. The lack of specific guidance from the I-Codes is viewed as one of the biggest challenges in regulating special events and temporary structures.

### **City of Olympia, WA**

Building, Fire and Police Departments are all involved in permitting process based on compliance with most recently adopted version of the IBC/IFC and NFPA 1. Fire permits are required for tents greater than 200 sq. ft., and canopies greater than 400 sq. ft. Building and site plans along with floor plan and material specifications are required. Permits can be issued to show sponsors or promoters and the property owner approval is required on all cases. Some of the biggest challenges are getting the permit applicants to apply early and provide a complete application with all information and details necessary for review.

### **City of Portland, OR**

Fire Marshal's office regulates special events and temporary structures, and assembly permits are required when 500 occupants or more are involved. Temporary structures are allowed for no more than 180 days and Fire permits are required for the following: Tents – 400 sq. ft. or greater and Canopies – 7 sq. ft. or greater. Regulations are based on both state and local Fire Code. A significant number of permits are issued annually and there is typically one fire inspection per permitted temporary tent.

## Part 3

### Best Practice Submittals

#### Participating Respondents

- Clark County, NV
- City of Las Vegas, NV
- City of Denver, CO
- City of Indianapolis, IN
- Mecklenburg County, Charlotte, NC
- City of Nashville, TN
- City of Orlando, FL
- City of Tampa, FL
- City of Jacksonville, FL
- City of Los Angeles, CA
- City of Anaheim, CA
- City of San Diego, CA
- City of Olympia, WA
- City of Portland, OR

#### **3.1. Best Practice Submittal: Clark County, NV Building and Fire Prevention Department**

NOTE: Refer to copy of Clark County Fire Department guideline “PLACES OF ASSEMBLY – Temporary Structures.

1. Name of Jurisdiction: Clark County, NV
  - a. Contact Name & Title: Edward Kaminski, Fire Protection Engineer
  - b. Address: Department of Building & Fire Prevention, 4701 W. Russell Road, Las Vegas, NV 89118
  - c. Phone: (702) 455-7316
  - d. Email: EKaminski@ClarkCountyNV.gov
  - e. Contact Name & Title: Girard Page, Sr., Deputy Chief
  - f. Address: Department of Building & Fire Prevention, 4701 W. Russell Road, Las Vegas, NV 89118
  - g. Phone: (702) 455-7304 (Direct) / (702) 455-7316 (Office)
  - h. Email: gwp@ClarkCountyNV.gov
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.?

*Yes – large crowds with temporary membrane structures, fireworks, and/or pyrotechnics, flammable and combustible liquids, temporary storage and use, flammable gas (LPG storage tanks), and open flames.*

3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?

- a. Building (*Fire Prevention*)
- b. Fire – AB286 – *Medical plans and EMS Response & Command*
- c. Parks and Recreation – *Special Events held on Clark County Property*
- d. Other:

- *Comprehensive Planning Department (Temporary Uses)*
- *Clark County Public Works (Special Event Permit)*
- *Clark County Business License Department*
- *Clark County Public Works (Traffic and Right-of-Way planned encumbrance)*

*When planning a Special Event in un-incorporated Clark County, Nevada the planner Host Organization pursuant to NRS 450B.650 through NRS 450B.700). The Host Organization must have a Business License and/or be a registered charitable organization to conduct a Special Event in unincorporated Clark County and needs to recognize there may be several County Permits required to successfully host the Special Event. Answers to the following list of questions will help guide the Special Event planner through the Clark County Nevada Special Event permitting process. There are several Clark County Departments and Agencies that may have to be involved. Those Departments and Agencies may or may not require County Permits for the Special Event.*

- *Where physically is the Special Event located within our jurisdiction?*
- *Does the Special Event plan include blocking of any Clark County rights-of-way (Streets)?*
- *How many people are planning to be in attendance during the Special Event?*
- *Will there be a need for Temporary Membrane Structures or Tents?*
- *Are there any plans to sell liquor and food during the Special Event?*
- *Does the Special Event Plan include a security and/or medical emergency plan?*
- *Will the Special Event require the presence of Propane or Natural Gas containers to support cooking operations or electrical generators?*
- *What time of the day will the Special Event be taking place?*
- *Is there a need for temporary lighting and electrical generators to support the Special Event?*

- *Will the Special Event staff be driving around in vehicles that require a gasoline or diesel fuels dispensing station to support the ongoing operations?*
- *If special effects are planned what are they (Fog Generators, Flame Effects)?*
- *How will the Fog Generators generate the Fog? (Storage & Use of Liquid Nitrogen, Liquefied Carbon Dioxide, Other Material) , and*
- *Will fireworks and/or pyrotechnics be utilized during the Special Event? (Indoor, Outdoor, or Combination).*

*The physical location of the Special Event within the jurisdiction of unincorporated Clark County is one of the first questions that must be answered. When a Special Event is held in a Clark County park and/or government facility the Department of Clark County Parks and Recreation has to be involved up front during the early stages of planning the Special Event. A Special Event held on a parcel of land has to be zoned and/or approved for Temporary Uses by the Department of Comprehensive Planning. When Temporary Membrane Structure(s) and Tent(s) are used to support the Special Event the Department of Building & Fire Prevention needs to be contacted any may require Permits based on the size and lay-out of the temporary structures.*

*Whenever a Special Event is going to impede a County Right-of-Way the Department of Public Works has to be involved up front during the early stages of planning the Special Event. Large numbers of attendees at Special Events require the involvement of the Las Vegas Metropolitan Police Department’s Special Events Group. Additionally, the Clark County Fire Department – EMS Group must be contacted to review and approve the Medical Plan for the Special Event.*

*The Department of Business License must be involved in the sale or service of any liquor or business activity and the Clark County Health District has to be contacted when food preparation and sales is planned. When Natural Gas, Propane (LPG), Flammable Liquid & Combustible Liquid, Hazardous Materials (Liquefied Nitrogen, Carbon Dioxide) storage and use tanks are needed to support a Special Event, the Department of Building & Fire Prevention must be contacted to evaluate the need for Permits for the safe storage and use of these flammable gases. If pyrotechnics and/or fireworks are planned to be used during the Special Event the Department of Building & Fire Prevention must be contacted for Permit(s).*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)

- Ⓐ IBC/IFC/NFPA 1/NFPA 101 (2009 IFC Effective July 5, 2011 & 2012 IFC Effective July 7, 2014)
- b. State
- c. Local

d. Other \_\_\_\_\_

5. What triggers the regulation of special event involving temporary structures?

- (a) Size and/or type of structure, e.g. 1,000sf tent or membrane structure  
*(The Department of Building & Fire Prevention regulates certain temporary uses. Reference attachments:*
- *“Tent & Canopy Permit Requirements”*
  - *“Temporary Structure – Places of Assembly”*
  - *“Candles and Open Flame”*
  - *“Flame Effects – Fire Performer”*
  - *“Liquefied Petroleum Gas”*
  - *“Hot Work Operations: Non Renewable (6 Months or Less)”*
  - *“Places of Assembly, Facility – Annual Renewable”*
  - *“Fire Prevention & Life Safety Planning for Special Events”*
  - *“Special Event Permit Packet”*
  - *“Temporary Operational Fire Permit”*
  - *“OTC Plan Review – Tents & Other Membrane Structures (Temp – 6 Months or Less)”*
- (b) Occupant use/load, e.g. assembly use with greater than 1000 occupants *(Las Vegas Metropolitan Police Department)*
- (c) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days *(Temporary Events are Defined in the Clark County Building Code as uses lasting less than 180 Days).*
- (d) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc. *There are regulations for “Temporary Outdoor Commercial Events,” “Seasonal Sales,” and “Special Attractions.” Special Events planned on property not already associated with approved commercial assembly event Land Use approval have to submit this application to Comprehensive Planning prior to the event.*
- (e) Other – *Special Events Permit (SEP) from Clark County Public Works. The SEP is required anytime an events activity impacts the normal flow of traffic of any public street or right-of-way within unincorporated Clark County, Nevada. Clark County Parks & Recreation provides a Special Events Permit Packet for events held on Clark County, NV owned and operated real property.*

6. What are permit requirements and procedures? (attach links or documents)

- a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
- b. Building plans detailing structure, wind load anchoring, exiting, etc.
- c. Fire safety specs and certifications for fabric, components, etc.
- d. Plans required to be signed/sealed by architect, engineer or other (if applicable)
- (e) Other – *see attachments for specific information)*

7. Who are special event permits typically issued to?

- a. Show sponsors, producers or promoters
- b. Licensed contractors or subcontractors *(usually LPG gas sub-contractors, temporary membrane structure sub-contractors, temporary power and fuel sub-contractors)*
- c. Property owners *(includes commercial property owners, as well as private land owners)*
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year?

*In calendar year 2013, the Building & Fire Prevention Department (BD-FPB) issued 6,217 Temporary Permits in support of Special Events hosted in unincorporated Clark County. Each Special Event may have multiple BD-FPB Permits. BD-FPB approved 65 Carnivals and Fairs; 18 Specialty Lots (Valentine's Day & Halloween Pumpkin Patches, and Haunted Houses, 149 Fire Works Booths, 3,830 Exhibit & Trade Shows, 275 Temporary Membrane Structures for an estimated total Special Event counts of: 4,337.*

9. What are inspection requirements and procedures? (attach links or documents)

- a. Pre-construction activities
- b. Progress inspections
- c. Final approval and authorization to use *(BD-FPB Plans Checkers review and approve Temporary Event Submittals and the Fire Inspectors conduct field inspections and issue Permits based upon the approved permit submittals)*
- d. Inspection reports required to be signed/sealed by architect, engineer or other *(Structural Calculations & Structural Stability is the sole responsibility of the Event Organizer or Applicant. BD-FPB approval is for compliance with the Fire Code, it is the Applicants responsibility to engage a licensed structural engineer to certify the stability of the structures. These structural reviews are the Applicants responsibility and will not be reviewed by the BD-FPB.*
- e. Other \_\_\_\_\_

10. How many inspections are typically performed in a year?

*In calendar year 2013, the BD-FPB completed in excess of 6,800 inspections at Special Events within the unincorporated Clark County, Nevada. This accounted for approximately 27 Percent of our Fire Inspection workload for 2013. We are currently working to reduce this effort through the implementation of Permit by Inspection in 2014/2015.*

11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
- (a) Online guidelines and forms – *departments with regulatory authority hosts access to and forms on the Clark County website.*
  - (b) Printed handouts and documents – *copies of handouts are available at each department within regulatory authority framework.*
  - c. Process flow charts
  - d. Other \_\_\_\_\_

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*The most successful Special Event Applicants submit for the necessary permits early on into the planning stages of their planned event. This provides for sufficient discussion and information sharing with the Applicant.*

### 3.2 Best Practice submittal: City of Las Vegas, NV

1. Name of Jurisdiction: City of Las Vegas
  - a. Contact Name & Title: David F. Klein, Deputy Fire Marshal, Las Vegas Fire & Rescue
  - b. Address: 333 N Rancho Blvd 5<sup>th</sup> Floor, Las Vegas, NV 89107
  - c. Phone: (702) 229-0336 (office) / (702) 303-0720 (mobile) / (702) 229-6703 (fax)
  - d. Email: dklein@lasvegasnevada.gov
  
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  
3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - a. Building
  - b. Fire
  - c. Parks and Recreation
  - (d) Other – *Our Special Events Group that works under Public Works is typically the lead*
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101

- (b.) State
- (c.) Local
- d. Other

5. What triggers the regulation of special event involving temporary structures?

- (a.) Size and/or type of structure, e.g. 1,000sf tent or membrane structure
- (b.) Occupant use/load, e.g. assembly use with greater than 1000 occupants
- (c.) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
- (d.) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
- (e.) Other – *can be any or all*

6. What are permit requirements and procedures? (attach links or documents)

- a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
- b. Building plans detailing structure, wind load anchoring, exiting, etc.
- c. Fire safety specs and certifications for fabric, components, etc.
- d. Plans required to be signed/sealed by architect, engineer or other
- (e.) Other – *see link: [https://cityoflasvegas.formstack.com/forms/special\\_event](https://cityoflasvegas.formstack.com/forms/special_event)*

7. Who are special event permits typically issued to?

- (a.) Show sponsors, producers or promoters
- (b.) Licensed contractors or subcontractors
- (c.) Property owners
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year? *We issued 200 + in 2012 – all of different levels.*

9. What are inspection requirements and procedures? (attach links or documents)

- (a.) Pre-construction activities
- (b.) Progress inspections
- (c.) Final approval and authorization to use
- (d.) Inspection reports required to be signed/sealed by architect, engineer or other
- e. Other

10. How many inspections are typically performed in a year? *200 +*



11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
  - a. Online guidelines and forms
  - b. Printed handouts and documents
  - c. Process flow charts
  - d. Other – see link: [https://cityoflasvegas.formstack.com/forms/special\\_event](https://cityoflasvegas.formstack.com/forms/special_event)
12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Having a complete picture of what the event is.*

### 3.3 Best Practice Submittal: City of Phoenix, AZ

1. Name of Jurisdiction: City of Phoenix
  - a. Contact Name & Title: Jason Blakley, Program Manager, Planning & Development, Office of Customer Advocacy
  - b. Address: 200 W Washington St, Phoenix, AZ 85003
  - c. Phone: (602)256-3235 / (602) 732-2684 (fax)
  - d. Email: Jason.blakley@phoenix.gov
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - a. Building – *in cooperation with the Fire Department*
  - b. Fire – *in cooperation with the Building Department*
  - c. Parks and Recreation – *only if the event occurs in a public park*
  - d. Other \_\_\_\_\_
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IFC and IBC – *reported that Chapter 17 of the IFC is heavily amended for tents*
  - b. State
  - c. Local

(d) Other – *Amendments to be provided*

5. What triggers the regulation of special event involving temporary structures?

- a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
- b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
- c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
- d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
- (e) Other – *Temporary structures with solid side (walls) have not been anticipated. The City of Phoenix does not get many temporary structures. Bleachers with a height exceeding 30 inches above grade require a permit.*

6. What are permit requirements and procedures? (attach links or documents)

- (a) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc. – *Site plans are required for large tents.*
- (b) Building plans detailing structure, wind load anchoring, exiting, etc. – *The Fire Department has a guideline for anchoring tents.*
- (c) Fire safety specs and certifications for fabric, components, etc. – *Flame certificates are not required.*
- (d) Plans required to be signed/sealed by architect, engineer or other (if applicable) – *Sealed plans have only been required for bleachers and grandstands.*
- e. Other \_\_\_\_\_

7. Who are special event permits typically issued to?

- (a) Show sponsors, producers or promoters – *Mainly issued to the show sponsor.*
- (b) Licensed contractors or subcontractors (if applicable). *Permits are issued to the contractors and subcontractors for generators and electric feeds.*
- c. Property owners
- (d) Other – *The permit holders can vary.*

8. How many permits are typically issued in a year? *To be provided*

9. What are inspection requirements and procedures? (attach links or documents)

- (a) Pre-construction activities
- (b) Progress inspections
- (c) Final approval and authorization to use
- (d) Inspection reports required to be signed/sealed by architect, engineer or other (*not typical*)

e. Other \_\_\_\_\_

10. How many inspections are typically performed in a year? *To be provided*

11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)

- a. Online guidelines and forms
- b. Printed handouts and documents
- c. Process flow charts
- d. Other \_\_\_\_\_

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Challenges:*

*A recent challenge is the use of shipping containers as temporary or permanent buildings.*

*Best Practices:*

*Phoenix recommends expanding the requirements of the IBC and IFC so that there is more direction in the enforcement of temporary structures.*

### **3.4 Best Practice Submittal; City of Denver, CO Building Department**

NOTE: Refer to Appendix for additional supporting documentation

1. Name of Jurisdiction: City and County of Denver

- a. Contact Name & Title: Alexander H. Abel, Plans Review Engineer
- b. Address: 201 W Colfax Ave., Dept. 205, Denver, CO 80202
- c. Phone: (720) 865-2812
- d. Email: Alexander.abel@denvergov.org

2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*

3. If so, which departments are involved in permitting and inspection of special events?

- a. Building Department
- b. Fire Department and Fire Prevention Review

- c. Parks and Recreation
- d. Other \_\_\_\_\_

If multiple agencies are involved, who is the lead agency on the permitting and inspections of special events? *Fire Department*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - Ⓓ Other: *The current Denver Building Code = the 2009 IBC and the 2011 Denver Building Code Amendments to the 2009 I-Codes*
  
5. What triggers the regulation of special event involving temporary structures?
  - Ⓐ *Any special occupancy, temporary occupancy, 180 days or less, of an existing building other than its occupancy/use as reflected in the Certificate of Occupancy*
  - Ⓑ *Size for temporary membrane structures – Fire Prevention and Fire Department are the review and permit group for these – Building only provides assistance in the review*
  - Ⓒ *Duration of event is the limit for “Special Event” - 180 days – beyond that time a full on review for New Certificate of Occupancy is required.*
  
6. What are permit requirements and procedures? (attach links or documents)
  - Ⓐ *See attached policies*
  
7. Who are special event permits typically issued to?
  - Ⓐ *Licensed contractors or subcontractors – in the case of temporary structures erected for Special Events or with construction associated with the Special Event*
  - Ⓑ *Property owners – in the case of temporary Special Event occupancy of existing structures with Certificate of Occupancy and no construction associated with the Special Event*
  
8. How many permits are typically issued in a year? *60-100*
  
9. What are inspection requirements and procedures? (attach links or documents)
  - Ⓐ *Pre-construction activities – Not typical but subject to request by the reviewers and noted on the Special Event Permits*

- (b) Progress inspections
- (c) Final approval and authorization to use
- (d) Inspection reports required to be signed/sealed by architect, engineer or other – *on occasion depending on the scope of construction work.*
- (e) Other : *For many event onsite City Fire Personnel are required during operation – e.g. Haunted Houses, Large Membrane Structures with Assembly occupancies*

10. How many inspections are typically performed in a year? *Data not available.*

11. How do you convey the permitting and inspection process to customers? *Through policies on our website and meetings with the applicants.*

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Challenges:*

*Actually getting the event organizers and contractors to come in and get permits before they are cited and shut down for operating without a permit. There appears to be an attitude in the Special Event industry that if you can get away with it, do it. Unfortunately, we do not have staff to “patrol” for violations.*

*Best practices:*

*We have dedicated historical files on pre-approved stages/platforms/bleachers which are renewed each season with submission of letter of inspection from registered structural engineers. Additionally, we have a dedicated team of reviewers and inspectors who are our go-to group for Special Events to maintain our familiarity and institutional memory regarding Special Event requirements and past practices.*

### **3.4.1. Best Practice Submittal; City of Denver, CO Fire Department & Fire Prevention Review Division**

1. Name of Jurisdiction: City and County of Denver

- a. Contact Name & Title: Brad Emerick, Fire Protection Engineer
- b. Address: 201 W Colfax Ave., Dept. 207, Denver, CO 80202
- c. Phone: (720) 865-2964
- d. Email: brad.emerick@denvergov.org

2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
3. If so, which departments are involved in permitting and inspection of special events?

*The Fire Prevention Division (FPD) of the Denver Fire Department (DFD) reviews for compliance to the IFC (as amended) and issues Special Events permits pending review/release/permit/inspection of some or all (depending on the nature of the event) of the following entities:*

- *Building Department – including all or some of the following disciplines: architectural, structural, electrical, mechanical, and plumbing*
- *Parks and Recreation – if a public park is used*
- *Excise and License*
- *Zoning*
- *Public Works (namely Traffic)*
- *Police via the Office of Emergency Management (OEM)*

If multiple agencies are involved, who is the lead agency on the permitting and inspections of special events? *Fire Prevention Division*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)

- a. Codes – *IBC (as amended) / IFC (as amended) / NFPA 1 and NFPA 101 (as needed)*
- b. State – *Yes, via Excise and License*  
Local – *Yes, as identified in this document*
- c. Other – *The Denver Municipal Code (see: [municode.com](http://municode.com)) contains the Zoning Ordinances*

5. What triggers the regulation of special events involving temporary structures?

- a. *The use of any temporary membrane structure for something other than recreational camping purposes larger than 200 sf for tents and 400 sf for canopies for less than 180 days. Large (over 1 story or 55' in height or over 8,500 sf in area) or unusual temporary membrane structures are reviewed by the Structural Review Engineers in the Building Department.*
- b. *Temporary structures not meeting the definition of membrane structure are required to meet the requirements of the IBC as amended; e.g., stages, platforms, bleachers, etc.*
- c. *Duration of temporary special events is limit to 180 days – beyond that time a full review under all of the applicable I-Codes for New Certificate of Occupancy is required.*

6. What are permit requirements and procedures? (attach links or documents)

(a.) *See attached policy*

7. Who are special event permits typically issued to?

*Good question...for temporary membrane structures, typically licensed contractors if significant or complicated construction is involved, but to event managers or tent rental companies if not.*

8. How many permits are typically issued in a year? 700

9. What are inspection requirements and procedures?

a. Pre-construction activities?

b. Progress inspections?

c. Final approval and authorization to use?

(d.) Inspection reports required to be signed/sealed by architect, engineer or other – *on occasion depending on the scope of construction work*

(e.) Other : *For many event onsite City Fire Personnel are required during operation – e.g. Haunted Houses, Large Membrane Structures with Assembly occupancies*

10. How do you convey the permitting and inspection process to customers? *Through policies and meetings with the applicants.*

11. How many inspections are typically performed in a year? 200

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

- *Getting the event organizers and contractors to come in and get permits before the event.*
- *The attitude in the Special Event industry appears to be “better to ask forgiveness than permission.”*
- *FPD uses historical files on pre-approved temporary structures.*
- *Because of the short timelines typically imposed by applicants (because they apply so close to the event), private-sector structural engineers are often required to be utilized to review complicated structures, perform the subsequent structural observation, and submit stamped/signed reports attesting to the compliance of the structure.*
- *FPD has a team dedicated to these events whose familiarity and institutional memory allows accurate field judgments on items, features, components, use, etc. not included in review submittals.*

### 3.5 Best Practice Submittal: Indianapolis, IN Department of Code Enforcement

Note: Refer to Appendix for additional supporting documentation

1. Name of Jurisdiction: City of Indianapolis – Department of Code Enforcement
  - a. Contact Name & Title: Brandon Dickinson, Administrator – Bureau of License and Permit Services
  - b. Address: 1200 Madison Ave, Ste 100 Indianapolis, IN 46225
  - c. Phone: (317) 327-5163
  - d. Email: brandon.dickinson@indy.gov
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
3. If so, which departments are involved in permitting and inspection of special events?
  - a. Building (*Department of Code Enforcement*)
  - b. Fire
  - c. Parks and Recreation
  - d. Other – *Police, Excise Police, Department of Public Works, State Fire Marshall*

If multiple agencies are involved, who is the lead agency on the permitting and inspections of special events? *Department of Code Enforcement*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - d. Other – *The building and fire codes enforced are adopted by the State of Indiana. (<http://www.in.gov/dhs/2490.htm>) The City of Indianapolis ordinances dictate when a special event permit is required for the event (Ch. 986), or when a permit is required for the installation of a temporary structure (Ch. 536). (<http://library.municode.com/index.aspx?clientId=12016&stateId=14&stateName=Indiana>)*
5. What triggers the regulation of special event involving temporary structures?
  - a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
  - b. Occupant use/load, e.g. assembly use with greater than 1000 occupants



- (c.) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
- d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
- (e.) Other: *Information on thresholds can be found at this link:*  
<http://www.indy.gov/eGov/City/DCE/Permits/Tents/Pages/Tem.aspx>

6. What are permit requirements and procedures? (attach links or documents)

- (a.) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
- (b.) Building plans detailing structure, wind load anchoring, exiting, etc.
- (c.) Fire safety specs and certifications for fabric, components, etc.
- (d.) Plans required to be signed/sealed by architect, engineer or other – (Depends)
- (e.) Other: *Insurance certificate, clean-up plan, emergency plan, medical plan*

*Information on submittal requirements can be found here:*

<http://www.indy.gov/eGov/City/DCE/Permits/Tents/Pages/Requirements.aspx>

7. Who are special event permits typically issued to?

- (a.) Show sponsors, producers or promoters
- (b.) Licensed contractors or subcontractors (*building permits*)
- c. Property owners
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year?

*700 – Important to note that a special event permit, and a building permit for a temporary structure are separate. Sometimes a special event permit is needed, but not a building permit. Sometimes a building permit is needed, but not a special event permit.*

9. How do you convey the permitting and inspection process to customers? Do you have any process flow charts or other graphic tools that convey the process to customers you would share with the MJC?

*We have regular meetings with our community to convey expectations and requirements and get feedback from community and industry stakeholders. For larger events, we will hold meetings to discuss the details of the event and relay all permitting requirements.*

*In addition, information regarding the process and requirements can be found on our website.*

*Special Events:*

<http://www.indy.gov/eGov/City/DCE/Permits/Special/Pages/home.aspx>

*Temporary Structures:*

<http://www.indy.gov/eGov/City/DCE/Permits/Tents/Pages/Tem.aspx>

10. What are inspection requirements and procedures? (attach links or documents)

- a. Pre-construction activities
- b. Progress inspections
- c. Final approval and authorization to use
- d. Inspection reports required to be signed/sealed by architect, engineer or other
- e. Other (*See Attached*)

11. How many inspections are typically performed in a year?

*In 2013, 70 structural permits for tents, 26 structural permits for stages. This doesn't include any events that had temp structures under an Limited Duration Licenses (part of a large Civic-Sponsored Event). This also doesn't include any of the random audits I performed that only required Notifications.*

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Challenges:*

- *Last minute requests - Many times, new temporary structures are proposed at the last minute (or the plans change at the last minute). This makes it difficult to get information needed to review and permit the installation of temporary structures.*
- *Getting sufficient information on temporary structures – Vendors who install temporary structures are not subject to the same scrutiny in other jurisdictions and don't have the necessary documentation to provide for the installation of their structures.*
- *Out of town event organizers/vendors are not familiar with the process or requirements.*
- *Many events happen after normal business hours and/or on weekends.*
- *Multiple sections and departments involved with the regulation of a special event.*

*Best Practices:*

- *Engage your community to gain feedback and inform them on process changes as they are coming.*
- *Provide as much information on your process as possible (on-line is preferred).*
- *Collaborate permitting and inspection with various departments involved to streamline process and create consistency.*

### 3.6 Best Practice Submittal: Mecklenburg County, NC LUESA – Code Enforcement

Note: Refer to Appendix for additional supporting documentation

1. Name of Jurisdiction: Mecklenburg County Code Enforcement
  - a. Contact Name & Title: James N. Bartl, AIA, Director of Code Enforcement
  - b. Address: 700 N. Tryon St, Charlotte, NC 28202
  - c. Phone: (704) 336-3827
  - d. Email: james.bartl@mecklenburgcountync.gov
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
3. If so, which departments are involved in permitting and inspection of special events?
  - (a.) Building
  - (b.) Fire
  - c. Parks and Recreation
  - d. Other \_\_\_\_\_

If multiple agencies are involved, who is the lead agency on the permitting and inspections of special events? *The local fire marshal (either Charlotte Fire or the Mecklenburg County Fire Marshal, depending on the location)*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - (b.) State (*NC State Building Code, based on the 2009 IBC family of codes and the 2011 NEC, with North Carolina amendments*)
  - (c.) Local (*fire ordinances*)
5. What triggers the regulation of special event involving temporary structures?
  - (a.) Size and/or type of structure, e.g. 1,000sf tent or membrane structure ( > 400 sq. ft.)
  - (b.) Occupant use/load, e.g. assembly use with greater than 1000 occupants ( > 50 occupants)
  - (c.) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days  
Three tracks:

- *Track 1 - less than 7 days*
  - *Track 2 - 7 to 179 days*
  - *Track 3 - 180 days or longer*
- (d.) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc. (*same requirements, whether private property or public ROW*)
- e. Other \_\_\_\_\_

6. What are permit requirements and procedures?

- a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
- b. Building plans detailing structure, wind load anchoring, exiting, etc.
- c. Fire safety specs and certifications for fabric, components, etc.
- d. Plans required to be signed/sealed by architect, engineer or other
- (e.) Other – *As described in attachments noted in item 10.*

7. Who are special event permits typically issued to? Owner representative

- a. Show sponsors, producers or promoters
- (b.) Licensed contractors or subcontractors; *when scope of work requires NC licensed contractor performing EMP work.*
- c. Property owners
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year? *N/A*

9. What are inspection requirements and procedures? (attach links or documents)

*See the attached Special Events Work Flow Processing Diagram and text description. This varies by permitting track, with track 1,3 & 4 all requiring prelim meetings and track 2 requiring a similar meeting with CFD/MCFM and permitting personnel. Those meetings also confirm what inspections will be required as well.*

- a. Pre-construction activities
- (b.) Progress inspections; *Fire Marshal always takes the point and calls in other BEMP resources as necessary.*
- (c.) Final approval and authorization to use; *by Fire Marshal*
- (d.) Inspection reports required to be signed/sealed by architect, engineer or other – *only if installation deviates from manufacturers recommended installation procedure.*
- e. Other \_\_\_\_\_

10. How many inspections are typically performed in a year? *N/A*

11. How do you convey the permitting and inspection process to customers? Do you have any process flow charts or other graphic tools that convey the process to customers you would share with the MJC?

*Attached find:*

- *Special Events Work Flow Processing Diagram*
- *Special Events Work Flow text description*
- *Charlotte Fire Tent Guidelines and Permitting Requirements*

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Challenges:*

*Customer awareness of requirements. The most successful projects know to look for this, connect with us early on, are very transparent in describing the project, and work with us on their schedule so we can check the work in advance of the event starting. The least successful projects end up dealing with it as an 11<sup>th</sup> hour crisis.*

*Best Practices:*

*The process described on the attached flow chart works very well for Charlotte Fire, The Mecklenburg County Fire Marshal and Mecklenburg County Code Enforcement.*

### **3.7 Best Practice Submittal:**

#### **Nashville & Davidson County, TN**

#### **Special Events Office of Public Works Department**

1. Name of Jurisdiction: Metropolitan Nashville & Davidson County

- a. Contact Name & Title: Terry Cobb, Director
- b. Address: \_\_\_\_\_
- c. Phone: 615-862-6549
- d. Email: terry.cobb@nashville.gov

2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.?

*Yes, we have a requirement for a 'Special Events Permit' handled primarily by our Special Events Office housed in our Public Works Department. They coordinate the applications with all the departments – Public Works, Police, Fire, Traffic & Parking, Parks, Health,*

*Fire, etc. The Codes Department (Building Codes) isn't all that involved as most temp. stages, grandstands, etc. are considered as equipment that needs to be set up in accordance with manufacturer's installation instructions and operating instructions. Most of the needed electrical infrastructure already exists in the areas most used for such events. Most events hosted on public property and public buildings are largely handled by the Nashville Fire Marshal's Office, including tent permits, propane permits, etc.*

### *Film and Special Events*

*The Office of Film and Special Events oversees the coordination and permitting process for all filming, special events, parades and street banners in the Nashville & Davidson County area. Events that require street closures or the involvement of Metro Government Departments require specific permits.*

*Special Event & Parade Permits – Gordon Richard*

*Phone: (615) 862-8597*

*Fax: (615) 880-3257*

*Email: [gordon.richard@nashville.gov](mailto:gordon.richard@nashville.gov)*

*<http://www.nashville.gov/Public-Works/Permits/Film-Special-Events-Permits.aspx>*

*If the Special Event is to be held entirely within a Metro Park, application process is handled by the Department of Parks & Recreation:*

### *Special Events in Metro Parks*

*Thank you for your interest in hosting an event at a Metro Park. There are many beautiful locations to hold special events in Metro Nashville Parks. These can be a wide range of things that include but are not limited to weddings, charity runs or walks, concerts, or cultural events. We are happy to work with you to discuss locations and go over rules and regulations so that you can have a great event in one of the parks.*

*Please note that some events will require Metro Parks Board. These events include those requesting fundraising, amplification, or the sales/service of alcohol.*

*Metro Park Board Meetings are scheduled for the first Tuesday of each month. Typically each meeting is held in the Recreation Building Conference Room, which is located at 2565 Park Plaza, Nashville TN 37203. Please refer the Metro Parks website for exact times and locations. <http://www.nashville.gov/Parks-and-Recreation/About-Us/Park-Board.aspx>*

*Filling out a special events application is required to have a special event in Metro Parks. Below are links to our special events application and a listing of our special event fees. To check the availability of a desired event date, or to ask general first time special event planning questions, please email: [specialevents-metroparks@nashville.gov](mailto:specialevents-metroparks@nashville.gov)*

*All completed special event applications should be emailed to our Special Events Coordinator, Lisa King. [lisa.king@nashville.gov](mailto:lisa.king@nashville.gov) or call 615-862-8400.*

<http://www.nashville.gov/Parks-and-Recreation/Permits-Rentals-and-Reservations/Special-Events.aspx>

3. If so, which departments are involved in permitting and inspection of special events? *Special Events Office. See above.*
- (a) Building – *On a very limited basis. We have little to do with temporary tents, etc., but get involved if actual construction of a building or structure is involved – or if electrical infrastructure is being installed.*
  - (b) Fire
  - (c) Parks and Recreation
  - (d) Other: *Police Department for security, and crowd and traffic control  
Public Works for Street Closure Permits  
Metro Beer Board for Beer Permits*

If multiple agencies are involved, who is the lead agency on the permitting and inspections of special events? *Special Events Office and Fire Marshal*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)

- (a) IBC/IFC/NFPA 1/NFPA 101 (*Fire Department – IFC and local fire regs*)
  - b. State
  - c. Local
  - d. Other \_\_\_\_\_

5. What triggers the regulation of special event involving temporary structures?

- (a) Size and/or type of structure, e.g. 1,000sf tent or membrane structure (*Temporary tents or membrane structures used for less than 180 days, according to the IBC, must comply with the IFC.*)
- b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
- c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
- (d) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc. (*Public Property Use get more of a cookie cutter approach and there seems to be some Special Event on Public Property every few weeks. Private Property events receive a little more scrutiny as less infrastructure tends to be in place.*)
- e. Other \_\_\_\_\_

6. What are permit requirements and procedures? (attach links or documents)

- (a) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
- b. Building plans detailing structure, wind load anchoring, exiting, etc.
- (c) Fire safety specs and certifications for fabric, components, etc.

- d. Plans required to be signed/sealed by architect, engineer or other
- e. Other \_\_\_\_\_

7. Who are special event permits typically issued to?

- a. Show sponsors, producers or promoters (*The tent permits are issued often to the company providing and erecting each of the tents.*)
- b. Licensed contractors or subcontractors
- c. Property owners (*Sometimes*)
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year?

*The Special Events Office issues approximately 165 Permits per year. The Metro Parks Department issues an additional 400, or so, special events permits with take place completely within one of our parks.*

9. What are inspection requirements and procedures? (attach links or documents)

- a. Pre-construction activities
- b. Progress inspections
- c. Final approval and authorization to use
- d. Inspection reports required to be signed/sealed by architect, engineer or other
- e. Other \_\_\_\_\_

10. How do you convey the permitting and inspection process to customers?

*Do you have any process flow charts or other graphic tools that convey the process to customers you would share with the MJC? Contact Special Events Office and/or Metro Parks for the details. The process description is generally available via internet site. A Special Events Committee assembles regularly to discuss/review permit applications, renewals, etc.*

11. How many inspections are typically performed in a year? N/A

12. What are challenges and best practice in regulating special events involving temporary structures?

*Our processes seem to work for us. The Codes Department doesn't seem to have a significant role based upon the exemptions contained in the IBC. I recommend that we demit to the Fire Marshal. The event organizers must furnish insurance, operating agreements, hold harmless agreements etc. Keep it simple.*



### 3.8 Best Practice Submittal: City of Orlando, FL

1. Name of Jurisdiction: City of Orlando
  - a. Contact Name & Title: Bob Pike, Building Official
  - b. Address: 400 S. Orange Avenue, Orlando, FL 32801
  - c. Phone: (407) 246-3306
  - d. Email: bob.pike@cityoforlando.net
  
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  
3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - a. Building
  - b. Fire
  - c. Parks and Recreation
  - d. Other \_\_\_\_\_
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - d. Other \_\_\_\_\_
  
5. What triggers the regulation of special event involving temporary structures?
  - a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
  - b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
  - c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
  - d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
  - e. Other \_\_\_\_\_
  
6. What are permit requirements and procedures? (attach links or documents)
  - a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.

- b. Building plans detailing structure, wind load anchoring, exiting, etc.
- c. Fire safety specs and certifications for fabric, components, etc.
- d. Plans required to be signed/sealed by architect, engineer or other (if applicable)
- e. Other \_\_\_\_\_

7. Who are special event permits typically issued to?

- a. Show sponsors, producers or promoters
- b. Licensed contractors or subcontractors (if applicable)
- c. Property owners
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year? 20

9. What are inspection requirements and procedures? (attach links or documents)

- a. Pre-construction activities
- b. Progress inspections
- c. Final approval and authorization to use
- d. Inspection reports required to be signed/sealed by architect, engineer or other
- e. Other \_\_\_\_\_

10. How many inspections are typically performed in a year? 20

11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)

- a. Online guidelines and forms
- b. Printed handouts and documents
- c. Process flow charts
- d. Other \_\_\_\_\_

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

- *Large structures (12,000 sq. ft. >) require signed/sealed drawings*
- *The biggest challenge is getting the contractor to call in the inspections before the event is scheduled.*
- *Life safety features are difficult to ensure for large structures*

### 3.8.1 Best Practice Submittal: City of Orlando, FL

1. Name of Jurisdiction: City of Orlando
  - a. Contact Name & Title: Jack Richardson, Fire Protection Engineer
  - b. Address: 400 S. Orange Avenue, Orlando, FL 32801
  - c. Phone: (407) 246-3150
  - d. Email: jack.richardson@cityoforlando.net
  
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  
3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - a. Building
  - b. Fire
  - c. Parks and Recreation
  - d. Other \_\_\_\_\_
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - d. Other \_\_\_\_\_
  
5. What triggers the regulation of special event involving temporary structures?
  - a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
  - b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
  - c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
  - d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
  - e. Other \_\_\_\_\_
  
6. What are permit requirements and procedures? (attach links or documents)
  - a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
  - b. Building plans detailing structure, wind load anchoring, exiting, etc.

- c. Fire safety specs and certifications for fabric, components, etc.
- d. Plans required to be signed/sealed by architect, engineer or other (if applicable)
- e. Other \_\_\_\_\_

7. Who are special event permits typically issued to?

- a. Show sponsors, producers or promoters
- b. Licensed contractors or subcontractors
- c. Property owners
- d. Other \_\_\_\_\_

8. How many permits are typically issued in a year?  $\approx 20$

9. What are inspection requirements and procedures? (attach links or documents)

- a. Pre-construction activities
- b. Progress inspections
- c. Final approval and authorization to use
- d. Inspection reports required to be signed/sealed by architect, engineer or other
- e. Other \_\_\_\_\_

10. How many inspections are typically performed in a year?  $\approx 20$

11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)

- a. Online guidelines and forms
- b. Printed handouts and documents
- c. Process flow charts
- d. Other \_\_\_\_\_

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Large structures (12,000 sq. ft. >) require:*

- *Design professionals, signed/sealed plans, and fire watch, if applicable.*

*Large enclosed tents structures (12,000 sq. ft. >) require:*

- *Various life safety code features that are difficult or impossible to implement on a temporary basis (i.e., emergency lighting, fire alarm, fire sprinklers, life safety plan).*

### 3.9 Best Practice Submittal: City of Tampa, FL

1. Name of Jurisdiction: City of Tampa
  - a. Contact Name & Title: John Barrios, Building Official
  - b. Address: 1400 N. Boulevard, Tampa, FL 33607
  - c. Phone: 813-274-3100
  - d. Email: john.barrios@tampagov.net
  
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  
3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - (a.) Building – *Yes, Construction Services (Building Department) is involved when temporary special events involve tents of 1,000sf or larger*
  - (b.) Fire – *Yes, Fire department takes the lead on temporary special events involving tents of 100sf or larger, stages and/or bleachers located on private property and of a duration less than 180 days*
  - (c.) Parks and Recreation – *Yes, P&R department takes the lead on any special event located either on City property (parks, public buildings, etc.) or on City right of way streets*
  - (d.) Other – *Police, Transportation, Public Works are involved in larger special events*
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - (b.) State – *Florida Fire Prevention Code (based on NFPA 1 and 101) and Florida Building Code (based on I-codes)*
  - (c.) Local - *Zoning*
  - d. Other \_\_\_\_\_
  
5. What triggers the regulation of special event involving temporary structures?
  - (a.) Size and/or type of structure, e.g. 1,000sf tent or membrane structure  
*Tents, stages or bleachers greater than 100sf must have Tent permit issued by Fire Department. Tents greater than 1,000sf must also have building permit issued by Construction Services*

- (b) Occupant use/load, e.g. assembly use with greater than 1000 occupants

*Any special event with occupancy greater than 50 occupants is considered assembly and must have an Assembly permit issued by Fire department. When the special event involves a temporary tent of 5,000sf or greater with an occupant load of 500 or greater, building plans must be signed and sealed by a Florida registered architect or engineer.*

- (c) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days

*Special events of a duration of less than 180 days are considered temporary*

- (d) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.

*Special events involving temporary structures or temporary use of existing buildings located on private or public property are regulated in the manner outlined above.*

- e. Other \_\_\_\_\_

6. What are permit requirements and procedures? (attach links or documents)

- (a) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc. – *basic site plans showing general layout, separation and general egress required for all tents by Fire. Detailed site plans illustrating layout, circulation, parking, accessibility, sanitation, etc. required for special events involving temporary structures of 1,000sf or more.*

- (b) Building plans detailing structure, wind load anchoring, exiting, etc.- *detailed building plans specifying structural components, wind load anchoring, means of egress, general fire safety, special fire protection for cooking equipment, electrical distribution, etc. is required for special events involving temporary structures of 5,000sf and occupant load of 500 occupants or greater.*

- (c) Fire safety specs and certifications for fabric, components, etc.- *fire retardant fabric certifications required for all tents. Fire extinguishers required as well.*

- (d) Plans required to be signed/sealed by architect, engineer or other – *temporary structures of 5,000sf and 500 occupants or more*

- e. Other \_\_\_\_\_

7. Who are special event permits typically issued to?

- (a) Show sponsors, producers or promoters

- (b) Licensed contractors or subcontractors

- (c) Property owners

- (d) Other – *all of the above*

8. How many permits are typically issued in a year? *Approx. 150 tent permits and 30 large special events involving large temporary structures*
9. What are inspection requirements and procedures? (attach links or documents)
- (a.) Pre-construction activities – *limited to large special events*
  - (b.) Progress inspections – *limited to larger special events*
  - (c.) Final approval and authorization to use – *final approval by Fire department required for all tents and final inspection approval by Construction Services required for large temporary structures*
  - (d.) Inspection reports required to be signed/sealed by architect, engineer or other – *required on a case by case basis based on unique structural conditions*
  - e. Other \_\_\_\_\_
10. How many inspections are typically performed in a year? *Approx. 200*
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
- (a.) Online guidelines and forms
  - (b.) Printed handouts and documents
  - (c.) Process flow charts
  - (d.) Other – *all of the above, see attached guidelines*

12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*We find early pre-application meetings and discussions to be very helpful along with progress meetings with appropriate parties and staff.*

*It is sometimes challenging dealing with vendors who are neither design professionals or contractors, as they are not accustomed to dealing with cods, permits and inspections by local governments*

*The national and state Fire and Building Codes do not adequately address the use and regulation of special events involving temporary structures, stages and bleachers.*

### **3.10 Best Practice Submittal: City of Jacksonville, FL**

1. Name of Jurisdiction: City of Jacksonville
- a. Contact Name & Title: James Schock

- b. Address: 214 N Hogan St, Jacksonville, FL 32202
  - c. Phone: (904) 255-8508
  - d. Email: schock@coj.net
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
    - a. Building
    - b. Fire
    - c. Parks and Recreation
    - d. Other – *Building does structure permitting and Special Events Division organizes the event.*
  4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
    - a. IBC/IFC/NFPA 1/NFPA 101
    - b. State – Florida Building Code
    - c. Local
    - d. Other \_\_\_\_\_
  5. What triggers the regulation of special event involving temporary structures?
    - a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
    - b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
    - c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
    - d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
    - e. Other – *We permit any tent over 800 sq. ft. or has cooking under it or is for sale of fireworks. Tent used for assembly purposes require a final inspection to include ADA. If the tent is a large assembly with bleachers we do inspections of the bleachers, as well and require a special inspection report if the assembly is over 5,000 sq. ft. and 500 occupants.*
  6. What are permit requirements and procedures? (attach links or documents)
    - a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
    - b. Building plans detailing structure, wind load anchoring, exiting, etc.



- (c.) Fire safety specs and certifications for fabric, components, etc.
  - (d.) Plans required to be signed/sealed by architect, engineer or other (if applicable)
  - (e.) Other – *all of the above*
7. Who are special event permits typically issued to?
- (a.) Show sponsors, producers or promoters
  - (b.) Licensed contractors or subcontractors (*if applicable*)
  - (c.) Property owners
  - (d.) Other – “B” for large assemblies / “A” and “C” for small tent sales, etc.
8. How many permits are typically issued in a year? *Two large assemblies; several small tent permits*
9. What are inspection requirements and procedures? (attach links or documents)
- a. Pre-construction activities
  - b. Progress inspections
  - (c.) Final approval and authorization to use
  - (d.) Inspection reports required to be signed/sealed by architect, engineer or other
  - (e.) Other – “D” for large assemblies / “C” for everything else
10. How many inspections are typically performed in a year? *Approximately 50*
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
- (a.) Online guidelines and forms
  - b. Printed handouts and documents
  - c. Process flow charts
  - d. Other \_\_\_\_\_
12. What are challenges and best practice recommendations in regulating special events involving temporary structures?
- Getting timely submissions for review and approval*

### **3.11 Best Practice Submittal: City of Los Angeles, CA**

1. Name of Jurisdiction: City of Los Angeles
- a. Contact Name & Title: Scott Miller, Fire Captain

- b. Address: 6262 Van Nuys Bl, Van Nuys CA 91401
  - c. Phone: (818) 778-4939
  - d. Email: Scott.L.Miller@lacity.org
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
    - (a.) Building
    - (b.) Fire
    - (c.) Parks and Recreation
    - (d.) Other – *Planning/Street Services. No lead; specify in conditions of permit any needs for other approvals.*
  4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
    - a. IBC/IFC/NFPA 1/NFPA 101
    - (b.) State
    - (c.) Local
    - (d.) Other – CFC/CBC – LAFC – LABC
  5. What triggers the regulation of special event involving temporary structures?
    - (a.) Size and/or type of structure, e.g. 1,000sf tent or membrane structure (*200' building/400 fire*)
    - (b.) Occupant use/load, e.g. assembly use with greater than 1000 occupants
    - (c.) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
    - (d.) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
    - (e.) Other – *All of the above*
  6. What are permit requirements and procedures? (attach links or documents)
    - (a.) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
    - (b.) Building plans detailing structure, wind load anchoring, exiting, etc.
    - (c.) Fire safety specs and certifications for fabric, components, etc.
    - (d.) Plans required to be signed/sealed by architect, engineer or other (*sometimes*)
    - (e.) Other – *All paper for fire – LADBS.ORG*

7. Who are special event permits typically issued to?
  - a. Show sponsors, producers or promoters
  - b. Licensed contractors or subcontractors
  - c. Property owners
  - d. Other \_\_\_\_\_
  
8. How many permits are typically issued in a year? *3,000*
  
9. What are inspection requirements and procedures? (attach links or documents)
  - a. Pre-construction activities
  - b. Progress inspections
  - c. Final approval and authorization to use
  - d. Inspection reports required to be signed/sealed by architect, engineer or other
  - e. Other \_\_\_\_\_
  
10. How many inspections are typically performed in a year? *6,000*
  
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
  - a. Online guidelines and forms (*from Building Department*)
  - b. Printed handouts and documents (*Fire Department*)
  - c. Process flow charts
  - d. Other \_\_\_\_\_
  
12. What are challenges and best practice recommendations in regulating special events involving temporary structures? *N/A*

### **3.12 Best Practice Submittal: City of Anaheim, CA**

1. Name of Jurisdiction: Anaheim Fire & Rescue
  - a. Contact Name & Title: Desiree Johannessen, Fire Inspector II
  - b. Address: 201 S. Anaheim Blvd # 300, Anaheim, CA 92805
  - c. Phone: (714) 765-4073
  - d. Email: djohannessen@anaheim.net

2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.?

*Yes to tent. Bleachers are handled by Building Dept.; no one looks at stages or platforms.*

3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?

- a. Building
- b. Fire
- c. Parks and Recreation
- d. Other – *Planning Dept, Code Enforcement & Business License*

4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)

- a. IBC/IFC/NFPA 1/NFPA 101
- b. State (*2013 Code CA Fire*)
- c. Local
- d. Other – *Specifications adopted (see attached)*

5. What triggers the regulation of special event involving temporary structures?

- a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
- b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
- c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
- d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
- e. Other – *Tent exceeding 400 sq. ft. Exception: no permit required for 700 sq. ft. tent – no sidewalls 12 feet from building.*

6. What are permit requirements and procedures? (attach links or documents)

- a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
- b. Building plans detailing structure, wind load anchoring, exiting, etc.
- c. Fire safety specs and certifications for fabric, components, etc.
- d. Plans required to be signed/sealed by architect, engineer or other
- e. Other \_\_\_\_\_

7. Who are special event permits typically issued to?

- a. Show sponsors, producers or promoters
  - b. Licensed contractors or subcontractors
  - c. Property owners
  - d. Other \_\_\_\_\_
8. How many permits are typically issued in a year? 223 (2013)
9. What are inspection requirements and procedures? (attach links or documents)
- a. Pre-construction activities
  - b. Progress inspections
  - c. Final approval and authorization to use
  - d. Inspection reports required to be signed/sealed by architect, engineer or other
  - e. Other – *Issue permits & follow-up inspection prior to event.*
10. How many inspections are typically performed in a year? *An inspection for almost every event.*
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
- a. Online guidelines and forms
  - b. Printed handouts and documents
  - c. Process flow charts
  - d. Other – *I email to facilities & customers*
12. What are challenges and best practice recommendations in regulating special events involving temporary structures?
- Things may change on site so be willing to adapt and think on your feet.*

### 3.13 Best Practice Submittal: City of San Diego, CA

1. Name of Jurisdiction: San Diego, Fire-Rescue Department
- a. Contact Name & Title: Mark Dossett, Supervising Deputy Fire Marshal
  - b. Address: 1010 Second Ave, Suite 300, San Diego CA 92101
  - c. Phone: (619) 533-4468
  - d. Email: mdossett@sandiego.gov

2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*
  
3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - (a.) Building
  - (b.) Fire
  - (c.) Parks and Recreation
  - (d.) Other – *Citywide Office of Special Events, Police*  
*NOTE: Lead Agency varies depending on a number of factors.*
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - (d.) Other – *California Fire, Bldg, etc.*
  
5. What triggers the regulation of special event involving temporary structures?
  - a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
  - b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
  - c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
  - d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
  - (e.) Other – *Occupant use/load of 50 or more*
  
6. What are permit requirements and procedures? (attach links or documents)
  - (a.) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
  - (b.) Building plans detailing structure, wind load anchoring, exiting, etc.
  - (c.) Fire safety specs and certifications for fabric, components, etc.
  - (d.) Plans required to be signed/sealed by architect, engineer or other
  - (e.) Other – *Live load, structural calculations for bleachers and platforms*
  
7. Who are special event permits typically issued to?
  - (a.) Show sponsors, producers or promoters
  - b. Licensed contractors or subcontractors

- c. Property owners
  - d. Other \_\_\_\_\_
8. How many permits are typically issued in a year? *1,600*
9. What are inspection requirements and procedures? (attach links or documents)
- a. Pre-construction activities
  - b. Progress inspections
  - c. Final approval and authorization to use
  - d. Inspection reports required to be signed/sealed by architect, engineer or other
  - e. Other – *Pre-event set-up. Some require on-site personnel during the event.*
10. How many inspections are typically performed in a year? *Data is not available at this time.*
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
- a. Online guidelines and forms
  - b. Printed handouts and documents
  - c. Process flow charts
  - d. Other \_\_\_\_\_
12. What are challenges and best practice recommendations in regulating special events involving temporary structures?

*Special events are not specifically addressed in the I-Codes. I see this fact alone to being the biggest challenge we face every day when trying to regulate events.*

### **3.14 Best Practice Submittal: City of Olympia, WA Olympia Permit and Inspection Services**

1. Name of Jurisdiction: City of Olympia
- a. Contact Name & Title: Tom Hill, Building Official
  - b. Address: 501 4<sup>th</sup> Ave E, Olympia, WA 98501
  - c. Phone: (360) 753-8486
  - d. Email: thill@ci.olympia.wa.us
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.? *Yes*

3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - (a.) Building
  - (b.) Fire
  - c. Parks and Recreation
  - (d.) Other – *Police Department*
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - (a.) IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - d. Other \_\_\_\_\_
  
5. What triggers the regulation of special event involving temporary structures?
  - (a.) Size and/or type of structure, e.g. 1,000sf tent or membrane structure
  - (b.) Occupant use/load, e.g. assembly use with greater than 1000 occupants
  - (c.) Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
  - (d.) Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
  - (e.) Other – *Any one of the descriptors above could trigger review*
  
6. What are permit requirements and procedures? (attach links or documents)
  - (a.) Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
  - (b.) Building plans detailing structure, wind load anchoring, exiting, etc.
  - (c.) Fire safety specs and certifications for fabric, components, etc.
  - d. Plans required to be signed/sealed by architect, engineer or other
  - (e.) Other – *Items A/B/C above as well as a Temporary Use Permit*
  
7. Who are special event permits typically issued to?
  - (a.) Show sponsors, producers or promoters
  - b. Licensed contractors or subcontractors
  - c. Property owners
  - (d.) Other – *we require approval of the property owner, and if need the license number of the contractor*



8. How many permits are typically issued in a year? *Four (4)*
9. What are inspection requirements and procedures? (attach links or documents)
  - a. Pre-construction activities
  - b. Progress inspections
  - c. Final approval and authorization to use
  - d. Inspection reports required to be signed/sealed by architect, engineer or other
  - e. Other \_\_\_\_\_
10. How many inspections are typically performed in a year? *For these uses – total about 20*
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
  - a. Online guidelines and forms
  - b. Printed handouts and documents
  - c. Process flow charts
  - d. Other – *Meeting with the applicant*
12. What are challenges and best practice recommendations in regulating special events involving temporary

*In our jurisdiction our challenge is in getting the applicant to ask the questions, meet with us, and having them be aware of the need to comply with code requirements.*

### **3.15 Best Practice Submittal: City of Portland, OR Portland Fire Bureau**

1. Name of Jurisdiction: Portland Fire Bureau, City of Portland, Oregon
  - a. Contact Name & Title: Kim Kosmas, Senior Inspector
  - b. Address: 1300 SE Gideon St, Portland, OR 97202
  - c. Phone: (503) 823-7835
  - d. Email: Kim.Kosmas@portlandoregon.gov
2. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.?

*Yes, permits are required for special events, and are reviewed by our Public Assembly Inspectors in the Fire Marshal's Office.*

3. If so, which departments are involved in permitting and inspection of special events? If multiple agencies are involved, who is the lead agency and how is the work of others coordinated?
  - a. Building – *only the large tent structures or when asked to help by fire.*
  - b. Fire – *Special Event permits are required for assembly occupancies with a calculated load of more than 500, and any non-assembly occupancies being used for temporary assembly type events, also fenced events with more than 50 people, and tents.*
  - c. Parks and Recreation – *permits are required for use of the parks; there are sign-offs required for specified bureaus that are involved depending on what the event has. For example: beer gardens, fencing, tents, etc.*
  - d. Other – *LLT ( Liquor Licensing Team ) is also involved – they require permitting for temporary liquor licenses for events throughout the city.*
  - e. PDOT – *street closures*
  
4. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State – *Oregon Fire Code, Oregon Structural Specialty Code, Portland Fire Code*
  - c. Local – *Title 31 Fire Regulations*
  - d. Other – *Bureau of Fire - Fire Prevention Division Policies*
  
5. What triggers the regulation of special event involving temporary structures? The size of the tents that are used for the event is one of the items that would determine if a special event permit is required.
  - a. Size and/or type of structure, e.g. 400sf tent or membrane structure (700 sf for a canopy)
  - b. Occupant use/load, e.g. assembly use with greater than 50 occupants
  - c. Duration of event, e.g. what is temporary? not more than 1 - 4 days
  - d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc. – *Every location that is a commercial property.*
  - e. Other – *Temporary tent permits are allowed for up to 180 days within a 12-month period.*
  
6. What are permit requirements and procedures? (attach links or documents)
  - a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.

- b. Building plans detailing structure, wind load anchoring, exiting, etc.
  - c. Fire safety specs and certifications for fabric, components, etc.
  - d. Plans required to be signed/sealed by architect, engineer or other
  - e. Other
7. Who are special event permits typically issued to?
- a. Show sponsors, producers or promoters
  - b. Licensed contractors or subcontractors
  - c. Property owners
  - d. Other – *the permits are usually issued to the venue or the event coordinator.*
8. How many permits are typically issued in a year? *N/A*
9. What are inspection requirements and procedures? (attach links or documents)
- a. Pre-construction activities
  - b. Progress inspections
  - c. Final approval and authorization to use
  - d. Inspection reports required to be signed/sealed by architect, engineer or other
  - e. Other – *See appendix*
10. How many inspections are typically performed in a year? *N/A*
11. How do you communicate special event permit and inspection requirements and processes to customers? (attach links or documents)
- a. Online guidelines and forms
  - b. Printed handouts and documents
  - c. Process flow charts
  - d. Other \_\_\_\_\_
12. What are challenges and best practice recommendations in regulating special events involving temporary structures? *N/A*

## **Part 4**

### **Appendix Index**

**A-1: Task Group Special Events Survey Template**

**A-2: General Safety Guidelines**

**A-3: Clark County – Las Vegas, NV**

**A-4: City of Phoenix, AZ**

**A-5: City of Denver, CO**

**A-6: Indianapolis, IN**

**A-7: Mecklenburg County, NC**

**A-8: Nashville, TN**

**A-9: Orlando, FL**

**A-10: Tampa, FL**

**A-11: Jacksonville, FL**

**A-12: Los Angeles, CA**

**A-13: Anaheim, CA**

**A-14: San Diego, CA**

**A-15: Olympia, WA**

**A-16: Portland, OR**

## A-1. Special Events Survey Template



### Special Events Permitting & Inspection Task Group

#### Brief Survey and Questionnaire

**Scope:** *Study and report on how major jurisdictions throughout the US are regulating (codes, permitting and inspections) special events, particularly those involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.*

2. Name of Jurisdiction: \_\_\_\_\_
  - a. Contact Name & Title \_\_\_\_\_
  - b. Address \_\_\_\_\_
  - c. Phone \_\_\_\_\_
  - d. Email \_\_\_\_\_
3. Does your jurisdiction regulate special events involving large crowds and temporary structures, e.g. large tents, stages/platforms, bleachers, etc.?
4. If so, which departments are involved in permitting and inspection of special events?
  - a. Building
  - b. Fire
  - c. Parks and Recreation
  - d. Other \_\_\_\_\_
5. If multiple agencies are involved, who is the lead agency on the permitting and inspections of special events?
6. What codes, statutes or ordinances are used to regulate special events? (attach links or documents)
  - a. IBC/IFC/NFPA 1/NFPA 101
  - b. State
  - c. Local
  - d. Other \_\_\_\_\_
7. What triggers the regulation of special event involving temporary structures?
  - a. Size and/or type of structure, e.g. 1,000sf tent or membrane structure
  - b. Occupant use/load, e.g. assembly use with greater than 1000 occupants
  - c. Duration of event, e.g. what is temporary? less than 7 – 30 - 180 days
  - d. Location of event, e.g. private property vs. public right-of-way, in or outside of existing buildings, etc.
  - e. Other \_\_\_\_\_

8. What are permit requirements and procedures? (attach links or documents)
  - a. Site plans illustrating layout, circulation, parking, accessibility, sanitation, etc.
  - b. Building plans detailing structure, wind load anchoring, exiting, etc.
  - c. Fire safety specs and certifications for fabric, components, etc.
  - d. Plans required to be signed/sealed by architect, engineer or other
  - e. Other \_\_\_\_\_
9. Who are special event permits typically issued to?
  - a. Show sponsors, producers or promoters
  - b. Licensed contractors or subcontractors
  - c. Property owners
  - d. Other \_\_\_\_\_
10. How many permits are typically issued in a year? \_\_\_\_\_
11. How do you convey the permitting and inspection process to customers? Do you have any process flow charts or other graphic tools that convey the process to customers you would share with the MJC?
12. What are inspection requirements and procedures? (attach links or documents)
  - a. Pre-construction activities
  - b. Progress inspections
  - c. Final approval and authorization to use
  - d. Inspection reports required to be signed/sealed by architect, engineer or other
  - e. Other \_\_\_\_\_
13. How many inspections are typically performed in a year? \_\_\_\_\_
14. What are challenges in regulating special events involving temporary structures?
15. Best practice recommendations?

## **A-2: General Safety Guidelines**



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# Special Events Contingency Planning

Job Aids Manual

*March 2005 (Updated May 2010)*



FEMA





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# INTRODUCTION





## **PREFACE**

The purpose of this manual is the prevention of injury, suffering, or death that may occur as a result of poor planning or preventable incidents at public events.

This manual is intended to provide guidance for the management of risks associated with conducting events that involve mass gatherings of people and assist planners and organizers in making such events safe and successful.

Details of the development of the manual and other related matters are noted in the Background section of the Introduction. The manual was sponsored, edited, and published by the Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA).

FEMA has prepared this manual for use by anyone planning or conducting a special event or mass gathering. This manual is intended to enable its users to ensure that adequate measures and systems are in place to prevent, reduce, and provide care for injuries, illness, and suffering that may occur.

Many people, in addition to health personnel, contribute significantly to the success of a public event. Therefore, FEMA anticipates that this manual will be distributed to event promoters, managers, public and private organizations, emergency service personnel, government bodies, and any individual or organization that contributes to the planning of events. Wide distribution is encouraged, providing that individuals understand that the detailed contents of the manual are directed principally at managing the health and safety aspects of the event for all participants, officials, and spectators.

The manual is not intended to override any existing legislation or local emergency management procedures. Further, it does not seek to address the preparation of emergency response plans, but rather identifies the elements that should be considered by those responsible for planning and conducting events that attract large numbers of people.

Local governments and emergency services should be approached for more detailed advice on other aspects of planning and for the necessary permits and licenses required.

---

## **BACKGROUND**

Throughout the United States, at any given time of year, there are festivals, concerts, fairs, sporting events, and many other large and small events that gather or have the potential to gather large crowds. Under normal conditions, these events go on with few or no problems. When something goes wrong, however, either as a result of a natural hazard or a man-made hazard, then local emergency management becomes involved. These mass gatherings are also potential targets for terrorists.

Multiple deaths and injuries at large public events have occurred consistently and over a wide spectrum of countries and types of events. Certain highly competitive sports events, particularly soccer, and rock concerts and festivals tend to produce spectator-generated incidents, while air shows and auto races tend to produce more participant-generated occurrences.

In some instances, advanced assessment of, and planning for, these events failed to occur, or when they did, they failed to identify the potential for disaster, or mitigating or coping strategies for a major incident.

With this in mind, FEMA conducted a focus group workshop during which participants discussed real pre-event planning problems for an upcoming event. The workshop focused on a number of major areas, which, either singularly or collectively, have intensified the problems inherent in mass crowd-intensive events. These issues included such aspects as physical layouts, spectator management, public safety, public health, and medical care.

The workshop was not geared toward large, often national events (i.e., Incidents of National Significance, National Special Security Events, though the planning principles still apply), but toward the more "routine" special events that communities host, such as parades, fairs, concerts, and air shows.

The participants focused on the impact that an event, a non-routine activity, would have on a community's resources. They placed emphasis not on the total number of people attending, but rather on the community's ability to respond to the exceptional demands that the activity would place on response services.

The purpose of having a pre-event plan in place is to reduce response times and better enable agencies to improvise because they have discussed contingencies beforehand. A pre-event plan defines roles and responsibilities in advance and creates ownership of potential problems for agencies that are involved in the process.

On February 28, 2003, the President issued Homeland Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents*, which directs the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS). This system provides a consistent nationwide template to enable Federal, State, local, and tribal governments and private-sector and non-governmental organizations to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism.

## **BACKGROUND (CONTINUED)**

The NIMS provides a set of standardized organizational structures—such as the Incident Command System (ICS), multiagency coordination systems, and public information—as well as requirements for processes, procedures, and systems designed to improve interoperability among jurisdictions and disciplines in various areas, to include: training; resource management; personnel qualification and certification; equipment certification; communications and information management; technology support; and continuous system improvement. It is recommended that NIMS and ICS should be followed to prepare for and respond to an incident during a special event.

This manual is designed for a wide audience, encompassing the range of personnel with a role to play in the development of a special event plan. Participants include those who have a general awareness of their own roles but do not have a previous detailed or extensive knowledge of special event planning. For example, the audience might include relatively new emergency managers, personnel from emergency operations organizations such as police, fire, medical services, and public works, and representatives from other community organizations—both public and private—for whom special event planning is not a regular responsibility.

---

## **SCOPE**

The suggested guidelines in this manual have been developed from a number of sources, and most are applicable to a wide range of mass public gatherings. These sources focused on youth audiences attending large rock concerts and competitive sporting events because of the difficulties and major incidents historically associated with such events. Many of the guidelines derived from such experiences are applicable to a broad range of other events that present their own challenges.

Certain types of events have an inherent capacity for special management problems. While the general guidance given in this document remains applicable to these events, additional guidance is given for high-risk events in Chapter 4: Additional Planning Considerations for Specific Events.

In certain situations, such as visits by high-profile political figures or controversial activists, intensive security arrangements are necessary. Such procedures are outside the scope of this manual, and it would be inappropriate and counterproductive to provide details herein, given the wide and unrestricted distribution of this document. When such events occur, event planners must create liaison between emergency service personnel, health professionals, and appropriate security personnel to ensure that they address health, safety and security issues for the event.

## **SYNOPSIS**

This manual covers a number of major areas, which either singularly or collectively, have historically exacerbated the problems inherent in mass crowd-intensive events. These areas include such aspects as physical layouts (including site, structures, and access), spectator management (including crowd organization, flow, and ingress/egress control), and public safety (including security, public health, and medical care).

Historically, advance assessment of and planning for an event failed to occur, or when they did, they failed to identify the potential for disaster or mitigating or coping strategies in the event of a major incident.

Experience has proven that certain high-risk events, such as auto races and air shows, require particular planning in addition to the more generally applicable guidelines. This manual provides guidance for the particular planning of these high-risk events, as well as guidance to plan for terrorist and criminal activities.

FEMA recognizes that no two events or situations are identical. While this document provides an approach to planning for and coping with special events, it does not provide guidelines that are universally applicable or without need of modification to the specifics of a particular event.

---

## **CHAPTER OVERVIEWS**

Chapter 1 contains information concerning selection of the planning team, ordinances, regulations, and laws, and information concerning selecting a site for the event.

Chapter 2 concerns the event's operational considerations.

Chapter 3 gives a basic overview of the NIMS Incident Command System and how to use ICS both in the planning stage and when an incident occurs.

Chapter 4 discusses some of the considerations when hosting a specialty event that may be high risk.

Chapter 5 explains the demobilization process and the importance of an After-Action Report.

Appendix A contains job aids to assist in the planning process.

Appendix B contains references and a bibliography.

Appendix C contains a glossary of terms.

# CHAPTER 1: PRE-EVENT PLANNING



## **INTRODUCTION**

Planning any event is difficult. Planning for the potential risks and hazards associated with an event is even more difficult but essential to the event's success. If you want those who attend an event to have positive memories of it, you need to keep several things in mind. This chapter covers the issues that you should address in the very early stages of planning or even when you are discussing promoting or sponsoring such an event. Before you schedule the event, you should consider the scope of the event or mass gathering, the risks to spectators and participants, community impact, and the emergency support required (personnel and logistics). You should also identify the lead agency and members of the planning team.

---

### **DEFINITION OF SPECIAL EVENT AND MASS GATHERING**

What does or does not constitute a special event or mass gathering is difficult to determine. Instead, guidelines may be used to define it.

A focus group discussing special events and mass gatherings has identified a special event as:

**a non-routine activity within a community that brings together a large number of people. Emphasis is not placed on the total number of people attending but rather the impact on the community's ability to respond to a large-scale emergency or disaster or the exceptional demands that the activity places on response services. A community's special event requires additional planning, preparedness, and mitigation efforts of local emergency response and public safety agencies.**

The focus group then defined a mass gathering as a subset of a special event. Mass gatherings are usually found at special events that attract large numbers of spectators or participants. Both special events and mass gatherings require the kind of additional planning identified in the previous quote. For example, an amusement park that attracts a large number of people is not considered a special event because large crowds are expected. A mass gathering does not imply that the event is a special event. Failure to prepare for all contingencies can lead to disastrous consequences.

This manual is not intended to offer preparation planning for large national events, but for the more traditional community events, such as parades, fairs, concerts, air shows, and festivals. Both types of events require the same kind of careful planning, however.

The title of this manual is **Special Events Contingency Planning**. What do we mean by contingency planning and where do we start? What distinguishes this level of planning from traditional public safety planning?



### **DEFINITION OF SPECIAL EVENT AND MASS GATHERING (CONTINUED)**

The first concern with contingency planning is to identify times when the event may place strains on the existing public safety agencies. Even in the earliest stages of planning, you should begin also to make contingency plans. These plans should consider licensing and regulations, emergency response issues, identifying persons responsible for particular types of hazards and risks, resources and expenses, and jurisdictions. Planning ahead reduces stress for organizers and promoters during the event, if an incident occurs that requires public agencies to work together.

During the initial planning stages, each agency should review resources to ensure that all necessary equipment is available. If the agencies determine that any additional equipment is needed, then they may acquire the equipment or supplies and be ready for the event. One way for communities to acquire equipment is to work together or pool equipment.

One way in which agencies work together is by adopting a program known as local mutual aid. This program allows neighboring communities to pool resources and share liability for damages or loss of equipment. If one community needs a particular piece of equipment, it may borrow it from a neighboring community. The equipment will become an asset of the borrowing community and will be covered under their insurance until it is released and returns to its home organization. It is important that those involved in planning the event know the agreements established between neighboring communities and the assets that are available to assist in responding to any unforeseen incidents. These agreements may all already be established and included as a part of the local emergency operations plan.

---

### **PLANNING MEETINGS FOR SPECIAL EVENTS/MASS GATHERINGS**

#### **PLANNING TEAM IDENTIFICATION**

In general, planning a special event or mass gathering should begin well in advance of the event. One of the first steps in planning an event is to bring together those who are hosting the event with those who are responsible for the public safety within the community. A multidisciplinary planning team or committee should be composed of the promoter or sponsor and any agency that holds a functional stake in the event (e.g., emergency management, law enforcement, fire and rescue, public works/utilities, public health, etc.). With all of these agencies present, there is an obvious risk of confusion in matters of leadership. Thus, the lead agency should be identified early in the planning process. In some communities, the lead agency for public safety planning is the emergency management agency. Consequently, the emergency management agency should typically lead the way in coordinating the event planning effort.

Some communities already have planning protocols or systems in place. If your community has an existing plan that has already proved successful, do not start from scratch; simply change or modify the plan where needed. The ICS is a management system that is frequently used to manage large events effectively. As such, event planners should consider using ICS throughout the planning process. It seems logical that the Incident Commander should be a representative of the lead agency. It also seems logical that this representative should lead the planning team or committee.

## **PLANNING TEAM IDENTIFICATION (CONTINUED)**

All involved agencies need to participate on this planning team from the outset to ensure a successful and safe event. At its initial meeting, the planning team should develop its mission and objectives, and determine the necessary components of the public safety plan. For example, what elements are within the realm of the promoter and what are within the realm of the public safety agencies? The planning team should also develop its structure using ICS as a model (that is, Sections, Branches, Divisions, and Groups, as needed). Additionally, the planning team should consider the promoter's or sponsoring organization's purpose and experience, potential event-related risks (including crowd control, staffing, food and shelter, parking, transportation, medical facilities), previous event concerns, relevant local concerns, weather, and community impact.

---

## **THE PLANNING PROCESS**

### **TEAM APPROACH**

Special event contingency plan development should be the joint effort of a planning team—a group of people who represent a cross-section of the organizations that are involved in the emergency response effort. Although each jurisdiction's team will vary somewhat, the Emergency Manager usually serves as the team's planning coordinator. Team members may include representatives of the groups listed below:

- Office of the Chief Executive.
- Promoter/Sponsor.
- Emergency services agencies (law enforcement, fire/rescue, emergency medical services, public health and safety, and others).
- Planning agencies and individuals (for example, community development, city planning commissions, and hazard mitigation planner).
- Local Emergency Planning Committees (LEPCs), for hazardous materials information.
- Public works agencies and utility companies.
- Social service agencies and volunteer organizations (including the American Red Cross and Salvation Army).
- Medical community representatives (for example, area hospitals, EMS agencies, medical examiner, coroner, mortician).
- Key education personnel (including administrators).
- Communications representatives (Public Information Officer (PIO), local media, radio/CB groups, and others).
- Aviation and coastal authorities (including State aviation authority, other air support representatives, port authorities, U.S. Coast Guard station).
- Chief Financial Officer (CFO), auditor, and heads of any centralized procurement and resource support agencies.
- The jurisdiction's legal counsel.
- Industrial and military installations in the area.
- Labor and professional organizations.
- Animal care and control organizations.
- Emergency Managers and agency representatives from neighboring jurisdictions, to coordinate mutual aid needs.

### **TEAM APPROACH (CONTINUED)**

- State and/or Federal representatives, as appropriate.
- Representatives of private-sector organizations, as necessary.

A team approach to planning offers many advantages, including:

**A Sense of Ownership** – The plan is more likely to be used and followed if the tasked organizations have a sense that the plan is “theirs.”

**Greater Resources** – More knowledge and expertise are brought to bear on the planning effort when more people are involved.

**Cooperative Relationships** – Closer professional relationships that are developed during the planning process should translate into better cooperation and coordination in emergencies.

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### **STATE AND FEDERAL ROLES IN TERRORISM INCIDENT PREVENTION**

An integrated approach among the local, State, and Federal Government provides for a logical clearinghouse for intelligence on the movement and activities of terrorist groups and the collection, interpretation, and dissemination of that information to the proper enforcement agencies. Effective planning and intelligence gathering can lessen the likelihood of a surprise emergency incident, which, improperly handled, can make or break a department and its administrators at all levels of government. Descriptive intelligence with predictive interpretation that forecasts the probability of the threat and the target can enhance operational readiness in training, equipping, and practicing to respond to emergency incidents. In gathering intelligence, law enforcement agencies must consider threat assessment, as a minimum measure. Planners must have appropriate contacts and phone numbers at hand before the event.

State law enforcement agencies should take the lead in pre-incident threat forecasting and planning. Roles and responsibilities of the various stakeholding agencies for the event need to be determined and an incident chain of command put in place, so that, if a terrorist threat materializes, confusion and duplication of response can be diminished.

### **PRE-EVENT PLANNING MATRIX**

At subsequent meetings, the planning team should identify all of the major functions and responsibilities required by the event and assign appropriate agencies to manage each function or responsibility. Because responsibilities vary from jurisdiction to jurisdiction, it is most effective to assign responsibilities consistently to avoid duplication and promote efficient response to problems that may arise. The Pre-Event Planning Matrix is designed to help you choose the risks, hazards, or functions that are likely to be required by an event, and assign each to a primary agency (P) or a secondary or support agency (S). The functions and responsibility assignments must be discussed and decided in the planning stages, not when an incident occurs. This Pre-Event Planning Matrix is included on pages A-1 through A-3 of Appendix A: Job Aids. A Special Event Planning Checklist is included on pages A-4 through A-8 of Appendix A: Job Aids.

## **PROMOTER/SPONSOR(S)**

The promoter or sponsor must be involved in all of the planning phases to ensure a successful event. Often, the promoter is interested in monetary gain more than he or she is interested in public safety. If this appears to be his or her primary goal, local agency participation is essential. You may encourage the promoter to cooperate by linking attendance at planning meetings with the permit process and issuance. For example, the permit to host the event may require the promoter's presence at the initial planning meeting. Teamwork promotes successful events.

One way to ensure public safety at an event is to follow the relevant laws or regulations of the community. Following these laws and regulations ensures that the promoter will keep the public's safety at the forefront of all plans. Some communities or States have public agency regulatory oversight of the promoter built into the permit process. For example, the community may have a requirement for the promoter to have adequate contingency plans in place before approving an event.

A Promoter/Sponsor Checklist is included on pages A-9 through A-21 of Appendix A: Job Aids.

## **RELEVANT LAWS OR REGULATIONS**

Event promoters must usually gain approval from local, and sometimes even State, authorities to hold public events. The following information should be available to the promoters before beginning the permit-approval process:

- Identity of the approving authority and any other authorities actively involved in the approval process.
- Relevant statutes, ordinances, codes, and standards (i.e., life safety codes) existing for mass gatherings.
- Documentation required to support their application.
- Insurance, bond, liability issues.
- Relevant deadlines for the filing of applications.

Some communities offer a "One Stop Shopping" concept for permitting. The person requesting a permit for an event completes applications at one place and the information is forwarded to the appropriate agencies for their approval. The person requesting the permit does not have to track down the appropriate agencies to make a request. This concept also ensures that all required agencies are notified and considerations are made before the permit is issued.

Promoters should be aware of the approving authority's timetable for approving events and issuing permits and should include any potential delay in the event planning schedule.

As a condition for receiving approval, promoters may be required to provide feedback on the approval process and submit an evaluation before, during, and after the event, as needed. Promoters may be required to give feedback in the form of a debrief or a report to relevant authorities.

An Approving Authority Checklist is included on pages A-22 through A-32 of Appendix A: Job Aids.

## **IS-15: Special Events Contingency Planning**

### **Job Aids Manual**

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#### **LEGAL ISSUES**

Some form of legislation usually governs or restricts public events or aspects of them. Some events, particularly extremely large or high-impact events, require special State or local legislation. Local ordinances provide health and medical guidelines.

Promoters should consider obtaining legal advice early in the planning stage. Items that warrant consideration include:

- Liability for injuries.
- Liability for acts or omissions.
- Liability for financial obligations incurred in responding to major emergencies occasioned by the event.
- Potential liability for the resultant effects of the event on normal emergency operations.

Permits may be required for parades, the sale and consumption of alcohol, pyrotechnics, and the sale of food items. Fire safety inspections should be required. Permission may also be required if it will be necessary to close certain adjacent or peripheral roads or streets. A permit may be required for the mass gathering itself.

Most public sector agencies have adopted a "User Pays" policy for services provided at sporting and entertainment events. The purpose of this policy is to improve the allocation of statute resources in the general community by providing a means of charging for services deployed to plan for, and respond to, sporting and entertainment events. Event promoters should consult local and State authorities to determine relevant fee structures and charges for services provided, including payment of overtime costs for personnel.

Promoters may be required to post a bond or provide liability insurance to cover the costs of response to emergencies, subsequent venue cleanup, traffic and crowd control, and other policing functions.

The head of the planning team must monitor the progress that is made in satisfying all legal requirements throughout the planning stage of the event.

In addition, research should be done in advance to determine statutory authority and emergency powers (i.e., isolation/quarantine, emergency evacuation, etc.) of the various parties involved.

#### **POLITICAL ISSUES**

Often communities have to deal with local political considerations when they plan events. No specific advice can be given to the promoter except to warn him or her that political considerations are always important to the local community. Often a way to encourage elected political officials to support an event is to show the monetary or quality-of-life impact that a successful event would have on their communities or careers. Explaining the positive impact encourages officials to support the public safety coordinators by providing adequate local resources and funding.

### **POLITICAL ISSUES (CONTINUED)**

Any event has the potential to become an incident requiring coordination and support as described in the National Response Framework (NRF). Recent revisions to Federal guidance documents indicate that any number of factors could escalate a local incident to an incident of national significance. Local planners must also be prepared to deal with a rapid transition of their incident to an incident of national significance.

### **ECONOMIC ISSUES**

Special events often bring attention and significant economic benefits and opportunities to local communities. These could include an influx of revenue into the local community, such as the hotel and restaurant industry.

Local event planners must not sacrifice public safety for the sake of economic benefit. Certain businesses in a community may be adversely affected by certain requirements of the special event, such as closing streets in a commercial area or increased traffic in residential areas. Additional staffing may be required to ensure that service calls by local emergency services agencies are not hampered.

### **ATTENDEE/CROWD ISSUES**

#### **1. Crowds are complex social structures.**

Crowd roles:

- Active Core: carry out action of crowd.
- Cheerleaders: provide oral support for leaders.
- Observers: follow actions but rarely take part.

Significance of crowds:

- Increase the probability of a dangerous occurrence.
- Increase the potential number of victims.
- Make communication slower and more difficult.
- Make changes in action slower and more difficult.
- Diffuse responsibility (someone else will do it).

#### **2. Panics and crazes**

**Panic** in a group is the flight from a real or perceived threat from which escape appears to be the only effective response. What appears to be panic is usually the result of poor inputs (especially communications or the lack of) and previous knowledge and experience.

**Craze** in a group is the temporary, short-lived competitive rush by a group toward some attractive object. A craze tends to occur on entering an event, and may be exacerbated by the lack of information.

**ATTENDEE/CROWD ISSUES (CONTINUED)**

**3. Deindividualization**

Deindividualization is defined as a loss of self-awareness and evaluation apprehension in group situations that foster anonymity. Behavior may include:

- Mild lessening of restraint (e.g., screaming during a concert).
- Impulsive self-gratification (e.g., theft, vandalism, molestation).
- Destructive social explosions (e.g., group violence, rioting and torturing).

**4. Defusing**

The tedium that may be created by waiting and/or by the perception that other gates are being opened first, or later arrivals are being admitted first can create problems. Such things as appropriate music, the use of humor, food and beverage services moving through the group, cheerful security staff moving through the group, and good communication that includes a public address system, can help defuse the situation.

## **CRITICAL CROWD DENSITIES**

The objective should be to prevent the build-up of large accumulations of patrons, particularly within short time periods, in confined spaces—especially if they are frustrated by the inability to see what is happening.

A study by Fruin (1981) identifies critical crowd densities as a common characteristic of crowd disasters. Critical crowd densities are approached when the floor space per standing person is reduced to about 5.38 square feet.

Considering the various movements or the positions that spectators will occupy, approximate minimal mobility requirements have been empirically identified by Fruin (1981) as follows:

- Pedestrians moving in a stream require average areas of 24.73 square feet per person to attain normal walking speed, and to pass and avoid others.
- At 10 square feet per person, walking becomes significantly restricted, and speeds noticeably reduced.
- At 4.95 square feet per person, the maximum capacity of a corridor or walkway is attained with movement at a shuffling gait and movement possible only as a group. This would be characteristic of a group exiting a stadium or theater.
- At less than 4.95 square feet per person average, individual pedestrian mobility becomes increasingly restricted.
- At approximately 3 square feet per person, involuntary contact and brushing against others occurs. This is a behavioral threshold generally avoided by the public, except in crowded elevators and buses.
- Below 2 square feet per person, potentially dangerous crowd forces and psychological pressures begin to develop.

Fruin (1981) contends that "the combined pressure of massed pedestrians and shock-wave effects that run through crowds at critical density levels produce forces which are impossible for individuals, even small groups of individuals, to resist."

The above information shows that you may need to provide a monitoring system, such as closed circuit television monitoring of crowd movements, that will provide warning to event personnel that they must take necessary action to prevent a major incident.

---

## **CROWD THROUGHPUT CAPACITIES**

In his writings on crowd disasters, Fruin (1981) identifies several areas regarding spectator throughput in entry to a performance. For planning purposes, he suggests:

### **1. Ticket Collectors**

Ticket collectors must be in a staff uniform or otherwise identifiable. Ticket collectors faced with a constant line can throughput a maximum of:

- One patron per second per portal in a simple pass-through situation.
- Two seconds per patron if the ticket must be torn and stub handed to the patron.

More complicated ticketing procedures (and/or answering the occasional question) will protract time per patron.



## **2. Doorways**

A free-swinging door, open portal, or gate can accommodate up to one person per second with a constant queue.

Revolving doors and turnstiles would allow half this rate of throughput, or less.

## **3. Corridors, Walkways, Ramps**

Have a maximum pedestrian traffic capacity of approximately 25 persons per minute per 1 foot of clear width, in dense crowds.

## **4. Stairs**

Have a maximum practical traffic capacity of approximately 16 persons per minute in the upward direction. Narrow stairs (less than 5 feet) will lower the maximum flow.

## **5. Escalators and Moving Walkways**

A standard 3.94-ft. wide escalator or moving walkway, operating at 118 feet per minute can carry 100 persons per minute under a constant queue.

## **EVENT CANCELLATION OR POSTPONEMENT**

From time to time, an event may need to be canceled, postponed, or interrupted. If a crowd has already gathered, these actions have the potential to create dangerous crowd reactions. Have plans in place to manage an angry crowd appropriately and to address the possible readmission of patrons to the venue.

One major aspect to consider is authority to cancel or postpone an event. During the planning phase, the promoter and the planning team must discuss who has the authority to cancel or postpone an event as well as when and under what conditions the event can be postponed or canceled. These decisions must be made before the event begins, and everyone must know who has the authority. ICS is an excellent tool to ensure chain of command, communications, and proper approving authority.

## **Venue/Site**

You may need to consider a number of alternative venues for an event. Emergency managers may be able to recommend appropriate venues based on health and safety considerations.

Finding a suitable venue or set of venues can be difficult. Answering the following questions during the planning stage can aid in the selection of an appropriate event site:

- Will staging the event require multiple venues?
- Is this kind of event normally conducted at a fixed facility?
- Will a fixed facility be used in ways that may not be considered normal for that facility?
- Is the event regularly conducted at a temporary venue?
- Is the event a "one-of-a-kind" project at a temporary venue?
- What services and utilities are available at the venue?
- What additional services and utilities will be required at the venue?
- Is there a need for backup services or utilities (i.e., redundant systems)?

**Venue/Site (Continued)**

A universal map/grid referencing system for the entire event footprint should be developed in advance for all attendees and event staff (including public safety personnel) to allow for the rapid identification of event-specific facilities and other locations in an emergency.

- What shelter facilities are available at the following locations:
  - Transport pick-up and drop-off areas?
  - Spectator and official viewing areas?
  - Seated eating areas?
  - Pedestrian thoroughfares?
  - First aid and medical centers?
  - Competitors' and officials' marshaling areas?
- What is the duration of the event, and will it continue during the hours of darkness?
- Have you provided for the needs of people with disabilities?
- Does the date of the event conflict with other events to be conducted in the area?
- Will seasonal weather require any special contingency planning?
- Have you surveyed the proposed site (particularly outdoor sites) for inherent hazards associated with the location, and have any been identified? Do utility lines that could be brought down by a severe storm traverse the site? Is the site adjacent to a waterway prone to flooding?
- Is the site layout such that, in the event of a mass casualty incident, space is available for an onsite triage area to permit stabilizing medical treatment before critical patients are transported to local health care facilities? Is such an area accessible to ambulances to eliminate the need for carrying patients long distances?
- Does the site allow for mass decontamination considerations?
- Have site emergency evacuation considerations been addressed?
- Does the site allow for adequate crowd regulation by means of, for example, existing regimented seating areas or flow barriers?
- Are spectator overflow areas available to prevent crowd crush if spectator turnout significantly exceeds expectations, a common phenomenon at rock concerts?
- In an urban setting, as is characteristic of a stadium venue, could the adjacent streets on all sides be closed to other than emergency service, and resident vehicles, creating a perimeter for access as well as a buffer zone?
- Is a staging area for protestors necessary? Is it required?

**Criminal and Terrorist Risks**

Special events and mass gatherings are a perfect target because of the large number of people, media coverage, and the high-profile impact if a terrorist strikes. Small communities and their events may actually be attractive sites for terrorists because the residents may believe they are not at risk and so do not prepare themselves. However, event planners can take steps to prepare for the same risks that all communities face.

Prepare public safety personnel to protect themselves. Ensure that your community's public safety personnel are adequately trained and equipped with personal protective equipment (PPE) as dictated by their response role to protect themselves as they help others.

**Criminal and Terrorist Risks (Continued)**

Some events may appeal to terrorists for a number of reasons, including an anniversary date, religious holiday, a particular location, the nature of the event, or those who will be included among the participants. Communities can identify terrorist organizations that may be attracted to their event for any number of reasons and can prepare accordingly. Knowledge is an advantage. Know the possible risks that the event poses and the audience that the event will attract. Ensure that your public safety teams are prepared and have practiced their response to both terrorism and suspected terrorism, and that they understand how to mitigate any potential terrorist incidents.

Every jurisdiction in the country has conducted a jurisdiction threat and vulnerability assessment, which was required by the Federal Government as part of the national homeland security preparedness effort. When event planners formulate contingency plans for special events, they should work together with State and Federal partners and ensure that State and local data from these Federally mandated assessments are reviewed. Local law enforcement professionals should consult the FBI and State law enforcement intelligence specialists on current threat and vulnerability data as part of the event planning process. The current Homeland Security Advisory System threat level should be considered, and event planners should prepare for contingencies if the Federal threat level changes during the event.

**THREAT ASSESSMENT**

Planning and intelligence gathering are necessary activities for law enforcement personnel during event planning. The level of commitment to these anti-terrorist activities influences the level of response capabilities that should be maintained.

Two terms that event planners should understand are anti-terrorism and counter-terrorism:

- Anti-terrorism is a term used to define actions taken to mitigate potential effects of terrorist activity.
- Counter-terrorism is best defined as operational actions taken or activities planned to prevent a terrorist activity or event.

## **TARGETS**

Most targets singled out by terrorist groups fall into one of eleven critical infrastructure areas or five key asset areas:

### ***Critical Infrastructure***

- Agriculture/food supplies
- Water
- Public health systems
- Emergency services (police, fire, EMS)
- Military targets/defense industry
- Cyber-terrorism and information
- Energy infrastructure
- Transportation infrastructure
- Banking/Finance
- Chemical and hazardous materials
- Postal/shipping facilities

### ***Key Assets***

- Monuments or public icons
- Nuclear power plants
- Dams
- Government facilities
- Other commercial key assets

## **MOTIVES**

The motives of extremist groups can generally be identified as:

- Political
- Religious
- Racial
- Environmental
- Special interest

## **WEAKNESSES IN MEASURING THREAT**

Terrorist threats are often difficult to measure because they are:

- Dynamic
- Mobile
- Difficult to recognize (lone offenders, splinter groups)
- Dependent upon the ease and availability of creating a WMD device
- Difficult to quantify, or subjective (open to interpretation, with a tendency toward inflating results)

**WEAKNESSES IN MEASURING THREAT (CONTINUED)**

The dangers of information sharing (outside of those who have a “need to know”) also make it difficult to measure the extent of the threat because unauthorized disclosure of information may:

- Lead to the violation of operational security.
- Create unnecessary panic.
- Produce unintended media attention.

**CONTEMPORARY TERRORISM**

In the past, we wanted to believe that terrorism was something that happened outside of the United States. Unfortunately, this is no longer the case. The FBI has determined that contemporary terrorists have generally:

- Been politically motivated.
  - Sought and used publicity to gain recognition and public sentiment.
  - Most often viewed, trained, and equipped themselves as an army at war.
  - Sought to cross jurisdictional lines to further confound law enforcement detection and apprehension.
  - Had the support and funding of national governments from outside of the United States.
  - Invited public scrutiny to put law enforcement on trial by the effective use of the media.
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# CHAPTER 2: EVENT OPERATIONAL CONSIDERATIONS



## **INTRODUCTION**

While planning an event, it is important to consider every possible risk and hazard that may occur. This chapter covers most of the basic risks that may be encountered at an event. The responsibilities for dealing with these risks vary with each jurisdiction, and every community needs to have a plan listing who or what organization will respond to the anticipated risks or hazards. Knowing the risks ahead of time and planning for those risks are essential to successful planning. Planning for the worst may help reduce the chance of a “worst-case scenario” happening. If the responding agency knows the risks ahead of time and is alert, it can reduce its response time, ensuring the safety and security of those in attendance. Risks vary depending upon the type of event; therefore, event organizers must tailor the planning for each risk to the specific event.

The promoter is one source of information on potential risks that may be faced at the event. The promoter should be aware of the support services that are needed to respond to any incident and the availability of those services in the community. If event organizers know the possible risks that an event poses and the nature of the audience that is likely to attend the event, they can analyze the hazards and take the necessary steps to plan a safe event.

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## **HAZARD ANALYSIS**

Hazard analysis provides planners with information about the kinds of emergencies that may occur and their potential consequences. Analysis assists planners in deciding what steps to take to prevent the possible emergencies and how to respond if an incident occurs.

The best way to begin a hazard analysis is to list the possible risks present at the event. Every community’s list will differ based on topographical and geographical features, weather patterns, and other factors. (Tsunami, for example, would not be identified as a hazard in an area that is far from a coastline.) Identifying hazards also includes considering the possibility of a secondary hazard (for example, a tornado may lead to power failure, loss of water, and other hazards).

The following table includes some of the more obvious risks and possible hazards that may exist. Being prepared for the worst allows planners to have responders and supplies on hand if an emergency does occur.



**HAZARD ANALYSIS (CONTINUED)**

<b>Typical List of Risks and Hazards</b>	
Abandoned vehicles	Hurricane
Airplane crash	Intentional chemical release
Airspace encroachment	Kidnapping
Assault	Landslide
Avalanche	Loss of utilities (water, sewer, telephone)
Biological incidents	Lost child
Bomb threat/suspicious package	Lost and found
Building inspection	Media relations
Cancellation of event	Motorcades
Civil disturbance with demonstrations	Mudslides
Communications	Parking
Credentials	Permitting
Crowd control	Power failure (sustained)
Cyber attacks	Radiological release
Dam failure	Security
Demonstrations	Structural collapse
Dignitary protection	Subsidence
Drought	Terrorism
Earthquake	Ticketing
Epidemic or other public health concern	Tornado
Evacuation of area	Traffic control
Explosive materials	Train derailment
Fire	Tsunami
First aid matters	Urban conflagration
Flood	Volcanic eruption
Food handling violations	Wildfire
Food waste disposal problems	Winter storm
Hazardous Materials release	
Hostage without terrorism	
Human waste disposal problems	

## **HAZARD ANALYSIS (CONTINUED)**

Event planners must identify characteristics of each possible hazard to determine the risk and consequences. Characteristics to identify are:

- Frequency of occurrence—the frequency of occurrence (both historical and predicted) for each hazard in the particular jurisdiction.
- Magnitude and intensity—the projected severity of the hazard’s occurrence.
- Location—the location of the hazard, if the hazard is associated with a facility or landscape feature.
- Spatial extent—the geographic area that may be expected to suffer the impact of the hazard (either around the known location of a hazard or as an estimate for non-localized hazards such as tornadoes).
- Duration—the length of time that the hazard may be expected to last.
- Seasonal pattern—times of the year when the hazard threat exists (based on month-by-month historical occurrence).
- Speed of onset and availability of warning—the amount of time projected between first warning (if any) and actual occurrence.

## **POTENTIAL CONSEQUENCES**

To determine the potential consequences of a hazard, estimate the lives, property, and services at risk. Evaluate the extent of the hazard by closely examining your community in terms of:

- People (deaths, injuries, and displacement).
- Critical facilities (days of service loss, repair time).
- Community functions (disruption).
- Property (damage, destruction, cost of replacement or repair).
- Potential secondary hazards (dams, chemical processing plants).
- Loss of revenue.
- Negative public image of jurisdiction.

When evaluating hazards, remember that hazards may occur in multiples and that one hazard may cause a secondary hazard.

1. Identify the Hazards

Determine what kinds of emergencies have occurred or could occur in the jurisdiction.

2. Weigh and Compare the Risks

Determine the relative threat posed by the identified hazards, using qualitative and quantitative ratings. This information enables planners to decide which hazards merit special attention in planning and other emergency management efforts.

3. Profile Hazards and Their Potential Consequences

Compile historical and predictive information on each of the hazards and overlay this information on community data to estimate the hazard’s potential impact on the community.

## **POTENTIAL CONSEQUENCES (CONTINUED)**

### **4. Create and Apply Scenarios**

For the top-ranked hazards (or those that rate above a certain threshold), develop scenarios that raise the hazard's development to the level of an emergency. This is a brainstorming activity that tracks the hazard from initial warning (if any) to its impact on a specific part of the jurisdiction and its generation of specific consequences.

Brainstorming provides information about what actions and resources might be required for response.

The Job Aid, Hazard Vulnerability Assessment on pages A-55 through A-58 of Appendix A: Job Aids, provides a worksheet for the planning team to use as a starting point to identify specific hazards and risks for the event. This is a vital process to bring stakeholders together to brainstorm potential hazards and begin developing comprehensive planning strategies. There are other, more comprehensive, planning tools that are available to address specific needs that the planning team may identify from the Job Aid worksheet. Consult your local/State emergency management agencies for other planning tools.

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## **CONTINGENCY PLANS**

Unfortunately, not every event runs smoothly. Often, incidents occur that are beyond the control of the planning team. Therefore, contingency plans for every event should be in place.

An emergency response plan requires a comprehensive hazard and vulnerability analysis. Consultation among all parties who may respond to an emergency situation during the event is essential.

Some important questions related to ICS planning include:

- What weather conditions may require cancellation of the event?
- What weather conditions will postpone the event?
- How will storm warnings be monitored?
- What plans are in place for sudden, severe weather conditions, such as tornadoes? Will shelters be available?
- Who has the authority to make these decisions, and at what point does he or she exercise that authority?
- How is notification made of a cancellation or postponement?
- Are additional security personnel, including police, on standby or on call if an immediate increase in these services is required?
- Have you advised ambulance services and local hospitals of the nature of the event, provided an expected spectator profile, and estimated potential medical problems?
- Have you notified fire and rescue services of the nature of the event and identified the services that might be required?
- Has the jurisdiction considered how to respond to a Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE) type of man-made, intentional event?
- Has the need for mass decontamination been considered?

### **CONTINGENCY PLANS (CONTINUED)**

- Have any “target hardening” considerations been explored to increase the deterrence factor against man-made intentionally caused events?
- Have you identified the types of heavy equipment that could be required in a catastrophe (for example, a grandstand collapse)? Have you made plans to obtain that equipment at any time, including off-business hours?
- Have you advised counseling services of the nature of the event and identified the services that might be required?
- If the event is particularly dangerous, and deaths are a real possibility (for example, at automobile or power boat races or air shows), have you formulated plans to support any required coroner’s investigation?
- To permit responders to precisely identify the location of an emergency quickly, address the following questions:
  - Will a grid-type venue plan be available, which is common to all emergency services, including access roads, pathways, major landmarks, spectator, performer and vendor areas?
  - Will vendor locations or booths be numbered and be included on the venue plan?

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### **STRUCTURAL MATTERS**

An area of great concern is the physical setup of the event. Planners need to consider what performance facilities are needed, what special structures are needed for indoor or outdoor events, and whether temporary structures can be used. These are just a few primary concerns.

### **STAGES, PLATFORMS, AND OTHER PERFORMANCE FACILITIES**

When setting up an event, stages, platforms, and the other performance facilities are an area of major safety consideration. The type of event and its site affect the choice of performance equipment and its stability requirements. Qualified inspectors should perform some type of inspection to ensure that the structure is appropriate for the event and that the structure is safe.

The expected behavior of the crowd is one of the principal factors determining stage configuration. While classical music and ballet performances usually attract a mature and orderly audience, teenage and pre-teen fans at rock concerts have been known to storm the stage to touch their idols. Such incidents, apart from being disruptive, have caused injuries. Therefore, event planners should understand the emotional and physical character of the audience that a particular performance will attract.

## **STAGES, PLATFORMS, AND OTHER PERFORMANCE FACILITIES (CONTINUED)**

There are three principal ways to gather information about the anticipated crowd:

- Review press reports and contact local public safety officials who were present at previous performances.
- Speak with spectators who have attended adolescent entertainment events such as rock concerts. In the past, spectators have provided valuable insights into what behavior authorities might expect from audiences for different entertainers.
- Check with the promoter to determine audience behavior at past events and the type of crowd and the behavior that can be expected.

Stages are usually elevated to provide the audience a better view of the performance, especially for spectators who are farther back. This elevation is itself a barrier to those who would rush the stage in an attempt to touch a performer. In addition, this increased height can create an area free of spectators at the base of the stage because the audience members will position themselves back from the stage so that their line of sight is not impeded.

At some venues first aid personnel are located under the stage to accept injuries occasioned at the front of the spectator area. A stage or a platform alone is usually insufficient to deter determined and agile spectators, however, and an additional physical barrier is needed in front of the stage.

### **INDOOR EVENTS**

During concerts held indoors, an effective practice is to erect a "V" shaped barrier in front of the stage to deflect patrons away from the stage area if any surge comes from behind. The "V" shape also provides an additional barrier to prevent spectators from reaching the stage. Security staff can position themselves in this spectator-free zone or should be able to gain access to it quickly from either end of the stage.

Barrier posts must be securely anchored to the floor, not merely mounted to freestanding bases. They should also have some padded protection. Such a fence construction is usually engineered to provide a certain amount of "give" upon impact, thus reducing the potential for crush injuries as occasioned in the 2000 Denmark, Pearl Jam concert tragedy.

### **OUTDOOR EVENTS**

Board fences similar to the "V" shaped barrier described for indoor concerts can be used in an outdoor setting. Board fences have the added benefit of providing a walk space on the spectator side of the fence as well as behind it. Because most outdoor concerts do not provide seating, spectators in the front rows seated on the ground have to take a position several yards back from the fence to permit them to see the stage over the top of the fence. This area permits emergency access to the front rows of spectators.

Any stage protection barrier must be designed to sustain a certain amount of flex in order to prevent the crushing of spectators in the front by a crowd surge from behind. At the same time, it must be sufficiently solid so that it will not collapse and cause injuries. Fences installed as stage barriers often fail to meet this two-fold requirement.

### **BREAK-AWAY STAGE SKIRTS**

The front skirt around the base of a stage can be constructed to break away under the pressure of a crowd surge, thus allowing spectators to be pushed under the stage rather than be crushed against its base. This idea is not practical where there is less than six feet clearance beneath the stage, however, because of the potential for head injuries if a spectator collides with the leading edge of the stage.

It should be stressed that use of a breakaway stage skirt does not remove the requirement for a barrier in front of the stage and should be considered only as additional security if barriers fail.

### **EMERGENCY EVACUATION**

There are physical structures designed for use in areas of egress that, in the event of an emergency where evacuation is required, collapse to allow for the maximum passthrough.

### **TEMPORARY STRUCTURES**

Because of their transitory nature, many events require easily constructed temporary structures. These include the stage platform itself, as well as towers to house speakers and floodlights, temporary seating such as bleachers, dance platforms, roofs, towers and masts, viewing platforms, marquees and large tents, and decorative items such as archways, overhead signs, and even sideshows.

**All such temporary structures must be designed and erected to include a margin for safety and a view to potential hazards. A local government building-codes inspector should supervise the erection of temporary structures and ensure that they conform to local government building or engineering specifications.**

Temporary structures are often hurriedly erected because access to the venue may be permitted only a short time before the event opens and they are usually designed for rapid removal at the conclusion of the event. In addition, these temporary structures are frequently neither designed nor erected to withstand stresses other than from intended use and are therefore not engineered to incorporate safety features. High winds or spectators climbing for a better vantage point can overstress these structures.

Personnel should inspect temporary structures periodically during events of long duration. They should post warnings on, or close, a temporary structure whose intended purpose is being violated.

## **LOAD CAPACITY**

All structures have load capacities, and precautions should be in place to prevent misuse through overloading. These precautions apply to any viewing platform or vantage point, such as building walkways or balconies, which can cause a major incident if the number of spectators upon these structures is not properly controlled.

The bases of temporary structures must be protected from damage by vehicular traffic through the use of designated buffer zones.

## **SEATING**

Ideally, all seating should be reserved; however, this ideal situation may be difficult to achieve at outdoor events.

If most of the spectators are in their teenage years, provide seating to control surges and crushing at the front of the stage. A security presence to ensure that audience members do not stand on seats is also recommended. Seating should be adequately anchored to prevent its movement.

Another area of concern is the spacing of the seats, and local life-safety codes may define acceptable practices in this area. The seating should be spaced far enough apart to allow emergency crews access to patients. Often, grouping the seats and providing large walkways between the groups is a way to provide this access.

## **TEMPORARY SEATING AND ANCHORAGE**

Seating in a community center, arena, or similar indoor location often combines fixed perimeter seating with additional foldable or stackable seating on the central floor.

Temporary seats are often not secured to the floor or to one another. While this may not present any problems with certain audiences, more enthusiastic spectators may pose the following problems:

- Persons standing on the seats for a better view are prone to injury because they may lose their balance or become jostled. In such instances, they can adversely affect other spectators, sometimes causing a "domino effect" in closely spaced chairs. The potential for a significant number of injuries exists.
- If an audience becomes hostile, portable chairs can be used as dangerous missiles. It is not uncommon for hostile fans to become aggressive and throw items. Seats that are not anchored become dangerous projectiles.

Portable, folding, or stacking chairs should be secured to the floor. Where this is not possible, attach the legs of each row of chairs to two long planks, one running under the front pairs of legs and one running under the back, as an alternative solution.

A Building Department Venue Assessment Checklist is included on pages A-44 through A-46 of Appendix A: Job Aids.

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## **HIGH-PROFILE/CONTROVERSIAL EVENTS**

Because of the nature of the event, the crowd composition, or for other reasons, certain events cause more controversy and create greater risks than others do. For example, events involving groups that hold controversial beliefs present a greater risk for criminal or terrorist behavior. Events involving high-level officials are also at a greater risk for terrorist activity because of the significance of the official and the high-profile visibility of the participants and those in attendance. On some occasions, if the date of the event coincides with the anniversary of another terrorist event, the date of the event itself may be considered controversial. Planners must consider every reason why an event may promote controversy or attract special attention.

Conflicts will exist between public safety, recovery, and criminal investigation agencies during terrorist incidents. Rescue and recovery issues and actions must be separated from criminal investigation issues and actions before the event occurs, and non-law enforcement workers should be given training on matters of evidence. Evidence teams should be created to practice and train with local emergency responders and epidemiologic investigators to promote mutual understanding of one another's roles.

## **PROTESTORS**

If organizers anticipate that a mass gathering or special event will attract the attention of organized protest groups, they should meet, if possible, with the leaders of those groups in advance. The organizers and group leaders can discuss ground rules of acceptable behaviors and the anticipated public safety response to criminal or disruptive behavior by local law enforcement agencies. Building rapport by gaining a mutual understanding of what to expect can decrease the likelihood of disruptive behavior, or at least ensure that everyone knows what will and will not be tolerated. Many jurisdictions have a permitting process that is required for this type of activity.

Protestors who arrive spontaneously should also be planned for, and in many cases may become a law enforcement issue if the permit process has been violated. Many times, these groups hold extremist views or specific concerns about a particular issue that may be tied to the event.

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## **SPECTATOR MANAGEMENT AND CROWD CONTROL**

This chapter has discussed the hazards associated with structural design and integrity, but what about the dangers that may be created by the participants themselves? The aim of spectator management and crowd control is to maintain order, prevent deviation from desired behavior, and re-establish order if it breaks down, thereby ensuring maximum enjoyment for the assembled gathering. Event organizers are responsible for spectator management and crowd control; however, this function passes to local authorities, such as police, fire, and emergency medical services, when the situation is beyond the resources and capability of the organizers. Knowing what to expect from a given audience can lessen risks and hazards from the crowd itself. Event organizers should research lessons learned from previous events and have appropriate response plans in place before the event takes place.

Spectator management refers to planning and preparation issues, such as ticket sales and collection, admittance and inspection, ushering, seating, parking, public announcements, toilets, and washrooms.

Crowd control refers to mechanisms that are used to reinstate order, such as limited access control, admission control, and arrests.

A crowd is defined as any number of people coming together in any place for any reason. Crowds gather daily in shopping centers, airports, and stadiums, and occasionally in places that are not designed specifically for large numbers of people.

In the planning process for a forthcoming event, organizers must have an understanding of both individual and crowd dynamics and how these elements interrelate. While this is a preliminary guide to crowd control problems that organizers most frequently encounter, planners need to expand upon the particular issues for each crowd and venue. You may find additional information on crowd control in other literature and press reports; from the promoter; private security organizations; police, fire, and emergency medical authorities; and, for visiting dignitaries, from personal security services and government agencies. All of this information will assist in predicting potential problems that you can then address in the planning process.

## **GENERAL ISSUES FOR CONSIDERATION**

Major crowd issues you should address include:

- Size–Maximum numbers permitted are often established by regulation for safety reasons.
- Demographics–Consider the composition of the audience, including the age and gender mix. If you identify in advance that young children will constitute a high proportion of the audience, consider additional facilities, such as childcare, family bathrooms, and rental strollers. Audiences made up of young children or elderly people tend to require additional medical facilities, and children and the elderly are more susceptible to crush injury than teens or adults.

Different kinds of events may attract certain types of spectators that require special attention. Consider the following:

- Rock concerts, in contrast to other types of concerts, may experience a higher incidence of problems with drug and alcohol abuse, underage drinking, and possession of weapons.
  - Religious and “faith healing” events may attract a significant number of ill and infirm people, which may increase the need for onsite medical care.
  - Events for senior citizens may also require higher levels of health services.
  - Certain sports events may attract over-reactive and violent supporters.
  - Cultural events may require special arrangements, including the provision of interpreter services, special food services, and multilingual signposting, brochures, and announcements.
- Outdoor Concerts–additional considerations:
    - Control and distribution of spectators in the field.
    - Suggested minimum space allocation of 4 to 5 square feet per person on grounds with no seats.
    - Some form of sectoring and barrier management by security is important.

## **ENTRANCES AND EXITS**

Important considerations for the entry and exit of spectators include:

### Entrances

The primary function of entrances is to provide:

- For supervision, marshaling and directing crowds.
- Access for emergency services.
- Egress and evacuation routes.
- Initial surveillance and inspection of attendees (i.e., magnetometers).

## **ENTRANCES AND EXITS (CONTINUED)**

Entrances should also:

- Be clearly signposted.
- Be in working order.
- Be compliant with the Americans With Disabilities Act (ADA); and
- Provide for separation of pedestrian and vehicular traffic.

Entrance Management—Event organizers should:

- Permit flexible opening and closing times. (Advertised times are recommended, however.)
- Stagger entry times by providing supporting activities.
- Keep entrances clear of all other activities.
- Keep lines away from entrances.
- Ensure there are sufficient numbers of suitable barriers, fences, gates, and turnstiles.
- Locate ticket sales and pick-up points in line with, but separate from entrances.
- Arrange to have a public address system or alternative communications system to provide information and entertainment to the crowd waiting at the entrance.
- Consider the potential need for medical and security personnel presence.
- Provide sufficient numbers of personnel who are appropriately trained.
- Ensure that control points for searches to detect prohibited items, such as alcohol, social drugs, glass, metal containers, and weapons, are in place and do not affect movement.
- Provide a secure area for the storage of confiscated goods.
- Provide toilets, if lines are expected to be long.
- Apply metering techniques as appropriate.

Exit Management—Event organizers should:

- Ensure that exit doors are not locked. If personnel are concerned about illegal entry, then doors could be fitted with alarms.
- Ensure that exit doors open in the direction of escape and are confirmed as operational.
- Check the placement, function, and signposting of exits.
- Ensure that doors that do not lead to an exit are so marked, preventing “dead end” entrapment and the potential for panic.
- Ensure that all exit corridors are free of all impediments to crowd movement.
- Ensure that turnstiles are freewheeling or can operate in reverse.
- Ensure that cords, which can create trip hazards, do not cross exit corridors. (If this precaution is unavoidable, the cord should be marked, insulated, and secured to the floor to prevent damage and potential electrical risks.)

Escalator Management—Event organizers should provide for:

- Staff control at the top and bottom, including an emergency stop button.
- Metering of the flow at both ends.

## **ENTRANCES AND EXITS (CONTINUED)**

Stairway/Corridor Management—Event organizers should provide for:

- Control of both ends if the crowd is large.
- Metering that may be required for safety.

## **CREDENTIALING**

The mission of special events credentialing is to design and produce badge identification to ensure the greatest possible level of security for personnel and property, and to enhance the ability of law enforcement personnel to control access to secure areas, facilities, and events.

A credential identifies specific individuals who require access to a venue(s) to perform an operational role or function, whereas a ticket is issued to spectators or other members of the general public who do not perform an operational role or function.

In essence, a credential is equivalent to an “Incident Badge.” A “ticket” is NOT a “credential.”

Credentialing provides sufficient information to verify the identity of the bearer and his or her level of access, and should include security features to prevent counterfeiting and assist in credential verification.

Event planners tasked with credentialing may wish to consider the following:

- Who will be credentialed?
- Will credentialed personnel require police record checks?
- Who will conduct the record checks?
- What criteria will be used for various levels of access?
- Who will have the final decision on who will or will not be credentialed?
- Who will be responsible for credential production?
- Who will authorize credential production?
- What is the format for the receipt of the information necessary to produce the credential (e.g., electronic, paper)?
- Will a photograph be needed?
- Where will the credentialing center be located? (The credentialing center should be located outside of the secure zone and accessible to those requiring credentials.)
- Who will secure this location and provide security for personnel and equipment?
- How will the security of the credentialing database be maintained?
- How, and to whom, will credentials be distributed?

## **TICKETING**

Ticketing is the first means of achieving crowd control. Essential matters to address include the following:

- If advance ticketing is possible, it is preferred because it allows organizers to anticipate audience numbers and plan accordingly. It also enables them to pass on information about needed services (for example, parking, traffic patterns, first aid, water sources, toilets, and personal needs) to ticket-holders before the event.
- When multiple entrances to the venue are provided, directing spectators to arrive via specific entrances can reduce congestion.
- If it is feasible, stagger crowd arrival by specifying entry times. Again, this plan reduces congestion at entrances.

## **BARRIERS**

Effective use of barriers can prevent many problems, including congestion in thoroughfares and walkways. Questions that you should consider in the planning phase include the following:

- What types of barriers are required? Is a solid physical barrier required, or would a psychological barrier, such as barrier tape, suffice? The use of psychological barriers is suitable only for orderly crowds. Any physical barrier must be able to withstand crowd surges.
- How will personnel respond if the barrier is breached?
- Can barriers be used to section the crowd and create passages for emergency personnel to evacuate ill or injured spectators?
- Will barriers be used to create a "pit" between the crowd and the stage, which can be used to facilitate the evacuation of injured spectators?
- Can barriers be easily dismantled by the crowd and used for other purposes?

There are physical structures designed for use in areas of egress that, in the event of an emergency where evacuation is required, collapse to allow for the maximum passthrough.

A Public Works Department Checklist is included on pages A-42 and A-43 of Appendix A: Job Aids.

## **DEFUSING CROWD TENSION**

The tedium that is created by an extended wait in line for tickets or admission can be a precursor for crowd control problems. Such boredom can create or magnify tempers, particularly if, with little distraction, those in line perceive other doors being opened first or other patrons getting in at the head of the line.

The following means of defusing anger have been used with success in different venues:

- Up-tempo music (of a type consistent with the age group of the crowd) played over the public address system.
- Humorous, animal-costumed individual, such as a mascot, walking up and down the line giving handshakes, pats, and waves.
- Large inflated beach ball, which is lobbed back and forth over, and by, the spectators;
- Food and beverage sellers moving through the group.
- Cheerful security staff, passing up and down the line, talking to people.

Introducing some of these same distractions inside the event can calm a potentially agitated crowd.

In addition, a mascot conducting a spectator sing-along to up-tempo music or a ticket or program number draw on the field for the last ball used at a sporting event can alleviate tension in a crowd.

Whenever possible, spectators should be informed before an event of any special conditions or arrangements for the event, such as parking, clothing, food and drink, sunscreen, shelter, and alcohol restrictions. Notice of special conditions or arrangements may be distributed via advertisements or in leaflets accompanying tickets.

Outdoor events, sometimes spread over large areas, require further considerations, such as:

- Toilet facilities located outside gates and between disembarkation points and the venue.
- Shelter.
- Telephone facilities.

The venue should allow adequate regulation of crowd movement, such as adequate exiting from ticketed seating areas and sectoring and flow barriers, including barriers to separate vehicles from pedestrians.

Spectator overflow areas should be available to prevent crushing. Contingency plans are required in case spectator turnout significantly exceeds expectations. This phenomenon is common at rock concerts. This may be more of an issue for outside venues, as life safety codes for inside venues may help address maximum crowd attendance.

## **RESTRICTED VIEWING LOCATIONS**

Clear lines of vision for spectators are important to reduce the likelihood that crowds will move to get a better view of the stage. Also, a wide angle of view helps to reduce crowd densities in front of the stage. If restricted viewing is unavoidable, tickets for spectators in those sections should note this fact.

## **VIDEO SCREENS**

Video or projection screens aid in crowd management because they can provide:

- Entertainment before and between acts.
- Information concerning facilities and important messages including public safety and traffic messages for both inside and outside the venue.
- Close-up vision of on-stage action for spectators as a means of reducing crowd movement toward the stage.

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## **TRAFFIC AND TRANSPORTATION**

Transportation presents one of the first impressions that attendees will have about an event's organization, command, and control. Sitting in a line of cars for hours on the highway to gain access to an event will undoubtedly create a negative impression. The traffic from the event may not merely affect the local traffic but the traffic in the entire region. Planners should ensure that the surrounding communities are aware of the event and the potential impact on traffic in their area.

Depending on the scope and size of the event, traffic may be a routine issue. For example, many sports stadiums hire professional traffic planners to provide guidance on the most efficient ways to facilitate access and egress to various parking lots, and have procedures in place that adequately handle traffic flow on a regular basis.

The promoter is responsible for any traffic disruption that is associated with the event and should be held accountable by the permitting authority. The permitting authority can require the promoter to work with local public safety and traffic service providers to create contingency plans to minimize negative traffic impacts on the community at large.

At a minimum, local law enforcement, departments of transportation and public works, the local media, any existing public transportation authorities, and the promoter should comprise a traffic management group who must begin traffic planning well in advance of the event. The group should use the local media to inform residents in advance of the expected impact that the event will have on their mobility.

Being straightforward with the local community about anticipated problems or congestion areas will minimize the negative impact on local traffic service agencies. Many residents, when advised in advance to do so, will avoid certain areas or take alternate routes so that their movement is not impeded or prolonged.

### **TRAFFIC AND TRANSPORTATION (CONTINUED)**

Traffic and transportation concerns that traffic management must address include:

- Does the site have adequate access and staging areas for large numbers of emergency vehicles in the event of a major incident?
- What impact will weather conditions have on transportation?
- What type of road leads to the event? Paved? Gravel? Dirt?
- Is access to, and the road network within, the site adequate to prevent emergency responders from having to walk significant distances to the principal spectator areas(s)?
- Is there sufficient room on the site (that is, for staging, manoeuvring) to permit repositioning or redeployment of emergency vehicles as dictated by the incident?
- Because of the nature of road access, would early arriving vehicles, such as ambulances, be prevented from leaving by gridlock produced by subsequently arriving equipment?
- Is the site served by an access road or street that could be closed to the public and used only for expeditious emergency and service vehicle ingress and egress?
- If access roads are unpaved, would emergency vehicles become bogged down if heavy rains occurred during, or just prior to, the event?
- Is the surrounding road network able to handle the anticipated spectator vehicular traffic?
- If spectator-parking areas are filled, will the road network allow continued vehicle flow, thus preventing gridlock?
- Is signposting, including gate numbering, clearly established inside and outside the venue?
- Are communications systems inside and outside the venue capable of providing public announcements, marshaling instructions, and evacuation orders?
- Is a system in place to monitor crowd flow (as through the use of spotters or aviation resources)?
- Does the organization have additional towing vehicles available?

Where there may be health and safety implications, efficient management of crowd movement includes:

- Awareness of public transport congestion at road, rail, and water interchanges and, in some cases, at airports.
- Use of coaches and buses to reduce private vehicle traffic and any potential problems that large vehicles may present (for example access difficulties, parking requirements, potential road blockages).
- Alterations to normal traffic and road use.
- Traffic control.
- Adequacy of the surrounding road network to handle the anticipated spectator vehicular traffic before, during, and after the event.
- Communication between traffic management groups and other services, including the local media.
- Access and egress routes including:
  - Arrangements for people with disabilities.
  - Pedestrian access, including considerations of distance, terrain, surface, and lighting.
  - Designated pick-up and set-down points.



## **VEHICLE ACCESS AND EGRESS ROUTES**

Consider the environmental hazards that may result if access and egress routes are not established for:

- Portable toilet pump-out.
- Garbage removal.
- Water tankers.
- Car parking.
- Ambulances.
- Law enforcement vehicles.
- Fire vehicles.
- EMS vehicles.
- Public works and utility vehicles.
- Other essential service vehicles.

## **SIGNAGE AND USE OF THE MEDIA**

If organizers anticipate that event traffic will have a major impact on community surface streets, they should consider requiring the promoter to hire a professional traffic planner to work in conjunction with law enforcement and public works personnel to create alternate routing or special signage to and from the event. Strategically placed, variable-message signs on the highway that allow text messages to be changed by remote control are very useful devices to inform the motoring public. Temporary fixed signage can also be considered. The additional signs must adhere to the current industry standard and be easily understood by the public.

Additionally, using a local AM radio station or a specially designated frequency to broadcast travel information and instructions from the Public Safety Incident Command Post to arriving or departing patrons on the day of the event can help to lower their frustration. Broadcasting is also a means for event command and control staff to provide patrons with useful guidance and safety messages prior to their arrival. Much useful information, such as traffic routing and identification of the AM radio station channel that will carry event traffic information, can be included in advance ticket-sales packets so that spectators are informed before they even leave their homes.

## **TRAFFIC MONITORING**

Traffic monitoring should be carried out by periodic radio contact with ground personnel in the field of the event footprint and by surveillance from aerial observation platforms. Fixed-wing aircraft can stay airborne for extended periods of time to obtain the full view of traffic flow. Helicopters can be used to view both the full area and specific problem areas that may warrant closer attention than can be provided by fixed-wing aircraft. Stationary, closed-circuit TV cameras can also be considered for use in areas prone to congestion.

## **PUBLIC TRANSPORTATION**

If public transportation is to be used by patrons for access to the event, a separate ticketing and admitting area can be established to permit smooth drop-off and pick-up. If available, public transportation should be encouraged by event organizers because it tends to lessen the negative impact on local community street traffic. It also decreases the number of parking attendants required at the event site. Another facet of public transportation for consideration is event-only transportation. At many large-scale events that require off-venue parking, promoters lease school or private buses to provide transportation from specific pick-up sites within the community and from remote event-specific parking areas. If public transportation is offered, planners must coordinate with law enforcement and public works personnel for assistance. Public works and law enforcement agencies may choose to close lanes or streets for use only by the public transportation vehicles.

## **TOWING AND DISABLED VEHICLES**

Promoters should be required to hire towing companies to facilitate the removal of disabled or illegally parked vehicles. Tow trucks should be available and readily observable as private vehicles arrive at venue parking lots. The mere presence and active use of tow trucks can act as a deterrent for those motorists who may consider parking illegally. As a general rule, one tow truck for every 2,500 anticipated vehicles can be considered adequate for planning purposes. The size, type, and location of the event may change the needs.

Abandoned vehicles should be towed immediately, because these could be an indicator of a vehicle-borne improvised explosive device (VBIED), a current common tactic of terrorists.

Towing companies should establish a standard procedure for impounding and owner retrieval and should set maximum fees per impounded/towed vehicle in advance of the event. Also, a mechanism (database) for tracking where vehicles from certain areas have been towed and a mechanism for informing motorists of how to find their cars should be in place. (For example, establish a toll-free telephone number). This information should be shared with the appropriate authority and the command post, in case owners of towed vehicles arrive there to ask about their vehicles.

A consideration is for the promoter to be held accountable for any costs associated with towing that are not covered by towing fees. Public safety agencies should handle the regulation and oversight of any towing arrangements that are made during the planning process.

## **EVENT VEHICLE PRE-SCREENING**

Some jurisdictions now screen vehicles at an event site days or weeks in advance of the event. For instance, it is common practice now for some State Fair venues to screen vendors and carnival vehicles upon their arrival.

## **PARKING**

With the crowd and the traffic risks also come the inevitable parking problems. A basic formula for estimating parking requirements is to anticipate one vehicle for every three persons in attendance. Areas of specific concern are:

- Public parking arrangements—Have you made arrangements for overflow parking, signposting, and segregation of pedestrian and vehicular traffic? If spectator-parking areas overflow, will congestion on surrounding roads result?
- Parking control—If anticipated spectator parking areas become full, are there nearby areas for overflow parking? Are shuttle buses desirable, feasible, or necessary?
- Towing—Are towing policies established to determine where stalled or disabled vehicles will be towed, or how the owners can find their vehicles, and who bears the cost of towing and storage?

If parking is allowed adjacent to, or inside, the facility itself, vehicle screening should also be considered. Pre-event parking bans should also be considered to ensure the integrity of the footprint surrounding the event site. Sufficient posting of no-parking signs should be done in advance of the event and strictly enforced.

## **AUXILIARY PARKING LOTS /SHUTTLES**

If the event venue does not have established parking lots available, then temporary, auxiliary lots need to be established. Considerations for these lots include:

- Lighting for hours of darkness
- Compliance with the ADA
- Publication of the location of the parking lots and the shuttles
- Provision of toilet facilities
- Use of public transportation (shuttle busses) to and from the event site

Assigning specific buses to specific lots helps the attendees as they go to and from the event. These lots should be clearly distinguished from one another and adequately marked. (Color-coding is one effective method of distinguishing buses. For example, Red Line buses, marked with a red dot in the window, go only to and from the red lot.) The location, of these lots need to be determined well in advance so that traffic management can evaluate them in relation to the overall incident traffic management plan. If the lots need to be rented or leased, the promoter should be held accountable by the permitting authority for any costs associated with their establishment.

Parking attendants in charge of the auxiliary lots are required to direct event spectators to park their cars in the configuration recommended by the traffic planner. If event spectators park their own cars, they may park in such a way that greatly diminishes the capacity of the parking lot, and control of traffic in and out of the lot can be lost. Parking attendants may be trained volunteers, paid promoter staff, or public safety personnel. A consideration is for the promoter to be held accountable for any costs associated with providing parking attendants.

## **PUBLIC HEALTH**

Public health interventions are designed to prevent or minimize injury or ill health. Mass gatherings present particular challenges for preventing or at least minimizing, harm to participants, spectators, and event staff, especially when the event is held at a temporary venue. Familiarity of the financial stakeholders of the event with each other's roles and responsibilities, and knowledge of the potential and actual public health issues, present a common challenge.

This section provides guidance on the primary public health issues likely to arise during the planning phase of a mass gathering event. If State or local legislation is in place, that legislation takes precedence over advice contained in this manual.

### **PRE-EVENT PUBLIC HEALTH SURVEY**

Event organizers should conduct a pre-event public health assessment for any venue intended for a mass spectator event. A Public Health Department Venue Assessment Checklist is included on pages A-47 and A-48 of Appendix A: Job Aids.

Organizers should consult appropriate health authorities to ascertain the availability of:

- Running water (particularly for hand washing by food service and medical personnel).
- Sufficient public toilets and hand washing stations in or adjacent to toilets (with provision for pump-out of portables and servicing as necessary during the event).
- Adequate refrigeration for perishable foodstuffs.
- Recognized, approved vendors of bulk food items delivered to the site's food providers.
- Sufficient number of covered containers for the storage of food and solid waste, including removal during the event.
- Appropriate storage and removal of liquid waste.

Public health inspectors should be available onsite during the event to monitor public health compliance.

Public health authorities onsite should have legislated authority to enforce "cease operation" orders on onsite food providers who are in contravention of standards or are otherwise operating contrary to the public interest.

## **PUBLIC HEALTH CONTINGENCY ARRANGEMENTS**

The arrangements outlined in this chapter are designed to prevent an adverse event or minimize the risk that an adverse event will occur. However, unforeseen circumstances that may create a public health risk always exist. Some thought must be given to making contingency arrangements and documenting these arrangements in the public health emergency management plan. The plan should include the following details, as a minimum:

- Contact details, including after-hour information, for principal event personnel (for example, event organizers, environmental health officers, trades persons, and emergency service personnel, including health services personnel).
- Contact details for additional staff.
- Details for 24-hour contact of the food proprietors.
- Arrangements for alternative suppliers of equipment and utilities in the event of a failure or loss of water or power.
- Arrangements to replace food handlers who become ill.
- Arrangements in case of product recall.
- Epidemiological tracking procedures.
- Procedures for handling complaints.
- A debriefing procedure.

## **MONITORING HEALTH RISKS**

First aid posts and security personnel can provide information to help assess health and safety risks. First aid posts can provide data by collecting gastrointestinal illness surveillance information. A Gastrointestinal Illness Questionnaire is included on pages A-60 and A-61 of Appendix A: Job Aids. First aid posts can also maintain records of injuries, incidents involving watercourses, and alcohol and drug issues. Security agencies can provide information on safety hazards and alcohol and drug issues.

## **FOOD SAFETY**

Food safety is a vital element of public health planning for public events. Unless personnel apply proper sanitary practices to food storage, preparation, and distribution at mass gatherings, food may become contaminated and present a danger to public health. Special one-of-a-kind outdoor events that are held during warm weather pose additional risks because they tend to have less than ideal facilities for food handling, transport, and storage.

To ensure that adequate food safety standards are met and maintained, an environmental health officer should initially assess food service proposals, including the authorization of vendors, as part of the pre-event planning outlined in Chapter 1. The health officer should base any assessment on current local and State food hygiene legislation and food safety codes. The officer should follow this assessment with a pre-event audit as well as periodic monitoring of food safety throughout the event.

**FOOD SAFETY (CONTINUED)**

This assessment should form part of a comprehensive food safety plan for the event, including:

- Licensing/permit procedures and authorization of vendors
- Quantities and types of food
- Lines of supply
- Premises where food is stored
- Preparation techniques
- Disposal of foods
- Means of distribution
- Food safety documentation, approved approaches, and surveillance

Food vendors must meet appropriate licensing and registration requirements of the responsible health authority, including an off-premises food-catering license, as appropriate. During the event, onsite environmental health officers must have the authority to close down any vendor who is contravening food hygiene legislation and public health requirements. In some cases, this action may necessitate passing particular local laws or ordinances.

Appendix A includes a Food Vendor Information Sheet on pages A-33 through A-35. A Catering Inspection Checklist for Food Vendors is included on pages A-36 through A-39.

**FOOD PREMISES**

Setup and construction of the food premises must be in accordance with State and local regulations and codes of practice. The premises or areas to be used for food storage, preparation, and service must be easily cleaned and promote neither the harboring of rodents and insects nor the buildup of dirt and food particles.

**EQUIPMENT**

Equipment used in food preparation, distribution, and storage must be in safe working order and easily cleaned. Ensure that an appropriate number of the correct kind/type of fire extinguishers (e.g., effective for use with deep fryers, propane tanks, etc.) is available at food provider sites.

**PERSONAL SAFETY**

The safety of both staff and the public is always an important consideration, and you must meet occupational health and safety standards. Some of the hazards to avoid include loose power leads, trip hazards, inadequate refuse disposal, inappropriate positioning of equipment (especially hot equipment), poor ventilation and extreme temperatures in the work environment, badly stacked supplies, and unguarded equipment.

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#### **WASTE DISPOSAL**

An effective disposal system should be put into place. Improper disposal of perishable goods, in particular, can cause problems arising from odor, insects or rodents, or other animals. Adequate disposal facilities must be easily accessible to food handlers and removal contractors.

Organize a separate refuse collection for food premises and continually monitor it to ensure that the frequency of collection is appropriate.

Where possible, encourage the separation of refuse into dry, wet, and hazardous disposal units. For more information on refuse disposal, refer to the discussion under Waste Management on page 2-31 of this chapter.

#### **WATER SUPPLY**

Provision of a supply of potable water for sinks is essential. Those operators who use water that is stored in their own tanks must have access to facilities to refill diminished supplies. Ensure that this access is established before the event. If possible, at outdoor concerts in extreme heat conditions, all potable water supply lines should be buried to avoid breakage and contamination by concert attendees. Having a NO GLASS policy is wise to prevent hazards caused by broken glass. For more specific details on water supply, refer to the section on Water on page 2-28 of this chapter.

#### **HAND WASHING**

Hand-washing facilities must be provided for the exclusive use of food handlers. Potable, running water must be used for hand washing, and, where possible, hot water should be available. Soap and disposable hand towels should be provided in the hand-washing area.

#### **SINKS**

Potable water must be supplied to all sink areas. Hot water should be used where possible. An appropriate detergent and sanitizer should be used to clean all sinks adequately.

#### **FOOD SUPPLIES**

Food should come only from registered outlets and should not be prepared in domestic kitchens. Food proprietors must ensure that food supplies have been prepared and transported in accordance with relevant standards.

#### **TRANSPORTING FOOD**

The time required for food transportation should be kept to a minimum. Temperature requirements should be maintained, and the food should be protected from contamination at all times.

Food transport vehicles should be clearly identified and subject to surveillance and monitoring.

**FOOD HANDLING**

Essential matters to address include the following:

*Cross-Contamination*—The following points apply:

- Every effort should be made to minimize the risk of cross-contamination during the food-handling process. Utensils and surfaces that are used for the preparation of either raw or ready-to-eat food should be clearly distinguished. In cramped circumstances, this distinction becomes more difficult to observe. Adequate cleaning and sanitizing of food utensils and surfaces between use plays an important role in reducing problems arising from cross-contamination.
- Disposable plastic gloves should be worn and changed frequently. The temptation to continue to wear the same gloves exists, even after the work being undertaken has changed. Encourage frequent hand washing.
- Appropriate food storage is critical to ensure that there is no contamination between raw and cooked or ready-to-eat foods. Raw foods should be stored separately if possible, or at a minimum, stored below cooked or ready-to-eat foods.
- Equipment must be adequately cleaned and sanitized after each separate process. This is particularly critical where equipment is used for preparing different types of food.

*Thawing, Cooking, Heating, and Cooling*—The goal in monitoring temperature control is to minimize the length of time during which potentially hazardous foods are held in temperatures between 41°F and 140°F. This is the temperature range in which most foodborne microorganisms can grow. This range is referred to as the danger zone. Key points to remember include:

- Thaw food under refrigeration or in cold, running water.
- Cook food thoroughly to applicable standards.
- Minimize the reheating of food. When reheating is required, heat the food thoroughly and store it appropriately.
- Cool food quickly under refrigeration.
- Apportion food into appropriately sized trays.

*Cleaning and Sanitizing*—The following points apply:

- Regardless of the type of facility in which the food is prepared, regularly clean and sanitize all food contact surfaces, using an appropriate sanitizer.
- Clean all other surfaces to minimize the risk of contamination of food products. Also be aware of pest infestation and occupational hazards, such as slippery floor surfaces. Adequate signage should be posted in these areas.
- Consider the provision of a designated wash-up area for food outlets to reduce sullage waste storage and pump out at each food outlet.

*Chemical Storage*—Store chemicals in areas separate from foods and clearly mark the contents on chemical storage containers. **Never use food containers to store chemicals.**



### ***Food Storage***

Essential matters to address include:

- Storage Facilities—Provide facilities of adequate size and appropriateness for the purpose.
- All foodstuffs must be stored off the floor or ground using shelving or pallets in accordance with State and local health regulations.
- Temperature Control—The following points apply:
  - Refrigerated or heated storage areas require a continuous power supply. You must store potentially hazardous food at appropriate temperatures at all times.
  - Refrigeration can pose a problem particularly in hot weather when refrigeration units struggle to cope. In case of refrigeration failure, all proprietors should indicate alternative refrigeration suppliers, or the organizer or authority could identify alternative suppliers in the public health emergency management plan.
- Cross-Contamination—The following problems must be overcome:
  - The less-than-ideal conditions that confront food handlers working in temporary facilities may lead to compromising appropriate food handling practices.
  - Space is often a major problem. Ensure that, at a minimum, raw and cooked or ready-to-eat-foods are stored appropriately. Food handling staff must be aware of the requirements for strict hand-washing procedures and for the cleaning and sanitizing of equipment between handling raw and ready-to-eat foods.
- Dry Goods—Appropriate and sufficient storage conditions should be available to ensure adequate protection of food from the elements and pests.
- Food Protection—Protect exposed food available on display from insect pests, dust, and human contact.

### ***Food Handling Staff Considerations***

Important matters to address include:

- Training—Encourage proprietors to select staff with food handler training to work in temporary facilities.
- Personal Hygiene—Selection of staff should include factors such as high personal hygiene standards. Food proprietors should ensure that a non-smoking policy is implemented in the workplace if permitted by local code.
- Communications—Proprietors should be able to demonstrate that they have an efficient reporting and communication system so that staff can identify public health problems and deal with them promptly.
- Supervision—Encourage proprietors to provide appropriate supervision to ensure a team approach to the provision of a safe food supply.
- Dress—Food handlers' dress should be appropriate to the tasks that they are performing and include some form of hair covering.
- Infectious Diseases—
  - Proprietors should be reminded that food handlers must not work while they are in an acute stage of any gastrointestinal illness or the common cold.
  - Proprietors should remind food handlers who have open wounds to dress all wounds with a waterproof dressing and to change the dressing regularly.
  - Provide segregated toilet facilities exclusively for food handlers.
  - Monitor these facilities for any signs of pest or rodent infestation.
  - Proprietors should keep a register of any complaints that they may receive from food purchasers.

### **HEALTH PROMOTION**

Consider the opportunities to promote health messages at public events and to encourage event organizers and service providers, such as food vendors, to participate. Examples include:

Sunsmart—Encourage the provision and use of shade areas. Encourage the use of sunscreen creams and hats, and make them available for purchase by spectators. Organizers should consider advising spectators that alcohol consumption in the sun greatly increases the risk of dehydration. Additionally, organizers may want to consider providing "misting tents" which are used by attendees to reduce core body temperatures in excessive heat environments.

No Smoking—Encourage the provision of non-smoking areas and ban the sale of cigarettes at the event.

Alcohol—Consider the designation of alcohol-free areas or restrictions on the sale of alcohol. Also consider glass-free policies. Alcohol-free events will minimize aggressive behavior of spectators and also minimize the use of restrooms and water supply needs.

## **WATER**

An adequate supply of safe drinking water must be available. One guideline suggests making available 21 quarts of potable water per person per day, of which 5 quarts comprise the drinking water component. Consider event duration and location and the anticipated ambient temperature in determining the quantity of potable water required.

All water provided must be tested to ensure its potability. In areas where non-reticulated water is the only source for personal use, then consider the clarification and disinfecting of the water supply to achieve a level greater than 1 ppm residual chlorine.

Some consideration must be made to ensure that the water is safe from deliberate contamination. Placing the water supply in a secure area or having someone guard the water supply are two options available.

Appropriate access to drinking water must be available for spectators in a field or outdoor venue or at events such as "raves," where the activity produces an extreme-heat environment.

Water pressure must be adequate to provide for all normal use and for use during peak demands. Any use of fire-suppression water systems (i.e., fire hydrants) should be discouraged, or alternate water supplies must be made available in case existing supplies fail to meet demand or if the supply is rendered unsafe or unusable.

## **TOILETS**

Where existing toilet facilities are judged inadequate, you must make available additional portable units.

Toilet locations should be:

- Well marked.
- Near hand-washing stations.
- Well lit (including the surrounding area) if night use is anticipated.
- Serviced (including pump-out of portables) on a 24-hour schedule during the event (Vehicle access is obviously necessary).
- Located away from food storage and food service areas.
- Secured to prevent tipping.

The following considerations will determine the number of toilets to be provided for particular events:

- Duration of the event
- Type of crowd
- Weather conditions
- Whether the event is pre-ticketed with the numbers of attendees known, or unticketed
- Whether finishing times are staggered if the event has multi-functions
- Whether alcohol will be consumed

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**TOILETS (CONTINUED)**

Calculating the number of toilets required for an event can be a particular challenge. Where local laws or regulations do not exist, the following guidelines can be applied. Better management of events can be achieved by providing additional facilities. Assume a 50/50 male/female split unless otherwise advised. The following tables should be used only as a guide.

**Toilet facilities for events where alcohol is not available**

	Males			Females	
Patrons	Toilets	Urinals	Sinks	Toilets	Sinks
<500	1	2	2	6	2
<1,000	2	4	4	9	4
<2,000	4	8	6	12	6
<3,000	6	15	10	18	10
<5,000	8	25	17	30	17

**Toilet facilities for events where alcohol is available**

	Males			Females	
Patrons	Toilets	Urinals	Sinks	Toilets	Sinks
<500	3	8	2	13	2
<1,000	5	10	4	16	4
<2,000	9	15	7	18	7
<3,000	10	20	14	22	14
<5,000	12	30	20	40	20

These figures may be reduced for shorter duration events as follows:

<b>Duration of event</b>	<b>Quantity required</b>
More than 8 hours	100%
6-8 hours	80%
4-6 hours	75%
Less than 4 hours	70%

### ***Toilets for the Disabled***

At least one unisex toilet for the disabled is required. Check with your local ADA office for further guidance.

### ***Food Vendors' Toilets***

Separate toilet and hand-washing facilities should be made available for food handlers.

### ***General Considerations***

In an outdoor setting, it is a relatively simple matter to provide additional toilets by contracting for temporary portable toilets. This solution may not be suitable for indoor settings, for which provision of additional toilets may be more difficult. One possible solution is to convert some men's washrooms to women's facilities for events where you anticipate a predominantly female audience, or vice versa.

To avoid long lines, particularly at female toilets, organizers may identify some toilet facilities as unisex toilets.

The maintenance and cleaning schedule for toilets and sinks should ensure:

- An adequate supply of toilet paper and soap.
- Clean toilets throughout the duration of the event.
- Provision for disposal and removal of sanitary napkins.
- Availability of a plumber or appropriate maintenance person to repair or remove blockages.

Organizers should ensure that adequate cleaning supplies are available for use by the cleaning staff.

### **SHOWERS**

At an extended event, promoters and planners may decide to provide showers. If they do provide showers, they must consider the additional demands for potable water and drainage. If municipal water supplies and wastewater treatment plants cannot service the shower facilities, providing shower facilities could prove to be a very costly and formidable task. Vendors are available that will contract to provide self-contained shower units. Ensure that showers are located on high ground so that muddy areas are not created.

## **SOLID AND LIQUID WASTE MANAGEMENT**

Major considerations are as follows:

### **FOOD WASTE**

- Deposit food waste in covered containers placed strategically around the venue. Covers are essential, especially in outdoor settings or if high temperatures are expected.
- Spectator density may prohibit access by garbage removal vehicles. To prevent containers from overflowing, empty containers regularly and move waste to a temporary, properly prepared holding area until bulk removal can be accomplished at designated times or after the event. Removing food waste often and in a timely manner prevents disease and pests.

### **EMPTY CONTAINERS**

Make arrangements for the appropriate storage or disposal of empty containers, such as cardboard boxes.

### **HAZARDOUS WASTES**

Special arrangements must be established for the collection and disposal of various forms of hazardous waste, including waste from food preparation areas, medical sharps, and other hazardous materials.

### **CLINICAL WASTE**

Ensure there is provision for the storage, collection, and disposal of clinical waste generated from onsite medical and first aid facilities.

### **SEWAGE AND SULLAGE**

Provide and maintain adequate facilities for the ongoing storage and disposal of sewage and sullage. As with all other wastes, these must be removed in a timely manner and on a frequent basis.

### **RECYCLING**

Where possible, consider providing specific containers for recyclable materials. Vendors should be encouraged to use recyclable packaging of foodstuffs. A sufficient number of dedicated containers should be placed near the vendor area to further encourage recycling.

## **ANIMALS, RODENTS, AND VEGETATION**

In outdoor settings, the control of rodents, spiders, mosquitoes, and insects of significance to public health must be addressed. Venue sites should also be inspected for pests, snakes, gopher holes, etc., in advance. If particular hazardous species are known to inhabit the area, or if carriers of particular diseases are prevalent in the area, alert the attending first aid and medical personnel.

Alert medical and first aid personnel to the presence of potentially poisonous and noxious plants and trees in the area.

If domestic animals are permitted into the venue, establish rules for the control of animals and their waste. Check with your local animal control agency or shelter for more guidance concerning animal regulations.

Also consider the potential effect of the event on nearby domestic or farm animals and native fauna.

## **SWIMMING AND WATER SAFETY**

Purpose-built swimming areas must comply with State requirements for water quality and meet other local requirements, such as fencing. Assess the suitability of other watercourses in the vicinity of the venue if spectators may use those watercourses for water recreation or washing. If these watercourses do not meet requirements, fence them off and erect warning signs against their use.

Address water quality in both designated swimming areas and areas that could be used for swimming in hot weather. Experience has shown that where audiences attend an outdoor concert in hot weather, particularly in overnight events without adequate or convenient washing facilities, they will employ any nearby water area as a makeshift swimming, bathing, or washing area.

Consider making available some form of trained supervision for:

- Families with small children.
- Spectator groups for which alcohol consumption, with subsequent judgment impairment, is anticipated.
- Areas of water that pose additional hazards such as steep, slippery sides; submerged snags; or unusually variable depths.

## **INFECTION CONTROL AND PERSONAL HYGIENE CONCERNS**

Infectious disease transmission through unsafe sexual practices or drug use may be a health risk at some events, particularly for those at which spectators are camping at the venue overnight. To reduce these risks, consider providing or making available condoms and a properly licensed needle exchange/disposal mechanism. While these are sensitive and controversial issues, and political issues in some areas, they are nevertheless important public health concerns in contemporary society, and you should address them.

At events where the duration extends overnight or longer, provide hygienic washing facilities. Suggested minimum requirements for facilities at campgrounds, based on two to three nights' camping, are as follows:

<b>Sex</b>	<b>Toilets</b>	<b>Urinal</b>	<b>Sinks</b>	<b>Shower</b>
M	1 per 50	1 per 100	1 per 75	1 per 100
F	1 per 25	N/A	1 per 75	1 per 100

## **TATTOOING AND BODY PIERCING**

With a return in popularity of tattoos, body piercing, and branding, mobile operators have begun to appear at certain types of public gatherings, such as carnivals, motorcycle races, and auto swap meets. Where this activity is likely to occur, check the need for proper licensing or registration of such service providers and their compliance with any health legislation.

Because of the potential of cross-infection, particularly of blood-borne diseases, inspect any such operations to ensure, as a minimum, the use of:

- Disposable, single-use skin penetration items.
- Proper sterilization equipment and techniques.
- Clinical sharps containers for used needle disposal.
- Sharps containers safely located away from children.
- Safe disposal of used sharps containers.

If the service providers do not use these minimum infection control procedures, do not allow them to perform any skin penetration procedures.



## **POST-EVENT PUBLIC HEALTH SURVEY**

Conduct a post-event survey to ensure that personnel have conducted a proper cleanup, particularly from a public health perspective. For example, check that all scrap foodstuffs and discarded needles are properly disposed of. All involved in planning the event should return the venue to its pre-event condition.

As an additional precaution, retain appropriate records of all service providers at the event so that they may be traced if a subsequent outbreak of a reportable disease occurs or if a claim is made for an injury or illness.

Health personnel should also be conscious of the need to introduce a monitoring or surveillance system if they subsequently become aware of any particular health problem arising from an event.

A formal public health debriefing should follow the event, and a public health representative should participate in all agency debriefings.

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## **MEDICAL CARE**

Spectators and participants at mass gatherings may require medical attention in the event of illness or injury. The incidence of illness will be greater at an event for spectators than that expected to occur naturally in a population of comparable size.

The number of spectators who require, or avail themselves of, onsite medical care, and the types of problems that they present, will vary significantly depending on the nature of the event. Generally, between 0.3 percent to 1.3 percent<sup>1</sup> of event attendees will require some form of medical assistance, regardless of the character, locale, physical layout, and size of the event.

Alcohol and drug use is common at most festivals and is the primary diagnosis in more than 10 per cent of the persons seeking medical care. Other common complaints include lacerations, fractures and sprains, burns, sunburn, heat stroke, seizures, asthma, and exposure.

## **MEDICAL CARE PROVISION**

Planning for the provision of medical care for both spectators and participants is essential, for both humanitarian and legal reasons. The permitting process should ensure that medical care at the venue is equal to or greater than the standard of care currently provided in the community. In addition, providing onsite first aid or medical care will significantly reduce the demand on EMS and the emergency departments at local hospitals in the area of the event.

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<sup>1</sup> Leonard, Ralph B., PhD, MD, FACEP & Moreland, Kimberly M., MD, "EMS for the Masses, Preplanning Your EMS Response To a Major Event," EMS, January 2001.

## **MEDICAL CARE PROVISION (CONTINUED)**

Event organizers may choose to contract with a health service provider, who may not be associated with the usual local service provider. Check to ensure that the service provider is appropriately licensed and regulated. The provider must coordinate with the local health and emergency services to plan a response to any emergency or significant medical problems requiring further assistance. Notify local health authorities of the details of the event and provide them with emergency plans for a major incident. Additionally, local hospitals should be notified of the event in writing at least 30 days in advance and given the estimated number of attendees.

## **MAIN CONCERNS IN PLANNING MEDICAL CARE**

Main issues to address in medical care planning include:

### **LOGISTICS**

Some medical logistics questions to consider in planning an event include:

- How many medical stations will be required onsite?
- Will medical personnel operate in a facility to which the injured must make their way, or will clearly identified medical teams patrol spectator areas?
- How will spectators identify medical personnel on the site (uniforms, vests, etc.)?
- Will vehicles be available to transport spectators to the medical facility?
- Will medical vehicles be appropriate to the terrain? Four-wheel-drive vehicles may be required for off-road areas and golf carts or similar vehicles required for high-density spectator areas.
- Where an ambulance is not required, will a "chauffeur system" be provided to transport persons from the onsite medical facility to their own transport vehicle?
- How will medical personnel be notified of, or summoned to, spectators requiring assistance in vast spectator areas?
- What means of communication will be available to permit attending medical personnel to communicate with offsite medical personnel, event organizers, security, and other support personnel?
- Are there any sponsorship conflicts between the event sponsor and any medical service operators?
- What level of onsite medical care, if any, do you expect to be required, given the nature of the event?
- What mix of medical personnel (first aid providers, paramedics, nurses, doctors) will you require onsite?
- Who will provide the personnel? How will the cost for their services be funded?
- Are the health service providers from the local area? If not, how will their services be integrated with the local services?
- How will security concerns for health care personnel onsite be addressed?
- Are the selected personnel appropriately skilled to respond to anticipated medical problems at the event? They may require additional training.
- Will medical personnel or vehicles need special credentials to allow them access to all parts of the venue, especially to any restricted areas?
- Are medical personnel assigned for public safety workers at the event?

## **IS-15: Special Events Contingency Planning**

### **Job Aids Manual**

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#### **LOGISTICS (CONTINUED)**

- Are aero-medical services and landing zones available?
- Where is the closest trauma center?
- Have primary and secondary receiving hospitals been identified?
- Does the area hospital have adequate bed and personnel capacity to respond to the emergency requirements of an event of the size that is being planned?

#### **Management and Planning**

- Determine which other organizations will be involved. Who will be the lead agency?
- Conduct planning meetings involving health personnel, emergency services personnel, and event organizers.
- Determine what is expected of each organization involved in the provision of medical care.
- Determine likely levels of care that will be required.
- Determine any local laws, rules, or regulations governing emergency first aid.
- Determine the budget for the provision of medical care services.
- Establish liaison with other emergency services (police, fire, and security).
- Identify the equipment required and potential suppliers. Will the equipment be purchased, hired, or borrowed?
- Will volunteers be used? What accreditation will they be required to possess? What benefits will they be offered?
- Ensure the security of medical stations and the safety of the staff.
- Establish a patient information management system for patients who are treated, including patient care reporting, etc.
- Determine in advance the disposition of patient records after the event.

An Emergency Medical Services Venue Assessment Checklist is included on pages A-53 and A-54 of Appendix A: Job Aids.

#### **PLANNING INFORMATION**

Obtain background information to assist with medical care planning that may be available from:

- Reports from previous similar events (medical and other specialist literature).
- Lay literature (press).
- Medical literature that has information on the risks and types of injury that were sustained at similar events in the past.

Consider the effects of weather conditions on the spectators, such as hypothermia and heat stroke.

Consult medical literature for information on the numbers of casualties from similar events in the past. See the table below for anticipated percentages of patients against triage categories. Consider variables that affect numbers (for example, alcohol consumption, psychosocial behavior, and type of event).

**PLANNING INFORMATION (CONTINUED)**

**Expected percentages of patients in triage categories**

<b>Categories <sup>1</sup></b>	<b>Description</b>	<b>Vital Signs</b>	<b>Mental State</b>	<b>Percentage<sup>2</sup></b>
1	Critical	Unstable	Abnormal	0.02
2	Serious	Potentially Unstable	Potentially Abnormal	1.1
3	Moderate	Usually Stable	Normal	12
4	Minor	Stable	Normal	87

Notes: <sup>1</sup> Categories modified from disaster triage guidelines.

<sup>2</sup> Percentages aggregated from events listed in the references.

**CASUALTIES**

Experience from other events has shown that most casualties are from:

- Heat stroke, dehydration.
- Cuts from broken glass and drink can ring pulls.
- Injuries from missiles, usually bottles and cans.
- Fainting and exhaustion from a combination of hysteria, heat and alcohol. At concerts, this often occurs at or near the stage barrier.
- Trampling or crushing from crowd pressure.
- Crowd "surfing" and stage diving.
- Illicit drug and alcohol abuse.
- Respiratory problems (asthma and emphysema).
- Epilepsy attacks brought about from strobe lighting.
- Age-related illness.

### **MEDICAL ACCESS TO VENUE**

Consider the risks associated with venue (for example, water in the vicinity).

Agreements must be reached among medical service providers on the following:

- Medical teams must be able to locate individuals in need of attention easily. You should agree on the use of a common reference map or grid system.
- How will medical teams reach or rescue individuals in distress (for example, in crowded areas or through fixed seating)?
- How will patients be transported onsite?
- Will you provide a dedicated access route, or emergency service lane, to allow rapid access to and from the venue for ambulances and other emergency vehicles?
- Will the event itself pose a barrier to medical teams (for example, community runs or a parade)?
- Will you need aero-medical services/landing zones, and if so, what are the associated regulations regarding their operation?

### **MEDICAL REQUIREMENTS**

- Prepare for the most critical injury or illness foreseeable, such as cardiac arrest.
- Is there a need for a mobile team? This team may require pre-packed medical kits.
- Determine who will provide care for the audience, any VIPs, and performers.
- Define boundaries of care (for example, inside the venue and in the parking areas).

### **LEVEL OF CARE**

Levels of care can be categorized as follows:

- Basic—first aid.
- Intermediate—first aid plus IV therapy and oxygen.
- Advanced—Care and life support and early management of severe trauma.
- Site Hospital—full monitoring, ventilation, and resuscitation capability.

Other level-of-care concerns include:

- Consulting medical personnel with experience in similar events to determine the appropriate levels of care to provide.
- Considering the distance to, and accessibility of, the nearest hospital and its capability.
- Pre-establishing the coordination between venue medical services and those of the local community emergency medical service responders (that is, establish how they will provide mutual aid if required).
- Preparing to treat patients after a release of a chemical, biological, radiological or other CBRNE material.

Further guidance on the establishment of medical care facilities and their equipment requirements is available in the references and from local or regional disaster and health plans.

## **MEDICAL TEAMS**

When deploying medical teams, consider the following:

- What will be the size of the event?
- What is the location of the venue with regard to medical infrastructure?
- What is the extent of available medical resources?
- How do local and State ordinances and regulations apply, including those that may address minimum staffing levels? Average numbers of expected patients generally range from .3 percent to 1.3 percent of the total number of patrons in attendance<sup>2</sup>.
- Who can see, treat, and discharge patients?
- Will there be peak periods or special circumstances requiring additional staff?
- How will medical staff be fed, watered, rested, and protected from the elements?
- Are work safety regulations established that cover occupational health and safety (for example, protection from violence and crowd crushes)?
- Have medical teams been provided with maps of the venue?
- What arrangements are in place for movement of medical teams onto and off the site?
- Are medical team members appropriately dressed for the conditions?
- Is the dress of medical team members easily identifiable?
- Are interpreters required?
- Do medical teams understand the command structure and their role within it, and the emergency activation system?
- Have medical personnel been trained and equipped with PPE for use in response to a CBRNE incident.

## **MOBILE TEAMS**

In tightly packed areas, particularly near the stage, first aid personnel on foot, bicycles, or golf carts may have the only access. Experience has shown that uniformed first aid personnel on foot circulating in dense spectator areas are quite effective, and patrons will readily summon them in an emergency, even if the person requiring care is a stranger to them. Even if a clearly marked field hospital is visible, spectators are often unwilling to make the sometimes long trek to request assistance (because they may lose their seating position), particularly for a fellow spectator whom they may not know or if they fail to appreciate the seriousness of the patient's condition.

Identification of mobile teams, where ambulance or clinical uniforms are unsuitable, can be successfully accomplished by special event uniforms. Mobile teams need to have communications equipment to keep EMS supervisors and the Incident Command Post informed at all times.

**(NOTE:** The Red Cross symbol is registered by the International Red Cross and its National Societies. It should not be used as part of an event uniform.)

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<sup>2</sup> Leonard, Ralph B., PhD, MD, FACEP & Moreland, Kimberly M., MD, "EMS for the Masses, Preplanning Your EMS Response To a Major Event," EMS, January 2001.

## **MEDICAL AID POSTS**

Important considerations in the establishment of medical aid posts require that they should:

- Provide easy ambulance access and egress.
- Be located within 5 minutes of all sections of the crowd.
- Have available a mode of transport to them.
- Be clearly marked.
- Have adequate signage for direction to the aid post.
- Be clearly identified.
- Be clearly marked on maps of the venue layout.
- Be in a position known by security and other event personnel.
- Be stocked and staffed for the duration of the event and for spectator arrival and departure periods.
- Provide facilities for injured or sick patients to lie down.
- Ensure privacy in clinical areas.
- Provide some means of communication with the primary medical control point, venue control, and with mobile medical teams in the venue.
- Be located in as quiet a place as possible.
- Ensure that post security staff considerations are addressed.
- Include dedicated disposal containers for ablutions, hazardous wastes, and sharps.

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### **GUIDE TO THE PROVISION OF MEDICAL AID**

The number of medical aid personnel and posts will vary with the type of event. As a guide, use the following formulation:

<b>Patrons</b>	<b>Medical Aid Personnel</b>	<b>Medical Aid Posts</b>
500	2	1
1,000	4	1
2,000	6	1
5,000	8	2
10,000	12	2
20,000	22+	4

The number of medical aid posts required would depend on what medical aid room facilities are available. Every venue should have at least one climate-controlled facility with electrical service and running potable water.

Medical aid providers are generally not required for events that are smaller than 500 patrons and are held in close proximity to central ambulance/hospital services.

## **SITE HOSPITAL**

Depending on the nature of the event, a site or field hospital may be needed to provide resuscitation or care for the number of casualties anticipated. You should also make contingency plans in case of a major incident, for which the resources of the field hospital may not be sufficient. Failure to plan for large numbers of casualties or severely injured patrons can result in long delays in providing medical treatment. It is important to provide a communication link between the site hospital and local hospitals.

Site hospitals will require:

- Clean water.
- Electricity for medical appliances and adequate lighting in tent hospitals at night. (This installation should, if possible, include a backup power system.)
- Washroom/rest facilities for the exclusive use of staff and patients.
- Provisions for patient modesty/privacy issues.
- Meals for medical staff.
- Tents for hospital use that have flooring as part of the structure to contain the service and to prevent ingress of water or insects.
- A landline telephone service for ordering additional staff or supplies and for notifying hospitals of patient transfers. (Note that cellular telephones should be used as backup devices only).
- Reserved access roads for emergency vehicle use.
- Dedicated disposal containers for ablutions, hazardous wastes, and sharps.

## **DOCUMENTATION**

Documentation should facilitate:

- Post-event review of medical assistance activities.
- Tracking of biological, chemical, and infectious disease exposures, if they occur.

Medical and legal issues, which must be addressed prior to the preparation of any documents, are as follows:

- Who has access to records?
- Who keeps the data and for how long?
- Who can give consent for treatment?
- Health Insurance Portability and Accountability Act (HIPAA) considerations (i.e., privacy).



## **AMBULANCE VEHICLES**

Organizers should consult ambulance services to determine ambulance requirements for the event. Some considerations include:

- Will ambulances be pre-positioned onsite or be called to the venue on an as-required basis?
- Has the security of the vehicles when parked been addressed?
- Are there provisions for a mix of Advanced and Basic Life Saving ambulances at the event?
- If ambulances are onsite specifically for athletes, race car drivers, etc., are these ambulances exclusively for taking care of their needs or emergencies, or will they be available for injured spectators as well?
- Is there a need for dedicated ambulances/medical staff for the event staff itself?
- Are aero-medical services/landing zones available? Who will pay for the service? Can the promoter be required to provide the service?

While conventional ambulances are appropriate for patient transfers to offsite medical facilities over good roads, such vehicles may be unsuitable for off-road use. Ad hoc roadways and cross-country terrain may require four-wheel-drive vehicles, particularly if grounds are saturated by recent rainfall. Because four-wheel-drive ambulances are not available in most areas, other four-wheel-drive vehicles, equipped with appropriate medical equipment (including, but not limited to, resuscitation equipment, trauma kit, and spinal board) can serve as ambulances over the short distances between spectator areas and medical care facilities.

In denser spectator areas, any vehicle can have access problems. You should consider using golf carts, either designed or modified to accommodate a litter or stretcher.

For these reasons the ambulance network may have to consist of a mix of first aid personnel on foot, golf-carts, four-wheel-drive vehicles, ambulance buses, and conventional ambulances, to facilitate patient transport requirements. You should provide a magnetic-based beacon, portable radio, and appropriate marking for these vehicles.

A communications network, designed to provide a coordinated response to requests for assistance, is essential. You may base the network on existing service networks, or event organizers may need to provide the network.

## **MEDICAL EQUIPMENT**

The requirement for basic or advanced life support equipment depends on the type of event and the assessed risk of illness or injury. While standard lists of equipment will cover most requirements, you should review literature, previous experiences, and current practices.

Further equipment considerations include:

- Mobile versus fixed requirements.
- Arrangements to re-supply aid posts as required.
- Compatibility of onsite equipment with equipment used by ambulance and other health care providers (e.g., IV tubing/administration sets).
- Ambulance providers may want to consider carrying extra supplies beyond their normal supply.
- Provisions for the rapid movement of reserve supplies in a mass casualty incident should also be considered.

## **OTHER MEDICAL CONSIDERATIONS**

Further considerations include:

- Providing considerations for interviewing and treating of sexual assault victims and the collection of evidence.
  - Ensuring sufficient water supplies.
  - Providing sprinkler systems or misting tents for crowds in hot, open areas, if they are suitable for the event.
  - Providing welfare and information services (the helping and caring role).
  - Assisting with forgotten medications.
  - Providing a baby diaper-changing and caring facility.
  - Containing and disposing of clinical waste.
  - Determining how, and by whom, medical supplies will be obtained, including secure onsite storage of drugs.
  - Planning for the deployment or availability of chemical antidote supplies (i.e., Mark 1 Kits, atropine, pediatric auto injectors) for a CBRNE event.
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## **ENVIRONMENTAL CONCERNS**

### **WEATHER**

Weather is a variable that takes on a different significance depending on the event and its location. For a major indoor event in a southern United States city, weather is seldom a major concern, unless a natural disaster, such as a hurricane, is anticipated. If you were to move that same event to a northern United States climate in February, you would be faced with additional concerns, sometimes even for a predicted "normal" winter storm. Slow-moving traffic patterns, snow removal in parking areas, and safe movement of spectators from parking areas to the venue are a few concerns. Extreme high and low temperatures must be part of the contingency planning for an event. These extremes present hazards and risks that are not normally present but must be considered in the event that they do occur.

For outdoor events, many additional concerns may become apparent regardless of location. Lightning strikes, severe thunderstorms and hail, high winds, and other undesirable weather pose threats to event patrons. The influx of patrons may have a severe negative impact on the jurisdiction's mass evacuation and sheltering plan for local residents. Contingency plans drawn up for the jurisdiction may not provide for a transient population (as in the case of some rock concerts with numbers of patrons in the hundreds of thousands) that will negatively impact that community's ability to protect residents and visitors.

During the planning phase, event organizers must adequately consider all potential weather conditions. For example, if event infrastructure (i.e., stages, speaker towers, etc.) are to be erected at the event, special consideration should be given to their composition (i.e., steel versus wood, etc.), height, location, and protection of their surrounding areas. Electrical professionals can be consulted regarding the impact of a lightning strike scenario to this type of infrastructure by a swift-moving thunderstorm. Worst-case scenarios can then be developed to consider the effect of infrastructure energized by a lightning strike. Not only could anyone on the stage or scaffolding be prone to electrocution, but many spectators on the ground around the infrastructure could be in danger, depending on the location of the strike with the scaffolding, any grounding mechanisms in place, and the severity of the storm.

Some planning considerations involving weather awareness are:

- Monitoring the weather using a computer, radio, NOAA weather radio, or television.
- Establishing a dedicated a phone line that is linked with the closest office of the National Weather Service.
- Ensuring that ICS team consults with the Weather Service on a regular basis and that consultation information is included in each Operational Period's Incident Action Plan.
- Distributing weather information to the participants.
- Contracting or partnering with a private-sector meteorological prediction service.
- Establishing agreements with the promoter to interrupt a performance and use the festival sound equipment as a public-address system to give information to patrons on protective actions to take if severe weather becomes imminent.
- Coordinating with the Red Cross and concert organizers to designate specific buildings as evacuation shelters if the visiting public requires sheltering.
- Leasing and installing a lightning detection system similar to those used at major golfing events to forewarn of impending storms.

## **WEATHER (CONTINUED)**

Developing severe-weather contingency plans to ensure the safety of event attendees can require a significant amount of time, equipment, planning, and Multiagency participation.

## **SITE HAZARDS**

In selecting a site, especially for an outdoor event, the planning team should identify the potential hazards in the area, which include:

- Power lines that could be brought down by a severe storm.
- Structures and equipment that could be prone to lightning strikes.
- Waterways that may be prone to flooding.
- Brushfires.
- High winds.
- Areas of high ground that require management (i.e., security from snipers, etc.).
- Extremes of temperature.
- Pests and large animals, including:
  - Rodents
  - Insects—ants, caterpillars, wasps, bees, mosquitoes, flies
  - Snakes
  - Spiders
- Pollens and poisonous plants, including noxious weeds.
- Marshes or swamps.
- Quarries, pits.
- Scrap piles.
- Cliffs and steep inclines.
- Watercourses, including their depth of water, water currents, water temperature, water clarity.
- Pollution—dust, noise (including the potential need for hearing protection).
- Water quality (bacteriological), blue-green algae.
- Darkness.
- Hazardous chemicals or underground tanks.
- Use of lasers.
- Alcohol, drugs, weapons, or potential weapons (for example, broken glass).
- Ultraviolet (UV) radiation.
- Neighboring land use.

## **ENVIRONMENTAL IMPACT CONCERNS/MAINTAINING COMPLIANCE**

To ensure compliance with public health requirements, carry out a public health audit just prior to the commencement of the event. Also undertake subsequent periodic surveillance during the event. These procedures are particularly important for outdoor events in hot weather with transient food vendors who may not have sufficient sanitary or refrigeration mechanisms available to meet established public health or safety protocols.

Environmental health officers should have access to resources to assist in early intervention and problem correction and resolution when any problem is noted (for example, toilet servicing, unsafe areas, fencing repairs, water testing) rather than using their authority to stop the event or particular operation.

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## **AIRCRAFT**

If helicopter flights will be available for spectators or members of the media to view the event from the air, the following concerns should be addressed:

- Will flights be prohibited directly over the event and spectators and confined, instead, to circular paths around the perimeter?
  - Will helispots be confined to the periphery of the event, to avoid flights directly above spectators during take-offs and landings?
  - Do the proposed helispots comply with Federal regulations governing such use?
  - Which public safety agency working the event will be designated as responsible for interacting with the Federal Aviation Administration (FAA) if required?
- 

## **CAMPING**

If camping is permitted at the event, you should consider the following:

- Providing for the safety of the campers and their belongings.
- Disposing of solid and liquid waste.
- Clearly marking temporary streets.
- Clearly defining avenues of access for ambulances, law enforcement personnel, and other emergency vehicles.
- Controlling the building of fires.
- Removing fire hazards ahead of time.
- Installing a public address system to communicate emergencies to campers.

Survey proposed camping areas to ascertain their safety, paying particular attention to:

- Low-lying areas subject to flooding.
  - Areas adjacent to creeks or rivers.
  - Areas near utility lines.
  - Trees that may drop branches, especially during a severe storm.
-

## **HAZARDOUS MATERIALS (HAZMAT)**

The nature of some events causes concerns about hazardous materials (e.g., propane gas cylinders used for cooking, pyrotechnic lighting areas, oxygen tanks used by EMS, etc.) and the ability of local officials to handle HazMat incidents. In most communities, the fire department is the agency that responds to calls. The best way to plan for the handling of hazardous materials is to inform the fire department ahead of time about potential hazards and their locations. Providing fire officials with an event footprint grid map with a description of the possible hazards reduces the response time and allows the responding agency to be prepared. If the local fire company is not adequately trained or equipped to handle the hazardous material, planners must identify in advance the closest department that is equipped and consider staging them nearby during the event.

### **CYLINDER ANCHORAGE**

At many public events, portable pressurized gas cylinders are used to inflate children's balloons, to carbonate beverages, or to provide cooking fuel. Frequently, such cylinders are not secured, or are merely fastened to two-wheeled hand trolleys designed to transport them, which are themselves not independently secured.

If such cylinders topple and the cylinder neck or valve cracks, the uncontrolled release of the stored pressurized gas can turn the cylinder into a deadly projectile. For this reason, all portable gas cylinders must be secured.

Used incorrectly, propane can be deadly. Propane is a flammable material that is heavier than air that is used for cooking at many large events. Tanks must be properly secured. Qualified inspectors, usually from the fire service, should also make periodic inspections of the tanks to ensure that the location is a safe distance away from heat sources or other possible sources of danger.

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## **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, EXPLOSIVE (CBRNE)**

The CBRNE threat of weapons of mass destruction (WMD) is currently a much-discussed topic in this country. The Federal Government is prepared to assist communities in the event of a terrorist attack. The local community's first responders will be the first line of defense, but if the attack is beyond their capability, they may seek assistance from the State or Federal Government.

The Department of Defense has created WMD Civil Support Teams (CST) to assist the FBI and local communities facing a terrorist attack. These teams are made up of National Guard members who assist in the detection and identification of WMDs. Because these teams are composed of National Guard personnel, State Governors also may deploy these teams to assist communities.

A HazMat/CBRNE Data Collection Report is included on pages A-82 through A-84 of Appendix A: Job Aids.

A Weapon of Mass Destruction (WMD) is defined as:

- Any weapon that is designed or intended to cause death or serious bodily injury through the release, dissemination, or impact of toxic or poisonous chemicals, or their precursors.
- Any weapons involving a disease organism.
- Any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

Other terms associated with WMDs are:

### **SECONDARY DEVICE**

A secondary device is usually explosive and designed to injure first responders when they arrive at an incident. Following the arrival of the first responders, a second device explodes in the responder area. A secondary device was recently used at an abortion clinic explosion.

### **ANTI-PERSONNEL DEVICES**

Anti-personnel devices are used to injure people and may or may not be considered secondary devices that target responders.

### **SPECIFIC THREAT**

A specific threat explains what will occur, for example, "A bomb will go off in one hour in the parking garage."

### **NON-SPECIFIC THREAT**

A non-specific threat does not explain what may occur, for example, "Everyone in the building is going to die."

## **CAPABILITY**

Capability refers to credible information that a specific group possesses the requisite training, skills, financial means, and access to the resources that are necessary to develop, produce, or acquire a particular type of WMD in a quantity or potency sufficient to produce mass casualties, combined with information substantiating the group's ability to safely store, test, and deliver the weapon.

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## **CHEMICAL**

Chemicals may be used as weapons or to deliver an attack. Originally, the military designed chemical weapons to use in wartime. The results of chemicals used as weapons were so devastating in warfare that many countries rejected their future use and created treaties to forbid their future use and manufacture. In 1995, terrorists attacked a Tokyo subway. Twelve persons died, 4,500 were injured, and more than 700 required extended hospital stays. The ease of access to chemical agents and the amount of damage they cause make chemical warfare very appealing to radical groups. Directions for the creation and use of chemical weapons can be found on the Internet.

Chemical agents include nerve agents, blood agents, choking agents, and blister agents. These agents create a credible threat for use by terrorists, and there is a high probability that chemical agents are likely to be encountered by this country in the future.

Responders must be prepared to manage a terrorist attack involving a chemical agent. To prepare, they should become knowledgeable of the range of chemical agents used by terrorists in the recent past. Knowledge of chemicals and their effects assists in the first stages of treatment. Each community should establish chemical weapons attack response plans and review them regularly. There is Federal training available to train responders in chemical agent response.

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## **BIOLOGICAL**

Biological terrorism is not a new type of warfare. Biological agents are by far the most dangerous of the three types of weapons of mass destruction. Agents include bacteria, fungi, viruses, and toxins that induce disease or death in any living thing.

The difficulty in countering biological terrorism begins with identifying it. Another serious concern arising from the use of all biological agents is the time that can elapse before their use by terrorists is discovered. Biological attacks can be slow acting, with the symptoms not appearing until as many as 21 days after exposure. The further contamination of additional population by those initially exposed multiplies exponentially as the time from the initial exposure increases. The best defense against the spread of the biological element is accurate documentation and tracking of this kind of WMD by medical personnel to contain the exposure.

With many countries facing economic difficulties at the end of the Cold War, experts fear that they may have sold their biological weapons to the highest bidder. However, the lack of an effective delivery system to deploy a biological agent currently limits the ability for widespread impact upon the population.

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## **RADIOLOGICAL**

Radiological agents are materials that emit ionizing radiation that could be dispersed into the environment using devices such as an explosive or other dispersal device.

A radiation threat, commonly referred to as a "dirty bomb" or "radiological dispersion device (RDD)", is the use of common explosives to spread radioactive materials over a targeted area. It is not a nuclear blast. The force of the explosion and radioactive contamination will be more localized. While the blast will be immediately obvious, the presence of radiation will not be clearly defined until trained personnel with specialized radiation detection equipment are on the scene. Having onsite radiological detection capability could reduce the negative impact of radiation exposure to event attendees.

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## **NUCLEAR**

Nuclear terrorism involves the detonation or threatened detonation of a nuclear bomb or the compromise of an existing nuclear facility, and refers to the use of nuclear materials as weapons.

Although the use of a crude nuclear weapon makes the threat of nuclear terrorism possible, FBI intelligence suggests that it would be difficult for a group to construct such a weapon without weapons-grade uranium or plutonium.

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## **EXPLOSIVES**

Explosives are defined as materials that are capable of violent decomposition. This decomposition often takes the form of extremely rapid oxidation (burning). Explosions are the result of a sudden and violent release of gas during the decomposition of explosive substances. High temperature, strong shock, and a loud noise follow this release. Explosives are classified according to the speed of their decomposition.

Because they are readily available, explosives are the most common weapons of mass destruction. When you plan an event, find out:

- Who is the local responder for possible explosives or suspicious packages?
- Does your community have a bomb squad?
- Do you have dogs that are trained to identify explosives?
- What is the community policy on explosive devices?

Explosives seem to be the weapon of choice for terrorists. Less than 5 percent of actual or attempted bombings are preceded by a threat. The lack of prior notification makes casualties more likely than if a notice is given. The explosives can deliver various levels of destruction and can provide a vehicle for the dispersal of chemical, biological, incendiary, and nuclear agents.

The job aids, Bomb Threat Checklist and Bomb Threat Standoff, are included on pages A-85 and A-86, respectively, of Appendix A: Job Aids.

Explosives produce four effects when detonated:

- Blast pressure
- Fragmentation
- Thermal effect
- Ground shock

## **INCENDIARY DEVICES**

As a subset of explosives, incendiary devices have been used by terrorists for many years, because they are flexible tools capable of causing property damage, loss of life, and panic. Incendiary devices continue to spread until fuel is gone or the device is extinguished.

Incendiary devices can be classified as:

- Chemical reaction (including burning fuse)
- Electronic ignition
- Mechanical ignition

The type and construction is limited only to the creativity of the builder.

Incendiary devices may be stationary (placed), hand-thrown (Molotov cocktail), or self-propelled, such as rockets or rifle grenades.

## **INCENDIARY DEVICES (CONTINUED)**

The components of an incendiary device are the ignition source, combustible filler material, and housing or container.

### **DETECTION**

To detect an incendiary device, combustible gas meters, flame ionization detectors, trained dogs, photoionization detectors, and colorimetric tubes may be used.

The clues are similar to detection clues for arson. The clues should be a signal for the responder to take appropriate actions to safeguard him- or herself and the public and treat the area as a potential crime scene. The signs include:

- Prior warning (phone calls)
- Multiple fire locations
- Signs of accelerants
- Containers from flammable liquids
- Splatter patterns indicating a thrown device
- Fusing residue
- Signs of forced entry to the area
- Common appliances out of place for the environment

Incendiary devices may be made with:

- Roadway flares
- Gasoline and motor oil
- Light bulbs
- Common electrical components and devices
- Matches and other household chemicals
- Fireworks
- Propane and butane cylinders
- Plastic pipes, bottles, and cans

### **MITIGATING ACTIONS**

#### ***Unattended Packages***

At every event, people will leave some items unattended. Public safety officials must decide beforehand how to handle these items. Who will respond? Does the community have dogs trained to identify explosives? Will the area be evacuated? Decide these issues ahead of time and have a written plan for all public safety personnel to follow.

### ***Concealment Areas***

Concealment areas are areas where persons may hide or conceal packages or other weapons. The best way to avoid problems in these areas is to map the event grounds and identify the areas that could be used as hiding places. The venue staff could assist police in this matter.

### ***Security Sweeps***

How often is security going to go through the event site? What are they looking for? How do they handle incidents? Who is going to do the sweep? Venue personnel and security personnel should work together. These are a few areas to address in advance. After a sweep of the area has been completed, the area must be secured.

### **SUICIDE BOMBERS**

Another terrorist tactic currently used frequently in foreign countries involves suicide bombers who carry the explosives concealed on their persons, and detonate them in crowded areas such as restaurants, nightclubs, public transit buses, or areas of mass gatherings.

Because suicide bombers are unconcerned with capture, they are difficult to plan for and to respond to. Emergency response planning should carefully consider how to deal with this type of threat at a special event. Additionally, planners cannot discount the potential for terrorists to employ multiple suicide bombers in which the first attack is designed to cause casualties and draw emergency responders to the scene specifically to expose them to a second suicide bomber attack.

### **RESPONSE PROCEDURES**

Local WMD/CBRNE response protocols should be in place in public safety emergency response agencies at this time. As part of the planning process, these procedures should be reviewed, and created or modified as necessary. If a WMD/CBRNE incident occurs during the special event, local response agency protocols should be followed.

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## **ELECTRICAL UTILITY COORDINATION REQUIREMENTS**

Participants, spectators, and event staff are all affected by lighting, which is needed to set up, tear down, and ensure the safety of the event. Make certain that lighting is adequate and that the power supply to provide the lighting for the event, campgrounds, and parking areas is adequate.

Even in venues that are darkened for performances, lighting should always be in use to identify exits as well as the corridors and aisles leading to them. All temporary electrical facilities should be inspected and approved by a local government inspector to ensure the safety of all.

Install auxiliary battery power or generators to provide light and to power the public-address system during power outage. You must be able to give information and directions to spectators during a power failure to alleviate panic.

Because many concerts are performed with only stage lighting, event staff access to the main lighting board or house lights console is essential in case of an emergency. Onsite personnel responsible for dealing with emergencies must know the location of the controls for these lights and how to operate them.

A Utilities Department Venue Assessment Checklist is included on pages A-40 and A-41 of Appendix A: Job Aids.

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## **FIRE SAFETY**

All States and territories have legislation governing fire safety. The local fire authority should monitor fire prevention and preparedness plans to ensure that the measures taken meet relevant standards and comply with State/local life safety codes. Fire safety officials should conduct an onsite inspection in advance of the event, and ensure that any deficiencies noted are corrected prior to the event.

Organizers and health personnel should consider potential fire hazards in the planning process and discuss with the fire authority any concerns they may have. Concerns should include designating smoking areas and providing proper cigarette disposal receptacles.

Fire and law enforcement agencies should determine in advance how they will handle a civil disturbance or riot involving fire-setting behavior and have contingency plans in place. For example, a team of police officers may be assigned to accompany each engine sent out to quell a fire set by rioters.

Site design should be such as to mitigate fire hazards. For example, clear storage areas, timeliness in picking up trash, construction of metal rather than wood, no open flames, and control of pyrotechnics, assist in fire mitigation.

## **FIRE SAFETY (CONTINUED)**

When the event includes fireworks, fire service personnel should conduct a diligent search for any unexploded fireworks. Before you allow public access to the area, safely collect and remove any unexploded fireworks.

A Fire Services Venue Assessment Checklist is included on pages A-49 and A-50 of Appendix A: Job Aids.

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## **COMMUNICATIONS SYSTEMS**

A means of communicating with the crowd is essential at all events. Ideally, you should establish multiple communications systems to enable messages to be directed at different sections of the crowd, including crowds massed outside the venue. The Incident Command Post should have access to the central communications system, and interoperability and communications with the jurisdiction's Emergency Operations Center (EOC) if it is activated during the event.

Before the event begins, establish appropriate arrangements for communications if an emergency arises. If emergency personnel will use a separate sound system, they need some means of muting or silencing the stage sound system. Also, consider the use of signboards throughout the venue as an enhancement to the public-address system.

Because public announcements are an important element of the safety plan for an event, consider the style and content of announcements, as follows:

- At what volume level can announcements be heard over spectator noise?
- Will the audience easily understand announcements?
- Are multiple-language announcements required?
- What wording will lend credibility to the instructions?

If public-address systems cannot be put in place outside the venue, personnel can use the public-address systems that form part of the electronic siren system in most emergency vehicles.

Closed-circuit television is another option available for organizers to provide visual information to the public.

## **INTEROPERABLE COMMUNICATIONS**

While it goes without saying that the various emergency services (police, health, fire) must be able to communicate with their own staffs, experience has shown that different services must be able to:

- Communicate with each other.
- Communicate between staff outside and inside the venue to obtain a proper understanding of the nature or scope of an emergency.
- Communicate with senior event organizers, including security personnel, who may be the first to identify an incipient problem.

## **INTEROPERABLE COMMUNICATIONS (CONTINUED)**

Consider the following suggestions:

- Do not rely on cellular telephones.
- Ensure there is an integrated, Multiagency frequency for communications.
- Consider laying land lines for telephone service.
- Include the use of amateur radio operators for communications.

A central communications area (for example, a room or a trailer dedicated to this use) at the Incident Command Post with a representative from each major agency may facilitate the dissemination of vital information through the centralized monitoring of relevant radio communications.

Because a single system can fail, the communications system should be multi-modal. It should also be supplied with its own backup power source.

## **ATTENDEES' PERSONAL EMERGENCIES**

Some means should be established to contact spectators and for spectators to call outside the venue if necessary. Some events provide small booths staffed with volunteers to assist in message passing. Other events use the public address system. Still others provide event brochures with emergency information inside. Select the most effective way to send messages at your event. If invited to, many phone companies often will provide a temporary bank of pay or credit card phones at the venue.

## **EVENT PUBLIC ADDRESS SYSTEM**

Do not rely on the sound system used by the performers to serve internal requirements and release information to the public. Sometimes those responsible for performers' sound systems have refused to authorize their use except during a change of performers. So, an alternate venue-wide PA system is necessary to prevent delays in relaying messages. Informing the public of information reduces the pressures on event staff. Reducing uncertainty among spectators defuses tension. A public-address system is important at any event.

## **EVENT EMERGENCY WARNING SYSTEM**

Some means to inform everyone of an emergency or dangerous weather condition should be in place for every event, no matter the size. This emergency warning system must be able to operate without benefit of the main power source and must be operational at all times. Ensure that the system can be heard clearly in all areas of the event. One person should be in charge of emergency communications. The Incident Commander should authorize the release of emergency messages. All involved agencies should be advised, in advance if possible, of the anticipated release of an emergency message and allowed to inform their personnel to prepare for the public's response. Part of the planning process should be drafting sample pre-scripted messages for use in an emergency. While drafting these messages, consider using a code word or phrase to identify authentic emergency messages and to ensure that emergency personnel respond only to true emergencies.

## **RUMOR CONTROL**

Rumor Control is another area that is difficult to plan for but one that you must address. Most communities have plans for rumor control during emergencies. You can respond in a similar manner to rumors during an incident at an event. As discussed in Chapter 3, the lead agency should designate a Public Information Officer (PIO). Upon designation, the lead agency must determine in advance both what is going to be said and who is authorized to release information. For accuracy and to promote efficiency in rumor control, designate one source of authority.

Internal rumor control is also needed. Personnel working the event need to be kept informed through an official chain of communication, especially if an unanticipated incident occurs. Information is best disseminated through daily shift briefings that include the sharing of operational objectives for the Operational Period.

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## **OCCUPATIONAL HEALTH AND SAFETY**

Because the promoter and authorities are obligated to provide for the safety of the audience, as well as appropriate care, safety, and training of all personnel working at the event, they should be familiar with State and local occupational health and safety legislation.

Many events rely on staff volunteers. While most public safety agencies are not permitted to use volunteers because the agencies may be liable for them, the promoter will probably use volunteers extensively and is liable for their safety. Emergency Medical Services (EMS) may use volunteers, provided that they are adequately trained and certified. If the public-sector agencies use volunteers, they must protect the volunteers as they would protect the occupational health and safety of any other employee.

At events where noise levels are high, such as rock concerts, air shows, and motor racing events, adequate hearing protection must be provided to employees who will be exposed to high noise levels for prolonged periods.

Noise pollution from events probably causes the majority of complaints to authorities from the surrounding community, and some means of monitoring and reducing noise levels should be implemented, if possible. The permitting agency should mandate that the promoter advise the community of what to expect well in advance of the event.

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### **ALCOHOL, DRUGS, AND WEAPONS**

Alcohol, drugs, and weapons are potential hazards that members of the crowd might bring to any event. They can be catalysts for, and can exacerbate, unruly behavior in a crowd. Every community has its own laws and regulations regarding alcohol, drugs, and weapons. The following suggestions are merely guidelines.

A number of strategies that have been implemented, with varying degrees of success, in reducing the problem include:

- Consider the prohibition of the sale and use of alcoholic beverages at events where unruly audiences are expected, or where a significant number of the patrons will be under the legal drinking age.
- If alcohol is to be sold, then low-alcohol-content beverages can be made available. Alcohol sale times can be controlled and beverages dispensed only in disposable cups.
- Establish an early "last call" for alcohol. For example, during major-league baseball games, alcohol is not sold after the seventh inning, and during professional basketball games, it is not sold after the third quarter.
- If alcohol, weapons, and fireworks are lawful within the State, advance tickets and display advertising should contain the message that they will not be permitted into the event. Tickets and advertising should also state that the purchase of tickets is deemed to constitute the patron's consent to be searched for prohibited material prior to admission.
- Searches of personal belongings (such as jackets, purses, or bags) and confiscation of any alcohol, drugs-and weapons further reduces the risk of unruly behavior.
- Signs in event parking areas and at admission gates should also display a warning to discourage patrons from bringing alcohol, drugs, or weapons into the event. There are, however, possible negative consequences to such signage. Some patrons may attempt to consume a quantity of alcohol intended for the entire event prior to entry, ultimately causing problems for the event medical staff. Alternatively, signage could also have the effect of causing spectators to leave alcohol in their cars, only to consume it in the parking lot at the end of the event prior to departure. The most desirable action is to discourage patrons from bringing prohibited materials to the event in the first place.

Three strategies that may be applied to handling all prohibited material include:

- Give the spectator the option of returning the material to his or her car, with a subsequent loss of place in line.
- If you decide to confiscate prohibited goods, you must make arrangements for the storage and disposal of these materials.
- Tag it with peel-and-stick numbered stickers for return to the patron following the event. If, for any reason, you deem confiscation inappropriate, you can apply such a solution to any weapons, or materials that are potential weapons.

## **SECURITY**

Event organizers must decide what type of security to provide and the scope of the security services' jurisdiction. Providing security services and the stewarding function are vital to public safety, particularly within the venue. There are essentially three types of security that you can provide at large public events. These are:

- Peer security
- Private uniformed security guards
- Uniformed police officers

### **PEER SECURITY**

Experience has shown that, in general, you can promote security for events that attract youth audiences better and more simply through the use of "peer security"—security personnel of the approximate age of the spectators who can relate to and be accepted by the youthful patron. Peer security personnel usually wear brightly colored T-shirts plainly marked SECURITY. They provide a less confrontational security presence by avoiding the posture of rigid authority and the force that often accompanies it. As one concert organizer commented on his experience with peer security:

"They do not carry weapons and do not attempt to fill a police function. They serve as crowd monitors, people movers, and troubleshooters. Such personnel are not there to reform or catch the alcohol or drug user. . . . They concentrate on maintaining orderly crowd flow for the safety of the patrons."

"You should provide appropriate guidelines for peer security personnel and stipulate limits to their authority, such as: keeping the peace, helping people in distress, assisting the staff of doctors and nurses, clearing paths for ambulances, seeing that areas were cleared for helicopter take-offs and landings, and guarding the stage, and the performers."

### **PRIVATE UNIFORMED SECURITY GUARDS**

Private uniformed security guards are probably better suited to events that attract more docile spectators, such as religious rallies, charitable dinners, and art shows, and they usually will be less costly than a police presence. At events attracting crowds of more youthful exuberance, or volatile sports spectators, private uniformed security guards are probably more appropriately utilized in non-confrontational roles, such as taking tickets and parking cars.

Care needs to be taken to ensure that private uniformed security personnel are recruited only from reputable sources with competent and suitably trained personnel. You should discuss any special requirements for the event with the security firm.

In certain circumstances, the use of private uniformed security guards can lead to problems. A uniform gives an authoritative appearance that is often not supported either by adequate training or authority in law. As a result, private uniformed security personnel provide neither the power of police nor the rapport achieved by peer security.

## **UNIFORMED POLICE OFFICERS**

At many events, uniformed police officers perform functions such as traffic control, and leave internal event security to private personnel employed by the organizers.

A typical crowd composed mainly of families needs one police officer per 1,000 spectators. In a more active crowd (for example, at a sporting event where alcoholic beverages are sold), two police officers are commonly employed for every 1,000 spectators.

Certain spectator groups may not, however, be amenable to either peer or private uniformed security, such as crowds who historically have experienced violence as part of the event "culture." While various diffusing techniques are available and should be employed, often nothing less than a contingent of uniformed police will dissuade a spectator group that enters with the expectation and intent of violence. These groups are in marked contrast to rock concert audiences who enter in a peaceful frame of mind, but may be induced to rowdiness by alcohol, shortcomings in the event, or other catalysts.

The composition of security services will vary according to the event; one or a combination of the three types may better serve different events.

## **SECURITY ROLES AND RESPONSIBILITIES**

Clearly establish the roles and responsibilities of security personnel prior to the event. Decisions and actions taken by security personnel may affect the way emergency services and health personnel respond to a crisis. In planning, and throughout all stages of the event, maintain a close working relationship among:

- Security personnel
- The promoter
- Health and medical services
- Other police and emergency services
- Other security services (for example, those who are responsible for the performers' personal safety)

Special security considerations include:

- Will the event organizers or promoters use police officers for onsite security, or will they hire private security officers?
- If you use private security officers, what will their role and functions be, and how will their services be integrated with those of the police? Are they permitted to work outside of the venue?
- What policies will security personnel enforce for minor offenses onsite to assure that established policy is enforced consistently during the event and throughout the venue?
- Will there be areas onsite for the collection and storage of significant sums of money, and what security will be established to protect these areas, as well as offsite transfer or banking? Are these areas positioned near road access to avoid the risks associated with carrying large sums of money on foot through spectator areas?
- How will security personnel move high-profile persons through crowded areas?

## **SECURITY ROLES AND RESPONSIBILITIES (CONTINUED)**

- How will security personnel handle lost or stolen property?
- How will security personnel detect forged credentials?
- How will security personnel deal with lost children and missing persons?
- Ensure that equal patron assessment and treatment occurs at entrances and security checkpoints. All attendees must be treated as "equal risks" from a security standpoint.

You should clearly define the responsibilities and roles of security personnel before the event. These may include:

- Crowd management, including measures taken to prevent crushing.
- Control of access to stage or performance areas.
- Security control at entrances and exits.
- Area patrol to minimize the risk of fire.
- Control of vehicle traffic and marshaling.
- Searches for alcohol, drugs, and weapons.
- Security of large sums of money and confiscated goods.
- Assistance to emergency services, if necessary.

## **PRE-EVENT BRIEFING OF SECURITY PERSONNEL**

To enable security personnel to perform their duties effectively, you must brief them appropriately prior to the event. This briefing should provide security personnel with:

- Details of the venue footprint and grid map, including entrances, exits, medical aid posts, and any potential hazards.
- Clear direction on the management of unacceptable behavior.
- Basic information about the event, such as the locations of medical aid posts and lost-person stations, information, parking, transportation matters, and other pertinent spectator information.
- Details of emergency and evacuation plans, such as procedures for raising alarms, protocols for requesting assistance, and evacuation procedures.
- Instructions for the operation, deactivation, and isolation of any onsite machinery and utility supply in case of emergency.
- Details of the incident communications plan and the equipment to be used.

The attitude of security personnel has a major influence on crowd compliance. Security personnel are charged with not only controlling a crowd, but also with making them feel welcome. Every individual staff member who comes into contact with the spectators plays a role in crowd control. The dress, demeanor, and actions of staff may set behavioral expectation levels, and you should consider this fact in planning and pre-event briefing of staff.

## **DEPLOYMENT**

You should consider strategic deployment of security staff. All venues will have areas that are particularly suited to crowd monitoring and problem areas where particular attention is required. The type and size of the venue may control what method of transportation the security personnel use. Using bicycles or golf carts may be more practical than deploying in vehicles or on foot. Indoor events are usually patrolled on foot, while a large outdoor area may be patrolled using bicycles, golf carts, or automobiles. The amount of time during which the personnel must patrol also may be a factor. Deployment considerations include:

- Identification of strategic deployment points, such as entrances and exits, barriers, and general thoroughfares.
- Establishment of strategic observation points to monitor crowd movements and behavior (A central control room with video surveillance may be required.)
- Use of video pole cameras in densely populated areas.

## **DIGNITARIES AND CELEBRITY GUESTS**

Events with invited dignitaries or in which dignitaries participate create an entirely new group of hazards and difficulties. A dignitary presence may change the level of jurisdiction and the type of security needed at the event. The planning team may not know in advance if a dignitary or celebrity is coming. Therefore, it is important to have contingency plans involving local agencies such as law enforcement, fire, and others to coordinate with the State and Federal agencies if a special guest arrives. Many dignitaries have their own security service that travels with them. Providing special seating for dignitaries may be necessary. Discuss the possible difficulties and hazards before allowing the promoter or sponsor to extend invitations to dignitaries.

A Law Enforcement Venue Assessment Checklist is included on pages A-51 and A-52 of Appendix A: Job Aids.

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## **LOST-CHILD AND "MEET ME" LOCATIONS**

Because of the size of an event and the number of spectators at the venue, children will inevitably be separated from their adult supervisors. Planners must designate a place for lost children to be reunited with their parents or guardians and have a checklist to allow information to be disseminated quickly and accurately. Issues regarding legal custody of minor children may be a consideration, and would probably be best dealt with by law enforcement agencies onsite.

Other useful areas include "meet me" locations. These are designated locations throughout the site, which are well marked and easily spotted. Patrons can plan to meet at these locations at a predetermined time, or they may use these locations if they become separated.

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### **INFORMATION CENTER**

A well-identified, well-publicized information center onsite, staffed with knowledgeable personnel, can reduce pressures on security, medical, and other event staff, by providing a full range of informational services to patrons. Reduction of uncertainty among spectators defuses the kind of tension that can lead to behavioural problems. To ease the burden on the public sector, the promoter should be required in the permit application process to provide this service.

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### **PLAN FOR "MURPHY'S LAW"**

As the title for this section suggests, organizers cannot plan for or anticipate every crisis. You can, however, take certain measures to ensure personnel safety. For example, if a stand collapses, the fire department routinely uses an established, practiced procedure to remove the injured and to cordon off the area. This procedure will not change simply because the stand collapses at a spontaneous event. Contingency plans, modeled on established procedures, need to be in place for demonstrations, protests, or picketing that may occur during a planned event. Train for the worst and respond to your training. Plan for the worst, and you can handle even the unexpected events in an orderly manner. Designate specific incident resources in advance to respond to spontaneous events as they may occur. During event planning, brainstorm a list of the potential spontaneous events that are most likely to occur.

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# CHAPTER 3: NATIONAL INCIDENT MANAGEMENT SYSTEM AND INCIDENT COMMAND SYSTEM





## **INTRODUCTION**

Chapter One stresses the importance of pre-event planning, organization, and leadership. It suggests a planning team using the Incident Command System (ICS) to manage the event planning process effectively. In a large-scale event involving numerous agencies, people can become confused as to who is in charge, what role everyone plays, and what responsibilities everyone has. ICS is an excellent tool that can resolve these issues. This chapter discusses ICS, how it can be applied to special events, and the concept of Unified Command.

Unfortunately, even the best-planned special events may not run entirely smoothly. During any special event, you must be prepared to respond to one or more incidents that may occur during the event. The way these incidents are managed has a great deal to do with the ultimate success of the special event. Everyone must know his or her role and tasks, and where to seek information. This chapter also discusses the use of ICS during these situations.

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## **NATIONAL INCIDENT MANAGEMENT SYSTEM**

The National Incident Management System (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand in hand with the National Response Framework (NRF). NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management.

NIMS integrates existing best practices into a consistent, nationwide, systematic approach to incident management that is applicable at all levels of government, nongovernmental organizations (NGOs), and the private sector, and across functional disciplines in an all-hazards context. Five major components make up this systems approach: Preparedness, Communications and Information Management, Resource Management, Command and Management, and Ongoing Management and Maintenance.

The components of NIMS were not designed to stand alone, but to work together in a flexible, systematic manner to provide the national framework for incident management.

The Emergency Management Institute (EMI), located at the National Emergency Training Center in Emmitsburg, MD, offers a broad range of NIMS-related training. Additional information about NIMS and ICS training can be found at <http://training.fema.gov>.

## IS-15: Special Events Contingency Planning Job Aids Manual

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### PREPAREDNESS: OVERVIEW

NIMS provides the mechanisms for emergency management/response personnel and their affiliated organizations to work collectively by offering a consistent and common approach to preparedness.

Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. Ongoing preparedness efforts among all those involved in emergency management and incident response activities ensure coordination during times of crisis. Moreover, preparedness facilitates efficient and effective emergency management and incident response activities.



This component describes specific measures and capabilities that emergency management/response personnel and their affiliated organizations should develop and incorporate into their overall preparedness programs to enhance the operational preparedness necessary for all-hazards emergency management and incident response activities. In developing, refining, and expanding preparedness programs and activities within their jurisdictions and/or organizations, emergency management/response personnel should leverage existing preparedness efforts and collaborative relationships to the greatest extent possible. Personal preparedness, while an important element of homeland security, is distinct from the operational preparedness of our Nation's emergency management and incident response capabilities and is beyond the scope of NIMS.

### Communications and Information Management: Overview

Effective emergency management and incident response activities rely on flexible communications and information systems that provide a common operating picture to emergency management/response personnel and their affiliated organizations. Establishing and maintaining a common operating picture and ensuring accessibility and interoperability are the principal goals of the Communications and Information Management component of NIMS. Properly planned, established, and applied communications enable the dissemination of information among command and support elements and, as appropriate, cooperating agencies and organizations.

Incident communications are facilitated through the development and use of common communications plans and interoperable communications equipment, processes, standards, and architectures. During an incident, this integrated approach links the operational and support units of the various organizations to maintain communications connectivity and situational awareness. Communications and information management planning should address the incident-related policies, equipment, systems, standards, and training necessary to achieve integrated communications.

### **Resource Management: Overview**

Emergency management and incident response activities require carefully managed resources (personnel, teams, facilities, equipment, and/or supplies) to meet incident needs. Utilization of the standardized resource management concepts such as typing, inventorying, organizing, and tracking will facilitate the dispatch, deployment, and recovery of resources before, during, and after an incident.

Resource management should be flexible and scalable in order to support any incident and be adaptable to changes. Efficient and effective deployment of resources requires that resource management concepts and principles be used in all phases of emergency management and incident response.

The resource management process can be separated into two parts: resource management as an element of preparedness and resource management during an incident. The preparedness activities (resource typing, credentialing, and inventorying) are conducted on a continual basis to help ensure that resources are ready to be mobilized when called to an incident. Resource management during an incident is a finite process, as shown in the below figure, with a distinct beginning and ending specific to the needs of the particular incident..

### **Command and Management: Overview**

The NIMS components of Preparedness, Communications and Information Management, and Resource Management provide a framework for effective management during incident response.

### **Command and Management Overview: Incident Command System**

The Incident Command System (ICS) is a standardized, on-scene, all-hazards incident management approach that:

- Allows for the integration of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure.
- Enables a coordinated response among various jurisdictions and functional agencies, both public and private.
- Establishes common processes for planning and managing resources.
- ICS is flexible and can be used for incidents of any type, scope, and complexity. ICS allows its users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents.

ICS is used by all levels of government—Federal, State, tribal, and local—as well as by many nongovernmental organizations and the private sector. ICS is also applicable across disciplines. It is typically structured to facilitate activities in five major functional areas: Command, Operations, Planning, Logistics, and Finance/Administration. All of the functional areas may or may not be used based on the incident needs. Intelligence/Investigations is an optional sixth functional area that is activated on a case-by-case basis.

As a system, ICS is extremely useful; not only does it provide an organizational structure for incident management, but it also guides the process for planning, building, and adapting that structure. Using ICS for every incident or planned event helps hone and maintain skills needed for the large-scale incidents.

ICS Management Principle	Description
<p><b>Common Terminology</b></p>	<p>ICS establishes common terminology that allows diverse incident management and support organizations to work together across a wide variety of incident management functions and hazard scenarios. This common terminology covers the following:</p> <ul style="list-style-type: none"> <li>• <b>Organizational Functions:</b> Major functions and functional units with incident management responsibilities are named and defined. Terminology for the organizational elements is standard and consistent.</li> <li>• <b>Resource Descriptions:</b> Major resources—including personnel, facilities, and major equipment and supply items—that support incident management activities are given common names and are “typed” with respect to their capabilities, to help avoid confusion and to enhance interoperability.</li> <li>• <b>Incident Facilities:</b> Common terminology is used to designate the facilities in the vicinity of the incident area that will be used during the course of the incident.</li> </ul> <p>Incident response communications (during exercises and actual incidents) should feature plain language commands so they will be able to function in a multijurisdiction environment. Field manuals and training should be revised to reflect the plain language standard.</p>
<p><b>Modular Organization</b></p>	<p>The ICS organizational structure develops in a modular fashion based on the size and complexity of the incident, as well as the specifics of the hazard environment created by the incident. When needed, separate functional elements can be established, each of which may be further subdivided to enhance internal organizational management and external coordination.</p> <p>Responsibility for the establishment and expansion of the ICS modular organization ultimately rests with Incident Command, which bases the ICS organization on the requirements of the situation. As incident complexity increases, the organization expands from the top down as functional responsibilities are delegated. Concurrently with structural expansion, the number of management and supervisory positions expands to address the requirements of the incident adequately.</p>

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<b>ICS Management Principle</b>	<b>Description</b>
<b>Management by Objectives</b>	<p>Management by objectives is communicated throughout the entire ICS organization and includes:</p> <ul style="list-style-type: none"> <li>• Establishing overarching incident objectives.</li> <li>• Developing strategies based on overarching incident objectives.</li> <li>• Developing and issuing assignments, plans, procedures, and protocols.</li> <li>• Establishing specific, measurable tactics or tasks for various incident management functional activities, and directing efforts to accomplish them, in support of defined strategies.</li> <li>• Documenting results to measure performance and facilitate corrective actions.</li> </ul>
<b>Incident Action Planning</b>	<p>Centralized, coordinated incident action planning should guide all response activities. An Incident Action Plan (IAP) provides a concise, coherent means of capturing and communicating the overall incident priorities, objectives, and strategies in the contexts of both operational and support activities. Every incident must have an action plan. However, not all incidents require written plans.</p> <p>The need for written plans and attachments is based on the requirements of the incident and the decision of the Incident Commander or Unified Command. Most initial response operations are not captured with a formal IAP. However, if an incident is likely to extend beyond one operational period, become more complex, or involve multiple jurisdictions and/or agencies, preparing a written IAP will become increasingly important to maintain effective, efficient, and safe operations.</p>
<b>Manageable Span of Control</b>	<p>Span of control is key to effective and efficient incident management. Supervisors must be able to adequately supervise and control their subordinates, as well as communicate with and manage all resources under their supervision.</p> <p>In ICS, the span of control of any individual with incident management supervisory responsibility should range from 3 to 7 subordinates, with 5 being optimal. During a large-scale law enforcement operation, 8 to 10 subordinates may be optimal. The type of incident, nature of the task, hazards and safety factors, and distances between personnel and resources all influence span-of-control considerations.</p>

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ICS Management Principle	Description
<p><b>Incident Facilities and Locations</b></p>	<p>Various types of operational support facilities are established in the vicinity of an incident, depending on its size and complexity, to accomplish a variety of purposes.</p> <p>The Incident Command will direct the identification and location of facilities based on the requirements of the situation. Typical designated facilities include Incident Command Posts, Bases, Camps, Staging Areas, mass casualty triage areas, point-of-distribution sites, and others as required.</p>
<p><b>Comprehensive Resource Management</b></p>	<p>Maintaining an accurate and up-to-date picture of resource utilization is a critical component of incident management and emergency response. Resources to be identified in this way include personnel, teams, equipment, supplies, and facilities available or potentially available for assignment or allocation.</p>
<p><b>Integrated Communications</b></p>	<p>Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures. The ICS 205 form is available to assist in developing a common communications plan. This integrated approach links the operational and support units of the various agencies involved and is necessary to maintain communications connectivity and discipline and to enable common situational awareness and interaction.</p> <p>Preparedness planning should address the equipment, systems, and protocols necessary to achieve integrated voice and data communications.</p>
<p><b>Establishment and Transfer of Command</b></p>	<p>The command function must be clearly established from the beginning of incident operations. The agency with primary jurisdictional authority over the incident designates the individual at the scene responsible for establishing command. When command is transferred, the process must include a briefing that captures all essential information for continuing safe and effective operations.</p>
<p><b>Chain of Command and Unity of Command</b></p>	<ul style="list-style-type: none"> <li>• Chain of Command: Chain of command refers to the orderly line of authority within the ranks of the incident management organization.</li> <li>• Unity of Command: Unity of command means that all individuals have a designated supervisor to whom they report at the scene of the incident. These principles clarify reporting relationships and eliminate the confusion caused by multiple, conflicting directives. Incident managers at all levels must be able to direct the actions of all personnel under their supervision.</li> </ul>

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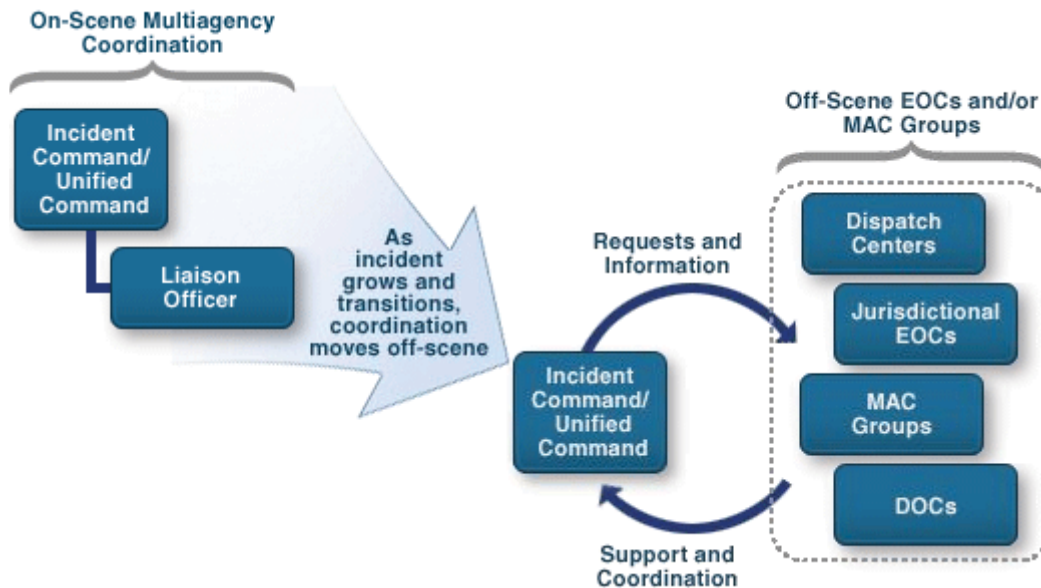
ICS Management Principle	Description
<b>Unified Command</b>	In incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.
<b>Accountability</b>	<p>Accountability: Effective accountability of resources at all jurisdictional levels and within individual functional areas during incident operations is essential. Adherence to the following ICS principles and processes helps to ensure accountability:</p> <ul style="list-style-type: none"> <li>• Resource Check-In/Check-Out Procedures</li> <li>• Incident Action Planning</li> <li>• Unity of Command</li> <li>• Personal Responsibility</li> <li>• Span of Control</li> <li>• Resource Tracking</li> </ul>
<b>Dispatch/Deployment</b>	<p>Resources should respond only when requested or when dispatched by an appropriate authority through established resource management systems.</p> <p><b>Resources not requested must refrain from spontaneous deployment to avoid overburdening the recipient and compounding accountability challenges.</b></p>
<b>Information and Intelligence Management</b>	The incident management organization must establish a process for gathering, analyzing, assessing, sharing, and managing incident-related information and intelligence



**Command and Management Overview: Multiagency Coordination Systems**

Multiagency coordination is a **process** that allows all levels of government and all disciplines to work together more efficiently and effectively. Multiagency coordination occurs across the different disciplines involved in incident management, across jurisdictional lines, or across levels of government. Multiagency coordination can and does occur on a regular basis whenever personnel from different agencies interact in such activities as preparedness, prevention, response, recovery, and mitigation.

Often, cooperating agencies develop a Multiagency Coordination System (MACS) to better define how they will work together and to work together more efficiently; however, multiagency coordination can take place without established protocols. MACS may be put in motion regardless of the location, personnel titles, or organizational structure. Initially the Incident Command/Unified Command and the Liaison Officer may be able to provide all needed multiagency coordination at the scene. However, as the incident grows in size and complexity, off-site support and coordination may be required.



Integral elements of MACS are dispatch procedures and protocols, the incident command structure, and the coordination and support activities taking place within an activated Emergency Operations Center. Fundamentally, MACS provide support, coordination, and assistance with policy-level decisions to the ICS structure managing an incident.

**Command and Management Overview: Public Information**

Public Information consists of the processes, procedures, and systems to communicate timely, accurate, and accessible information on the incident's cause, size, and current situation to the public, responders, and additional stakeholders (both directly affected and indirectly affected). Public information must be coordinated and integrated across jurisdictions, agencies, and organizations; among Federal, State, tribal, and local governments; and with NGOs and the private sector.

Well-developed public information, education strategies, and communications plans help to ensure that lifesaving measures, evacuation routes, threat and alert systems, and other public safety information are coordinated and communicated to numerous audiences in a timely, consistent manner.

A Joint Information System (JIS) provides the mechanism to organize, integrate, and coordinate information to ensure timely, accurate, accessible, and consistent messaging across multiple jurisdictions and/or disciplines with nongovernmental organizations and the private sector. A JIS includes the plans, protocols, procedures, and structures used to provide public information. Federal, State, tribal, territorial, regional, or local Public Information Officers and established Joint Information Centers (JICs) are critical supporting elements of the JIS.

A Joint Information Center (JIC) is a central location that facilitates operation of the Joint Information System. The JIC is a location where personnel with public information responsibilities perform critical emergency information functions, crisis communications, and public affairs functions. JICs may be established at various levels of government or at incident sites, or can be components of Multiagency Coordination Systems. A single JIC location is preferable, but the system is flexible and adaptable enough to accommodate virtual or multiple JIC locations, as required.

### **INCIDENTS OCCURRING DURING A SPECIAL EVENT**

As discussed above, certain incidents occurring during a special event may dictate the need for a specific Incident Commander to manage that particular incident (e.g., isolated structure fire, vehicle crash, HazMat incident, structure collapse, multiple casualty incident, etc.).

When an incident occurs within a special event, immediate action must be taken to control and manage the incident. As the incident grows, the issues that must be considered will grow as well. The Incident Commander of the special event may assign command of the emergency incident to a ranking responder. This responder must take initial steps to bring order to the incident, just as in situations that require more traditional applications of ICS.

The Incident Commander of the special event may authorize the responder to implement his or her own command structure and/or call upon the resources of the event command structure. This responder must:

- Assess the situation.
  - Determine whether human life is at immediate risk.
  - Establish the immediate priorities and objectives.
  - Determine whether there are adequate and appropriate resources on-scene or ordered.
  - Establish an appropriately located on-scene Command Post (CP), if needed.
  - Establish an appropriate initial command structure, if needed.
  - Develop an action plan.
  - Ensure that adequate safety measures are in place.
  - Coordinate activity for all Command and General Staff.
  - Consider whether the span of control is approaching, or will soon approach, practical limits, taking into account the safety of all personnel.
  - Determine whether there are any environmental concerns that must be considered.
  - Monitor work progress and coordinate with key people.
  - Review and modify objectives and adjust the action plan as necessary.
  - Approve requests for additional resources or for the release of resources.
  - Keep the overall event Incident Commander informed of incident status.
  - Authorize release of information to the news media.
  - Order the demobilization of the incident, when appropriate.
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# CHAPTER 4: ADDITIONAL PLANNING CONSIDERATIONS FOR SPECIFIC EVENTS



## **INTRODUCTION**

Some events present more risks than others, and they require special planning well in advance of the event. This chapter provides some examples of high-risk events and suggests ways to prepare for emergencies that may occur during those events. Planners should ensure that personnel are trained and equipped for the unique nature of these events. Another way to learn of these risks is to check with other agencies to gain additional information. For each of these high-risk events, weather is a critical factor that you must consider.

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## **POWER BOAT RACES AND SIMILAR AQUATIC EVENTS**

Before any outdoor event begins, check with the proper agencies such as the Coast Guard, natural resources, or other applicable agencies.

### **MEDICAL SUPPORT FOR PARTICIPANTS**

Aquatic events, particularly those involving motorized watercraft, require careful planning. A designated medical response boat should be available in the water with appropriately trained personnel and equipment, including a spinal board and resuscitation equipment. The medical boat should be linked by two-way radio to the rescue boats and ambulance/medical services. For offshore boat racing, consider a helicopter with rescue capabilities.

A rescue boat should be in attendance with experienced divers, equipped with scuba gear, to remove personnel trapped underwater.

Identify landing locations appropriate for the transfer of patients on stretchers from boats to land ambulances.

### **SPECTATOR AREAS**

Appropriate buffer walls or "run off" areas should be established to prevent out-of-control vessels from entering spectator and pit areas.

Where spectators are permitted to line piers and breakwaters along areas of deep water, observe the following practices:

- In the absence of a physical barrier, mark a line to warn spectators away from the edges fronting deep water.
- In addition to any vessel committed to assisting event participants, a dedicated boat should constantly patrol the shore adjacent to the spectator area. It should be equipped with a loudspeaker to warn spectators who venture too close to the edge. The boat should also be suitably equipped to provide for water rescue and the resuscitation of injured persons.

### **SPECTATOR AREAS (CONTINUED)**

All boats intended for rescue, or designated to provide medical attention, should be clearly marked and equipped with some form of hazard lighting to warn other vessels off. Any boats used for participant or spectator control should be staffed with personnel trained in appropriate lifesaving and emergency medical practices, including cardiopulmonary resuscitation (CPR).

Any boat intended for medical assistance or water rescue should contain sufficient clear space to resuscitate a patient in the supine position and be equipped, at a minimum, with the following:

- Automatic External Defibrillator (AED).
- A spinal board for full-body immobilization, and cervical collars and restraint straps.
- Ventilation equipment, which should ideally be a positive pressure oxygen ventilator, or as a minimum, a bag-valve-mask unit, preferably with oxygen assist (oropharyngeal airways and suction should also be included).
- A supply of large pressure dressings.
- Personnel trained and experienced in the use of the equipment identified above.
- Personnel trained and attired to perform water rescue and removal.

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### **AUTOMOBILE AND SIMILAR RACES**

While aquatic events present hazards to participants and spectators, and difficulties to event planners and incident responders that are not present with other events, some types of auto racing also present unique areas of concern.

Sponsors of organized auto races conducted by professional racing organizations at permanent facilities normally meet the safety guidelines required for participants as outlined in this document. Similarly, professional racing organizations using temporary facilities follow very strict guidelines.

For racing events conducted by local clubs, however, no formal safety guidelines exist to cover the health and safety of participants and spectators. Motor Cross races, bicycle races, and specialized automobile rallies are a source of great concern because of both the very limited control exercised over spectators and the often-remote locations in which they are held. Spectators often position themselves in remote, almost inaccessible, areas where the action is expected to be spectacular. The entire course should be monitored as well as possible, and a suitable communications system should be in place.

## **MEDICAL SUPPORT FOR PARTICIPANTS**

In the event of a crash, an ambulance with a trained staff should be available immediately. The medical support staff must understand the racing rules and be trained to recognize the various flags and special warning lights used by race officials. Understanding the racing rules and the signals ensures that the staff knows how soon another racing vehicle will arrive at the accident scene, whether or not the crashed vehicle remains on the track.

At smaller club events, having an ambulance on standby may be cost-prohibitive, and other suitable arrangements must be made. In such circumstances, a designated vehicle with appropriate equipment and trained personnel should be available to serve as the ambulance. The vehicle should not be merely a van with basic equipment provided as an ad hoc measure.

The standby ambulance or other emergency vehicle should be positioned for controlled, rapid access to the track. An appropriate communications system and acknowledged procedures should be in place to activate an immediate ambulance response to a track emergency, while track officials control the activity on the track with flags or other signals.

Guidelines should be established in advance to determine:

- Whether the race will continue if the ambulance leaves to transport a patient and no backup ambulance is available to take its place.
- Whether the ambulance will be designated strictly for the participants, and if so, what means are available to assist with medical emergencies among the spectators.

If possible, the race should be stopped when an ambulance or other emergency vehicle is on the track, even though some races continue to run under the caution flag.

Suitable "first attack" firefighting and rescue equipment should also be available at the track. If onsite resources are not able to respond successfully to an emergency, procedures to obtain additional rapid fire and rescue service must be in place.

If you expect great risk to participants and spectators, large numbers of spectators, or if the nearest hospital is very distant, consider providing a site hospital.

## **SPECTATOR AREAS**

Barriers should be in place to isolate spectators from out-of-control vehicles. Experience shows, however, that these barriers can be moved or broken by out-of-control vehicles, resulting in injuries to spectators who are leaning against the barriers. Further enhance safety by posting a compulsory "no man's land" to keep spectators away from the barrier fence.

Individuals responsible for barrier design, including barrier height and strength, should take into account the possibility that one vehicle may mount another or somersault end over end. A barrier intended to retard penetration by a single impacting vehicle is insufficient.



### **SPECTATOR AREAS (CONTINUED)**

In addition, parts of automobiles involved in collisions can become projectiles, and wheels can come loose and bounce into spectator areas. To protect spectators, affix a strong wire-mesh debris screen to the barrier fencing and to the tops of retaining walls. The wire-mesh screen permits spectator visibility while serving as a trap for projectiles.

Carefully monitor spectator access if spectators are permitted to visit the track and pit areas at any time, including after the race. Participants often test vehicles after the event, with neither drivers nor spectators anticipating each other's presence on the track.

Major problems, including spectator injuries, have occurred at a number of events with spectators accessing the track after the winner has passed the finish line, but while other competitors are still racing. All officials should be briefed on ways to control spectators who intend to access the track and how to respond if those control measures fail.

### **PIT AREAS**

In-race refueling of cars in pit areas creates a potential for fire if fuel inadvertently contacts sufficiently heated parts of vehicles or is ignited by a spark. To counter this threat, appropriate and sufficiently large fire extinguishers, or other equipment suitable for extinguishing fire, must be available at refueling sites for use by trained personnel. Remind personnel that some racing fuels burn with an invisible flame.

The combination of vehicles entering the pit lane at high speed and the drivers' vision being obstructed by barriers increases the risk to both drivers and pit crews. Organizers should consider introducing speed limits in pit lanes and enforcing suitable penalties for transgressions by drivers. Ideally, organizers should also implement a system of notifying pit personnel when vehicles are entering the pits, such as a siren or horn.

Because spectators are generally unfamiliar with pit environments and procedures, organizers should restrict access to the pits to officials and members of the race crews. If spectators are permitted in the pit area, their movement must be properly controlled, to protect them from pit hazards, such as moving vehicles, hot engine parts, and sharp metal.

If possible, organizers should not permit spectators to cross the racetrack. If spectators are permitted to cross the track, then all spectator crossings should be restricted to designated crossing points that are strictly controlled by race officials. Officials should be equipped with an efficient communication system connected to the race control area, which can provide information about upcoming race traffic.

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## **AIR SHOWS AND DISPLAYS**

The hazards presented by air events are similar to those already discussed, with a few hazards being unique to these events.

Although air shows are usually staged in accordance with aviation rules and regulations, event organizers, emergency managers, and health personnel should take specific steps to reduce the risk of a serious incident.

### **ACROBATIC AREAS**

Acrobatic maneuvers should not take place over built-up areas, but over fields, water, airstrips, or other uninhabited areas. Aircraft should not fly over spectator areas. Where aircraft execute a maneuver laterally (parallel to the ground) the direction of execution should be away from, or parallel to, the spectators, not toward or over them.

### **SAFETY**

Onsite fire services should be capable of delivering fire-suppressing foam onto a crashed or burning aircraft. If the air show does not take place at an airport with foam-equipped trucks, consider alternate arrangements for their provision, because water-delivering fire apparatus are unsatisfactory.

Organizers should clearly understand the requirements of the coroner and air crash investigators and be prepared to assist them in the event of a mishap.

Contingency plans should state how personnel will interact with spectators following an incident (that is, cancel the show, retain the closest spectators as witnesses, or request home video cameras that might have recorded the incident).

### **PARACHUTE JUMPS**

Events that feature parachute jumps should include designated landing zones that are safely away from spectators and create no obvious hazards to the jumpers. Parachutists can be blown off course and suffer injury or death as a result. Spectators can also be injured in the scramble to avoid a descending jumper.

## **FIREWORKS AND PYROTECHNICS**

Shows involving fireworks or pyrotechnics also present specific risks. When event organizers plan public displays of fireworks, they should notify and consult with the local authorities, including police, fire, and emergency medical services prior to the event. Most pyrotechnic providers or contractors follow Occupational Safety and Health Administration (OSHA) safety standards for the placement of spectator seating and fireworks launch sites.

### **PLACEMENT OF LAUNCH SITE**

Most major incidents involving fireworks can be avoided through careful design of the launch site.

In establishing a launch site, organizers must pay close attention to the anticipated or prevailing wind direction and strength, both of which may affect the flight path of fireworks and the area where debris will fall. In addition, when you establish site placement and design, prepare for the possibility of abandoning the display in an emergency.

Where possible, the launch site should be on water (for example, on a barge or pier), enabling personnel to abandon the site easily if an accident occurs and the pyrotechnic supply ignites.

A barrier must be erected between the crowd and the launch site to protect the crowd if fireworks tip over after ignition, resulting in a lateral, rather than vertical, projection.

Fireworks must not be projected over the heads of spectators because debris is often hot and can injure spectators if it falls into their eyes or onto their heads. Another concern is health effects caused by the smoke. Anticipate potential respiratory difficulties, especially in those spectators prone to breathing problems such as asthma and allergies.

If you launch fireworks over water, do not project them over flammable trees, bush areas, buildings, or boats.

Store unused fireworks in covered metal containers to prevent accidental ignition, either by staff or by descending hot particles from previously ignited fireworks.

Fire equipment, including fire extinguishers appropriate to the location, and trained firefighters should be immediately available at the launch site.

Personnel deploying and igniting fireworks should wear protective clothing, including face shields, helmets, and heavy gloves, in case of explosion or premature or delayed ignition.

After the event, personnel should carefully inspect the launch site and surrounding area to ensure that no incipient or rekindled fires are possible. All used fireworks should be soaked in water and removed from the site, along with any securing spikes, wires, or other potentially hazardous objects.

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## **LASER DISPLAYS**

Laser light shows are now frequently included as a form of entertainment at many special events. Prior to the laser light show, health care personnel onsite should understand the kinds of accidents that can occur and identify potential hazards when lasers are used. They also should know the kind and type of laser that will be used.

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## **SPONTANEOUS EVENTS**

Occasionally an event occurs without planning. Local emergency management and public safety agencies need to be aware that spontaneous events create the same need for emergency response contingencies as planned events and that safety plans or agreed-upon roles and responsibilities for participants will be established. Such spontaneous events present unique difficulties to public safety personnel because they offer no warning and, therefore, no time to plan.

Types of spontaneous events include those which:

- Are planned without official input or permits as a result of an oversight.
- Are planned without official input or permits on purpose.
- Result from other events, such as:
  - Planned local spinoff, such as a victory parade for a local sports team
  - Local focal point
  - Response to an "under-planned" primary event
- Are demonstrations, protests, or picketing:
  - Civil disobedience
  - Planned disorderly behavior
  - Spontaneous violence

Pre-existing mutual aid agreements, response plans, training, and resource lists will assist communities that are confronted with a spontaneous event. To develop these pre-existing response aids, the local emergency management agency may act as a catalyst to promote cooperation among local response agencies. A local emergency management agency can also fill its role in the Emergency Operations Center (EOC) if the spontaneous event is large enough to require the activation of the EOC.

Because spontaneous events are dynamic, a well-timed and appropriate response is critical to achieving safe outcomes. In many instances, however, the local or county public safety officials on duty are initially charged with all of the roles and responsibilities of managing the spontaneous event. At the same time, they are faced with other non-event incidents in the community. If communities train to respond to the various incidents associated with a spontaneous event, they can respond more effectively in times of emergency.

### **SPONTANEOUS EVENTS (CONTINUED)**

Staffing, response, and public safety requirements for spontaneous events are the same or greater than those for a planned event of the same nature. Essential to the successful outcome of a spontaneous event is implementing ICS for an orderly and coordinated deployment of resources and personnel. Identifying a Staging Area where additional personnel and resources will be gathered is necessary. Briefing all personnel and establishing an appropriate span of control is critical to pre-deployment of personnel and resources in response to a spontaneous event. It may be necessary to establish a Situation Unit in the Planning Section to keep the Incident Commander informed of changes in the nature of the event.

Another essential element in anticipation of, and planning for, a spontaneous event is a continuing evaluation of other events, either locally or nationally, that may be catalysts for a spontaneous event in your community. Many spontaneous events occur with some level of expectation by public safety officials. The significant difference between an organized special event and a spontaneous event is that no planning time exists before a spontaneous event.

If a spontaneous event or unplanned mass gathering occurs in your community, time is critical and should not be wasted trying to determine how the event happened and who will be held responsible. After-action reports and investigations can fulfill that role. Critical time management requires that all energy be focused on response and activation of existing plans and cooperation among participating agencies.

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### **EVENTS INVOLVING PRE-TEEN AND EARLY TEEN AUDIENCES**

Concerts that attract younger audiences (for example, pre-teens and early teens) can create a number of difficulties. These spectators can become lost or separated from friends, miss scheduled return transportation, or lack sufficient funds to pay for alternate transportation.

Parents often take young spectators to such events and then have difficulty finding them at the conclusion of the event. If parents are using their cars to pick up children, traffic jams may prevent close access to the venue. Prior to entering the venue, parents and their children should identify a specific place to meet at the conclusion of the event.

One method to alleviate difficulties is to create a "Parents' Oasis" adjacent to the venue to provide parents with a waiting area during the concert. Coffee, soft drinks, snacks, and newspapers can be available to help parents pass the time while waiting for the event to conclude.

The concept of a "Parents' Oasis" is one that is particularly well-suited to concert events that parents would not want to attend and that their children would not want them to attend. The additional cost and effort devoted to providing such a facility are more than offset by the reduction in efforts needed to deal with the young audiences at the conclusion of the event.

**EVENTS INVOLVING PRE-TEEN AND EARLY TEEN AUDIENCES (CONTINUED)**

Information booths with access to the public address system and clearly identified event staff can assist lost children and their parents. Also consider the compounding effect of a major incident exacerbated by the problems of parents attempting to gain access to the area to reunite with their children or, in the worst-case scenario, trying to find out where their injured children have been taken.

Certain events may pose hazards and risks that are unique to their activity or audience. This chapter presented some of the particular hazards and high risks that event planners need to be aware of. These are not inclusive of all of the risks for which a response must be prepared. Careful planning and expecting the unexpected help to make the special event memorable and safe for sponsors, participants, and spectators.



# CHAPTER 5: POST-EVENT ACTION





## **INTRODUCTION**

The After-Action Report must be done in a timely manner and shared with the rest of the team. The After-Action Report focuses on both the positive and negative aspects of the event.

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## **DEMOBILIZATION**

Demobilization should be planned just as carefully as the event itself. Demobilization actually begins during the planning stages of an event and continues during the event. Planners must decide upon a logical order in which to release response agencies and other resources, and they must authorize a point of contact to release resources. The impact on the community and its resources must also be considered in the demobilization process. The Incident Commander should direct the demobilization process through the Demobilization Unit in the Planning Section.

---

## **POST-EVENT ANALYSIS MEETING**

Following the event, all members of the planning team and those in charge of resources should meet to critique the event. For individuals who are unable to attend, providing a survey may be an option. The purpose of the Post-Event Analysis meeting is to allow open discussion of what went well and what could have gone better and to lay the groundwork for future events.

Prior to the meeting, planners should establish guidelines for discussion and select a facilitator for the meeting. The guidelines should emphasize that the meeting is intended to be a positive learning experience for all agencies, not a session to assign blame for problems that occurred during the event. The facilitator may come from the Emergency Management Agency or the lead agency, or planners may bring in a neutral third party that will maintain order if conflicts arise and agencies begin to find fault with one another. Problems should be discussed in generic terms as much as possible to avoid singling out specific agencies for criticism.

The lessons learned during one event can be used in planning for subsequent events. The agenda items discussed at the meeting, both successes and failures, should take the form of a report to be examined and discussed by officials later. If serious incidents occurred, such as a death or mass arrests, then writing the final report may have to wait until after litigation is completed. The facilitator is typically assigned the responsibility for documenting the meeting.

A log of checkout policy and procedures (which is created during the planning stage) ensures that everything is complete and that all agencies are satisfied with the outcome of the event. It is important to finalize one event before planning another.

### **POST-EVENT ANALYSIS MEETING (CONTINUED)**

The Post-Event Analysis meeting is the final gathering of the event planning team before releasing response agencies, resource personnel, or volunteers. Before releasing response or resource personnel or volunteers, event planners should ensure that the responders have sufficient rest and the means to return to their home bases safely.

During this meeting, the promoter and planners should conclude any outstanding matters, such as financial obligations or matters concerning supplies and equipment. Planners and promoters should prepare a detailed statement of expenditures and outstanding bills as a part of the After-Action Report.

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### **AFTER-ACTION REPORT**

The facilitator or a representative of the Emergency Management Agency may be tasked to prepare the After-Action Report. This report is a vital document. The After-Action Report is composed following the critique meeting. The main purpose of an After-Action Report is to identify and document what worked, what did not work, and what could be improved. A useful After-Action Report should prevent the same kinds of mistakes and incidents from occurring at the next event. The report can also include any additional data, such as crowd control measures that were especially successful, that may be useful in planning similar future events. Everyone involved in the event (including volunteers) should contribute to this important document. After-Action Reports have no established formats. Most communities have a sample report to guide planners. If an incident occurred during the event, the planning team must prepare a summary sheet to show how personnel responded to the incident in case questions of legal liability arise later. After-Action Reports are also excellent ways to document events for historical or legal purposes, and to describe how crowd sizes were determined if estimations or formulas were used.

While this manual focuses mainly on planning for a special event, an After-Action Report focuses on improving the next event.

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# APPENDIX A: JOB AIDS



**IS-15: Special Events Contingency Planning  
Job Aids Manual**

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**PRE-EVENT PLANNING MATRIX**

Because responsibilities vary from jurisdiction to jurisdiction, certain risks or hazards are not always handled by only one agency. This matrix is designed for you to determine the risks and hazards your agency is accountable for handling and then refer to the corresponding page in the Job Aids manual. If more than one agency is tasked to respond to the risk or hazard, some overlap of responsibility may occur. One way to handle this is to place a "P" in the primary agency position and an "S" in the support agency position. The responsibilities of each agency must be discussed and decided in the planning stages, not when an incident occurs. Additional room is provided in the matrix to add agencies or risks as they may apply.

	County Agency	EMS	Emergency Management	FAA	FBI	Fire	Law Enforcement	Public Health	Public Works	State Agency	U.S. Secret Service	Utilities	Promoter/ Sponsor
Abandoned Vehicles Check page references for entire list													
Airspace Encroachment													
Assault on County Official													
Assault on Federal Official													
Assault on State Official													
Suspicious Package													
Bomb Threat													
Building Inspection													
Cancellation of Event													
Civil Disturbance w/ Demonstration													
Communications													
Credentials													

**IS-15: Special Events Contingency Planning  
Job Aids Manual**

	County Agency	EMS	Emergency Management	FAA	FBI	Fire	Law Enforcement	Public Health	Public Works	State Agency	U.S. Secret Service	Utilities	Promoter/ Sponsor
Crowd Control													
Demonstrations													
Dignitary Protection													
EMS													
Environmental Hazards													
Evacuation of Area													
Fire													
First Aid Stations													
Food Handling													
Food Waste													
HazMat													
Hostage w/o Terrorism													
Human Waste													
Kidnapping													
Lost Child													
Lost and Found													
Media Relations													
Motorcades													
Parking													
Permitting													
Potable Water													

**IS-15: Special Events Contingency Planning  
Job Aids Manual**

	County Agency	EMS	Emergency Management	FAA	FBI	Fire	Law Enforcement	Public Health	Public Works	State Agency	U.S. Secret Service	Utilities	Promoter/ Sponsor
Power Interruption													
Security/Governor													
Security/State Department													
Security													
Structural Collapse													
Terrorist act													
Terrorist Threat													
Ticketing													
Traffic Control													
Weather Hazards													
WMD: Chemical													
WMD: Biological													
WMD: Radiological													
WMD: Nuclear													
WMD: Explosive													



**SPECIAL-EVENT PLANNING CHECKLIST**

Name of Event: \_\_\_\_\_

Name of Applicant: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Name of Organization: \_\_\_\_\_

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

- For-Profit Organization
- Not-for-Profit Organization  
ID Number: \_\_\_\_\_

- Insurance for event (Attach a copy to this document.)
- Bond for event (Attach a copy of conditions.)
- Financial Responsibility for Public Services (e.g., police, fire, health, etc.)

Date(s) of Event: \_\_\_\_\_

**Type of Event**

- Arena sporting event
- Competitive road-race
  - Foot
  - Bicycle
  - Motor vehicle
- Convention
- Festival
- Live performance
- Music
- Non-competitive on public way
- Political rally
- Sales
- Speaker
- Other: \_\_\_\_\_

Expected attendance \_\_\_\_\_

**SPECIAL-EVENT PLANNING CHECKLIST (CONTINUED)**

Number of similar events previously sponsored \_\_\_\_\_ (Attach summary documents.)

**Marketing**

- Local
- Regional
- Multiple states
- National
- Event Web site

**Public Access**

- Open event
- Spectators limited to first \_\_\_\_\_ arrivals
- Tickets will be required for all events
- Tickets will be required for certain venues

**Name of Location Venue:** \_\_\_\_\_

- Indoor
- Outdoor
- Considered an alcohol-free event
- Advertised as an alcohol-free event
- Alcoholic beverages will be sold or served at venue
- Alcoholic beverages will be sold outside of venue

**Location venue capacity:** \_\_\_\_\_

Seasonal weather concerns: \_\_\_\_\_

**Food Service**

- None
- Multiple vendors
- Single concessionaire
- Water provided

**Health and Safety Inspection**

- Issued permit(s)
- Fire inspection
- Waste disposal plan

**SPECIAL-EVENT PLANNING CHECKLIST (CONTINUED)**

**Health and Sanitation Plan**

- Number of toilet facilities \_\_\_\_\_
- Number of trash facilities \_\_\_\_\_
- Disposal plan (Attach a copy to this document.)

**Medical Plan** (Complete and attach ICS Form 206.)

- Sponsor responsibility
- Public provided
- Medical services and facilities notified
- First Aid or rehab stations on site

**Transportation Plan**

- None
- Public transportation
  - Special routes
  - Extra capacity
  - Contract transportation
  - Emergency routing
  - Peak period capacity time frame
- Private transportation

Street or highway access: \_\_\_\_\_

Vehicle capacity factor: \_\_\_\_\_

Peak traffic period factor: \_\_\_\_\_

**Parking Plan**

Number of lots: \_\_\_\_\_

Total available spaces \_\_\_\_\_

- Public parking spaces \_\_\_\_\_
- Private parking spaces \_\_\_\_\_ (Attach private parking agreements.)
- Parking attendants \_\_\_\_\_

**SPECIAL-EVENT PLANNING CHECKLIST (CONTINUED)**

**Traffic Patterns**

- Public Works signing
- Event will require traffic flow or street closures (If checked, attach complete list.)
- Temporary traffic code or parking restrictions (If checked, attach list.)
- Traffic direction and control restrictions (If checked, attach list.)
- Tow truck service (If checked, attach agreements.)
- Abandoned and/or illegally parked vehicle recovery (If checked, attach agreements.)

**Incident Action Plan**

Attach ICS Forms 201, 202, 203 and 205.

Risk/hazard analysis

- Criminal response
- Fire response
  - Structure
  - At site
  - Vehicle
- Hazardous materials
- CBRNE
- Electrical hazards
- Medical emergencies
  - Food-related illnesses
  - First aid
  - Heat/cold exposures
  - Trauma
  - Overdoses
- Structure collapse
- Crowd rush
- Mass casualty
- Mass fatality
- Lost or missing persons/children
- Unattended packages
- Crowd dispersal
- Offender identification
- Public notification process (ICS Form 205 required)
- Access control
- Evacuation routes
- Evacuee assembly areas
- Shelters

**SPECIAL-EVENT PLANNING CHECKLIST (CONTINUED)**

**Event Logistics**

- Support
- Facilities
- Food Unit
- Communications
- Ground Support
- Air Support
- Medical Unit

**Demobilization Plan**

- Traffic or pedestrian egress from site
- Secondary transportation plan
- Sanitation removal
- Venue cleanup
- Traffic pattern normalization
- Contractual evaluation
  - Organizer commitments
  - Other public or private contracts

**Debriefing**

**PROMOTER/SPONSOR CHECKLIST**

**Event Details**

Name of Event: \_\_\_\_\_

Date(s) of Event: From: \_\_\_/\_\_\_/\_\_\_ To: \_\_\_/\_\_\_/\_\_\_

Event Time: Start: \_\_\_\_\_ Finish: \_\_\_\_\_

Site: \_\_\_\_\_

Site Address: \_\_\_\_\_

Promoter: \_\_\_\_\_

Event Manager:

Address: \_\_\_\_\_

Contact: Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

After/Hours: \_\_\_\_\_ Cell: \_\_\_\_\_

E-Mail: \_\_\_\_\_ Pager: \_\_\_\_\_

Site preparation start date: \_\_\_/\_\_\_/\_\_\_ Site vacated date: \_\_\_/\_\_\_/\_\_\_

Brief details of function (including entertainment and main attractions):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

Sponsorship details (including any restrictions): \_\_\_\_\_

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**What Legislative, Regulative, and Legal Issues Need to be Addressed?**

State legislative/regulative requirements: \_\_\_\_\_

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Local legislative/regulative requirements: \_\_\_\_\_

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Permits required: (for example, liquor, pyrotechnics, fire, laser, food): \_\_\_\_\_

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Engineering approvals: \_\_\_\_\_

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Insurance required: \_\_\_\_\_

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**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

Reimbursement considerations for public agency involvement costs due to event:

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**Site Details**

NOTE: Include details such as: Indoor/outdoor, normal use, permanent structure, temporary site, multiple sites, site boundaries, temporary structures, natural features, likely hazards including weather, historic sites, environmental issues, parking arrangements, access and egress. Include facilities, such as: Water, toilets, food preparation, waste removal. (Attach diagram or site map.)

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Estimated total attendance: \_\_\_\_\_

Estimated age composition of audience:

- 0 – 12 years: \_\_\_\_\_ % of total audience
- 12 – 18 years: \_\_\_\_\_ % of total audience
- 18 – 25 years: \_\_\_\_\_ % of total audience
- 25 – 40 years: \_\_\_\_\_ % of total audience
- 40 – 55 years: \_\_\_\_\_ % of total audience
- 55 years and above: \_\_\_\_\_ % of total audience



**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

Admission will be by: \_\_\_\_\_ Pre-sold ticket \_\_\_\_\_ Free \_\_\_\_\_ Other: Please specify)

Has this event been conducted previously? YES / NO

If yes, when? \_\_\_\_\_

Where? \_\_\_\_\_

Event Manager: \_\_\_\_\_

Contact phone: \_\_\_\_\_ Fax: \_\_\_\_\_

If no, please detail the changes: \_\_\_\_\_

What effects will the changes have? \_\_\_\_\_

**Key Stakeholders**

	<b>Name</b>	<b>Phone</b>
State Government Dep't.(s):	_____	_____
Local Council(s):	_____	_____
	_____	_____
	_____	_____
Neighboring Councils:	_____	_____
	_____	_____
Police:	_____	_____
Ambulance Service:	_____	_____
First Aid Service:	_____	_____
Fire Service:	_____	_____

**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

Hospital/Medical Services: \_\_\_\_\_

State Emergency Service: \_\_\_\_\_

Security Personnel \_\_\_\_\_

Liquor Licensing \_\_\_\_\_

Local Hotel and Businesses: \_\_\_\_\_

\_\_\_\_\_

Transportation Authority: \_\_\_\_\_

\_\_\_\_\_

Neighbors: \_\_\_\_\_

\_\_\_\_\_

Other: \_\_\_\_\_

Other: \_\_\_\_\_

Time frame necessary for contact with stakeholders:

\_\_\_\_\_

\_\_\_\_\_

A full briefing of all of the above stakeholders is planned for \_\_\_\_\_ (date)

at \_\_\_\_\_ (venue).

**Event Communications**

During the event what form of communication systems will be available/provided/required for:

- Event management: \_\_\_\_\_
- Public address (internal): \_\_\_\_\_
- Public address (external): \_\_\_\_\_
- Emergency services: \_\_\_\_\_
- Coordination requirements: \_\_\_\_\_

**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

**Event Promotion and Media Management**

Can the promotion ticketing and publicity for the event include messages that clarify the focus of the event (for example, family fun, sporting contest, musical entertainment)?

Event Web site \_\_\_\_\_

The focus of the event is \_\_\_\_\_

The event promotion and publicity will promote:

- Safe drinking practices YES / NO
- Don't drink and drive YES / NO
- Intoxicated and underage persons will not be served alcohol YES / NO
- Bags may be searched or restricted YES / NO
- Glass containers permitted YES / NO
- Water will be freely available YES / NO
- Availability of "wet" and "dry" areas YES / NO
- Location of facilities included on ticketing YES / NO
- Health care advice included on ticketing YES / NO
- Smoke-free environment YES / NO

**Security**

Which type of security will be appropriate for the event? \_\_\_\_\_

Who will be the appropriate security firm to be contracted? \_\_\_\_\_

Event security would commence on \_\_\_\_/\_\_\_\_/\_\_\_\_ and conclude on \_\_\_\_/\_\_\_\_/\_\_\_\_

What will be the role of security? \_\_\_\_\_

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**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

Have relevant police departments been contacted in relation to security? YES / NO

If yes, what will be required of the police? \_\_\_\_\_

When will a briefing/debriefing be held involving police, security, bar staff and licensing personnel?

\_\_\_\_\_ (Date before Event) \_\_\_\_\_ (Date after Event)

Will a briefing of all personnel and officials be provided regarding helping patrons with amenities and services?

Who will pay for event security costs, including overtime?

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**Signage**

What signage, including those required under the local liquor laws, will need to be developed and obtained?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Will there be signage in languages other than English? YES / NO

**Transport**

Does a transportation strategy need to be developed? YES / NO

List the departments, councils and/or agencies that are likely to be involved in developing this strategy.

Name: \_\_\_\_\_ Organization: \_\_\_\_\_  
Name: \_\_\_\_\_ Organization: \_\_\_\_\_  
Name: \_\_\_\_\_ Organization: \_\_\_\_\_  
Name: \_\_\_\_\_ Organization: \_\_\_\_\_

**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

**Access and Egress for Patrons**

What provisions can be made for patrons to access, move around, and leave the event venue without excessive queuing, or crushes (for example, gate control, pathways, free space)?

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Will patrons be able to access toilets, food and bar areas, and entertainment sites without difficulty? YES / NO

In an emergency, will patrons be able to leave the venue or move to other areas within the venue in reasonable safety? YES / NO

Comments:

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**Access for Persons with Disability**

What provisions need to be made for persons with a disability to access and move around the event venue?

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Will persons with a disability be able to access toilets, food and bar areas, and entertainment sites without difficulty? YES / NO

In an emergency, will persons with a disability be able to leave the venue without significantly impeding the movement of other patrons? YES / NO

**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

Comments:

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**Noise**

What provisions can be made to minimise the level of noise at and around the event?

1. 

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2. 

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3. 

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4. 

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5. 

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**Management of Alcohol**

Are there any standard conditions of the licensing permit? YES / NO

If YES, what are they?

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How will event personnel, specifically bar and security personnel, be trained and informed of the State and local statutes/ordinances and made aware of the responsibilities and penalties?

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**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

What types of alcohol (for example beer, wine, and liquor) and other drinks will be available at the event?

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In what types of containers will alcohol and other drinks be available (for example, glass, can or plastic containers)?

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What provisions will be made for the collection of drink containers during and after the event?

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What will be the pricing structure for alcoholic and non-alcoholic drinks?

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Is it anticipated that the pricing structure will discourage patrons from becoming unduly intoxicated? YES / NO

Can the event publicity, ticketing, and signage inform patrons of the restrictions on alcohol including that alcohol will not be served to minors and intoxicated people? YES / NO

Can some, if not all, bars be shut prior to the end of the entertainment? YES / NO

If the event is "**Bring Your Own Bottle**" **BYOB**, what provisions can be made to prevent glass-related injuries, underage drinking, and excessive intoxication?

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If the event is **not BYOB**, what provisions can be made to prevent alcohol from being brought into the venue?

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**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

If there are to be designated drinking areas, will they be adequate in size and number and supported by toilet facilities to cope with the expected size of the crowd? YES / NO

Will there be dry areas for families, entertainment, and food? YES / NO

Will the event provide the following facilities to encourage responsible drinking by patrons?

- Free drinking water YES / NO
- Cheap non-alcoholic drinks YES / NO
- Range of quality food YES / NO
- Shade or cover YES / NO
- Safe drinking information YES / NO
- Quality entertainment YES / NO
- "Wet" and "Dry" areas YES / NO

**Other Drug Use**

Is it possible that drugs, including marijuana and amphetamines, may be available and used at this event? YES / NO

List any drugs and related information known from previous experience:

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What provisions can be made to address this drug use?

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**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

**Medical**

What level of medical service is considered necessary, and for what duration?

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Who can provide this service? \_\_\_\_\_

What will be the cost of the service? \_\_\_\_\_

If it is not a local provider, what arrangements have been made to coordinate with the local ambulance service?

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What facilities will the medical service require (including helipad)?

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How can these be provided? \_\_\_\_\_

**Animals**

If the event involves animals, what arrangements will be necessary for their management, care, and well being?

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**PROMOTER/SPONSOR CHECKLIST (CONTINUED)**

If the event may affect animals, what arrangements will be necessary for their management, care, and well being?

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**Briefing/Debriefing**

A final briefing of stakeholders is planned for \_\_\_\_\_ weeks prior to the event.

A debriefing will be conducted with all stakeholders within \_\_\_\_\_ days of the event.

**APPROVING AUTHORITY CHECKLIST**

**Event Details**

Name of Event: \_\_\_\_\_

Requested Date(s) of Event: From: \_\_\_\_/\_\_\_\_/\_\_\_\_ To: \_\_\_\_/\_\_\_\_/\_\_\_\_

Request Event Time: Start: \_\_\_\_\_ Finish: \_\_\_\_\_

Requested Site: \_\_\_\_\_

Site Address: \_\_\_\_\_

Promoter: \_\_\_\_\_

Event Manager: \_\_\_\_\_

Address: \_\_\_\_\_

Contact: Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

After Hours: \_\_\_\_\_

Requested site preparation start date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Suggested site vacated date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Brief details of function (including entertainment and main attractions):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

**Legal Requirements**

Does the application:

- Comply with State and Local legislation/regulations/codes? YES / NO
- Provide for adequate general public liability insurance? YES / NO
- Provide for adequate liability insurance for a major incident? YES / NO
- Need to post a bond to cover contingencies? YES / NO

**Licenses/Permits**

Does the application require:

- Liquor licensing? YES / NO
  - Road closures/restrictions? YES / NO
  - Food outlet licenses? YES / NO
  - Health care licensing? YES / NO
  - Fire Inspection? YES / NO
  - Fireworks/pyrotechnics permits? YES / NO
  - Any other: \_\_\_\_\_
- 

**Site**

Is it appropriate for the type of event? YES / NO

Are there multiple sites involved in the event? YES / NO

Comment: \_\_\_\_\_

Indoor/outdoor: \_\_\_\_\_

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

Permanent structure or temporary site: \_\_\_\_\_

Normally used for this type of event? YES / NO

Normally used for large crowds? YES / NO

Topography: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Any effect on neighboring communities? YES / NO

Suitability for camping facilities? YES / NO

List any environmental issues (green, flora, fauna, historic site): \_\_\_\_\_

\_\_\_\_\_

List any natural features likely to be hazardous (river, dam, long grass, forest): \_\_\_\_\_

\_\_\_\_\_

Anticipated crowd number of attendees: \_\_\_\_\_

Is site large enough for expected crowd? YES / NO

Tickets being pre-sold? YES / NO \_\_\_\_\_% Of Attendance

Tickets sold at the gate? YES / NO \_\_\_\_\_% Of Attendance

Other means of limiting crowd: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

Type of crowd expected (young, old, family, unruly): \_\_\_\_\_

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Is water available at site? YES / NO

**Quality of water:** \_\_\_\_\_

Quantity of potable water: \_\_\_\_\_

Probability of sabotage of water? YES / NO

Comment: \_\_\_\_\_

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Fixed sewerage? YES / NO

Adequate sewerage capacity? YES / NO

Comment: \_\_\_\_\_

Other utility supplies (power, gas): \_\_\_\_\_

Will they be adequate? \_\_\_\_\_

Will emergency water supplies be required? YES / NO

Will emergency water supplies be supplied? YES / NO

Will emergency water supplies be available? YES / NO

Comment: \_\_\_\_\_

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Will emergency electricity supplies be required? YES / NO

Will emergency electricity supplies be supplied? YES / NO

Will emergency electricity supplies be available? YES / NO

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

Comment: \_\_\_\_\_

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Will emergency gas supplies be required? YES / NO

Will emergency gas supplies be supplied? YES / NO

Will emergency gas supplies be available? YES / NO

Comment: \_\_\_\_\_

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**Emergency Services/Key Stakeholders**

Has applicant consulted and gained support/approval from:

- State/Local Government Departments? YES / NO
- If yes, list by abbreviation: \_\_\_\_\_
- Police Department? YES / NO
- Ambulance Service? YES / NO
- First Aid Service? YES / NO
- Fire Department? YES / NO
- Medical/Hospital Facilities? YES / NO
- State Emergency Service? YES / NO
- Transportation Authorities? YES / NO
- Liquor Licensing Court? YES / NO
- Neighboring Communities? YES / NO
- Neighbors/Community Association? YES / NO

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

Other: \_\_\_\_\_

\_\_\_\_\_

Other: \_\_\_\_\_

\_\_\_\_\_

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Have emergency management plans been prepared? YES / NO

Have contingency plans been prepared? YES / NO

If NO, are they necessary? YES / NO

If they are necessary, who will coordinate the preparation? \_\_\_\_\_

**Security**

Is special security being provided? YES / NO

If YES, who is providing it? \_\_\_\_\_

If NO, is it considered necessary? YES / NO

Is the provider licensed to provide the service? YES / NO

**Event Safety Issues**

Natural

Weather (rain, wind, heat, cold): \_\_\_\_\_

Terrain (cliffs, creeks, reclaimed land): \_\_\_\_\_

Environmental

Animals, forests, pollens, pests, flora, fauna, historical: \_\_\_\_\_

\_\_\_\_\_



**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

Technological

Utility lines, noise, lighting, access and egress: \_\_\_\_\_

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Human

Alcohol, hysteria, nuisance, neighbors, fire: \_\_\_\_\_

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Event

Pyrotechnics, lasers: \_\_\_\_\_

**Access/Egress—Parking**

Are road access and egress suitable? YES / NO

Are road access and egress suitable in all weather? YES / NO

Are road access and egress adequate? YES / NO

Will special traffic control be required? YES / NO

Is sufficient suitable off-road parking available? YES / NO

Will emergency services have continual access and egress? YES / NO

In the event of a major emergency, do access and egress allow for emergency services? YES / NO

**Food**

See Job Aids Food Vendor Information Sheet and Catering Inspection Checklist for Food Vendors.

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

**Toilets**

What is the anticipated crowd mix of male and female attendees (by percentage)?

\_\_\_\_\_MALE          \_\_\_\_\_FEMALE

How many fixed-toilet facilities will be available?

\_\_\_\_\_MALE TOILETS

\_\_\_\_\_URINALS

\_\_\_\_\_MALE SHOWERS

\_\_\_\_\_FEMALE TOILETS

\_\_\_\_\_FEMALE SHOWERS

\_\_\_\_\_DISABLED

Will separate toilet facilities be available for food vendors? YES / NO

Will separate toilet facilities be available for medical attendants? YES / NO

Are there sufficient toilet facilities? YES / NO

If NO, what additional requirements will there be? \_\_\_\_\_MALE TOILETS  
\_\_\_\_\_URINALS  
\_\_\_\_\_MALE SHOWERS  
\_\_\_\_\_FEMALE TOILETS  
\_\_\_\_\_FEMALE SHOWERS  
\_\_\_\_\_DISABLED

Will the current sewerage system cope with the extra demand? YES / NO

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

If NO, what additional requirements will there be?

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Where additional requirements are unserved, can service trucks gain easy access?

YES / NO

What servicing of toilets will be provided during the event? \_\_\_\_\_

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What, if any, plumbing maintenance will be available onsite? \_\_\_\_\_

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**Garbage and Water Removal**

Number of garbage bins available

\_\_\_\_\_ Public Use

\_\_\_\_\_ Food Outlet Use

\_\_\_\_\_ Medical Facility Use

Type of garbage bins (including for sharps, wet, dry, hazardous): \_\_\_\_\_

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Program for emptying garbage bins: \_\_\_\_\_

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Program for removal of site garbage: \_\_\_\_\_

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**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

**Restoration After Event**

Arrangements for site cleanup: \_\_\_\_\_  
\_\_\_\_\_

Arrangements for cleanup of surroundings (including access and egress roads): \_\_\_\_\_  
\_\_\_\_\_

Arrangements for refund of bond money, if applicable: \_\_\_\_\_  
\_\_\_\_\_

**Camping Areas (where applicable)**

What is the proximity to property boundaries?

NORTH      yards              SOUTH      yards

EAST        yards              WEST        yards

What is the requested population density of the camp? \_\_\_\_\_ Persons per acre

What is the requested maximum population for each site?  
   maximum\_\_\_\_\_ persons per site

What separation is planned between sites?  
   minimum\_\_\_\_\_ yards between rows

What emergency access and egress will be available? \_\_\_\_\_  
\_\_\_\_\_

**APPROVING AUTHORITY CHECKLIST (CONTINUED)**

What toilet and personal hygiene facilities will be available within campsite?

\_\_\_\_\_ MALE TOILETS      \_\_\_\_\_ FEMALE TOILETS  
\_\_\_\_\_ URINALS  
\_\_\_\_\_ MALE SHOWERS      \_\_\_\_\_ FEMALE SHOWERS  
\_\_\_\_\_ DISABLED TOILETS      \_\_\_\_\_ DISABLED SHOWERS

What water supply is available? \_\_\_\_\_

Is it potable? \_\_\_\_\_

Can you estimate whether this is sufficient? YES / NO

Comments: \_\_\_\_\_  
\_\_\_\_\_

What garbage bins are available? \_\_\_\_\_

Can you estimate whether this is sufficient? YES / NO

What waste disposal arrangements are being made (including wet, dry, sharps, sewage)?  
\_\_\_\_\_  
\_\_\_\_\_

**Site Plan**

Camp site plan available (including access and egress for emergency vehicles, access and egress for service vehicles, parking areas, camping areas, numbered camp sites, toilet and personal hygiene facilities, water points, trash bins, food venues, First Aid/Medical facilities, any other related facilities). YES / NO

**FOOD VENDOR INFORMATION SHEET**

(one required for each vendor)

(To be provided to the local health authority)

Name of Vendor: \_\_\_\_\_

Point of Contact: \_\_\_\_\_

Business Address: \_\_\_\_\_

Business Phone: \_\_\_\_\_ Business Fax: \_\_\_\_\_

POC Phone: \_\_\_\_\_ POC Mobile: \_\_\_\_\_

POC Pager: \_\_\_\_\_

Main purpose of business: \_\_\_\_\_

Is a menu attached, indicating the full range of food to be provided? YES / NO

Indicate which of the following foods you sell directly or will be using as ingredients:

- Milk/milk products YES / NO
- Poultry YES / NO
- Salads/rice dishes YES / NO
- Egg products YES / NO
- Fish/fish products YES / NO
- Raw meat YES / NO
- Ice cream YES / NO
- Shellfish YES / NO
- Cooked meat YES / NO

Other (specify): \_\_\_\_\_

**FOOD VENDOR INFORMATION SHEET (CONTINUED)**

Type of operation:

- Stall YES / NO
- Mobile unit YES / NO
- Stand YES / NO
- Tent YES / NO

Other (specify): \_\_\_\_\_

Indicate the type of equipment to be provided/used on site:

- Refrigeration YES / NO
- Freezer YES / NO
- Oven YES / NO
- Deep fryer YES / NO
- Microwave oven YES / NO
- Sink YES / NO
- Wash hand basin YES / NO
- Grill YES / NO

Other (specify): \_\_\_\_\_

Are fire extinguishers provided at each site? YES/ NO

What kind/type?: \_\_\_\_\_

Indicate power sources:

- LPG (propane) YES / NO
- Electrical generator YES / NO

Other (specify): \_\_\_\_\_

**FOOD VENDOR INFORMATION SHEET (CONTINUED)**

Is the food to be prepared or stored in premises other than the temporary food premises or vehicle? YES / NO

If YES, please state the address: \_\_\_\_\_

\_\_\_\_\_

Will food be delivered to the site by a separate supplier? YES / NO

If YES, what arrangements will be made for receipt of those goods? \_\_\_\_\_

\_\_\_\_\_

Have you or any of your staff completed a food handler hygiene course? YES / NO

If YES, when and where: \_\_\_\_\_

\_\_\_\_\_

Vendor Point of Contact signature: \_\_\_\_\_

Date: \_\_\_\_\_

Location of vendor in event footprint \_\_\_\_\_



### **CATERING INSPECTION CHECKLIST FOR FOOD VENDORS**

The establishment of a temporary catering facility can mean working in less-than-ideal conditions. The following checklist will provide guidance on minimum requirements for this type of event catering.

#### **Setting Up**

Food service operation is licensed or registered in accordance with State/local requirements. YES / NO

The appropriate permit has been obtained from the State/local authority where the event is to be held. YES / NO

The area for which the permit is valid is clear, that is, the location where the vendor can set up? YES / NO

#### **Staff Training**

Staff are trained in food handling and food safety. YES / NO

Staff have been instructed on machinery operation, food preparation routines and occupational health and safety matters. YES / NO

There are clear guidelines for staff about what to do if problems occur (who to contact and appropriate contact numbers). YES / NO

#### **Food Handling**

All food handlers carry out hand washing thoroughly and regularly, particularly:

- Before commencing work and after every break YES / NO
- After visiting the toilet YES / NO
- After handling raw food YES / NO
- After using a handkerchief or tissue or touching nose, hair or mouth YES / NO
- After handling trash YES / NO
- After smoking YES / NO

Correct food temperatures can be, and are, maintained. YES / NO

**CATERING INSPECTION CHECKLIST FOR FOOD VENDORS (CONTINUED)**

Food is cooled rapidly under refrigeration in trays not more than 4 inches deep	YES / NO
Tongs are provided and used where possible for food handling.	YES / NO
Gloves, if used, are changed regularly.	YES / NO
Food is thoroughly cooked.	YES / NO
Food is protected from dust, insect pests, and other contaminating matter.	YES / NO
Staff wear suitable, clean clothing and have long hair tied back.	YES / NO
Food on display on counters is protected from contamination from the public by use of covers or guards.	YES / NO
Condiment area is checked and cleaned regularly.	YES / NO

**Food Storage**

Sufficient refrigeration space is provided to cope with peak demand.	YES / NO
Refrigerated storage temperatures can be maintained during peak loads.	YES / NO
Raw foods are stored below cooked or ready to eat foods.	YES / NO
Food containers are covered.	YES / NO
Food is stored off the floor on pallets or shelving	YES / NO
Frozen food is thawed on the bottom shelf in the refrigerator or under cold running water.	YES / NO
Dry food storage space is adequate for peak loads.	YES / NO
Dry foods are protected from dust and insect pests and rodents at all times.	YES / NO
Hot food storage is in accordance with applicable standards.	YES / NO
Cold food storage is in accordance with applicable standards.	YES / NO

**CATERING INSPECTION CHECKLIST FOR FOOD VENDORS (CONTINUED)**

**Food Transport**

Transport times are kept to a minimum. YES / NO

Food temperatures are met at all times during transport. YES / NO

All foods are protected from dust, pests, chemicals, and other contaminating matter. YES / NO

**Cleaning and Sanitizing**

Cleaning cloths are replaced frequently. YES / NO

Equipment and surfaces used for the preparation of raw foods are cleaned and sanitized before further use. YES / NO

Sanitizers are appropriate for use in the food industry and are used in accordance with the manufacturers' directions. YES / NO

**Packaging and Labeling**

All prepackaged foods are labeled in accordance with United States Food and Drug Administration nutritional requirements. YES / NO

**Waste Management**

Waste is removed regularly from food preparation areas. YES / NO

Putrescible (decomposable) waste removed from food preparation areas is placed in bins with tight-fitting lids.

Capacity to store sullage waste is adequate or connection to the sewer is maintained without leakage. YES / NO

**Infectious Diseases**

All staff are required to report any gastrointestinal type illness to the supervisor. YES / NO

A register of staff illness is kept by the supervisor. YES / NO

Staff are not permitted to work while they have symptoms of gastrointestinal illness or in the acute stage of a cold or flu-like illness. YES / NO

**CATERING INSPECTION CHECKLIST FOR FOOD VENDORS (CONTINUED)**

**Safety**

The workplace is safe, that is, there are no trip hazards, no unprotected hot zones, and no unguarded equipment. YES / NO

Fire precautions are followed and fire safety devices are to the satisfaction of the fire authority. YES / NO

Food handlers have contact details for all necessary personnel in case of problems occurring. YES / NO

A list of appropriate contact details is maintained and accessible. YES / NO

For example,

- Event organizer YES / NO
- Environmental health officer YES / NO
- Plumber YES / NO
- Electrician YES / NO
- Refrigeration mechanic YES / NO
- Alternative refrigeration suppliers YES / NO

## **UTILITIES DEPARTMENT VENUE ASSESSMENT CHECKLIST**

### **Electrical—Ground Fault Interrupter and National Electrical Code (NEC) Standards**

- Back-up generator with fuel supply
- Emergency lighting and exit signs
- Clearly marked distribution and disconnect
- Key personnel ID (photo and briefing)
- System security
- Alternate electrical sources

### **Alternative Fuels**

- Valves and emergency shutoff
- Pilotless ignition

### **Isolation of Subsections of System**

- Hood
- Carbon monoxide (CO) monitors
- Waste oil storage
- No interior storage of, or use of, unapproved systems

### **HVAC**

- HVAC engineer on duty
- Reversible system?
- Back-up power for system

### **Telecommunications—E-911**

Emergency system access (coded)

Event primary PSAP identified

### **Uninterruptible Power Supply (UPS)**

- Adequate number of lines, with locations clearly marked
- Amplified receivers (ADA)
- System priority lines

**UTILITIES DEPARTMENT VENUE ASSESSMENT CHECKLIST (CONTINUED)**

**Water**

- Fire water system – Fire Department Connection (FDC)
- System grid established
- Potable water – locations, security, markings identified

**Sanitary Sewer**

- Adequacy
- Pre-event inspection
- Portable units, as needed, with servicing established
- Have formulas regarding toilets (male and female) been followed? (See Chapter 2 in this manual for toilet facility suggestions.)

**PUBLIC WORKS DEPARTMENT CHECKLIST**

**Street/Drainage Division**

- Barricades, traffic cones and jersey barriers.
- Transport water tankers as necessary.
- Assure sidewalks are clean and in safe condition.

**Traffic Engineering Operations Division.**

- Review the traffic event management plan submitted by the event manager.
- Coordinate with the Police Department regarding traffic flow patterns.
- Timing of signals changes to maximize traffic flow.
- Regional traffic management plan.

**Animal Control Division**

- Back-up program to respond to the event as necessary.

**Solid Waste Management Division**

- Collection of site debris.
- Sweeping of site and adjacent roadways.
- Litter control and disposal.
- Coordination with the Health Department concerning debris removal from food serving areas.

**Parking Operations/Enforcement Division**

- Review parking program and offer assistance.
- Coordinate with mass transportation organization regarding pick-up point parking.

**Engineering Division**

- Coordinate with organizations involved in the event to review the site and the layout of the various program.
- Work with the Building Inspections Division to coordinate the planning for the event.

**Regional Mass Transportation Division**

- Establish timely schedules for shuttles.
- Review the fees and charges for providing services.

**PUBLIC WORKS DEPARTMENT CHECKLIST (CONTINUED)**

**Forestry/Horticulture Division**

- Protect the landscaping in year-round planter areas from public damage.
- Inspect trees and large shrubbery for trimming as required to accommodate event security concerns and to ensure the public welfare of the event attendees.

**Parks and Recreation Division**

- Schedule personnel to support activities in the event area.
- Work with vendors in supplying the needed support for the event.
- Arrange for special events coordination with the children's area.



**BUILDING DEPARTMENT VENUE ASSESSMENT CHECKLIST**

**Occupancy**

Type: \_\_\_\_\_

Overload: \_\_\_\_\_

Seating: (quality, quantity, state of repair, fixed, and portable) \_\_\_\_\_

Stairs/Ramps: \_\_\_\_\_

Handrails–size and capacity: \_\_\_\_\_

**Adequate Exits**

Number: \_\_\_\_\_

Capacity: \_\_\_\_\_

**Parking**

Spaces: \_\_\_\_\_

Location: \_\_\_\_\_

**Storage**

Square feet: \_\_\_\_\_

Location: \_\_\_\_\_

**Hazardous Materials**

Use: \_\_\_\_\_

Storage: \_\_\_\_\_

Kind/type: \_\_\_\_\_

Security concerns: \_\_\_\_\_

**BUILDING DEPARTMENT VENUE ASSESSMENT CHECKLIST (CONTINUED)**

**Auxiliary Power**

Type: \_\_\_\_\_

Capacity: \_\_\_\_\_

**Facility Use**

Type: \_\_\_\_\_

History: \_\_\_\_\_

**Building Inspection History**

Date of last building inspection: \_\_\_\_\_

Date of last fire inspection: \_\_\_\_\_

Correction of violations: \_\_\_\_\_

Date of last elevator/escalator inspections: \_\_\_\_\_

Slip/trip/fall hazards present?: \_\_\_\_\_

**Documentation/Monitoring**

---

**HVAC Adequacy**

Tons per square feet: \_\_\_\_\_

**Plan Review and Walk-Through Inspection with Fire Department Code Enforcement Officer**

Building Suppression Systems: \_\_\_\_\_

ADA Compliance: \_\_\_\_\_

**Coordinate Security of Structurally Vulnerable Areas with Law Enforcement Agency**

Catwalks, balconies, and stages: \_\_\_\_\_

**BUILDING DEPARTMENT VENUE ASSESSMENT CHECKLIST (CONTINUED)**

**Building Owner Contact Information**

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Billing Address: \_\_\_\_\_

Liability Insurance: \_\_\_\_\_

**PUBLIC HEALTH DEPARTMENT VENUE ASSESSMENT CHECKLIST**

**Buildings and Facilities**

- HVAC/Air quality
- Inspections – water, food vendors

**Sanitation** \_\_\_\_\_

**Waste Disposal**

Type: \_\_\_\_\_

When/how often: \_\_\_\_\_

**Water**

Quality: (potable): \_\_\_\_\_

Quantity: (potable): \_\_\_\_\_

Quantity: (non-potable): \_\_\_\_\_

**Hot Water**

Quality: \_\_\_\_\_

Quantity: \_\_\_\_\_

**Cleaning Agents**

- Types, use, quantity
- Toilets – fixed, portable, quantity, cleaning, inspection, and servicing
- Floors – nonslip, drains, and cleanup
- Cleanup – trash, sweeping, mopping, grass, and dust control

**PUBLIC HEALTH DEPARTMENT VENUE ASSESSMENT CHECKLIST (CONTINUED)**

**Food—General**

- Licenses – fixed and temporary
- Fire extinguishers

**Food—Ice and Water**

- Vector control

**Food—Refrigeration/Storage**

- Inspection – cleanliness, temperature, off the floor

**Food—Cooking**

- Devices – fuel, temperature, hot/cold, thermal, exhaust

**Food—Handling**

- Staff training (hygiene, cross contamination, etc.)

**Food—Power Supplies**

- Power Cord – ground fault interrupter

**Food—Generators**

- Fuel
- Refueling
- Exhaust
- Operators

**Sneeze Shields/Covers**

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**First Aid Kits**

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## **FIRE SERVICES VENUE ASSESSMENT CHECKLIST**

### **Exit Doors**

- Appropriate number
- Appropriate locations
- Appropriate size
- Appropriate operation
- Appropriate markings

### **Avenues of Egress**

- Sufficient width
- Adequate accessibility

### **Exit Route Markings**

- Sufficient size
- Sufficient numbers
- Understandable
- Emergency lighting

### **Notification Systems**

- Smoke
- Heat detectors
- Pull boxes
- Fire watch
- Carbon monoxide
- On line and functioning, monitored detection systems

### **Automated Fire Protection**

- Sprinklers
- Zones
- Grids
- Hoods

### **Manual Fire Protection**

- Extinguishers
- Hose lines
- Connections

**FIRE SERVICES VENUE ASSESSMENT CHECKLIST (CONTINUED)**

**Fire Department Connections**

- Sprinkler: locations \_\_\_\_\_
- Standpipe: locations \_\_\_\_\_

**Fire Department Response**

- Time
- Size of assignment

**Fire Spread Ratings of Stage Materials**

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**Pyrotechnic Safety Used in the Show**

Permit obtained?                      YES / NO

Licensed show provider?        YES / NO

Other?: \_\_\_\_\_

**Need for On-Duty Inspector and Technical Expert for HVAC System**

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**Develop, Review and/or Update Plan for Event Site/Buildings**

---

**Ensure Occupancy Load is Posted and Not Exceeded**

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**Fire Lane Marked and Kept Clear**

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**911 System Access:**

Handheld radio / cellular phone / landline (NOT pay phone)

**LAW ENFORCEMENT VENUE ASSESSMENT CHECKLIST**

**Crowd Control/Site Security**

Access by the public: \_\_\_\_\_

Access by VIPs: \_\_\_\_\_

Access by emergency services: \_\_\_\_\_

Secondary route: \_\_\_\_\_

Security concerns: \_\_\_\_\_

**Demographics of Spectators and Participants**

Age: \_\_\_\_\_

Mobility: \_\_\_\_\_

Numbers: \_\_\_\_\_

Attitude: \_\_\_\_\_

VIP's to attend: \_\_\_\_\_

**Patrols**

Uniformed: \_\_\_\_\_

Non-uniformed: \_\_\_\_\_

Other security: \_\_\_\_\_

Intelligence contact: (Joint Terrorism Task Force (JTTF), etc.)

**Traffic**

Control: access/egress \_\_\_\_\_

Concerns: \_\_\_\_\_



**LAW ENFORCEMENT VENUE ASSESSMENT CHECKLIST (CONTINUED)**

**Alcohol**

- None
- Limited access (such as beer gardens): \_\_\_\_\_
- Distributing locations on event footprint

**Incident Command Post**

Location and contact information: \_\_\_\_\_

Closest mutual aid resources if required?

Promoter background investigation completed?

Surveillance: (closed-circuit television, locations, etc.)

Credentialing required?

Meals/lodging arrangements made for staff, if required?

Overtime considerations addressed?

Arrest/booking process identified?

Special teams required? (SWAT, EOD, K-9, etc.)

**EMERGENCY MEDICAL SERVICES VENUE ASSESSMENT CHECKLIST**

**Event Type**

Hazards: \_\_\_\_\_

Vulnerabilities: \_\_\_\_\_

**Environment**

Indoor/Outdoor: \_\_\_\_\_

Climate: \_\_\_\_\_

Alcohol/Drugs: \_\_\_\_\_

**Demographics of Spectators and Participants**

Age: \_\_\_\_\_

Mobility: \_\_\_\_\_

Numbers: \_\_\_\_\_

Attitude: \_\_\_\_\_

VIPs: \_\_\_\_\_

**Transportation**

Access/Egress: \_\_\_\_\_

Americans with Disabilities Act (ADA) Compliance: \_\_\_\_\_

Internal/External: \_\_\_\_\_

**Facility**

Visibility/Lighting: \_\_\_\_\_

**EMERGENCY MEDICAL SERVICES VENUE ASSESSMENT CHECKLIST (CONTINUED)**

Fixed or Festival Seating: \_\_\_\_\_

Layout: \_\_\_\_\_

ADA Compliance: \_\_\_\_\_

**Communications**

Internal: \_\_\_\_\_

External: \_\_\_\_\_

**Aid Station on Site** YES / NO

Number: \_\_\_\_\_

Staffed for event? YES / NO

**Mobile teams to be used** YES / NO

Foot: YES / NO      Number: \_\_\_\_\_

Bike: YES / NO      Number: \_\_\_\_\_

Carts: YES / NO      Number: \_\_\_\_\_

Other: YES / NO      Number: \_\_\_\_\_

**HAZARD VULNERABILITY ASSESSMENT**

**Frequency Distributions**

The planning team should assign a *frequency distribution* for each type of hazard identified in the Rating Worksheet. A frequency distribution categorizes the jurisdiction's *exposure* to each hazard (that is, the likelihood of occurrence for each type of hazard). Exposure can be assessed in terms of cycles, hours, or years. The definitions of frequency distribution are shown in the table below.

<b>Exposure</b>	<b>Frequency</b>
Highly likely = 3	The potential for impact is very probable (near 100 percent) in the next year.
Likely = 2	The potential for impact is between 10 and 100 percent within the next year.  or  There is at least one chance of occurrence within the next 10 years.
Possible = 1	The potential for impact is between 1 and 10 percent within the next year.  or  There is at least one chance of occurrence within the next 100 years.
Unlikely = 0	The potential for impact is less than 1 percent in the next 100 years.

**HAZARD VULNERABILITY ASSESSMENT (CONTINUED)**

**Severity Ratings**

The planning team should use historical and analytical data to assign a *severity rating* to each type of hazard that the team identifies in the hazard rating worksheet. The severity ratings selected should quantify, to the degree possible, the damage to be expected in the jurisdiction as a result of a specific hazard. The definitions of the severity ratings are shown in the table below.

<b>Population/Property Level of Severity</b>	<b>Definition</b>
Catastrophic = 3	Multiple deaths. Complete shutdown of critical facilities for 30 days or more. More than 50 percent of property is severely damaged.
Critical = 2	Injuries and/or illnesses result in permanent disability. Complete shutdown of critical facilities for at least 2 weeks. More than 25 percent of property is severely damaged.
Limited = 1	Injuries and/or illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than 1 week. More than 10 percent of property is severely damaged.
Negligible = 0	Injuries and/or illnesses are treatable with first aid. Minor quality of life lost. Shutdown of critical facilities and services for 24 hours or less. No more than 1 percent of property is severely damaged.

**HAZARD VULNERABILITY ASSESSMENT (CONTINUED)**

**Ranking the Hazards**

Using the severity and frequency distribution definitions, the planning team should identify potential hazards for the event and rank them in the Rating Worksheet.

<b>Hazard</b>	<b>Frequency (Likelihood)</b>	<b>Potential Impact on Population</b>	<b>Potential Impact on Property</b>	<b>Level of Coverage in EOP</b>	<b>Point Total</b>
	0 = Unlikely 1 = Possible 2 = Likely 3 = Highly Likely	0 = Negligible 1 = Limited 2 = Critical 3 = Catastrophic	0 = Negligible 1 = Limited 2 = Critical 3 = Catastrophic	0 = None 1 = Limited 2 = Sufficient 3 = Comprehensive (annex)	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	

**HAZARD VULNERABILITY ASSESSMENT (CONTINUED)**

**Recording the Information**

Using the information from the Rating Worksheet, the planning team should complete the Profile Worksheet to assess each hazard.

<b>Hazard Profile Worksheet</b>	
<b>Hazard</b>	_____
<b>Potential Magnitude</b>	<ul style="list-style-type: none"> <li>▪ Catastrophic: Can affect more than 50 percent of the jurisdiction.</li> <li>▪ Critical: Can affect between 25 and 50 percent of the jurisdiction.</li> <li>▪ Limited: Can affect between 10 and 25 percent of the jurisdiction.</li> <li>▪ Negligible: Can affect less than 10 percent of the jurisdiction.</li> </ul>
<b>Areas Likely to be Most Affected (by sector)</b>	_____
<b>Probable Duration</b>	_____
<b>Potential Speed of Onset</b>	<ul style="list-style-type: none"> <li>▪ More than 24 hours' warning probably will be available.</li> <li>▪ Between 12 and 24 hours' warning probably will be available.</li> <li>▪ Between 6 and 12 hours' warning will be available.</li> <li>▪ Minimal (or no) warning will be available.</li> </ul>
<b>Existing Warning Systems</b>	_____
<b>Complete Vulnerability Analysis with local/State emergency management agencies?*</b>	YES/NO

\* Note that some hazards may pose such a limited threat to the jurisdiction that additional analysis is not necessary.

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**LOST-CHILD INFORMATION SHEET**

(Check local regulations for reporting and release requirements.)

Date and time of report: \_\_\_\_\_

Case number (if needed): \_\_\_\_\_ Officer assigned: \_\_\_\_\_

Date and time of assignment: \_\_\_\_\_

**Resolution**

- Child was found. Location: \_\_\_\_\_ By whom: \_\_\_\_\_
- Name of parent/legal guardian that child was released to: \_\_\_\_\_
- Parent left and did not return to CP after being advised to stay.
- Child was not found. Report was filed. Complaint number: \_\_\_\_\_

**Information About the Child**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

DOB: \_\_\_\_\_ Phone number: \_\_\_\_\_

**Description of Child**

Height: \_\_\_\_\_ Weight: \_\_\_\_\_ Hair color: \_\_\_\_\_ Eye color: \_\_\_\_\_

Clothing: \_\_\_\_\_

Unique physical features: \_\_\_\_\_

Other individuals with missing child: \_\_\_\_\_

**Parent/Guardian Information**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone number: \_\_\_\_\_ DOB: \_\_\_\_\_

Social Security #: \_\_\_\_\_

Form of identification provided: \_\_\_\_\_



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**GASTROINTESTINAL ILLNESS QUESTIONNAIRE**

(For use at medical aid posts during gatherings,  
to be used in addition to any patient information intake form.)

Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ Officer assigned: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone number: \_\_\_\_\_

What symptoms have you had?

Diarrhea YES / NO

Nausea YES / NO

Vomiting YES / NO

Abdominal cramps YES / NO

Headache YES / NO

Fever YES / NO

Blood in feces YES / NO

Joint or muscle aches YES / NO

Other: \_\_\_\_\_

When did the symptoms first start?

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Time: \_\_\_\_\_ a.m./p.m.

Do you know of others who have been ill with similar symptoms? YES / NO

(Include names and contact details for others on the reverse side of this form for further followup.)

What have you eaten since being at this event and where was it purchased or obtained?

(List the food history on the reverse side of this form. Include all food, drinks, and any other snacks. It is important to list where the food was obtained.) YES / NO

**GASTROINTESTINAL ILLNESS QUESTIONNAIRE (CONTINUED)**

Have you been swimming since being at this event?

Pool YES / NO

Spa YES / NO

River YES / NO

Lake YES / NO

Other: \_\_\_\_\_

Do you suspect anything that may have caused your illness? YES / NO

Explain: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**NOTE:** Keep this form for review or collection by the supervisor or public health official. Report anything suspicious or, if there are several cases, similar illness within a short period of time. Provide a report to local emergency rooms and those in surrounding communities for statistical analysis and distribution.

**INCIDENT ACTION PLAN SCHEDULE**

Operational Period:

Date:

	<b>Form</b>	<b>Responsibility</b>	<b>Time Needed By</b>
Cover			
Incident Objectives	202		
Organization Assignment	203		
Division Assignment	204		
Communication Plan	205		
Medical Plan	206		
Traffic Plan			
Weather Forecast			
Fire Behavior Forecast			
Air Operations Summary	220		
Safety Message			
Tool and Equipment Plan			
Finance Message			
Rehabilitation Plan			
Cover			

### **INCIDENT COMMAND SYSTEM FORMS**

Copies of the following Incident Command System forms can be found on the NIMS Resource Center at <http://www.fema.gov/nims>:

- ICS Form 201, Incident Briefing
- ICS Form 202, Incident Objectives
- ICS Form 203, Organization Assignment List
- ICS Form 204, Assignment List
- ICS Form 205, Incident Radio Communications Plan
- ICS Form 206, Medical Plan
- ICS Form 207, Organizational Chart
- ICS Form 209, Incident Status Summary
- ICS Form 210, Status Change Card
- ICS Form 211, Check-In List
- ICS Form 213, General Message
- ICS Form 214, Unit Log
- ICS Form 215, Operational Planning Worksheet
- ICS Form 215a, Incident Action Plan Safety Analysis
- ICS Form 216, Radio Requirements Worksheet
- ICS Form 217, Radio Frequency Assignment Worksheet
- ICS Form 218, Support Vehicle Inventory
- ICS Form 220, Air Operations Summary
- ICS Form 221, Demobilization Plan
- ICS Form 308, Resource Order Form

**IS-15: Special Events Contingency Planning  
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Expense Report

Prepared by:

Date / time:

Incident:

Name:

Title:

SS#:

<b>DATE:</b>								<b>TOTAL</b>
<b>LOCATION:</b>								
Time	Regular Hours							
	Overtime Hours							
Transportation	Vehicle Mileage							
	Common Carrier Transportation Cost							
	Vehicle Fuel/Oil Cost							
	Tolls							
	Vehicle Repair Cost							
Other	Lodging Cost							
	Meals Cost							
	Equipment Repair Cost							
	Miscellaneous							
<b>EXPENSE TOTAL</b>								

NOTE: Attach copies of travel vouchers, meal receipts, hotel bills, lodging requests, toll receipts, and/or repair bills. Copy of time sheet and copy of vehicle cost record and gas or repair receipts must be submitted prior to, or as part of, the demobilization process.

**HAZMAT/CBRNE DATA COLLECTION REPORT**

**Reported by:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Agency or Home Address:** \_\_\_\_\_

**Date and Time of Incident:** \_\_\_\_\_

**Incident Location and Description**

Neighborhood and occupancy: \_\_\_\_\_

Topography: Urban Rural Suburban

Describe: \_\_\_\_\_

Population sensitive areas (for example, nursing homes, schools, or hospitals):

**Reason for Report**

- Unusual liquid droplets
- Unusual odors
- Unusual cloud or vapor
- Unusual metal debris
- Other (describe): \_\_\_\_\_
- People becoming sick
- People dying
- Dead/discolored vegetation
- Dead/dying or sick animals

**Weather**

- Clear
- Misty
- Temperature: \_\_\_\_\_
- Relative humidity: \_\_\_\_\_
- Other (describe): \_\_\_\_\_
- Cloudy
- Rain
- Snow

**HAZMAT/CBRNE DATA COLLECTION REPORT (CONTINUED)**

**Wind**

Direction (to/from): \_\_\_\_\_

Speed (none, mild, gusts, high winds): \_\_\_\_\_

Other (describe): \_\_\_\_\_

**Odor**

- None
- Irritating
- Garlic/Horseradish
- Sweet
- Pepper
- Fruity
- Changing
- Other (describe): \_\_\_\_\_
- Flower
- Forest
- Almond/Peach
- Fresh hay
- Rotten eggs

**Visible Emission**

- Cloud or Vapor
- Mist
- Smoke
- Liquid
- Other (describe): \_\_\_\_\_

**Signs and Symptoms**

- None
- Tightness in chest
- Dizziness
- Blurred vision
- Difficulty breathing
- Fever
- Runny nose
- Other (describe): \_\_\_\_\_
- Stinging of skin
- Reddening of skin
- Welts/Blisters
- Nausea/Vomiting
- Choking
- Diarrhea

**HAZMAT/CBRNE DATA COLLECTION REPORT (CONTINUED)**

Date and Time of Onset: \_\_\_\_\_

Duration of Symptom(s): \_\_\_\_\_

Number of Casualties: \_\_\_\_\_

**Explosion/Fires**

- None
- Air
- Ground
- Other (describe): \_\_\_\_\_
- Structure
- Underground

Describe device: \_\_\_\_\_

Describe container/condition/size: \_\_\_\_\_

Describe location where device was found: \_\_\_\_\_

Describe structures involved/estimated damage: \_\_\_\_\_

**Report filed by:**

Information reported to: \_\_\_\_\_



**IS-15: Special Events Contingency Planning  
Job Aids Manual**

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**BOMB THREAT CHECKLIST**

*Place by each telephone. Duplicate as necessary.*

Exact date and time of call: \_\_\_\_\_

Exact words of caller: \_\_\_\_\_

---

**Questions to ask**

1. When is the bomb going to explode? \_\_\_\_\_

2. Where is the bomb? \_\_\_\_\_

3. What does it look like? \_\_\_\_\_

4. What kind of bomb is it? \_\_\_\_\_

5. What will cause it to explode? \_\_\_\_\_

6. Did you place the bomb? \_\_\_\_\_

7. Why? \_\_\_\_\_

8. Where are you calling from? \_\_\_\_\_

9. What is your address? \_\_\_\_\_

10. What is your name? \_\_\_\_\_

**Caller's Voice** (Please circle appropriate terms.)

calm	disguised	nasal	angry	broken
stutter	slow	sincere	lisp	rapid
giggling	deep	crying	squeaky	excited
stressed	accent	loud	slurred	normal

If voice is familiar, whom did it sound like? \_\_\_\_\_

Were there any background noises? \_\_\_\_\_

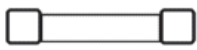
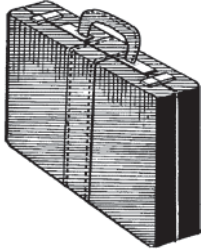





Remarks: \_\_\_\_\_

Person receiving call: \_\_\_\_\_

Telephone number where call was received: \_\_\_\_\_

Report call immediately to: \_\_\_\_\_  
(Refer to bomb incident plan.)

**BOMB THREAT STAND-OFF**

THREAT	THREAT DESCRIPTION	EXPLOSIVE CAPACITY	LETHAL AIRBLAST RANGE	MANDATORY EVACUATION DISTANCE	DESIRED EVACUATION DISTANCE
	Pipe Bomb	5 LBS / 2.3 KG	25 FT / 8 M	70 FT / 21 M	850 FT / 259 M
	Briefcase or Suitcase Bomb	50 LBS / 23 KG	40 FT / 12 M	150 FT / 46 M	1,850 FT / 564 M
	Compact Sedan	220 LBS / 100 KG	60 FT / 18 M	240 FT / 73 M	915 FT / 279 M
	Sedan	500 LBS / 227 KG	100 FT / 30 M	320 FT / 98 M	1,050 FT / 320 M
	Van	1,000 LBS / 454 KG	125 FT / 38 M	400 FT / 122 M	1,200 FT / 366 M
	Moving Van or Delivery Truck	4,000LBS / 1,814KG	200 FT / 61 M	640 FT / 195 M	1,750 FT / 534 M
	Semi-Trailer	40,000 LBS / 18,144 KG	450FT / 137M	1,400FT / 427M	3,500FT / 1,607M

**Explosive Capacity** is based on maximum volume or weight of explosives (TNT equivalent) that could reasonably fit or be hidden in a suitcase or vehicle.

**Lethal Airblast Range** is the minimum distance personnel in the open are expected to survive blast effects. This minimum range is based on anticipation of avoiding severe lung damage or fatal impact injury from body translation.

**Mandatory Evacuation Distance** is the range within which all buildings must be evacuated. From this range outward to the Desired Evacuation Distance, personnel may remain inside buildings but away from windows and exterior walls. Evacuated personnel must move to the Desired Evacuation Distance.



## APPENDIX B: REFERENCES AND BIBLIOGRAPHY



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## APPENDIX C: GLOSSARY OF TERMS



**GLOSSARY**

**A**

<b>Action Plan</b>	See Incident Action Plan.
<b>ADA</b>	Americans With Disabilities Act.
<b>Administrative/Finance Section</b>	The section responsible for all incident costs and financial considerations. Includes the Time Unit, Procurement Unit, Compensation/Claims Unit, and Cost Unit.
<b>Agency</b>	A division of government with a specific function offering a particular kind of assistance. In the Incident Command System, agencies are defined either as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance). Governmental organizations are most often in charge of an incident, though in certain circumstances private-sector organizations may be included. Additionally, nongovernmental organizations may be included to provide support.
<b>Agency Executive or Administrator</b>	The official responsible for administering policy for an agency or jurisdiction. An Agency Administrator/Executive (or other public official with jurisdictional responsibility for the incident) usually makes the decision to establish an Area Command.
<b>After-Action Report</b>	A report detailing an event with recommendations for improvements.
<b>Agency Dispatch</b>	The agency or jurisdictional facility from which resources are sent to incidents.
<b>Agency Representative</b>	A person assigned by a primary, assisting, or cooperating Federal, State, tribal, or local government agency, or nongovernmental or private organization, that has been delegated authority to make decisions affecting that agency's or organization's participation in incident management activities following appropriate consultation with the leadership of that agency.
<b>Air Operations Branch Director</b>	The person primarily responsible for preparing and implementing the air operations portion of the Incident Action Plan (IAP). Also responsible for providing logistical support to helicopters operating at the incident..
<b>Allocated Resources</b>	Resources dispatched to an incident..

**GLOSSARY (CONTINUED)**

<b>Area Command</b>	An organization established to oversee the management of multiple incidents that are each being handled by a separate Incident Command System organization or to oversee the management of a very large or evolving incident that has multiple Incident Management Teams engaged. An Agency Administrator/Executive or other public official with jurisdictional responsibility for the incident usually makes the decision to establish an Area Command. An Area Command is activated only if necessary, depending on the complexity of the incident and incident management span-of-control considerations.
<b>Assigned Resources</b>	Resources checked in and assigned work tasks on an incident.
<b>Assignments</b>	Task given to a personnel resource to perform within a given operational period that is based on operational objectives defined in the Incident Action Plan.
<b>Assistant</b>	Title for subordinates of principal Command Staff positions. The title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary positions. Assistants may also be assigned to Unit Leaders.
<b>Assisting Agency</b>	An agency or organization providing personnel, services, or other resources to the agency with direct responsibility for incident management. See Supporting Agency.
<b>Available Resources</b>	Resource assigned to an incident, checked in, and available for a mission assignment, normally located in a Staging Area.

**B**

<b>Base</b>	The location at which primary logistics functions for an incident are coordinated and administered. There is only one base per incident. (An incident name or other designator will be added to the term <i>base</i> .) The Incident Command Post may be collocated with the base.
<b>Branch</b>	The organizational level having functional or geographical responsibility for major aspects of incident operations. A Branch is organizationally situated between the Section Chief and the Division or Group in the Operations Section, and between the Section and Units in the Logistics Section. Branches are identified by the use of Roman numerals or by functional area.

**GLOSSARY (CONTINUED)**

**C**

<b>Cache</b>	A predetermined complement of tools, equipment, or supplies stored in a designated location and available for incident use.
<b>Camp</b>	A geographical site within the general incident area (separate from the Incident Base) that is equipped and staffed to provide sleeping, food, water, and sanitary services to incident personnel.
<b>Check-in</b>	The process through which resources first report to an incident. All responders, regardless of agency affiliation, must report in to receive an assignment in accordance with the procedures established by the Incident Commander.
<b>Chain of Command</b>	The orderly line of authority within the ranks of the incident management organization.
<b>Chief</b>	The Incident Command System title for individuals responsible for management of functional Sections: Operations, Planning, Logistics, Finance/Administration, and Intelligence/Investigations (if established as a separate Section).
<b>Clear Text</b>	The use of plain English in radio communications transmissions. No Ten Codes or agency-specific codes are allowed when using Clear Text.
<b>CBRNE</b>	Chemical, Biological, Radiological, Nuclear, Explosive
<b>Command</b>	The act of directing, ordering, or controlling by virtue of explicit statutory, regulatory, or delegated authority.
<b>Command Staff</b>	The staff who report directly to the Incident Commander, including the Public Information Officer, Safety Officer, Liaison Officer, and other positions as required. They may have an assistant or assistants, as needed.
<b>Communications Unit (Comm. Unit)</b>	An organizational unit in the Logistics Section responsible for providing communication services at an incident. A Communications Unit may also be a facility (for example, a trailer or mobile van) used to provide the major part of an Incident Communications Center.
<b>Compensation Unit/ Claims Unit</b>	Functional unit within the Administration/Finance Section responsible for financial concerns resulting from injuries or fatalities at the incident.



**GLOSSARY (CONTINUED)**

<b>Complex</b>	Two or more individual incidents that are located in the same general area and are assigned to a single Incident Commander or Unified Command.
<b>Contingency Plan</b>	A documented scheme of assigned responsibilities, actions, and procedures to be followed if an emergency situation develops.
<b>Cooperating Agency</b>	An agency supplying assistance other than direct operational or support functions or resources to the incident management effort.
<b>Coordination Center</b>	Term used to describe any facility that is used for the coordination of agency or jurisdictional resources in support of one or more incidents.
<b>Cost Unit</b>	Functional unit within the Administration/Finance Section responsible for tracking costs, analyzing cost data, making cost estimates, and recommending cost-saving measures.
<b>Credential</b>	A letter or other testimonial attesting the bearer's right to confidence or authority.
<b>Credible Threat</b>	A threat with sufficient credibility that would cause the FBI to begin a threat assessment. The FBI would notify law enforcement authorities within the affected State and the appropriate Federal agencies of a significant threat of terrorism.
<b>Critical Crowd Densities</b>	A common characteristic of crowd disasters. Critical crowd densities are approached when the floor space per standing person is reduced to about 4-5 square feet.
<b>Crush Load</b>	Overwhelming the capacity of a given area that results in gridlock, limited access, and hazards incompatible to life safety. This may apply to both inside and outside venues and parking areas.
<b>Cues</b>	A signal, hint, or guide.
<b>D</b>	
<b>Debrief</b>	A meeting held during or at the end of an operation with the purpose of assessing the conduct or results of an operation.
<b>Deputy</b>	A fully qualified individual who, in the absence of a superior, could be delegated the authority to manage a functional operation or perform a specific task. In some cases, a Deputy could act as relief for a superior and therefore must be fully qualified in the position. Deputies can be assigned to the Incident Commander, General Staff heads, and Branch Directors.

**GLOSSARY (CONTINUED)**

<b>Demobilization Unit</b>	Functional unit within the Planning Section responsible for ensuring orderly, safe, and efficient demobilization of incident resources.
<b>Director</b>	The Incident Command System title for individuals responsible for supervision of a Branch.
<b>Dispatch</b>	The ordered movement of a resource or resources to an assigned operational mission, or an administrative move from one location to another.
<b>Dispatch Center</b>	A facility from which resources are directly assigned to an incident.
<b>Division</b>	The organizational level having responsibility for operations within a defined geographic area. Divisions are established when the number of resources exceeds the manageable span of control of the Section Chief. See Group.
<b>Documentation Unit</b>	Functional unit within the Planning Section responsible for collecting, recording, and safeguarding all documents relevant to the incident.

**E**

<b>Emergency Medical Technician (EMT)</b>	A healthcare professional with special skills and knowledge in pre-hospital emergency medicine.
<b>Emergency Operating Center (EOC)</b>	The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., Federal, State, regional, tribal, city, county), or by some combination thereof.
<b>Emergency Management</b>	A range of measures to manage risks to communities and the environment.
<b>Emergency Management Coordinator</b>	Refers to the individual within each political subdivision who has coordination responsibility for jurisdictional emergency management.
<b>Emergency Management Plan</b>	A formal record of agreed emergency management roles, responsibilities, strategies, systems, and arrangements.
<b>Emergency Operations Plan (EOP)</b>	An ongoing plan for responding to a wide variety of potential hazards.

**GLOSSARY (CONTINUED)**

<b>Endemic</b>	Constant presence of a disease or infectious agent within a given geographic area or population group.
<b>Environmental Health Officer</b>	Terminology used that includes Health Inspectors/Surveyors, Public Health Officers, Sanitary Inspectors/Engineers, Hygiene Officers, and Preventive Health Officers.
<b>Event</b>	A scheduled nonemergency activity (e.g., sporting event, concert, parade, etc.).
<b>Event Footprint</b>	The area impacted by the event. This includes the event site(s) and any surrounding area impacted.

**F**

<b>Facilities Unit</b>	Functional unit within the Support Branch of the Logistics Section that provides fixed facilities for the incident. These facilities may include the Incident Base, feeding areas, sleeping areas, or sanitary facilities.
<b>Field Operations Guide</b>	Durable pocket or desk guides that contain essential information required to perform specific assignments or functions.
<b>Food Unit</b>	Functional unit within the Service Branch of the Logistics Section responsible for providing meals for incident personnel.
<b>Freelance</b>	Term used to describe resources performing assignments on their own and not under direct ICS supervision.
<b>Function</b>	The five major activities in the Incident Command System: Command, Operations, Planning, Logistics, and Finance/Administration. A sixth function, Intelligence/Investigations, may be established, if required, to meet incident management needs. The term function is also used when describing the activity involved (e.g., the planning function).

**G**

<b>Gastric Illness (Gastroenteritis)</b>	An inflammation of the stomach and the intestinal tract, often described as food poisoning.
<b>General Staff</b>	A group of incident management personnel organized according to function and reporting to the Incident Commander. The General Staff normally consists of the Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief. An Intelligence/Investigations Chief may be established, if required, to meet incident management needs.

**GLOSSARY (CONTINUED)**

<b>Goal</b>	The end toward which incident efforts are directed.
<b>Ground Support Unit</b>	Functional unit within the Support Branch of the Logistics Section responsible for the fueling, maintaining, and repairing of vehicles, and for the transportation of personnel and supplies.
<b>Group</b>	An organizational subdivision established to divide the incident management structure into functional areas of operation. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division. See Division.

**H**

<b>Hazard Analysis</b>	Identifies potential hazards, estimates how serious they are, and establishes planning priorities. Provides a factual basis for planning and the necessary documentation for planning and response efforts.
<b>Helibase</b>	The main location for parking, fueling, maintenance, and loading of helicopters operating in support of an incident. It is usually located at or near the Incident Base.
<b>Helibase Crew</b>	A crew of individuals who may be assigned to support helicopter operations.
<b>Helispot</b>	Any designated location where a helicopter can safely take off and land. Some helispots may be used for loading of supplies, equipment, or personnel.
<b>HIPAA</b>	Health Insurance Portability and Accountability Act.

**I**

<b>Incident</b>	An occurrence, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.
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**GLOSSARY (CONTINUED)**

<b>Incident Action Plan (IAP)</b>	An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.
<b>Incident Base</b>	The location at which primary Logistics functions for an incident are coordinated and administered. There is only one Base per incident. (Incident name or other designator will be added to the term Base.) The Incident Command Post may be co-located with the Incident Base.
<b>Incident Commander (IC)</b>	The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.
<b>Incident Command Post (ICP)</b>	The field location where the primary functions are performed. The ICP may be co-located with the Incident Base or other incident facilities.
<b>Incident Command System (ICS)</b>	A standardized on-scene emergency management construct specifically designed to provide an integrated organizational structure that reflects the complexity and demands of single or multiple incidents, without being hindered by jurisdictional boundaries. ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents. It is used for all kinds of emergencies and is applicable to small as well as large and complex incidents. ICS is used by various jurisdictions and functional agencies, both public and private, to organize field-level incident management operations.
<b>Incident Management Team</b>	An Incident Commander and the appropriate Command and General Staff personnel assigned to an incident. The level of training and experience of the IMT members, coupled with the identified formal response requirements and responsibilities of the IMT, are factors in determining "type," or level, of IMT.
<b>Incident Objectives</b>	Statements of guidance and direction needed to select appropriate strategy(s) and the tactical direction of resources. Incident objectives are based on realistic expectations of what can be accomplished when all allocated resources have been effectively deployed. Incident objectives must be achievable and measurable, yet flexible enough to allow strategic and tactical alternatives.

**GLOSSARY (CONTINUED)**

**Initial Action** Resources initially committed to an incident.

**J**

**JIC (Joint Information Center)** A facility established to coordinate all incident-related public information activities. It is the central point of contact for all news media. Public information officials from all participating agencies should co-locate at the JIC.

**JIS (Joint Information System)** A structure that integrates incident information and public affairs into a cohesive organization designed to provide consistent, coordinated, accurate, accessible, timely, and complete information during crisis or incident operations. The mission of the JIS is to provide a structure and system for developing and delivering coordinated interagency messages; developing, recommending, and executing public information plans and strategies on behalf of the Incident Commander (IC); advising the IC concerning public affairs issues that could affect a response effort; and controlling rumors and inaccurate information that could undermine public confidence in the emergency response effort.

**Jurisdiction** Refers to the range or sphere of authority. Public agencies have jurisdiction at an incident related to their legal responsibilities and authority for incident mitigation. Jurisdictional authority at an incident can be political/geographical (for example, city, county, State, or Federal boundary lines) or functional (for example, police department or health department). (See *Multi-jurisdiction*, below.)

**Jurisdictional Agency** The agency having jurisdiction and responsibility for a specific geographical area or for a mandated function.

**L**

**Leader** The ICS title for individuals responsible for a Task Force, Strike Team, or functional unit.

**Liaison Officer** A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies or organizations.

**Logistics Section** The Incident Command System Section responsible for providing facilities, services, and material support for the incident.

**Life-Safety** Highest incident priority refers to the joint consideration of both the life and physical well-being of individuals.

**GLOSSARY (CONTINUED)**

**M**

<b>Managers</b>	Individual within an Incident Command System organizational unit who is assigned specific managerial responsibilities (e.g., Staging Area Manager).
<b>Management by Objectives</b>	A management approach that involves a five-step process for achieving the incident goal. The Management by Objectives approach includes the following: establishing overarching incident objectives; developing strategies based on overarching incident objectives; developing and issuing assignments, plans, procedures, and protocols; establishing specific, measurable tactics or tasks for various incident-management functional activities and directing efforts to attain them, in support of defined strategies; and documenting results to measure performance and facilitate corrective action.
<b>Mass Gathering Medicine</b>	The management of the health and medical requirements of mass gatherings.
<b>Medical Unit</b>	The functional unit within the Service Branch of the Logistics Section responsible for the development of the Medical Emergency Plan and for providing emergency medical treatment of incident personnel.
<b>Message Center</b>	Part of the Incident Communications Center and collocated with or placed adjacent to it. It receives, records, and routes information about resources reporting to the incident, resource status, and administration and tactical traffic.
<b>Metering</b>	Term applied to the control procedures used to prevent critical crowd densities from developing in specific areas.
<b>Mobilization</b>	The process and procedures used by all organizations-Federal, State, tribal, and local-for activating, assembling, and transporting all resources that have been requested to respond to or support an incident.
<b>Mobilization Center</b>	An off-incident location at which emergency service personnel and equipment are temporarily located pending assignment, release, or reassignment.
<b>Moshing</b>	A practice carried out at concerts in which a person is supported by the upheld arms of a crowd of people. This practice is carried out in the moshpit area where the crowd is the densest.

**GLOSSARY (CONTINUED)**

<b>Multiagency Coordination (MAC)</b>	A group of administrators or executives, or their appointed representatives, who are typically authorized to commit agency resources and funds. A MAC Group can provide coordinated decisionmaking and resource allocation among cooperating agencies, and may establish the priorities among incidents, harmonize agency policies, and provide strategic guidance and direction to support incident management activities. MAC Groups may also be known as multiagency committees, emergency management committees, or as otherwise defined by the Multiagency Coordination System.
<b>Multiagency Coordination System (MACS)</b>	A system that provides the architecture to support coordination for incident prioritization, critical resource allocation, communications systems integration, and information coordination. MACS assist agencies and organizations responding to an incident. The elements of a MACS include facilities, equipment, personnel, procedures, and communications. Two of the most commonly used elements are Emergency Operations Centers and MAC Groups.
<b>Multijurisdiction Incident</b>	An incident requiring action from multiple agencies that each have jurisdiction to manage certain aspects of an incident. In the Incident Command System, these incidents will be managed under Unified Command.
<b>Mutual Agreement or Assistance Agreement</b>	Written or oral agreement between and among agencies/organizations and/or jurisdictions that provides a mechanism to quickly obtain emergency assistance in the form of personnel, equipment, materials, and other associated services. The primary objective is to facilitate rapid, short-term deployment of emergency support prior to, during, and/or after an incident.

**N**

<b>NIMS (National Incident Management System)</b>	A set of principles that provides a systematic, proactive approach guiding government agencies at all levels, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life or property and harm to the environment.
<b>NRF (National Response Framework)</b>	A guide to how the Nation conducts all-hazards response



**GLOSSARY (CONTINUED)**

**O**

<b>Officer</b>	The Incident Command System title for a person responsible for one of the Command Staff positions of Safety, Liaison, and Public Information.
<b>Operational Period</b>	The time scheduled for executing a given set of operation actions, as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually they last 12 to 24 hours.
<b>Operations Section</b>	The Incident Command System (ICS) Section responsible for all tactical incident operations and implementation of the Incident Action Plan. In ICS, the Operations Section normally includes subordinate Branches, Divisions, and/or Groups.
<b>Out-of-Service Resources</b>	Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons.

**P**

<b>Planning Meeting</b>	A meeting held as needed before and throughout the duration of an incident to select specific strategies and tactics for incident control operations and for service and support planning. For larger incidents, the Planning Meeting is a major element in the development of the Incident Action Plan.
<b>Post-Event Analysis</b>	The final gathering of the event planning team before releasing response agencies, resource personnel, or volunteers.
<b>Potable Water Procurement Unit</b>	Water that is safe for human consumption. Functional unit within the Administration/Finance Section responsible for financial matters involving vendor contracts.
<b>Public Information Officer (PIO)</b>	A member of the Command Staff responsible for interfacing with the public and media and/or with other agencies with incident-related information requirements.
<b>Putrescible</b>	Waste that will decompose, such as food waste.

**R**

<b>Radio Cache</b>	A radio cache may consist of a number of portable radios, a base station and, in some cases, a repeater, all stored in a pre-determined location for dispatch to incidents.
<b>Rave</b>	An all-day/night dance party, especially one where techno, house, or other electronically synthesized music is played.

**GLOSSARY (CONTINUED)**

<b>Recorders</b>	Individuals within ICS organizational units who are responsible for recording information. Recorders work in Planning, Logistics, and Administration/Finance Sections.
<b>Reinforced Response Reporting Locations</b>	Those resources requested in addition to the initial response. Locations or facilities where incoming resources can check in at the incident. Refers to staging.
<b>Resource Status Unit</b>	Functional unit within the Planning Section responsible for recording the status of resources committed to the incident and for evaluating resources currently committed to the incident, the impact that additional responding resources will have on the incident, and anticipated resource needs.
<b>Resource Gap Analysis</b>	In pre-event planning the analysis of what public safety resources the event will require versus what is locally available.
<b>Resources</b>	Personnel and major items of equipment, supplies, and facilities available or potentially available for assignment to incident operations and for which status is maintained. Resources are described by kind and type and may be used in operational support or supervisory capacities at an incident or at an Emergency Operations Center.
<b>Reticulated</b>	Distribution or collection network for drinking water or sewage.
<b>Risk Analysis</b>	Assesses the probability of injury or damage due to a hazard and estimates the actual damage that may occur.
<b>Risk Assessment</b>	The process used to determine risk management priorities by evaluating and comparing the level of risk against pre-determined standards, target risk levels, or other criteria.

**S**

<b>Safety Officer</b>	A member of the Command Staff responsible for monitoring incident operations and advising the Incident Commander on all matters relating to operational safety, including the health and safety of emergency responder personnel.
<b>Service Branch</b>	A Branch within the Logistics Section responsible for service activities at the incident. Includes the Communications, Medical, and Food Units.
<b>Sewage</b>	Waste matter that passes through sewers.

**GLOSSARY (CONTINUED)**

<b>Single Resource</b>	An individual, a piece of equipment and its personnel complement, or a crew/team of individuals with an identified work supervisor that can be used on an incident.
<b>Situation Status Unit</b>	The functional unit within the Planning Section responsible for the collection and organization of incident status information and for analysis of the situation as it progresses. Reports to the Planning Section Chief.
<b>Slam Dancing</b>	A spontaneous form of dancing where people deliberately throw themselves against people they are dancing with.
<b>Span of Control</b>	The number of resources for which a supervisor is responsible, usually expressed as the ratio of supervisors to individuals. (Under the National Incident Management System, an appropriate span of control is between 1:3 and 1:7, with optimal being 1:5, or between 1:8 and 1:10 for many large-scale law enforcement operations.)
<b>Staging Area</b>	Temporary location for available resources. A Staging Area can be any location in which personnel, supplies, and equipment can be temporarily housed or parked while awaiting operational assignment.
<b>Strategy</b>	The general plan or direction selected to accomplish incident objectives.
<b>Strike Team</b>	A set number of resources of the same kind and type that have an established minimum number of personnel, common communications, and a leader.
<b>Sullage</b>	Waste water from sinks, showers, and hand-washing basins.
<b>Supervisor</b>	The Incident Command System title for an individual responsible for a Division or Group.
<b>Supply Unit</b>	Functional unit within the Support Branch of the Logistics Section responsible for ordering equipment and supplies required for incident operations.
<b>Support Branch</b>	A Branch within the Logistics Section responsible for providing personnel, equipment, and supplies to support incident operations. Includes the Supply, Facilities, and Group Support Units.
<b>Support Materials</b>	Refers to the attachments that may be included with an Incident Action Plan (for example, communications plan, map, safety plan, traffic plan, and medical plan).

**GLOSSARY (CONTINUED)**

**T**

<b>Tactical Direction</b>	The term includes the tactics appropriate for the selected strategy, the selection and assignment of resources, and performance monitoring for each operational period.
<b>Target Hardening</b>	Activities undertaken to reduce vulnerability of a venue site, i.e., installation of jersey barriers, pre-screening of attendees, etc
<b>Task Force</b>	Any combination of resources assembled to support a specific mission or operational need. All resource elements within a Task Force must have common communications and a designated leader.
<b>Technical Specialists</b>	Person with special skills that can be used anywhere within the Incident Command System organization. No minimum qualifications are prescribed, as technical specialists normally perform the same duties during an incident that they perform in their everyday jobs, and they are typically certified in their fields or professions.
<b>Temporary Flight Restrictions (TFRs)</b>	Federal Aviation Regulation 91.137 provides for the establishment of temporary airspace restrictions for non-emergency aircraft. TFRs can be requested for incidents and/or events generating a high degree of public interest, and are normally limited to a 5-nautical-mile radius and 2,000 feet above the surface.
<b>Time Unit</b>	Functional unit within the Administration/Finance Section responsible for recording time for incident personnel.
<b>Topography</b>	Physical features of place or locality.
<b>Type</b>	An Incident Command System resource classification that refers to capability. Type 1 is generally considered to be more capable than Types 2, 3, or 4, respectively, because of size, power, capacity, or (in the case of Incident Management Teams) experience and qualifications.

**U**

<b>Unified Command</b>	An Incident Command System application used when more than one agency has incident jurisdiction or when incidents cross political jurisdictions. Agencies work together through the designated members of the UC, often the senior persons from agencies and/or disciplines participating in the UC, to establish a common set of objectives and strategies and a single Incident Action Plan.
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**GLOSSARY (CONTINUED)**

**Unit** The organizational element with functional responsibility for a specific incident planning, logistics, or finance/administration activity.

**Unity of Command** An Incident Command System principle stating that each individual involved in incident operations will be assigned to only one supervisor.

**V**

**VBIED** Vehicle-borne improvised explosive device.

**Vulnerability** The degree of susceptibility and resilience of the community and environment to hazards.

**W**

**WMD** Weapon(s) of Mass Destruction.

# The Event Safety Guide



A guide to health, safety and welfare  
at live entertainment events  
in the United States

DRAFT  
For Review and Comment Only

# DRAFT

## For Review and Comment Only

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# Foreword

Growing up in the late Sixties, my brother, sisters and I used to get into our old powder blue station wagon, climbing over each other and fighting for the rear facing rear seat so we could make faces and moon those cars behind us. During that time there wasn't a seat belt initiative, there was no use of child safety seats and few, if any, automobiles had seat belts installed. Our parents barreled down the highway at 75 miles per hour while we wrestled, climbed back and forth over seats and ran roughshod in the vehicle with absolutely no restraint or care in the world.

In 1965, it became compulsory for vehicle manufacturers to equip all cars with a simple front seat lap belt. In 1968, this progressed to requiring front shoulder and rear lap belts; and, in 1974, three-point harnesses were required to be installed throughout the vehicle. It wasn't until 1984 that the State of New York passed the first state law mandating the wearing of seat belts—a full 10 years after manufacturers were required to install them. Regardless of the evidence showing that this simple act—wearing a seat belt—saved thousands of lives each year and reduced serious injuries by nearly half, the United States was dead last on a list of 18 developed countries to adopt the compulsory wearing of seat belts.

In many ways, the event industry in the United States today is comparable to the auto industry in 1984. Like with seatbelts, we've been aware of the right methods for quite some time. If the recommendations in this guide are applied to your everyday work, they will over time become as routine, and enhance safety every bit as much, as strapping on a seat belt.

The history of the last 40 years of event production is a testament to our ability to succeed without the need for strict government intervention. The industry has a remarkable track record of safety despite the lack of specific written guidelines up to this point. But, the industry is evolving and our government needs to know that we are capable of policing ourselves—indeed, no one is in a better position to do so. I have no doubt that if we don't get this body of information in circulation and encourage, by whatever means possible, the acceptance and practice of its guidance, we will see hard times through overregulation befall our industry.

One goal of the Event Safety Alliance (ESA) is to assemble and describe the industry best practices already in use and provide guidance where none exists. Once this is underway, the ESA will continue to develop tools and resources that will simplify the practical usage and implementation of these best practices. This document is a comprehensive guide intended to account for most types of events and related circumstances and goes a long way toward achieving the goals of the ESA. Never before has a single body of work attempted to provide this information. Never before has a work like this provided a collection of references already applicable to our industry—whether we are aware of them or not. We are, once again, nearly last of the developed nations to commit these safeguards to paper. Fortunately, the process has been expedited by our ability to borrow and learn from the many existing models outside of the United States. Our efforts have been further advanced by the hard work of several dedicated individuals motivated by nothing more than an interest in protecting the future of those who work at and attend events.

In the Introduction that follows, “we” is referenced quite often. The “we” in this case is YOU, just as it is all of us who take the time to read this guide with the desire to ensure that we are doing everything within our duty of care to produce a safe event.

Ours is one of the most exciting businesses in the world. We should consider ourselves privileged to be a part of it. Nowhere else can you thrive from an overabundance of creative energy and talent, working long hours without the loss of inspiration or motivation. We are rewarded with applause and instant recognition every time we produce an event and the house lights go dim. We are a lucky few. We must do everything in our collective powers to keep our creative endeavors, and those who produce them, free from harm. Our intent is to heighten the creative experience of producing events by providing a path to safer conditions within our chosen field.

I want to expressly thank Don Cooper, Debi Moen and the many who took time out of their busy lives to design and contribute to this first edition. This will be a living document open to contribution from the industry at large. We encourage you to put it to use, and when and where you feel additions or corrections need to be made, please submit them through the prescribed methods to ensure the work maintains a well-rounded perspective.

~ Jim Digby, Founding Member and  
Executive Director of the Event Safety Alliance

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# 1. Introduction

## 1.1 Our Agenda: Life Safety First

We are people who have made our careers in live entertainment, who have experience and expertise, who take our jobs seriously so that other people may safely have fun.

In just the last few years, we have seen lives shattered as outdoor stages have collapsed in Alberta and Ottawa, in Tulsa and Indianapolis, in Belgium, in Toronto. Other outdoor structures have been no less affected. More people died when a bar's party tent blew over in St. Louis, Missouri, when lightning struck a crowd evacuating a racetrack in Pennsylvania, when a temporary advertising scaffold fell outside a Cape Town, South Africa concert venue. For each fatality, many times that number were hurt, property was destroyed, and lawsuits followed.

Particularly after the August 2011 Indiana State Fair stage collapse, industry professionals began talking about why these tragedies happened and what could be done to prevent them. Starting in January 2012 at Tour Link, then Pollstar Live!, then the International Association of Venue Managers' Academy for Venue Safety & Security and Severe Weather Preparedness course, a group of us decided to take matters into our own hands. The Event Safety Alliance includes tour managers, event producers, engineers, riggers, equipment lessors, roadies, safety specialists, and many more. We are people of action. It is not in our nature to sit idly by when there is work to be done.

Our conversations focused on operational best practices and decision-making within the live entertainment industry. We realized that the sort of event safety manual we were talking about had been relied upon in the United Kingdom since 1999. Once we concluded that we did not have to invent this wheel ourselves, we pooled our collective knowledge and experience to update and supplement the U.K.'s "Purple Guide."

Our mission is to promote life safety first -- to set forth in easily understood language the best operational practices currently available in the live event industry, and to make the awareness and application of life safety the highest priority of industry professionals. This *Event Safety Guide* is our first collective effort toward that goal.

We intend for this *Guide* to help industry professionals know what safe workplace practices might be, to heighten their understanding of the importance of safety in everything we do, and to engage in these best practices in their daily work. Doing the right thing is the best risk management we know.

We do not intend for the *Event Safety Guide* to be a roadmap for lawyers seeking to assign liability for tragedies, but we are aware that it can serve that purpose. The fear of litigation can be a strong motivator, and if it serves the cause of safety in this instance, then we are comfortable with that ancillary effect, too.

The frequency of disasters in our industry has not numbed us to their impact. To the contrary, we are increasingly shocked and saddened with each incident. If we appear to seek the unattainable, we do so in an effort to avoid the unimaginable.

## 1.2 How to Use a “Best Practices” Guide

1.2.1 This *Event Safety Guide* is intended to provide the people who create and organize live entertainment events with operational best practices to help the events run safely. On a variety of topics within our collective expertise, we state what we feel is required and why it is necessary or sensible to do so.

1.2.2 The “why” part of a situation is often the key. In some matters, there is an absolute right answer, a single best and most correct way to do something. We have emphasized those few rules we consider unbreakable. In a great majority of situations, however, there is more than one safe way to do something. For those, we have tried to identify important issues for you to consider as you seek to apply a general safety standard or principle to the particular factual circumstances you actually face. In other words, we try to teach you to think about safety for yourself, not just to follow rules that may apply to you to varying degrees, or not at all.

1.2.3 The *Event Safety Guide* is based on widely accepted principles of safety and risk assessment that apply to events that take place at a variety of venues such as purpose-built arenas, sites not designed for public entertainment, and open-air venues, among others. These principles expressly acknowledge that each event will be different and will require a particular configuration of elements, management, services and provisions.

## 1.3 How the Guide is Arranged

1.3.1 Good planning and management are fundamental to the success of any music event. The first chapter of the guide (after the Introduction) gives event organizers essential points to consider in these areas as well as general advice on legal duties.

1.3.2 Subsequent chapters provide advice on specific arrangements for the health and safety of those involved in events, including the provision of services and facilities. There are also chapters which give some specific guidance for different types of events. These chapters should not, however, be read in isolation of all other chapters.

1.3.3 Where other guidance is available, event organizers are recommended to refer to this. Technical details contained in ANSI E1.21-2006, NFPA 1, NFPA 101, and The (ICC) International Fire and Building Codes, among others, will be important to include.

1.3.4 All event organizers are recommended to use the chapter headings as a checklist for planning the requirements for their event. By applying a risk assessment approach to the type and size of event, it should be straightforward to decide which elements from each chapter are relevant and to assess the level and type of provisions needed at a particular event.

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## 1.4 Notice and Legal Disclaimer

**1.4.1 Development Process.** The Event Safety Alliance has created this *Event Safety Guide* through a consensus best practices development process. This process brings together volunteers representing various viewpoints and interests to achieve consensus on safety issues related to live entertainment events. While the Event Safety Alliance administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgment contained in the *Event Safety Guide*.

**1.4.2 Disclaimer of Liability.** The Event Safety Alliance of USA, Inc., disclaims liability for any personal injury, property or other damages of any kind which may directly or indirectly result from the use of or reliance on this *Event Safety Guide*.

**1.4.3 Use of Independent Judgment.** The Event Safety Alliance of USA, Inc., is not undertaking to render professional or other services for or on behalf of any person or entity. Anyone using this *Event Safety Guide* should rely on his or her own independent judgment, or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstance. Reviewing the *Event Safety Guide* also does not replace the need for event organizers to consult with local authorities and emergency services, or to follow all applicable laws and regulations.

**1.4.4 Enforcement.** The Event Safety Alliance of USA, Inc., cannot, and does not undertake to, enforce compliance with the contents of the *Event Safety Guide*. Nor does the Event Safety Alliance of USA, Inc., list, certify, test, or inspect products, designs, or installations for compliance with this document.

**1.4.5 Updating.** The *Event Safety Guide* is intended to be a “living” document. That is, the particular text of this document may be supplemented, modified, or superseded at any time by the issuance of a new edition. To determine whether a given document is the most current version, visit the Event Safety Alliance website at [www.eventsafetyalliance.org](http://www.eventsafetyalliance.org), or contact the Event Safety Alliance at the address listed below.

**1.4.6 Copyright.** The *Event Safety Guide* is copyrighted by the Event Safety Alliance of USA, Inc.. It is made available for use by reference in laws and regulations, and for private self-regulations and the promotion of safe practices and methods. By making this document available for use and adoption by public authorities and private users, the Event Safety Alliance of USA, Inc., does not waive any copyrights in this document.

This *Guide* is based in large measure on HSG195, the U.K.’s Event Safety Guide published by the Health and Safety Executive. United Kingdom Crown Copyright is duly acknowledged for passages which remain unchanged from the original. For practitioners wishing to research current guidance on planning safe events in the United Kingdom, please refer to the Health and Safety Executive’s event web site (<http://www.hse.gov.uk/event-safety/index.htm>).



**1.4.7 Further Information.** All communications regarding safety practices recommended or discussed in the *Event Safety Guide*, or suggestions for revisions or supplements, should be sent to the attention of Administrator, Event Safety Alliance, 8776 E. Shea Boulevard, Suite 106-510, Scottsdale, AZ 85260. For more information about the Event Safety Alliance, visit the website at [www.eventsafetyalliance.org](http://www.eventsafetyalliance.org).

## 2. Planning and Management

2.0.1 The chapters in this guide offer advice and recommendations for organizers in planning a safe, successful event. It explains the principles that emphasize good health and safety management and sets out a basic approach that event organizers can adopt.

2.0.2 Events, even comparable events, can differ significantly. Even events that occur annually in the same location must adapt to the current elements influencing the event and not rely on implementing a “copy and paste” strategy. Smooth operating, well-executed events are the result of the organizers’ meticulous planning and preparation.

2.0.3 Consciously thinking about hazards, risks, mediation and event safety reminds us that we all continually face and mediate multiple levels of risk every day. We take a raincoat when stepping out into the rain, check for traffic before crossing the street, hold a handrail while descending stairs or clean our eyeglasses when they get dirty. The list of things we do every day to identify hazards and mediate risk is seemingly endless.

2.0.4 As with our daily routine of risk management, the more experience a person has with the tasks associated with workplace hazard identification and risk mediation, the more “second nature” those tasks become. Filling out a risk assessment form for the first time can be daunting and even cause “paralysis by analysis,” meaning the process can frustrate a person to the point of discontinuing the process. An organizer just beginning to incorporate safety systems into events should endeavor to complete the task. Risk assessments get easier with experience, but they also become more involved and detailed as awareness evolves.

2.0.5 Typically, the workplace is the location where our exposure to risk is greatest. It is impossible to make products and processes 100 percent safe. That fact does not provide an excuse for careless thinking, poor planning, hazardous conditions or working in an unsafe manner.

2.0.6 Successful safety policies in the workplace are often the result of appropriate choices made continuously by the individuals performing the work. So, the best safety device on a job site is an engaged, alert, well-equipped and well-trained staff.

**The best safety device on a job site is an engaged, alert, well-equipped and well-trained staff.**

2.0.7 The Federal Emergency Management Agency (FEMA) produced an Independent Study online course titled “IS-15: Special Events Contingency Planning for Public Safety Agencies.” It was updated in 2010 and includes a manual titled *Special Events Contingency Planning Job Aids Manual*. This manual defines a “special event” as, “...a non-routine activity within a community

that brings together a large number of people” (p. 1-1). The manual further defines a “mass gathering” as “...a subset of a special event” (p. 1-1).

2.0.8 The event organizer is the individual or organization who promotes and manages an event. This role comes with many obligations and liabilities and it is the organizer’s burden to discover what those obligations are and the organizer’s exposure to liability, keeping in mind those obligations and liabilities can change event to event, even if an event is replicated at a later date in the same location. More detailed information concerning the responsibilities of event organizers can be found in Chapter 34, *Health and Safety Responsibilities*.

2.0.9 Organizers should consider obtaining legal and insurance advice early in the planning stage. Items that warrant consideration include:

- Liability for injuries;
- Liability for acts or omissions;
- Liability for financial obligations incurred in responding to major emergencies occasioned by the event; and
- Potential liability for the resultant effects of the event on normal emergency operations.

2.0.10 Planning an event is difficult. Planning for the potential risks and hazards associated *with* an event is even more difficult and essential to the event’s success. Before scheduling the event, the organizer should consider the scope of the event or mass gathering, the risks to spectators and participants, community impact, and the emergency support required (personnel and logistics).

2.0.11 To protect the health, safety and welfare of people attending an event, as well as the event staff, contractors and subcontractors working at the event, health and safety has to be managed. It is important to plan for effective health and safety management beginning at the same time as the planning for all other aspects of the proposed event.

2.0.12 Some form of legislation usually governs or restricts public events or aspects of them. Some events, particularly extremely large or high-impact events, may require special state or local legislation. On occasion, when an event requires a lot of interaction with the local government or when multiple local governments are affected by the proposed event, organizers employ firms that specialize in navigating the workings of “City Hall” to facilitate the permit process. While not cheap, this method is effective.

2.0.13 It is safe to assume your event will need at least one, if not more than one, permit, regardless of the size, location or timing. Investigate this inevitability early—many months before the event—to assure compliance. The permitting process is always intended to enhance safety and should be viewed as such.

2.0.14 Site inspections may be required by several authorities having jurisdiction including the fire, building, electrical, and health departments. These inspections and other public services provided will almost certainly have a cost to the organizer. The organizer should always assume the local government’s policy is “User Pays” and budget accordingly. Organizers should always do their homework before committing to an event and know their obligations and liabilities as well as their associated costs to avoid future issues.

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## 2.1 Initial Planning Considerations

2.1.1 One important consideration often overlooked by event organizers is the increased strain their event will place on public service agencies such as emergency management, law enforcement, fire and rescue, public works/utilities, public health, medical facilities, etc.

2.1.2 The first concern of these agencies and facilities will likely be the timing and location of the event so they can verify they will have the resources available to service the event. Financially challenged local jurisdictions simply may not have the resources or contingency to accommodate some larger events. In some cases, those communities may have a resource sharing arrangement with other neighboring communities.

2.1.3 If the community's agencies cannot acquire the necessary resources for the proposed event's day or time, the organizer may need to reschedule the event to accommodate the availability of the necessary resources.

2.1.4 It is recommended the organizer not promote or go on sale with an event before confirming the date and time with the community's public service agencies.

2.1.5 Early in the event planning process, a lead agency should be determined and the contact for that agency identified and introduced to the organizer. The reasoning behind a lead agency is because, on large events with many agencies involved, there is an obvious risk of confusion in matters of leadership. Often, the lead agency is the community's emergency management agency.

2.1.6 On occasion, the work load on public service agencies can delay the decision making process. If the organizer is unable to determine which agency is the lead agency for their event, they may have to be more assertive in the discovery process, especially if time is of the essence.

2.1.7 Many communities have existing planning protocols and systems in place. If the community has an existing plan that has proven to be successful, the organizer should consider using that plan and adjusting their event plan where necessary. The organizer's event plan is doubtless more nimble and capable of modification than trying to change the established systems of a multi-agency operations plan.

2.1.8 In addition to ensuring event operations run smoothly, the event organizer is (generally) also responsible for making a profit. An organizer who has an unyielding schedule and for whatever reason, is not involved in the above planning process may not be familiar with the laws or regulations of the community and can therefore unintentionally jeopardize public safety. This is why it is recommended busy organizers employ an experienced Safety Coordinator and assemble an Event Safety Team to counsel the organizer. This group should be empowered to address the issues of event safety regardless of whether the organizer is involved in the above planning process.

2.1.9 To assist organizers during the planning process there is a series of excellent checklists in “Appendix A” of the FEMA IS-15 *Special Events Contingency Planning Job Aids Manual* (2010, p. A-1).

## 2.2 Health and Safety Management

2.2.1 The key elements of successful health and safety management include:

- Creating a health and safety policy;
- Developing the plan to ensure the policy is put into practice;
- Organizing an effective management structure and distribution of the policy to include the responsible person for monitoring health and safety implementation; and
- Analyzing and reviewing performance.

## 2.3 Health and Safety Policy

2.3.1 A health and safety policy is a document that demonstrates the organizer’s commitment to health and safety. The policy document should contain details and show how the policy will be put into practice. It should also describe the roles and responsibilities of those people who have been given safety duties, such as the event safety coordinator. Even though the policy may delegate the authority to do certain things, the ultimate responsibility remains with the organizer.

2.3.2 The organization section of the safety policy should also contain the event’s informative elements, e.g., organizational diagrams, maps, procedures and checklists, etc. Organizational charts with relevant contact information should be posted (at least) in the event office showing the delegation of safety duties and the identification of people with the authority and competence to monitor safety and the resources that are available for health and safety.

2.3.3 The policy should address items including the maintenance of a safe place of work, safe working methods, safe access, provision of information, training and consultation with employees. As a commitment to health and safety, it is important the organizer produce a written health and safety policy.

2.3.4 The health and safety policy may relate to a series of events if these are to be organized by the same event organizer. An event health and safety policy prepared for a series of events will need to be reviewed for each particular event for the organization and arrangements for health and safety.

2.3.5 It is important that the health and safety policy details an event management structure that defines the hierarchy of health and safety responsibility for the duration of the event and is responsible that these details are recorded in the safety policy document. (For the purposes of this chapter, the “duration of the event” includes the entire period the event occupies the site, i.e. the beginning of load-in through the completion of load-out.)

2.3.6 In some states, the organizer or their agent acting as the general contractor is responsible not only for their own violations of federal labor law but also for those violations committed by their contractors and subcontractors. According to the US Department of Labor (DOL), by

outsourcing some or all aspects of the execution of an event, organizers do not relieve themselves of their legal obligations. Prior to planning an event, it is recommended organizers research, know their obligations and become familiar with the risks and liabilities for which they are responsible.

2.3.7 If you or your company has been hired to promote and manage an event on behalf of another company or organization (e.g., a charity, club or a corporate client), your company may not actually be an employer or have any employees. However, it will still be necessary to establish who has the overall responsibility for compliance with local laws to ensure that the responsible parties are noted. Although most state laws and federal regulations can now be accessed on the Internet, local laws, codes and ordinances are not always found online and may need to be requested of local authorities having jurisdiction.

2.3.8 In some instances, events are organized by people or organizations where there is no actual producer or employer (e.g., various community events), so there may be no legal requirement to produce a health and safety policy. However, there is still a responsibility for the management of the public, staff, contractors and subcontractors, etc., on site. Producing such a policy in these circumstances is still recommended as it demonstrates diligence and provides a framework around which you can manage health and safety at the event.

2.3.9 If an event is to be staged in an existing venue such as an auditorium, rental outdoor event space, arena or a sports stadium, the event organizer will need to liaise with the venue management regarding the existing arrangements for health and safety. In this instance the event safety policy is a layer on top of the venue's existing policy.

## 2.4 Planning for Safety

2.4.1 Effective planning is concerned with hazard identification and the mitigation or elimination of those hazards to reduce or eliminate risks. The amount of time needed for planning will depend upon the event's size, type, location and duration. For some large events, as much as 6 to 12 months lead-time is required to plan the event properly. Smaller events can be prepared in several weeks. If the organizer is not practiced with the role of event planning, it is recommended they allow more time so they are not rushed—a hazard in itself.

2.4.2 Other chapters in this publication give specific advice and guidance in their subject area. It is therefore necessary to have an appreciation of the information contained in *all* the chapters to be able to plan effectively.

## 2.5 The Phases of an Event

2.5.1 The process for planning an event can be considered in separate parts. Some people find it easier to view the planning process as a progression of the event by the various phases involved. With time, most organizers develop a multiphase process they use to divide the tasks of their events into segments. For the purposes of this chapter we will use three phases: Pre-Production, Production and Post-Production. The below is only an example of the elements that may be involved in each phase and should only be used only as a reference.

2.5.2 The Pre-Production Phase is considered the period of preparation before the event begins operations and includes: concept development; budgeting; design and engineering; venue selection; vendor selection; health and safety planning, planning for logistics, crowd management, signage, waste management, the load out; and, development of strategies for dealing with fire, first aid and major incidents.

2.5.3 The Production Phase is the operational period of the event. It begins when the event first occupies the venue and continues until all of the event's elements are removed from that venue. The three basic subparts of this phase may be referred to as: the 'install' or 'load-in,' this is when the event's operational elements are delivered, installed and checked; the "show" or "event," this generally refers to the event or performance, and includes the period before and after a performance when the public or attendees occupy the front-of-house (FOH) areas of the venue; the "load-out," "strike" or "dismantle," this time period is often fast-paced and therefore increases risk to working staff due to issues like fatigue, the quantity of staff and equipment in operation, severe drops in temperature, etc.

2.5.4 The Post-Production Phase is the period after the event when the operational elements used during the Production Phase are returned, final accounting is completed, recaps are written and in some cases assets are stored and managed.

## 2.6 Planning for the Pre-Production Phase

2.6.1 To minimize risks during the load-in, ensure that the venue is designed for safety (see Chapter 3, *Venue and Site Design*). It is also necessary to ensure the event's infrastructure (i.e., stages, seating, tents, stages or other structures) be safely erected and structurally sound and monitored during operation (see Chapter 9, *Structures*).

2.6.2 Prepare detailed diagrams to show the location of delivery truck routes, stages, barriers, front-of-house towers, delay towers, cable routes, artist transportation routes, entries and exit points, emergency routes, first-aid and triage areas with ambulance parking locations, positioning of toilets, merchandising stalls, etc. It may be necessary to obtain existing venue plans from the venue's owner or manager. Copies of diagrams may need to be given to the contractors delivering and building the infrastructure to ensure safe ingress as well as correct placement of the various structures to be used at the event. Plan the arrivals of all contractors and ensure their activities on site are coordinated with others.

2.6.3 Ask contractors and subcontractors to provide copies of their own health and safety policies, and identify any hazards and risks associated with their work *before* the load-in begins. Engineering documents and calculations may also need to be obtained in relation to the stages, seating or other temporary structures. These diagrams, plans, documents, and calculations will likely be needed during pre-production meetings when discussing your event with inspectors, local authorities and emergency services. Organizers should verify the laws in their state regarding their responsibilities for compliance by event contractors and subcontractors.

2.6.4 Plan the provision of first-aid facilities for the people who will be working on site during the load-in, ensure that they are sufficient and will be available from the time that work starts until load-out is completed.

2.6.5 It is good practice to draw up a set of site safety rules and communicate these rules to the contractors during the vendor selection process, again before they arrive, and again when they arrive on site to begin work. Signage printed with these rules should be posted at venue entrances, in event offices and other pertinent areas. This practice on behalf of the organizer to inform all staff of safe working practices expected of them demonstrates the organizer's commitment to safety and will encourage compliance.

## 2.7 Planning for the Production Phase

2.7.1 Once the venue's infrastructure is built, other 'top layer' equipment and services will need to be brought to the site and installed in or on those structures (e.g., the loading of the performers' equipment onto the stage, which typically requires manual handling by staff) and the delivery of equipment to be used in the front-of-house concession and merchandise areas. The logistics of these operations will need careful planning as there are often multiple elements competing for the same space at the same time.

2.7.2 Planning for the show requires preparing strategies for crowd management, transportation management, fire, first aid, major incident, contingency planning and more. More specific details about planning these aspects can be found in their respective chapters in this guide. Successful planning for the show requires a team approach. It cannot be achieved by one individual operating alone and requires seeking information and advice from the public service agencies such as law enforcement, fire, the health authority, other local authorities, venue management and security contractors.

2.7.3 Organizers are encouraged to create an event safety management team to coordinate planning the safety aspects of the event. The event safety management team should include members of the lead agency or local authority having jurisdiction over the event as well as emergency services providers. It is advisable to set up at least one or a series of safety planning meetings between the parties and to ensure the relevant agencies are aware of the planning process.

2.7.4 For large and complex events, "tabletop" emergency planning exercises may also be useful to test the viability of the emergency plans under low stress conditions. This not only reveals weaknesses in the plans but encourages a collaborative relationship among the team members.

2.7.5 As mentioned above, to provide a comprehensive overview to the planning aspects it is helpful to produce an event safety management plan. The elements of this plan should include at least the following:

- The event safety policy statement detailing the organization chart and levels of safety responsibility;
- The event risk assessment (see the "Event Risk Assessment" section below);



- Basic details of the event including venue layout, structures, audience profile, demographic, venue capacity, duration, food, toilets, trash, water, fire precautions, first aid, special effects, access and exits, etc.;
- The site safety plan detailing the site safety rules, site managers and safety coordinator, structural safety calculations and drawings;
- The crowd management plan detailing the numbers and types of staffing, methods of working, chains of command;
- The transportation management plan detailing the parking arrangements, traffic management issues, public transportation arrangements and a description of site vehicles and vehicular routes inside the venue perimeter;
- The emergency plan detailing action to be taken by designated people if there is a major incident;
- The first-aid plan detailing procedures for administering first-aid on site and arrangements with local hospitals.

2.7.6 The event safety management plan needs to be reviewed and updated regularly as new information is received before and during the event. It is only necessary to distribute this plan to the key members of the event safety team. Take the steps necessary to ensure diligent document control so redundant or outdated documents are not mistaken for the final version.

2.7.7 Event safety planning meetings are an ideal way to ensure that the event safety management team members are updated on the content of the plan, as well as providing a mechanism for ensuring a flow of safety information on a regular basis. These meetings can be arranged in the weeks or days leading up to the event. If the event is to take place over a few days, e.g., citywide events or multi-day festivals, meetings should take place at least once each day of the event.

## **2.8 Planning for the Post-Production Phase**

2.8.1 During post-production, there is a natural reduction in the number of the event's staffing as well as the physical footprint the event occupies. Administrative staff numbers typically reduce down to the staff required to manage the event's financial wrap up, manage the demobilization of administrative assets and prepare the event's recap. The operations staff numbers are reduced to those necessary to demobilize equipment and vendors, as well as restore the site and perform the final walkthrough with venue management.

2.8.2 The frequencies of risks are likely to be reduced during this phase. While the pace of work and stress levels are more relaxed for those persons involved in the post-production phase, they should remain diligent when it comes to hazard identification and risk management. The daily safety meetings should continue and log entries maintained and stored in the event binder.

## **2.9 The Event Risk Assessment**

2.9.1 The authorities having jurisdiction (AHJ) over your event may not require a comprehensive risk assessment. It is strongly recommended that organizers produce a risk assessment regardless

of whether it is required by local authorities. The information gained by producing a risk assessment can be very effective in making your event a safer place.

2.9.2 The purpose of a risk assessment is to identify hazards that could cause harm, assess the risks which may arise from those hazards and decide on suitable measures to eliminate or control those risks. A comprehensive risk assessment for the load-in, show and strike, can only be fully completed once information has been received from the various contractors, vendors and event staff who will be working on site. It is a good practice and strongly recommended the person preparing the event risk assessment personally visit the venue in the process.

2.9.2 A hazard is anything with the potential to harm people, structures, and/or facilities. This could be an item or a dangerous property of an item or a substance, a condition, a situation or an activity.

2.9.3 Risk is the likelihood that the harm from a hazard is realized and the extent of it. In a risk assessment, risk should reflect both the likelihood that harm will occur and its severity.

2.9.4 Hazards associated with mass gatherings vary according to the nature of the event. The previous history of the performers and the audience that they attract can provide valuable information. The overall event risk assessment will then indicate areas where risks need to be mediated.

2.9.5 To assess the risk associated with staging the event:

- Identify the hazards associated with the event's activities and where the activities shall be carried out and how the activities will be undertaken.
- Identify those people who may be harmed and how.
- Identify existing precautions, e.g., venue design, operational procedures or existing operational measures employed to mediate those hazards.
- Evaluate the risks.
- Determine what further actions may be required to mediate those hazards and risks, e.g., improvement in venue design, safe systems of work such as personal protection equipment (PPE), additional staff and/or staff training, etc.

2.9.6 The risk assessment findings will need to be recorded and a system developed to ensure the risk assessment is reviewed and, if necessary, revised as plans are modified.

2.9.7 Besides the example included in this document, persons creating a risk assessment form can find a variety of examples online. In addition, the Occupational Safety & Health Administration (OSHA) has developed a helpful Job Hazard Analysis (2002 Revised), which can be found online as OSHA Publication 3071 at <http://www.osha.gov/Publications/osh3071.pdf>.

## **2.10 Planning for the Load Out**

2.10.1 When the event has ended, this does not mean the organizer's responsibilities toward health and safety have also ended. Ensure that you have considered how the equipment and

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services will be removed from the venue and the stages, tents and roof structures after the event's performance or period of public access ends.

2.10.2 The same rules apply to the load out as were applied to the install. Ensure that site safety procedures are in place during this phase of the event.

2.10.3 A point mentioned above deserves to be reiterated: the load out period is one of the most dangerous times of an event. People are usually in a hurry to leave and get their equipment off site as soon as possible and their haste can increase risk to all persons in the area. When considering the load out, always consider issues like available lighting, hunger, dehydration, fatigue, staff numbers, contractor workspaces, heavy equipment required, weather, etc.

**The load out period is one of the most dangerous times of an event.**

## 2.11 Organizing for Safety

2.11.1 Once the health and safety policy statement has been prepared and the areas of responsibility have been assigned, structure this statement to facilitate safety especially when work is to begin on site.

2.11.2 Effective organizing contains: competence, control, cooperation and communication.

2.11.3 Competence is about ensuring that all producers, event staff, contractors, vendors and subcontractors working on the site have the necessary training, experience, expertise and resources to carry out their work safely. Competence is also about ensuring the right level of expertise is available, particularly about specialist advice.

2.11.4 Ensure that the vendors, contractors or subcontractors you intend to hire are competent in managing their own health and safety when working on site. Vendor health and safety policies should be checked as they are a telltale indicator of the vendor's existing operational system. If there are no policies in place, this may simply mean the vendor is in the stage of developing their policies, or worse, they have not considered a health and safety policy. As stated above, in many states the general contractor is responsible for contractor and subcontractor compliance with regulations and may also be legally responsible for their safety and well-being.

2.11.5 Controlling and enforcing the event's safety policies are central to maintaining a disciplined site. Control starts with producing a health and safety review, which details specific vendor health and safety responsibilities. Control also ensures that the contractors and subcontractors understand they will be held accountable for safety on site. Make sure contractors understand how health and safety will be controlled, monitored and enforced before they begin work on site. Try to set your expectations with the vendors during the vendor selection process and they will usually respond in a positive manner. The effectiveness of a health and safety policy is proportionate to the steps taken to monitor and enforce that policy.

2.11.6 Effective cooperation relies on the involvement of all parties. True collaboration requires everyone's acceptance and active involvement in implementing the event safety policy's standards and operating procedures. In addition, active involvement in monitoring the site makes everyone part of the solution and contributes to the greater good. This collaboration and the exchange of information enable the risks to be suitably controlled.

2.11.7 Contractors, subcontractors and all event staff need to appreciate the hazards and risk to others working on site and cooperate with each other to minimize identified hazards and risks. Effective cooperation can be achieved by encouraging participation in the preparation of the site safety rules and plans.

2.11.8 Effective communication ensures that everyone working on site understands the importance and significance of the health and safety objectives. Make sure contractors, subcontractors, vendors and event staff are kept informed of safety matters and procedures to be followed on site.

## **2.12 Monitoring Safety Performance**

2.12.1 Monitoring is essential to maintain and improve health and safety performance. There are two ways of generating information on safety performance: "active" and "reactive" monitoring systems.

2.12.2 Active onsite monitoring systems of standards and practices can prevent accidents or incidents. Active monitoring can be achieved by carrying out reviews of the contractors on site during the load in and load out, as well as regular reviews of their project timeline and tasks. An example would be reporting that a contractor is not operating a forklift in a safe and professional manner, or reporting that ground riggers are not maintaining control of the area underneath overhead work.

2.12.3 Reactive monitoring systems are triggered after an accident or incident has occurred. They include identifying and reporting injuries, losses such as property damage, and incidents with the potential to cause further injury, or weaknesses or omissions in safety standards.

2.12.4 Information obtained during inspections or as a result of incidents or property damage should be recorded in the event log book. This book can also be used to keep other records and provides a unified document storage location until the information is reviewed at a later date. The goal of keeping the information and reviewing it during the Post Production Phase, is to simplify access to the documents so the team can assess safety performance against the safety standards set in the event safety policy. Without these monitoring and review systems little or no improvements in safety performance would take place for future events.

## **2.13 The Role of the Safety Coordinator**

2.13.1 Event organizers generally need competent help in creating and applying the provisions of health and safety policies. A competent person is someone who has sufficient training, expertise, experience or knowledge and other qualities that enable that person to devise and apply protective measures. The exception may be when the organizer is competent to devise and apply

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protective measures themselves, although organizers do not have the capacity performance-wise to simultaneously produce an event *and* actively execute the duties of the safety coordinator.

2.13.2 It is recommended the organizer appoint a suitably competent safety coordinator to help the organizer comply with health and safety legislation. The safety coordinator should report directly to the organizer to eliminate the “filtering” of information by third parties. A safety coordinator can assist with the:

- Preparation and monitoring of site safety rules;
- Selection, information sharing and monitoring of contractors;
- Liaison with contractors, event staff and the health and safety enforcement authority on site;
- Checking of safety method statements and risk assessments;
- Communication of safety information to contractors on site;
- Checking of appropriate training and certificates required of certain staff and equipment such as structures, electrical, heavy equipment operators and so on;
- Monitor and maintain observation over the site for evolving hazards, the mediation of those hazards and reporting procedures for inclusion into the event log book;
- Monitoring and coordinating safety performance; and
- Coordinating safety in response to a major incident.

2.13.3 To be effective, the safety coordinator needs access to all safety documentation supplied by the contractors and organizer. The safety coordinator also needs to be easily available to workers on site from the load in event through the load out. The safety coordinator should also be a member of the event safety management team.

2.13.4 To be effective the safety coordinator should not have other competing roles which would divert their attention during the event. Restating the obvious, it is *not* recommended that event organizers appoint themselves as the safety coordinator because of the time demands placed on both roles and to avoid possible conflicts of interest.

## **2.14 Auditing and Reviewing Safety Performance**

2.14.1 Once the event is completed the organizer and the relevant team members should perform an audit reviewing the systems used and the documents in the log book to establish that appropriate safety management arrangements were in place, adequate risk control systems existed and that they were put into practice. It is good practice to schedule this audit after every event so any problems identified in the planning, organization or any matters that evolved during the event can be analyzed and corrected for any future events. In preparation for the audit, the evaluations of law enforcement, fire department, health authorities, first-aid providers and other local authorities, as well as those of the safety coordinator, contractors and event staff and security contractors should be presented by those entities or solicited and incorporated into the log book for review during the audit.

2.14.2 Hold a debriefing in the days following an event to review the effectiveness of the safety management systems. It is recommended that the local authorities involved also attend this meeting to offer feedback from their perspective.

2.14.3 Once the event is completed and the organizer has literally “closed the book” on the event, store all documents and log books in a secure and dry environment.

2.14.4 If the event is to be repeated or a similar event is scheduled, it would be wise for the organizer to study the documents and log books from the preceding event and consider using them as a starting point for those needed for the upcoming event.

## **2.15 Liaison with the Local Authorities and Emergency Services**

2.15.1 The lead agency and other local authorities may require a preliminary meeting so the proposed event can be discussed. Members of the emergency services and health and safety inspectors should attend. It will be helpful for the organizer to ask the lead agency to provide a checklist of information required for that meeting or prior approval along with the timeline for submitting that information. The information you supply should be sufficient to enable the local authority to examine your safety management systems and check any necessary plans, calculations and drawings.

2.15.3 Local authorities will not usually require a copy of every safety-related document in advance of the event. They may, however, require evidence you have planned your event safely before the event takes place. Ensure that any safety documentation is easily available for review. Keep all information in a safe place such as the event log book and in one location onsite, e.g., the event office file cabinet, to ensure the information is not misplaced. If requested, it is the event organizer’s responsibility to produce this information.

2.15.4 Make suitable arrangements for local authorities to contact the organizer quickly for matters that may need immediate attention or further clarification. Last minute changes by the organizer are not conducive to good safety planning and management. If last minute changes are necessary, they will need to be approved by all parties involved. Changing the organizer’s event plan is significantly easier than trying to change the established systems of a multi-agency operations plan and any proposed last minute changes may be rejected on that basis.

2.15.5 To assist organizers during the planning process there is a series of excellent checklists in “Appendix A” of the FEMA IS-15 *Special Events Contingency Planning Job Aids Manual* (2010, p. A-1).

## **2.16 Public Entertainment Permits**

2.16.1 It is usually necessary to obtain an event permit from the appropriate local authority for most events. Permanent venues usually have the necessary permits with specific conditions for different types of events. If you are organizing an event in a venue with an existing permit you will need to familiarize yourself with its specific requirements to ensure compliance.

2.16.2 The presence of an existing permit does not replace the need to consider and implement the practices recommended within this document.

2.16.3 Continue to liaise with the local authorities and members of the emergency services once the necessary permits to stage the event have been granted. It is advisable to invite these organizations to your event safety team meetings to ensure that they are updated on aspects of the event safety management plan.

## 2.17 Beyond the Venue Perimeter

2.17.1 This section is intended to give a brief introduction to increase the organizer's awareness of the planning and systems in place beyond the venue's perimeter.

2.17.2 In 2003, the President issued Homeland Security Presidential Directive (HSPD)-5. It created a consistent nationwide template to enable federal, state, local and tribal governments and private sector and non-governmental organizations to work together effectively and efficiently. As part of that template, these systems were developed and put into place: the National Incident Management System (NIMS) and the Incident Command System (ICS). The government recommends all public service agencies use those systems to prepare for and respond to an incident during a special event. See Appendix A, *The National Incident Management System (NIMS) and Incident Command System (ICS)*, for more detailed information.

2.17.3 As mentioned earlier, a risk assessment is a process and the resulting document that estimates the impact a hazard would have on people, services, facilities and structures, and matches these estimates with descriptions of specific mitigations for each of the identified risks. An event's risk assessment is an important tool to identify and mitigate risk at an event because many identifiable risks are potentially preventable. There are other tools and materials that may also be useful to an event organizer, especially during the planning stages of an event.

**Many identifiable risks  
are potentially preventable.**

### 2.17.4 Hazard Vulnerability Assessment (HVA)

2.17.4.1 A hazard vulnerability assessment (HVA) is an emergency management tool often used by communities, counties and states to identify, using current knowledge and past experience, the people, structures and areas that are vulnerable to hazards. A local HVA usually includes a hazards map and can help event organizers identify areas vulnerable to natural and other types of hazards. Vulnerability identification determines the facilities and people at risk and to what degree they might be affected, as well as how they might affect other surrounding areas. The HVA is usually available through the local emergency management and/or public service agencies. Although it is a public record, it may be considered a sensitive and/or protected document and should be handled with discretion and according to the requirements of the providing agency.

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## 2.17.5 Local Emergency Operations Plan (EOP)

2.17.5.1 The HVA is part of a larger Emergency Operations Plan (EOP) that is developed by local, county and state jurisdictions. A jurisdiction's emergency operations plan is a document that:

- Assigns responsibility to organizations and individuals for carrying out specific actions at projected times and places in an emergency that exceeds the capability or routine responsibility of any one agency, e.g., the fire department;
- Sets forth lines of authority and organizational relationships, and shows how all actions will be coordinated;
- Describes how people and property will be protected in emergencies and disasters;
- Identifies personnel, equipment, facilities, supplies, and other resources available—within the jurisdiction or by agreement with other jurisdictions—for use during response and recovery operations; and
- Identifies steps to address mitigation concerns during response and recovery activities.

2.17.5.2 In the U.S. system of emergency management, local government must act first to attend to the emergency needs of the public. Depending on the nature and size of the emergency, state and federal assistance may be provided to the local jurisdiction. The local EOP focuses on the measures that are essential for protecting the public. These include warning, emergency public information, evacuation, and shelter.

2.17.5.3 States play three roles in this process: They assist local jurisdictions whose capabilities are overwhelmed by an emergency; they themselves respond first to certain emergencies; and they work with the U.S. Federal Government when federal assistance is necessary. The State EOP is the framework within which local EOPs are created and through which the federal government becomes involved. As such, the State EOP ensures that all levels of government are able to mobilize as a unified emergency organization to safeguard the well-being of state citizens.

2.17.6 To better understand the depth of planning that exists that could ultimately influence your event, it is recommended that organizers take the online version of the FEMA IS-15.b “Special Event’s Contingency Planning” course (<http://training.fema.gov/EMIWeb/IS/is15b.asp>). This course communicates a working knowledge of the systems in place and in use by local public service agencies, and prepares the organizer and staff to better assist those agencies should an incident occur at their event.

## 2.18 Life Safety Evaluation

2.18.1 A “life safety evaluation” is a written review dealing with the adequacy of life safety features related to fire, storm, collapse, crowd behavior, and other related safety considerations. A life safety evaluation may be required by the local authorities having jurisdiction and is recommended regardless. A life safety evaluation must comply with all of the following:

- The life safety evaluation must be performed by persons acceptable to the authorities having jurisdiction.
- The life safety evaluation must include a written assessment of the safety measure for conditions listed below in section 2.18.2.



- The life safety evaluation must be approved annually by the authorities having jurisdiction and updated for special and unusual conditions.

2.18.2 Life safety evaluations must include an assessment of all of the following conditions and related appropriate safety measures:

- (1) Nature of the events and the participants and attendees;
- (2) Access and egress movement, including crowd density problems;
- (3) Medical emergencies;
- (4) Fire hazards;
- (5) Permanent and temporary structural systems;
- (6) Severe weather conditions;
- (7) Earthquakes;
- (8) Civil or other disturbances;
- (9) Hazardous materials incidents within and near the facility; and
- (10) Relationships among facility management, event participants, emergency response agencies, and others having a role in the events accommodated in the facility.

2.18.3 Life safety evaluations must include assessments of both building systems and management features upon which reliance is placed for the safety of facility occupants, and such assessment must consider scenarios appropriate to the facility.

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## 3. Venue and Site Design

3.0.1 This chapter summarizes some of the factors to consider when laying out your venue or site. Venues can be similar but are not identical. In sports arenas the dimensions of ice hockey playing surfaces differ even though there is a prescribed specification to their dimensions. Outdoor stadiums vary greatly with their field dimensions. Theaters, amphitheaters, auditoriums all differ in size, shape and layout. Open field venues may have the available space to do almost any event; however, there are always terrain, foliage, road and other considerations that make every site unique.

3.0.2 Organizers should always perform an event feasibility analysis to determine the viability of the proposed event in a particular site. Part of that analysis should include the ability of the site or venue to accommodate the demands of the proposed event. The items to consider include venue capacity, sightlines, terrain, running water, drainage, sewage, parking, restrooms, power and other utilities, fencing, foliage, insect issues, odors from other properties, and today the ability to have broadband Internet access is a large factor. The list of considerations could be endless.

3.0.3 The information below can be assessed by walking the site, studying the appropriate mapping and seeking advice and information from the landowner, venue management or local authorities. Such information is essential before beginning detailed site design.

3.0.4 In an entertainment scenario, the general principle behind venue design is to provide an arena in which the audience can enjoy the entertainment in a safe and comfortable atmosphere. The requirement for certain safety provisions, the type, number and specification of facilities and services will depend on the type of event and the outcome of the risk assessment.

3.0.5 The final design of a site will be dependent on the nature of the entertainment, location, size and duration of the event. It will also need to take account of the existing geographical, topographical and environmental infrastructure.

### 3.1 Site Suitability Assessment

3.1.1 It is important to visit the venue or site to carry out a preliminary assessment to determine suitability. The main areas for consideration are: available space for audience, temporary structures, backstage facilities, parking, camping and rendezvous points. You may already have a proposed capacity in mind, together with some ideas of the concept of the entertainment. Rough calculations of the available space are useful at this stage.

3.1.2 Factors to consider include the following:

- Ground conditions: Are they suitable? Even and well-drained open sites are preferable. Avoid steep slopes and boggy areas.

- Potential weather conditions should be considered. With open field sites especially, there may be a “100-year” condition regarding temperatures, storms or floods to be incorporated into the plans.
- Traffic and pedestrian routes and emergency access and exits: What routes already exist? Are they suitable to handle the proposed capacity? Is a separate emergency access possible? If not, can other routes be provided? Are roads, bridges, etc., structurally sound? For further information see Chapter 8, *Transportation Management*.
- Position and proximity of noise-sensitive buildings: Are there any nearby? Is it possible to satisfy both the requirements of the audience and the neighbors? A noise propagation test may be advisable.
- Geographical location: Where is the site located? How far away is the hospital, fire station, public transport, parking, major roads, local services and facilities, etc.? Such information can be valuable when assessing the suitability of the site and determining the extra facilities that need to be accommodated within the site.
- Topography: How does the land lie on its surroundings? Does it form a natural amphitheater? Where does the sun rise and set? Could any natural features assist in noise reduction? Are there any natural hazards/features such as lakes and rivers?
- Location and availability of services: Water, sewage, gas, electric, telephone (including overhead cables). Are there any restrictions or hazards? Can they be used? Is the event site within the “consultative distance” of a hazardous installation or pipeline?
- Insects and wildlife should also be considered in this suitability analysis. If the analysis is taking place in December and the proposed event is in July, there are potential infestations that may not be immediately apparent.

## 3.2 Predesign Data Collection and Appraisal

3.2.1 The next step in site design is to collect all the available data together and appraise it. The site design should be based on the site suitability and risk assessments.

3.2.2 Ensure that you have considered the following factors:

- Proposed occupant capacity;
- Artist profile;
- Audience profile;
- Duration and timing of event;
- Venue evaluation;
- Whether alcohol is on sale;
- Whether the audience is standing, seated or a mixture of both;
- The movement of the audience between the entertainment and/or facilities; and
- Artistic nature of the event, single stage, multiple-arena complex, etc.

3.2.3 The above information can then be used to determine the provisions and facilities needed within the site; for example, stages, tents, barriers, toilets, first aid, concessions, exits, entrances, hospitality area, sight lines, power, water, sewerage, gas, delay towers, perimeter fencing, backstage requirements, viewing platforms and waste disposal requirements. Once all the information is collated, detailed site design can begin.

## 3.3 Site Plans

3.3.1 Once the basic outline has been determined, detailed scaled site plans should be produced. Often, many versions will be produced as amendments are made and as further information is obtained. Ensure your site plans are kept up to date and current revisions are given to relevant departments, especially members of your event safety team. Make sure that alterations are not made to the site plans after capacity levels have been determined and tickets placed on sale as the alterations may affect sight lines and therefore available viewing areas. Plans may already exist for permanent existing venues.

## 3.4 Site-Design Considerations

### 3.4.1 Venue Capacity/Occupant Capacity

#### 3.4.1.1 *Critical Crowd Densities* (FEMA, 2010)

3.4.1.1.1 The objective should be to prevent the buildup of large accumulations of patrons, particularly within short time periods, in confined spaces—especially if they are frustrated by the inability to see what is happening.

3.4.1.1.2 A study by Fruin (1981) identified critical crowd densities as a common characteristic of crowd disasters. Critical crowd densities are approached when the floor space per standing person is reduced to about 5.38 square feet (0.5 square meters).

3.4.1.1.3 Considering the various movements or the positions that spectators will occupy, approximate minimal mobility requirements have been empirically identified by Fruin (1981) as follows:

- Pedestrians moving in a stream require average areas of 24.73 square feet (2.297 square meters) per person to attain normal walking speed, and to pass and avoid others.
- At 10 square feet (0.929 square meters) per person, walking becomes significantly restricted, and speeds noticeably reduced.
- At 4.95 square feet (0.46 square meters) per person, the maximum capacity of a corridor or walkway is attained with movement at a shuffling gait and movement possible only as a group. This would be characteristic of a group exiting a stadium or theater.
- At less than 4.95 square feet (0.46 square meters) per person average, individual pedestrian mobility becomes increasingly restricted.
- At approximately 3 square feet (0.2787 square meters) per person, involuntary contact and brushing against others occurs. This is a behavioral threshold generally avoided by the public, except in crowded elevators and buses.
- Below 2 square feet (0.1858 square meters) per person, potentially dangerous crowd forces and psychological pressures begin to develop.

3.4.1.1.4 Fruin (1981) contends that “the combined pressure of massed pedestrians and shock-wave effects that run through crowds at critical density levels produce forces which are impossible for individuals, even small groups of individuals, to resist.”

3.4.1.1.5 The above information shows that you may need to provide a monitoring system, such as observers in strategic locations or closed circuit television monitoring of crowd movements that will warn event personnel that they must take necessary action to prevent a major incident.

#### **3.4.1.2 Crowd Throughput Capacities** (FEMA, 2010)

3.4.1.2.1 In his writings on crowd disasters, Fruin (1981) identifies several areas regarding spectator throughput in entry to a performance. For planning purposes, he suggests:

- (a) Ticket Collectors - Ticket collectors must be in a staff uniform or otherwise identifiable. Ticket collectors faced with a constant line can throughput a maximum of:
  - One patron per second per portal in a simple pass-through situation.
  - Two seconds per patron if the ticket must be torn and stub handed to the patron.
  - More complicated ticketing procedures (and/or answering the occasional question) will protract time per patron.
  - There is currently no published time estimate for the scanning of barcodes or other electronic ticketing scan system, so it is recommended organizers budget at least two seconds per patron. Keep in mind the type of scanner and networking system used along with the bandwidth available for the system can have a bearing on the scan speed of some electronic scanning devices.
- (b) Doorways - A free-swinging door, open portal, or gate can accommodate up to one person per second with a constant queue. Revolving doors and turnstiles would allow half this rate of throughput, or less.
- (c) Corridors, Walkways, Ramps - Have a maximum pedestrian traffic capacity of approximately 25 persons per minute per 1 foot (0.3048 m) of clear width, in dense crowds.
- (d) Stairs - Have a maximum practical traffic capacity of approximately 16 persons per minute in the upward direction. Narrow stairs (less than 5 feet or 1.524 m) will lower the maximum flow.
- (e) Escalators and Moving Walkways - A standard 3.94 feet (0.366 square meters) wide escalator or moving walkway, operating at 118 feet (35.9664 m) per minute can carry 100 persons per minute under a constant queue.

3.4.1.3 The venue capacity depends upon the available space for people and the number of emergency exits. The latter is the subject of a calculation involving the appropriate evacuation rate, i.e., width of available exit space and appropriate evacuation route.

3.4.1.4 Some of the site will be taken up by unoccupied structures. The rest of the site will need to be considered in calculating occupant capacity even though a direct view of the entertainment may not be possible for all locations. Any space where the audience does not have a reasonable view of the performance should be deducted from the available area or a lesser density used in

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calculations. Areas with partial or total cover to the audience if there is inclement weather should be identified and the effects of audience migration to these areas considered.

3.4.1.5 In venues where seating is provided, the major part of the occupant capacity will be the lesser of the two figures determined by the number of seats and exit provision. In other cases a calculation based on the acceptable occupant density should be carried out. Generally, 7 square feet (0.65 square meters) of available floor space per person is used for the prime viewing areas of outdoor music events. There may be zones within the viewing areas where the quantity of square feet per person will be increased due to queue lines, pedestrian traffic aisles, etc.

3.4.1.6 Double-check the preliminary occupant capacity calculation and exit requirements once all initial infrastructure requirements and facilities are in place on the site design. Further detailed information on occupant capacities can be found in Chapter 4, *Fire Safety*.

3.4.1.7 Once you have a proposed capacity figure, meet with the local authority with jurisdiction (typically the fire department) over the determination of the venue capacity and review your numbers. During this meeting you will also need to present your exiting plans along with dimensions of those exits.

### **3.4.2 Exit Requirements**

3.4.2.1 The exit numbers for a venue depend directly on the occupant capacity, the width of the means of egress and the appropriate evacuation time for the type of structure. More details on this can be found in Chapter 4, *Fire Safety*.

3.4.2.2 Place exits around the perimeter and ensure that they are clearly visible, directly and indirectly by signage. Ensure they are free from obstruction on either side. The final exit destination should be assessed and be safe, i.e. into open spaces, assembly areas, etc., rather than into a main road or into traffic flows. It is important to examine these areas when carrying out your overall event risk assessment. Exit gates should operate efficiently and effectively. Where practical, provide separate exits for pedestrians and service and concession vehicles. Wheelchair access and exit will also need to be considered.

3.4.2.3 All hinged exit gates should swing outward, with the flow of exiting traffic.

### **3.4.3 Venue Access**

3.4.3.1 Venue access is a function of the design and location of transportation and parking facilities and the design of access roads. Such facilities must be able to handle the peak demand as determined from the arrival profile (see Chapter 8, *Transportation Management*).

3.4.3.2 The layout of the access routes depends upon the location of facilities. Distribute routes around the site to minimize the load and ensure that the routes do not converge. Routes should be simple, easy to follow, direct and avoid routes from crossing one another.

### **3.4.4 Entrances**

3.4.4.1 The entrances provide the means for supervising, marshaling and directing the audience to the event. They may be used as an exit or they may be separate. It may be necessary to provide separate entrances for performers, workers, guests, etc.

3.4.4.2 The design and location of entrances depends on the numbers of entrances required, where they are placed and the capacity to be handled at each entrance. There should be sufficient numbers of entrances to cope with the peak demand and achieve a smooth and orderly flow of people through them. The direction from which people are likely to come, the maximum number of people from each direction and the flow rate through the entrance are important issues which determine the number of entrances required. For purpose-built venues, these will already have been considered and approved.

3.4.4.3 Flow rates depend on the type, design and width of the entrances and whether pat-downs, magnetometers or wand searching takes place. The desired entry time is the time taken to allow everyone access to the venue. This will depend on the type and duration of the event and the audience profile. The possibility of inclement weather may affect the desired time. Any queuing system to manage people at the entrance needs to be planned and carefully designed.

3.4.4.4 Once it is known how many entrance lanes there will be and the estimated time-per-person to enter through a lane, an organizer can estimate with reasonable confidence how long it will take to load an audience into a venue. There are other factors outside the venue entrance lanes which can impact the people arriving such as how fast the parking lots can load with vehicles, traffic outside the venue perimeter (and the organizer's control), etc.

3.4.4.5 The organizer should know what factors can impact the time required to load the venue and closely monitor those factors. In a live performance situation, the artist's management may need to be advised and the performance delayed for a reasonable period.

### **3.4.5 Sight Lines**

3.4.5.1 It is important the audience has a clear line of vision to the stage to avoid movement toward the center of the venue. The widest possible sight lines help to reduce audience density in front of the stage and help to minimize surging and the possibility of crushing injuries. The stage width, height and position of PA wings, suspended show elements, the location and dimensions of the "mix" or control riser or tower, etc., all affect sight lines. Design sight lines to create areas of clear space on the immediate stage left and right. This allows movement and emergency access.

### **3.4.6 Video Screens**

3.4.6.1 For large audiences the increased distances between the stage and the back of the viewing area results in poor visibility and reduced entertainment value. This can lead to crushing and overcrowding. Strategically placed video or projection screens can be effective. Delay screens located at some distance from the stage encourage a proportion of the audience to use a less crowded part of the site. Screens near the stage can help to stop people pushing toward it. Screens may require substantial foundations and support so sufficient space should be allowed in

any site design. Not all types of screens operate in daylight and if the intention is to use a screen in these conditions, make sure that an appropriate type is used.

### **3.4.7 Seating Arrangements**

3.4.7.1 Where there is a risk of over-excitement among audience members, consider holding an all-seated event as this may help to prevent crowd surges and crushing at the front of the stage area. Spacing requirements and aisle widths, etc., should be obtained from the venue or the authority with jurisdiction over the event, e.g., the local venue fire marshal.

3.4.7.2 If temporary seating is provided, seating needs to be adequately secured. Temporary seating and the means of securing seats must be approved by the local authority. An example of securing seats is using two tie wraps on the front legs of two adjoining chairs and two tie wraps on the rear legs of those two adjoining chairs.

### **3.4.8 Slopes**

3.4.8.1 Ensure that you have fully considered the effects of any slopes at your venue in your risk assessment. It may be necessary to consider providing exit steps or ramps with non-slip surfaces. The area in front of the stage should be flat to prevent tripping and crushing.

### **3.4.9 Observation Points**

3.4.9.1 At some outdoor music events, observation points may be considered necessary. These should be strategically placed to maximize the view of the audience. Establish safe entrances and exits to these observation points.

### **3.4.10 Production Infrastructure and Backstage Requirements**

3.4.10.1 The production infrastructure will depend on the type, size and duration of the event. Typically, production offices, refreshment facilities, accommodation (for workers and artists), dressing rooms, large vehicle parking and access, storage space, equipment, etc., need to be accommodated, usually backstage. Carefully consider the number of units required, fire hazards, access routes and circulation space, generators, first-aid posts, ambulance, fire and police requirements. Try to keep performers' areas separate from production and working areas.

### **3.4.11 Fire and Ambulance Requirements**

3.4.11.1 Fire and ambulance requirements such as parking areas, first-aid posts, rendezvous points, triage areas, etc., need to be carefully assessed and positioned in the appropriate places. Design the site so they are readily accessible and can be easily identified. Fire equipment should be able to access all parts of the site and be able to get within 54 yards of any structure. Establish emergency access routes which are kept clear always. Temporary trackways may be necessary for wet, difficult ground. Consider separate gated entrances and exits, of sufficient height and width, for fire and ambulance vehicles.

### **3.4.12 Police and Security Positions**

3.4.12.1 The presence of law enforcement and their number and positioning of security staff will depend upon the nature and type of entertainment provided (see Chapter 7, *Crowd Management*).



### **3.4.13 Site Workers**

3.4.13.1 For large events a significant number of workers will be on site and will need their own facilities such as catering, toilets, showers, offices, sleeping accommodation, etc. Such facilities may form a separate compound or be distributed between backstage and/or main area. Carefully plan such requirements to incorporate them safely into the site design.

### **3.4.14 Hospitality Area**

3.4.14.1 The level of hospitality will vary with the event size. Accommodation and facilities may need to be provided for only a few people requiring no more than a small meeting area through to very large sophisticated complexes catering for several thousand people. Tents and viewing platforms may be required. The exact requirements need to be planned and incorporated into the overall site and venue design. Often such large numbers are forgotten in the capacity calculations but need to be included.

### **3.4.15 Noise Considerations**

3.4.15.1 The overall site design and layout should maximize the audience's enjoyment and protect the neighbors from noise (see Chapter 17, *Sound: Noise and Vibration*). Consider the stage location and other sound sources, in relation to nearby noise-sensitive properties and the topography of the site. Use slopes and natural barriers to their maximum effect. It may be advantageous to use a distributed sound system suspended from delay towers. Carefully consider the location and construction of such towers to control sight lines, avoid crushing points and prevent unauthorized "viewing" platforms.

### **3.4.16 Catering and Merchandising**

3.4.16.1 Position merchandising and catering concessions away from access routes and in less densely occupied areas of the venue. Some units will have highly flammable products such as propane and require careful positioning (see Chapters 12, *Food, Drink and Water*, and Chapter 13, *Merchandising and Special Licensing*). Consider circulation space and potential queuing arrangements, which should not obstruct pathways.

### **3.4.17 Perimeter Fencing**

3.4.17.1 Whether a perimeter fence is required depends on the type and nature of the event. Fences may be necessary to prevent trespassers from entering the site and for the safe audience management.

3.4.17.2 Some events may not require a fence, just a manned stake and visual tape barrier, whereas others may need a sophisticated, substantial fence or multiple arrangements. Assess the crowd loading on such structures and the climbing potential.

3.4.17.3 A typical arrangement for large music events is an opaque inner fence with an outer fence, providing a moat in which security can patrol. To minimize the climbing of the inner fence for those who have breached the outer, a 16 foot gap is usual to prevent the run-up approach to jumping the fence. Three fences may be used which can easily form an emergency vehicle route. Carefully consider the ground conditions, obstructions, support legs and exit and entrance requirements.

### 3.4.18 Front-of-Stage Barrier Requirements and Arrangements

3.4.18.1 A front-of-stage barrier may be required if significant audience pressure is expected. The risk assessment for the event, relating to the performer's popularity and the audience capacity and profile, should help determine if one is required and if so, what type and design. For most large music events, some form of front-of-stage barrier will be necessary (see Chapter 10, *Barriers*, for further information).

### 3.4.19 Signage

3.4.19.1 The location and size of all signage is critical when designing a site. For indoor/permanent venues such signage is normally in place for emergency exits, extinguisher points, entrances, parking areas, emergency vehicle points, etc. For supplementary facilities and all outdoor sites, this will not be the case and must be designed into the signage plan.

3.4.19.2 Event signage is one of the most important elements of an event. It is often the first impression the attendee has of the event and the first opportunity the event has to inform and make an impression on the attendee. When planning for signage, coordinators must consider the following: artwork, materials used to create the signage, the required tie down methods, required ballast, vehicular and foot traffic flow, language requirements, distance the signage will be from the person seeing it and potential weather issues. Fig. 3-1 shows a windy day during a daylight public ingress period.



Fig. 3-1 - This is an example of a reasonably well laid out entrance. Positives include: visibility from the parking lot; signage clearly identifies the entrance, prohibited items, and points of interest; solid surface to stand on while awaiting entry. Negatives include: in a perfect world, the stage and video IMAG would not be visible from the entrance; and a member of event staff placed near the two "Entrance" flags would be helpful to serve the arriving public. Photo courtesy of Steve Immer.

3.4.19.3 The effective use of signs provides a rapid way of conveying orientation, directions and emergency information. It assists in audience flow. Signage should be clearly visible, easily understood, and lit in the dark.

3.4.19.4 From a site-design perspective, signage size and position is very important. Large outdoor venues will require signage larger than usual so that it can be seen from a distance. Fixture points may have to be constructed, such as scaffold towers, etc. Safety signs must comply with the standards of the local authority with jurisdiction over the event, e.g., the fire department or department of building and safety.

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### **3.4.20 Welfare Facilities**

3.4.20.1 The number and type of assistance and information facilities, sanitary accommodation, water supply, etc., depend upon the event. But, once numbers have been agreed, they must be considered in the venue or site design.

3.4.20.2 Distribute sanitary accommodation around the site in a manner that does not block sight lines and serves the greatest need, e.g., near bars and catering concessions. If non-main units are to be used, plan access for the pump truck to service the units. Ensure they are clearly visible and well signed and that queuing areas do not obstruct any gate, emergency route, etc. Water supply is normally situated next to sanitary accommodation. If water or sewage tankers are used, consider the space requirement and ground drainage.

3.4.20.3 Information points vary from a notice board to a billboard. Size and location must be considered. The best positions are near the main entrance into the site, but not too close to any gate or emergency access route, as people using or waiting near the facility could cause an obstruction. Try to locate assistance and information points in quieter areas.

### **3.4.21 Excess Visitors**

3.4.21.1 Contingency arrangements should be made to manage excess visitors. The design of a holding and/or queuing area and related facilities may need to be accommodated within the design.

### **3.4.22 Cable and Hose Routing and Access**

3.4.22.1 Cabling and hose routing is often omitted from many site plans.

3.4.22.2 Hoses and Cables should not be deployed across the ground, driving, or walking surfaces without guards to protect the hoses / cables from physical damage and to reduce the likelihood of individuals tripping over exposed hose / cable protectors.

3.4.22.3 Hose / Cable management systems should also be deployed across all working personnel and vehicle routes. Hose / cable protection can be subterranean, surface, or suspended overhead in a manner that meets vehicle clearance requirements, electrical code (NFPA 70) requirements, and 2010 ADA ramp angle requirements.

3.4.22.4 Where hose / cable protectors rise above the local surface elevation by more than 1/2 inch (12mm), elevation changes must be clearly marked with contrasting colors and illuminated to not less than 10 foot candles (fc) (105 lux) in off-stage show support areas and public areas outside of the event seating / viewing area.

3.4.22.5 For onstage performance areas and within the event seating / viewing areas, they must be illuminated to not less than 1/5 foot candle (fc) (2 Lux). Hose / cable management troughs and subterranean pathways must be structurally sufficient to prevent collapse under anticipated vehicular and personnel traffic.

3.4.22.6 The organizer should coordinate the anticipated concentrated wheel loading of cranes, dollies, tractors, trucks, cars, forklifts, carts, wheelchairs, and other event support equipment

with the elected means of Hose / Cable protection deployed. For more details refer to Chapter 11, *Electrical Installations and Lighting*.

### 3.5 Helicopter Use at the Event Site

3.5.1 When designing an open field site, public service agencies will require access for emergency vehicles, and this may include a helicopter. It is incorrect to assume that a helicopter can land anywhere and it is a dangerous myth that a helicopter can land on any open area on or near an event site. The safe landing of an aircraft takes careful planning and consideration.

3.5.2 The Incident Command System (ICS) defines a “helispot” as a designated location where a helicopter can safely take off and land. In contrast, a “helibase” is the main location for parking, fueling, maintenance, and loading of a helicopter operating in support of an incident or event. A helibase is usually located at an airport or airfield, whereas a helispot is usually a temporary, off-airport location established for takeoff and landing. Although terms like “helipad” and “landing zone” are sometimes used, a helispot is what is usually built at an event site and is the term used in this discussion.

3.5.3 There are many variables a flight crew will consider before landing including security of the space, terrain, soil, lighting, loose debris, trees/foliage, electrical towers, wires and more.

3.5.4 When including a helispot into a site plan, organizers and site planners need to consult the authority having jurisdiction over the event, agencies and/or vendors who may land helicopters on the site and the flight crews expected to use the facility. It may also be prudent to research Federal Aviation Administration (FAA) requirements, although flight personnel will be a good source of this type of information.

3.5.5 Consider whether the evacuation of ill and/or injured patients may be required. Transporting patients to the helispot will require careful consideration and may include access by ambulance.

3.5.6 If transporting talent by helicopter, the success of the overall event will depend entirely on suitable facilities and safe air operations. If the event plan calls for transporting talent by air, organizers must make contingency transportation plans for the artists. Meteorological conditions and flight visibility can be unpredictable and limit the use of aircraft.

3.5.7 If the event will incorporate air operations, it is strongly recommended that a competent air operations team be assembled to manage the system. This team should be included in the drafting of the event’s health and safety policy and their operations will have a significant impact on the risk assessment.

3.5.8 A well-planned helispot will have certain construction requirements including landing area dimensions appropriate for aircraft used, construction/clearing of hard surface for landing, spacing between multiple helispots, lighting, fencing, security, refueling capability (not recommended at the event site), fire suppression, accommodations for flight and air operations crews and more.

3.5.9 It is ultimately the pilot's responsibility to make a safe landing and the decision to commit to a landing is exclusively that of the pilot in command. Thus, the aircraft flight crew should be involved in site planning.

### **3.6 Final Site Design**

3.6.1 Once all the necessary details and requirements have been completed, each should be drawn to scale on a site plan with spacing requirements, etc. The final plan should be reassessed to check the occupant capacity (with sight lines and circulation space) and emergency services, worker and audience entry and exit. Power generation and distribution positions can now be completed.

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# 4. Fire Safety

4.0.1 The principle goal of this chapter is to identify the steps necessary to prevent loss or injury through fire. This includes looking at measures to avoid fire risks, effective response should an incident occur, planning escape routes and firefighting measures. Further details must be obtained from the local fire and building authorities having jurisdiction, but a good place to start is the local fire department or district with jurisdiction over the venue.

4.0.2 The threat of fire to humanity, equipment and structures in most venues is reduced significantly when appropriate, comprehensive fire safety measures are taken. However, never underestimate how easily and quickly fire can threaten not only the venue but also everyone in and around it. Do not ignore the lessons learned over the past 200 years in the United States where seemingly insignificant situations quickly turned into epic tragedies. Fire should always be considered one of the most significant threats to an event and, thus, fire safety should always be treated as a priority and managed accordingly.

## 4.1 Codes and Standards

4.1.1 A “fire code” is a set of standards established and enforced by government for fire prevention and fire and life safety. A similar and related document is based on requirements for the safety, health, and quality of life of building users and neighbors. This is referred to as a “building code.”

4.1.2 Organizers or their designees must be familiar with, and comply with, the applicable fire and building codes or risk a wide variety of consequences ranging from a simple scolding from a local official, to a citation (e.g., local, state, or federal), to a serious injury and/or death of an employee, entertainer, or member of the audience. Although this may sound overly dramatic, it is a fact. To put it bluntly, many in the safety services rightfully argue that these codes were written with the blood of those who died in the many tragedies that occurred throughout the evolution of the codes. Compliance with these codes is one way to prevent having to relive these tragedies.

4.1.3 In states (and countries) where the power of regulating construction and fire safety is vested in local authorities (a.k.a., “home rule”), a system of model fire and building codes is used. Model fire and building codes have no legal status unless adopted or adapted by an authority having jurisdiction. The developers of model codes urge public authorities to reference model codes in their laws, ordinances, regulations, and administrative orders. When referenced in any of these legal instruments, a particular model code becomes law. This practice is known as adoption “by reference.”

4.1.4 There are instances when local jurisdictions choose to develop their own fire and/or building codes. At some point in time all major cities in the United States had their own fire and building codes. However, due to ever increasing complexity and cost of developing fire and building regulations, virtually all jurisdictions in the country have chosen to adopt model codes instead. For example, in 2008 New York City abandoned its proprietary 1968 New York City

Building and Fire Codes in favor of a customized version of the International Building Code (IBC) and the International Fire Code (IFC). On the other hand, the City of Chicago remains the only municipality in America that continues to use a building code the city developed on its own as part of the Municipal Code of Chicago.

4.1.5 For years, there were four model fire codes that were basically regional in nature. Each of them was adopted in 8-12 states. That changed in the late 1990s when three of the model codes merged to form the International Code Council (ICC) and jointly developed the International Fire Code (IFC) and the International Building Code (IBC). Today the IFC and NFPA 1 (The National Fire Protection Association’s [NFPA’s] model fire code) serve as the two national model codes.

4.1.6 All codes include references to standards. “Standards” are defined as a required or agreed level of quality or attainment. When standards are referenced in model codes, the language of the referenced standards becomes part of the code in which they are referenced. For example, both the IFC and NFPA 1 model codes include a reference to a version of the American National Standards Institute (ANSI)/American Petroleum Institute (API) Standard RP 651, *Cathodic Protection of Aboveground Petroleum Storage Tanks*. Rather than duplicate this very technical 33-page document, the model codes simply reference RP 651, which incorporates the requirements of the standard into the code. This practice is also known as adoption “by reference.”

**Table 4.1**

*Non-Exhaustive List of Fire Protection-Related, Standard-Setting Organizations*

AFSI	Architectural Fabric Structures Institute
API	American Petroleum Institute
ASME	American Society of mechanical Engineers
ASTM	ASTM International, formerly known as the American Society for Testing and Materials (ASTM)
BHMA	Builders Hardware Manufacturers’ Association
CGA	Compressed Gas Association
CGR	U.S. Coast Guard Regulations
CPSC	Consumer Product Safety Commission
DOC	U.S. Department of Commerce
DOL	U.S. Department of Labor
EN	European Committee for Standardization (EN)
ICC	International Code Council, Inc.
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization (ISO)
NEMA	National Electrical Manufacturer’s Association
NFPA	National Fire Protection Association
UL	Underwriters Laboratories, Inc.
USC	United States Code

4.1.7 A number of agencies, associations, and other types of organizations develop standards that can be referenced. Table 4.1 shows a non-exhaustive list of fire protection-related, standard-setting organizations, most of which are referenced in the model codes.

4.1.8 Since a complete presentation of both model codes is beyond the scope of this document, and since the codes that apply at any event and at any venue will vary depending on the location, this chapter will focus only on the most important aspects of fire safety at a music or entertainment event, which usually revolve around what is referred to in most fire codes as “means of egress” (e.g., a continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way). Fortunately, the two U.S. model code sets are very similar in most details. Some of this commonality, especially as it relates to entertainment venues, will be described here.

4.1.9 Although building codes will not be specifically mentioned in this chapter, their application and use is implied because fire and building codes complement, supplement and often reiterate each other’s content and intent. More details on elements of relevant building codes, which apply to both permanent and temporary structures, can be found in Chapter 9, *Structures*.

## 4.2 Selected Fire Safety Definitions

4.2.1 “Air-inflated structure” is a building where the shape of the structure is maintained by air pressurization of cells or tubes to form a barrel vault over the usable area. Occupants of such structures do not occupy the pressurized areas used to support the structure.

4.2.2 “Air-supported structure” is a structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area.

4.2.3 “Area of refuge” is an area where persons unable to use stairways (usually in wheelchairs) can remain temporarily to await instructions or assistance during emergency evacuation. At least one state’s code uses the term “Areas of Rescue Assistance” as an equivalent term.

4.2.4 “Assembly occupancy” (Group A) is a specific classification of building occupancy. It includes, among others, the use of a building or structure, or a portion thereof, for the gathering together of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation (International Fire Code, 2009). More specifically, an “A-4” assembly occupancy includes arenas and skating rinks, and an “A-5” assembly occupancy includes amusement park structures, bleachers, grandstands, and stadiums, which are the most likely to serve as entertainment venues.

4.2.5 “Automatic sprinkler system,” for fire protection purposes, is an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply and a network of specially sized or hydraulically designed piping installed in a structure or area, generally overhead, to which automatic sprinklers are connected in a systematic pattern. The system is usually activated by heat from a fire and discharges water over the fire area.



4.2.6 “Exit” is that portion of a means of egress system that is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protective as required to provide a protected path of egress travel between the exit access and the exit discharge. An example would be an appropriately constructed exit stair well in a three story building.

4.2.7 “Exit access” is that portion of a means of egress system that leads from any occupied portion of a building or structure to an exit.

4.2.8 “Exit discharge” is that portion of a means of egress system between the termination of an exit and a public way. In some parts of the world, this is equivalent to what is termed a “final exit.”

4.2.9 “Fire extinguisher” (a.k.a., flame extinguisher or simply an extinguisher) is an active fire protection device used to extinguish or control small fires, often in emergency situations. Typically, a fire extinguisher consists of a hand-held cylindrical pressure vessel containing an agent which can be discharged to extinguish a fire. It is not intended for use on an out-of-control fire, such as one which has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard, etc.), or otherwise requires the expertise of a fire department.

4.2.10 “Fire watch” is a temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department.

4.2.11 “Means of egress” (a.k.a., means of egress system) is a continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit, and the exit discharge (see these definitions above).

4.2.12 “Membrane structure” is an air-inflated, air-supported, cable or frame-covered structure (usually further defined in the building code).

4.2.13 “Occupant load” or “design occupant load” is the number of persons for which the means of egress of a building or portion thereof is designed. In some parts of the world, this is roughly equivalent to the term “occupant capacity,” which is defined as the maximum number of people who can be safely accommodated at the venue. Occupant load is determined by the building and/or fire code officials having jurisdiction. These officials will compute the occupant load by establishing the maximum floor area allowances (in square feet) per occupant based on code requirements. For example, the IFC states that for assembly areas without fixed seating, chairs, or tables (standing only), a maximum floor area allowance per occupant is 5 square feet. Thus, the occupant load for an area that matched these characteristics and measured 100 feet wide by 100 feet long (10,000 square feet) would be 2000 occupants ( $10,000 / 5 = 2000$ ). However, the building and/or fire official having jurisdiction must still authorize this number because they must also consider a number of other important factors such as means of egress issues, aisles, fences, exiting from multiple levels, stairs, and several others. Thus, it is important to note that

occupant load is more than just a computation, it is a value reached by authorities having jurisdiction after considering a number of important factors.

4.2.14 “Panic hardware” is a door-latching assembly incorporating a device that releases the latch upon the application of a force in the direction of egress travel.

4.2.15 “Public way” is a street, alley or other parcel of land open to the outside air leading to a public street. The IFC also define “public way” as having a minimum clear width and height of not less than 10 feet (3.048 m). In some parts of the world, a public way is roughly equivalent to a “place of safety,” which is defined as a place in which a person is no longer in danger from fire.

4.2.16 “Tent” is a structure, enclosure or shelter, with or without sidewalls or drops, constructed of fabric or pliable materials supported by any manner except by air or the contents that it protects.

### 4.3 Means of Egress

4.3.1 Whether the venue is in a building or outdoors, it is likely that some adaptation may be needed to accommodate a music event. This section describes some general means of egress concepts which may need to be addressed for buildings, sports and outdoor venues to safely accommodate a music event.

4.3.2 The proper design and construction of an adequate means of egress usually falls under the authority of the local building authority having jurisdiction. So, the building authority having jurisdiction must be consulted when designing and constructing a means of egress for any venue. The fire authority having jurisdiction also has some regulatory influence and so should be consulted during the design phase, as well.

4.3.3 All means of egress must comply with the requirements of NFPA 1, *Fire Code*, NFPA 101, *Life Safety Code*, and NFPA 101B, *Code for Means of Egress for Buildings and Structures*.

#### 4.3.3 General Principles for Means of Egress

4.3.3.1 Every venue should be provided with exits that are sufficient for the number of people present in relation to their width, number and siting. Normally, no exit may be less than three feet (0.914 m) wide.

4.3.3.2 People should be able to move to safety along a clearly recognizable route by their own unaided efforts regardless of where a fire may break out at the venue. However, for some people with disabilities it will be difficult, if not impossible, to make their way to a place of safety without the assistance of others. Consider carefully the arrangements for these people. See Chapter 20, *Facilities for Persons with Special Needs*.

4.3.3.3 When evacuation is necessary, people often try to leave the way they entered. This is a well-documented phenomenon. If this is not possible (perhaps because of the position of the fire or smoke), they need to be able to turn away from the fire and find an alternative route to a place

of safety. However, the audience may underestimate the risk or be reluctant to use exits with which they are unfamiliar. It is essential to train stewards to recognize this fact and to ensure that the audience leaves promptly through the safest exit. This is yet another reason why ALL exits must be well marked/signed and lighted and why it may be important to notify the audience (through sound system or stewards) of the exits that should be used.

4.3.3.4 Information concerning fire safety for temporary structures used for entertainment purposes, which includes marquees, large tents and other membrane structures, can be found in local fire and building codes. However, before a permit to erect a tent or membrane structure will be issued (and permits will be required), expect that the fire authority having jurisdiction will require a certificate executed by an approved testing laboratory (approved by the fire authority having jurisdiction) certifying that the tents and membrane structures and their appurtenances, sidewalls, drops and tarpaulins, floor coverings, bunting and combustible decorative materials and effects, including saw dust when used on floors or passageways, are composed of material meeting the flame propagation performance criteria of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*.

4.3.3.5 Elevators, escalators and moving walks must not be used as a component of a required means of egress from any part of a building.

4.3.3.6 Any stairway, lobby, corridor or passageway (exit access, exit, or exit discharge), which forms part of the means of egress from the venue, must be unobstructed, of an approved minimum width, and constructed and arranged so as to provide a safe escape for the people using it. The aggregate capacity of stairways should be sufficient for the number of people likely to have to use them at the time of a fire. It is also necessary to consider the possibility of one stairway being inaccessible because of fire and the aggregate width should allow for this possible reduction. The width of any element of a means of egress must be computed, established and authorized by the local fire and building authorities having jurisdiction.



Fig. 4-1 – Marked fire aisle to door. When loading, moving and storing equipment and equipment containers, it is easy to forget that an aisle must remain open for egress. Marking the aisle with bright tape helps remind everyone that an aisle must be maintained to allow for access to the exit. Keeping the marked area completely clear is an important part of an effective safety culture.

4.3.3.7 Guy wires, guy ropes and other support members for a tent or membrane structure must not cross a means of egress at a height of less than 8 feet (2.438 m).

4.3.3.8 Stairways must have a width of not less than 36 inches (0.914 m) and a minimum headroom clearance of not less than 80 inches (2.032 m).

4.3.3.9 Stairways wider than about six feet (1.8 m) should normally be divided into sections, each separated from the adjacent section by a handrail, so that each section measured between the handrails is not normally less than three feet (0.914 m) wide. Consult local building and fire authorities having jurisdiction for specifics.

4.3.3.10 Ramps installed for wheelchair users must conform to local building and/or fire codes and possibly the Americans with Disabilities Act (ADA) of 1990 (see below for more details on ADA). Where ramps are used, keep in mind that:

- The slope should be constant and not broken by steps;
- Ramps must have landings at least as wide as the ramp and at least 60 inches long (1.525 m) located at the bottom and top of each ramp, points of turning, entrance, exits, and at doors;
- Where changes in direction of travel occur at landings provided between ramp runs, the landing must be at least 60 inches (1.525 m) by 60 inches (1.525 m) minimum;
- When the slope of a ramp is greater than one unit vertical in 20 units horizontal (5 percent slope), additional requirements may be applicable and should be discussed with the local authorities having jurisdiction;
- The maximum running slope for a ramp which is part of a means of egress must not exceed one unit vertical in 12 units horizontal (8 percent slope);
- The maximum running slope for a ramp which is NOT part of a means of egress must not exceed one unit vertical in 8 units horizontal (12.5 percent slope);
- The cross slope of a ramp measured perpendicular to the direction of travel must not be steeper than one unit vertical in 48 units horizontal (2 percent slope);
- The minimum clear width between handrails of a ramp which is part of a means of egress must be no less than 36 inches (0.914 m);
- The maximum vertical rise for any ramp must be no more than 30 inches (0.762 m);
- Ramps with a rise greater than 6 inches (0.152 m) must have handrails on both sides;
- Some elevated walking surfaces such as ramps are required to have guard rails (a.k.a., “guards”) that minimize the possibility of a fall (consult with local authorities having jurisdiction);
- Ramps are required to have edge protection that minimize the possibility of going off the edge of the ramp with a wheelchair; and
- Each ramp surface must be of slip resistant materials that are securely attached.

4.3.3.11 As a general principle, if a building is used for public assembly, a door used for means of egress should open in the direction of travel. Also, the door should:

- Not open across the means of egress, thus reducing the width of the means of egress;
- Be hung to open through not less than 90 degrees and with a swing which is clear of any change of floor level;
- Be provided with a vision panel (window) if it is hung to swing both ways; and
- If protecting an exit, be a self-closing, rated, fire-resistant door.

4.3.3.12 Doors that protect exits (e.g., stairwell doors, fire-resistive doors, etc.) will be specially constructed fire-resistant doors and should not be propped or blocked open. To confirm that a door is a listed fire door (“listed” means equipment, materials, products, or services that are included in a list published by an organization acceptable to the fire and/or building code authority having jurisdiction; e.g., Underwriters Laboratories [UL], etc.), check for a small placard on the hinge edge of the door that indicates the rating of the door (e.g., 1 hour fire rating, 2 hour fire rating, etc.).

4.3.3.13 Where doors have to be kept fastened while people are present, they should be fastened only by pressure release panic hardware such as panic bolts, panic latches or pressure pads which ensure that the door can be readily opened by pressure applied by people from within traveling in the direction of egress.

4.3.3.14 It may be necessary for egress routes to be protected by fire-resistant construction and fire doors. All such doors, except those to cupboards and service ducts, should be fitted with effective self-closing devices to ensure the positive closure of the door. Rising butt hinges are not normally acceptable.

4.3.3.15 All fire doors should be regularly checked to ensure that they are undamaged, swing freely, and are closely fitted to frame and floor and that the self-closing device operates effectively.

4.3.3.16 Any door which for structural reasons cannot be hung to open outward may not count as a required exit door and must not be considered part of a means of egress. Consult the local building and fire authorities having jurisdiction. Some alternatives may be possible (e.g., locking it in the open position when the building is occupied) but must be approved by the local building and fire authorities having jurisdiction.

4.3.3.17 Doors, gates and turnstiles which are part of the means of egress, including all doors leading to exits, should be checked before and during the event to ensure that they are unlocked, or in circumstances where security devices are provided, can be immediately opened with panic hardware. Turnstiles or similar devices that restrict travel to one direction must not be placed so as to obstruct any required means of egress.

4.3.3.18 Security fastenings such as padlocks and chains should not, under any circumstances, be used when the venue is occupied; they should be placed on numbered hooks in a position which is not accessible to unauthorized people when the building is occupied. All fastenings should be numbered to match the numbered hooks.

4.3.3.19 Events featuring pyro, fog effects and/or other activities that may obscure one’s vision during egress will slow and perhaps even obstruct egress. So, when any of these types of activities are planned, make sure all means of egress are fully clear and available or add additional egress routes.

### 4.3.4 Exit and Directional Signs

4.3.4.1 In an emergency, it is essential that all available means of egress are used. Clearly indicate all available exit routes so that members of the audience and workers are aware of all the routes to leave the venue in an emergency. In addition, the provision of easily visible exit signs in full view of everyone present will give a feeling of security in an emergency.

4.3.4.2 All fire safety signs, notices and graphic symbols must conform to the applicable fire and building codes. Exit and exit access doors must be marked by an approved exit sign well illuminated and readily visible from any direction of egress travel. The path of egress travel to exits and within exits must be marked by readily visible exit signs to clearly indicate the direction of egress travel.

4.3.4.3 Where an exit cannot be seen or where people escaping might be in doubt as to the location of an exit, provide directional exit signs at suitable points along the egress route. Such signs should be sufficiently large, fixed in conspicuous positions, and wherever possible be positioned approximately six feet (1.829 m) above the ground level.

4.3.4.4 Although the model codes require that exit sign lettering be no less than six inches (0.1524 m) tall, exit signs that must be seen from distances greater than 100 feet (30.48 m) must be larger to be seen. Therefore, it is recommended that exit signs that must be seen from greater than 100 feet (30.48 m) be at least eight inches (0.2032 m) in height.

4.3.4.5 Exit signs and signs incorporating supplementary directional arrows should be illuminated whenever people are present. Signs at outdoor events should be weatherproof and clearly visible above people as well as illuminated at night, if necessary.

4.3.4.6 The means of egress, including the exit discharge, must be illuminated to at least one foot-candle (11 lux) at all times the building space is occupied. In addition, if used outside the hours of daylight, or in the absence of natural daylight, all parts of the venue to which the audience has access should be provided with normal lighting and emergency lighting (see Chapter 11, *Electrical Installations and Lighting*).

### 4.3.5 Indoor Venues

4.3.5.1 Buildings designed for public assembly must have suitable and sufficient means of egress for their designed purpose. However adaptations, such as the provision of a stage, temporary stands, or a significant increase in the number of people to be accommodated, need to be considered and may require extra measures.

4.3.5.2 Where additions to the existing means of egress are needed, make sure that the local building and fire departments are consulted early and that:

- Exits are suitable and sufficient in size and number;
- Exits are distributed so that people can turn their back on any fire which may occur;
- Exits and exit routes are clearly indicated; and
- Escape routes are adequately illuminated (see also Chapter 11, *Electrical Installations and Lighting*).

4.3.5.3 Regarding buildings that were not designed for public assembly, it is unlikely that such places were designed to accommodate large numbers of people. Thus, it is almost certain that additional means of egress will be required to accommodate a music event. In this situation, consult the local building and fire departments at an early stage.

4.3.5.4 In deciding whether the means of egress are reasonable, authorities will consider:

- The occupant load of the building;
- The type and nature of the use of the building;
- Means of egress factors (e.g., width and number of exits required, etc.);
- Whether temporary stands and/or stages will be constructed within the building;
- The number of levels from which occupants will exit;
- Exit and directional signs; and
- The normal and emergency lighting provided in the venue.

### **4.3.6 Sports Stadiums**

4.3.6.1 A sports stadium which has been issued an occupancy permit from the building and/or fire authorities having jurisdiction should already have adequate means of egress from the normal spectator areas. However, do not let this impede a full confirmation that they all meet the necessary requirements. Additional means of egress may also be needed if the playing field area is to be occupied by the audience and/or by temporary structures, such as a stage or stands. Some configurations may require additional permits and/or authorization from local authorities having jurisdiction. Where such a permit or authorization is required, or when in doubt, check with the relevant local authority as early as possible. See Chapter 26, *Stadium Music Events*, for more information on stadium events.

4.3.6.2 The U.S. Department of Justice provides a four-page pamphlet for ADA accessible stadiums that organizers may find informative. It can be found online at <http://www.ada.gov/stadium.pdf>.

### **4.3.7 Outdoor Venues**

4.3.7.1 Generally, the same occupancy load requirements that apply to a building also apply to outdoor venues. That is, the local building and fire authorities having jurisdiction will establish (and require the organizer to post) maximum occupancy loads for specific configurations of various venues. Remember also that occupancy load is not simply a computed value (see definition above). The local authorities having jurisdiction have the flexibility to consider exactly how the space will be used, access and distance to egress, obstacles such as chairs and tables, and a number of other safety-related issues. Make sure to fully inform the authorities regarding the use of the space and nature of the audience so that the number at which they arrive is the most realistic possible.

4.3.7.2 Outdoor venues such as parks, fields and yards of stately homes will normally have boundary fences at their perimeters. To provide means of egress which will allow for an orderly evacuation to take place, ensure that:

- The number and size of exits in the fences, etc., are sufficient for the number of people present and are distributed around the perimeter;
- Exits and gateways are unlocked and staffed by stewards throughout the event; and






- All exits and gateways are clearly indicated by suitable signs which are illuminated if necessary.

4.3.7.3 At the planning stage, consult the fire and building authorities having jurisdiction about any proposals for means of egress.

4.3.7.4 Investigate whether there are any wild fires or controlled burns scheduled in the area and whether there is an elevated fire risk within 50 miles of the venue. Notify all members of the planning team of these findings and revise the fire safety plan accordingly. Discuss these issues with the local fire authority including how the fire safety plan should be modified in response.

## 4.4 Classification of Fires

4.4.1 In firefighting, fires are identified according to one or more fire classes. Each class designates the fuel involved in the fire, and thus the most appropriate extinguishing agent. The classifications allow selection of extinguishing agents along lines of effectiveness at putting the type of fire out, as well as avoiding unwanted side-effects. For example, nonconductive extinguishing agents are rated for electrical fires, so to avoid electrocuting the firefighter. NFPA 10, *Standard for Portable Fire Extinguishers*, classifies fires as follows:

- Class A fires (designation symbol is a green triangle) involve ordinary combustible materials like paper, wood and fabrics, rubber. Most of the times, this type of fire is effectively quenched by water or insulating by other suitable chemical agent. 
- Class B fires (designation symbol is a red square) mostly involve flammable liquids (like gasoline, oils, greases, tars, paints, etc.) and flammable gases. Dry chemicals and carbon dioxide are typically used to extinguish these fires. 
- Class C fires (designation symbol is a blue circle) involve live electrical equipment like motors, generators and other appliances. For safety reasons, non-conducting extinguishing agents such as dry chemicals or carbon dioxide are usually used to put out these fires. 
- Class D fires (designation symbol is a yellow decagon [star]) involve combustible metals such as magnesium, sodium, lithium, potassium, etc. Sodium carbonate, graphite, bicarbonate, sodium chloride, and salt-based chemicals are used to extinguish these fires. 
- Class K fires (designation symbol is a black K) are fires in cooking appliances that involve combustible cooking media (vegetable, animal oils or fats). 

### 4.4.2 Class A Fires

4.4.2.1 Class A fires are the most likely type of fire to occur in the majority of venues. Water, foam and dry chemical are the effective agents for extinguishing these fires. Water and foam are usually considered to be the most suitable extinguishing agents and the appropriate equipment



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are therefore hose reels, water-type extinguishers or extinguishers containing fluoroprotein foam (FP), aqueous film-forming foam (AFFF), or film-forming fluoroprotein foam (FFFP).

#### **4.4.3 Class B Fires**

4.4.3.1 Where there is a risk of fire involving flammable liquid, dry chemical or carbon dioxide fire extinguishers may offer the best result. But, foam (including FP, AFFF and FFFP) can be quite effective in dealing with a fire involving exposed surfaces of contained flammable liquid.

4.4.3.2 Care should be taken when using carbon dioxide extinguishers as the fumes and products of combustion may displace oxygen and become hazardous in confined spaces.

4.4.3.3 Dry chemical (and dry powder) extinguishers can produce a vision obscuring cloud of “smoke” and can effect visibility and breathing if used in a crowd of people or in a confined space. Obscuring the vision of members of the audience can induce panic so these extinguishers should be used with care, especially when used in proximity to large crowds.

4.4.3.4 A solid stream of water should never be used to extinguish a class B fire because it can cause the fuel to scatter and spread the fire.

#### **4.4.4 Class C Fires**

4.4.4.1 Electrical fires are fires involving energized electrical equipment. The U.S. system designates these “Class C;” the Australian system designates them “Class E.” This sort of fire may be caused by short-circuiting machinery or overloaded electrical cables. These fires can be a severe hazard to firefighters using water or other conductive agents: Electricity may be conducted from the fire, through water, the firefighter's body, and then earth. Electrical shocks have caused many firefighter deaths.

4.4.4.2 Electrical fires may be fought in the same way as an ordinary combustible fire, but water, foam, and other conductive agents are not to be used. While the fire is or possibly could be electrically energized, it can be fought with any extinguishing agent rated for electrical fire. Carbon dioxide (CO<sub>2</sub>), FM-200 and dry chemical extinguishers such as PKP and even baking soda are well suited to extinguishing this sort of fire. Once electricity is shut off to the equipment involved, it will generally become an ordinary combustible (class A) fire.

#### **4.4.5 Class D Fires**

4.4.5.1 Certain metals can be flammable or combustible. Fires involving such materials are designated “Class D.” Examples of such metals include sodium, titanium, magnesium, potassium, uranium, lithium, plutonium, and calcium. Magnesium and titanium fires are common. When one of these combustible metals ignites, it can easily and rapidly spread to surrounding ordinary combustible materials and pose a significant hazard.

4.4.5.2 With the exception of the metals that burn in contact with air or water (e.g., sodium), masses of combustible metals do not represent unusual fire risks because they are very difficult to ignite and have the ability to conduct heat away from hot spots so efficiently that the heat of combustion cannot be maintained. This means that it will require a lot of heat to ignite a mass of combustible metal. Metal fire risks exist when sawdust, machine shavings and other fine

particles of metal are present. Generally, these fires can be ignited by the same types of ignition sources that would start other types of fires.

4.4.5.3 Water and other common firefighting materials used on metal fires can explode and make these fires worse because the high heat involved raises the temperature of the applied water to boiling so fast it does not have enough time to cool the fire. Metal fires should be fought with “dry powder” extinguishing agents that extinguishes by separating the four parts of the fire tetrahedron. It prevents the chemical reactions involving heat, fuel, and oxygen and halts the production of fire sustaining “free-radicals,” thus extinguishing the fire.

4.4.5.4 Today a wide range of powder agents may be effective on class D fires including sodium chloride (Super-D, Met-L-X), copper based powder (Copper Powder Navy125S), graphite-based powder (G-Plus, G-1, Lith-X, Pyromet), and sodium carbonate based powder (Na-X).

4.4.5.5 Metal fires represent a unique hazard because people are often not aware of the characteristics of these fires and are not properly prepared to fight them. Therefore, even a small metal fire can spread and become a larger fire in the surrounding ordinary combustible materials.

#### **4.4.6 Class K Fires**

4.4.6.1 Fires that involve cooking oils or fats are designated “Class K” under the American system, and “Class F” under the European/Australasian systems. Class K fires involve combustible cooking media such as oils and grease commonly found in commercial kitchens. Though such fires are technically a subclass of the flammable liquid/gas class (B), the special characteristics of these types of fires are considered important enough to recognize separately. The new cooking media formulations used from commercial food preparation require a special wet chemical extinguishing agent that is especially suited for extinguishing and suppressing these extremely hot fires that can re-flash. Saponification (a process that produces soap, usually from fats and lye) can be used to extinguish such fires. Appropriate fire extinguishers may also have hoods over them that help extinguish the fire.

4.4.6.2 Wet chemical fire extinguishers are tested and approved for Class K fires. They contain a potassium acetate based, low pH agent that was originally developed for use in pre-engineered cooking equipment fire extinguishing systems. The agent discharges as a fine mist which helps prevent grease splash and fire re-flash while cooling the appliance. The Class K extinguisher (a.k.a., Purple K or K-Guard) is a good choice for use on all cooking appliances including solid fuel char-broilers.

### **4.5 The Fire Triangle/Tetrahedron**

4.5.1 The concept of a fire triangle is a simple model for understanding the necessary ingredients for most fires. The triangle represents the three elements required for a fire to ignite: fuel, heat (the ignition source) and an oxidizing agent (usually oxygen in the air). Fire prevention is about ensuring that these three things do not combine to start a fire.

4.5.2 Heat is required to ignite a fire, and for the fire to continue to burn. Heat can be removed by a number of substances that cool the fire below a temperature at which the fuel can continue burning. This is usually water which absorbs a great deal of heat as it turns to steam.

4.5.3 Fuel is required for a fire to ignite and continue burning. Fuel can be consumed by fire and thus reduce enough for the fire to extinguish. The fuel can be manually removed so that the fire cannot access it and continue, much like is done in wildland firefighting where controlled burns remove the fuel and oxygen. Fuel can also be separated from the fire with chemical elements such as aqueous film forming foam (AFFF) which can be applied to the surface of ignited flammable liquid fuel.

4.5.4 A fire cannot begin without sufficient oxygen, which is found in adequate amounts in the earth's atmosphere to support most combustion. If available oxygen reduces, the combustion process slows but enough heat and fuel may remain to quickly reignite should air (with oxygen) be reintroduced. It should be noted that special precautions are required when enriched oxygen is present, such as when using gas cutting gear, or when a material contains its own source of oxidizer, such as pyrotechnics and some combustible metals.

4.5.5 The fire tetrahedron represents the addition of a fourth component—the chemical chain reaction—to the three already present in the fire triangle. Once a fire has started, the resulting exothermic chain reaction sustains the fire and allows it to continue until or unless at least one of the elements of the fire is blocked. Foam can be used to deny the fire the oxygen it needs. Water can be used to lower the temperature of the fuel below the ignition point or to remove or disperse the fuel. Halon (any of several halocarbons used as fire-extinguishing agents) can be used to remove free radicals (an uncharged molecule, typically highly reactive and short-lived, having an unpaired valence electron) and create a barrier of inert gas in a direct attack on the chemical reaction responsible for the fire.

4.5.6 “Combustion” is the chemical reaction that feeds a fire more heat and allows it to continue. When the fire involves the high heat of burning metals like lithium, magnesium, titanium, etc. (known as a class-D fire [see above]), the metals can react faster with water than with oxygen and thereby more energy is released. Putting water on such a fire can result in the fire getting hotter or even exploding. Carbon dioxide extinguishers are ineffective against certain metals such as titanium. Therefore, inert agents such as dry sand must be used to break the chain reaction of metallic combustion. In the same way, when any one of the four elements of the tetrahedron is removed, combustion stops.

## 4.6 Portable Fire Extinguishers

4.6.1 The following paragraphs give advice on fire extinguishers for use in the early (incipient) stages of a fire before the arrival of trained fire fighters. Some venues designed for public assembly may have a fire suppression systems, fire protection equipment, and fire alarm systems in place (e.g., a sprinkler system, standpipe system with hose reels, fire alarm system, etc.). But, fire extinguishers are usually also required, and will be especially important where such systems are not installed.

4.6.2 All venues must be provided with appropriately located portable fire extinguishers. This provision should be determined at the planning stage in consultation with the local fire authority having jurisdiction.

4.6.3 A fire extinguisher typically consists of a hand-held cylindrical pressure vessel that contains an agent which can be discharged to extinguish a fire (Fig. 4-2). The model fire codes state that portable fire extinguishers must be installed, maintained and used in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*. OSHA 1910.157 also offers guidelines for the placement, use, maintenance, and testing of portable fire extinguishers provided for the use of employees.

4.6.4 The types of fire extinguishers are matched to the types of fires they are intended to extinguish. For example, an ABC extinguisher is capable of extinguishing class A, class B and class C fires. See the section above (*Classification of Fires*) for details regarding which type of extinguisher is best for each class of fire.

4.6.5 Fire extinguishing capacity is rated in accordance with ANSI/UL 711, *Rating and Fire Testing of Fire Extinguishers*. The ratings are described using numbers preceding the class letter. As an example, consider an extinguisher rating of 1-A:10-B:C. The inclusion of A, B and C means that this extinguisher can be effective on class A, B and C fires. The number preceding the A multiplied by 1.25 gives the equivalent extinguishing capability in gallons of water. In this example, the extinguisher with this rating (1-A) is equivalent to 1.25 gallons of water on a class A fire. The number preceding the B indicates the size of a class B fire in square feet that an ordinary user should be able to extinguish. In this example, the “10-B” indicates that a 10 square foot class B fire can be extinguished by an ordinary user. There is no additional rating for class C, as it only indicates that the extinguishing agent will not conduct electricity. An extinguisher will never have a rating of just C.

4.6.6 In the United States, fire extinguishers, in all buildings other than houses, are generally required to be serviced and inspected by qualified personnel (e.g., a fire protection service company) at least annually. Some jurisdictions require more frequent service for fire extinguishers. The servicer places a tag on the extinguisher to indicate the type of service performed (e.g., annual inspection, recharge, new fire extinguisher, etc.) and the date of service. Event organizers can easily check these tags to confirm that the extinguisher to which each is attached has been serviced in the past year. If not, they should be replaced or properly serviced.

4.6.7 The typical steps for operating a fire extinguisher (described by the acronym “PASS”) are as follows:

- P—Pull the safety pin
- A—Aim the nozzle at the base of the fire, from a safe distance (about six feet away)
- S—Squeeze the handle
- S—Sweep the extinguisher from side to side while aiming at the base of the fire



Fig. 4-2 - A good multi-purpose fire extinguisher for A, B, and C fires (dry chemical based).

4.6.8 To be useful, portable extinguishers must be located in a conspicuous location where they will be readily accessible and immediately available for use. These locations must be along normal paths of travel, unless the fire authority having jurisdiction determines otherwise. In addition, portable fire extinguishers must not be obstructed or obscured from view and must be installed on manufacturer-provided or approved brackets securely anchored to the mounting surface. Generally, the maximum travel distance to an extinguisher should be 50 feet (15.24 m).

4.6.9 Appropriate types of portable fire extinguishers must be properly installed in (at least) the following areas:

- In residential areas where people live and sleep;
- Within 30 feet (9.144 m) of commercial cooking equipment;
- In areas where flammable or combustible liquids are stored, used or dispersed;
- Fuel tank vehicles (for flammable or combustible liquids): minimum rating of 2-A:20-B:C;
- In areas where quantities of any type of combustible materials are stored;
- Where flammable solids such as magnesium are stored, machined, grinded or otherwise processed, an appropriate Class D extinguisher within 75 feet (22.860 m) or other extinguishing materials (scoop, shovel and bucket or extinguishing material) within 30 feet (9.144 m);
- Where liquefied petroleum (LP) gases are stored or used;
- In structures under construction, at each stairway on all floor levels where combustible materials have accumulated, in every storage and construction shed, and where special hazards exist;
- In all tents and membrane structures;
- In vehicle repair and maintenance facilities;
- Special hazard areas, including areas such as laboratories, computer rooms and generator rooms; and
- Where required by the applicable building and/or fire codes.

4.6.10 Most class D extinguishers will have a special low velocity nozzle or discharge wand to gently apply the agent in large volumes to avoid disrupting any finely divided burning materials. Class D agents are also available in bulk and can be applied with a scoop or shovel.

4.6.11 Some extinguishers containing dry chemical extinguishing agents may be confused with extinguishers containing dry powder extinguishing agents. The two are not the same. Mistakenly using a dry chemical extinguisher in place of a dry powder extinguisher can be ineffective and may increase the intensity of a metal fire. Always match the type of extinguisher with the class of fire anticipated.

4.6.12 Carbon dioxide (CO<sub>2</sub>) is a clean gaseous extinguishing agent that displaces oxygen. The highest rating for a 20 pound (7.7 kg) portable CO<sub>2</sub> extinguisher is 10B:C. CO<sub>2</sub> extinguishers are not intended for class A fires as the high-pressure cloud of gas caused by the rapidly expanding frozen liquid stored in the pressurized vessel can scatter burning materials. CO<sub>2</sub> is also not suitable for use on fires containing their own oxygen source, such as metals. Although CO<sub>2</sub> may work well on a person's clothing on fire, such use should be avoided where possible as it can

cause frostbite and, in an enclosed space, is dangerous because it displaces the oxygen needed for breathing. CO<sub>2</sub> extinguishers will have the characteristic “horn” on the discharge end of the device, which makes a CO<sub>2</sub> extinguisher easy to identify.

4.6.13 **IMPORTANT:** Fire extinguishers are not a substitute for trained firefighting professionals with state-of-the-art equipment. Fire extinguishers are, rather, a supplement to be used as a prevention measure that give people in the hazard area time to escape. If the fire is past its early stages or once the fire is out of control, the safest recourse is to quickly leave the hazard area, direct others to do the same, and call the fire department.

#### 4.6.14 Other Types of Fire Extinguishing Equipment

4.6.14.1 In North America, a “standpipe” is a type of rigid water piping which is built into multistory buildings or structures in a vertical position, to which fire hoses can be connected, allowing manual application of water to the fire. Standpipe systems are often integrated with automatic sprinkler systems and both are often required in newly constructed assembly occupancies. Standpipes may also be equipped with hose cabinets that allow building occupants and/or fire fighters to use the hose and nozzle provided to manually apply water to a fire. Organizers should consult with local fire and building authorities having jurisdiction for more information regarding where these are required. NFPA 14, *Standard for the Installation of Standpipes and Hose Systems*, describes the requirements for these types of systems and equipment.

4.6.14.2 There are three classes of standpipe systems:

- Class I – a system providing 2-1/2 inch (64 mm) hose connections to supply water for use by those trained in handling heavy fire streams.
- Class II – A system providing 1-1/2 inch (38 mm) hose stations to supply water for use primarily by the building occupants or by the fire department during initial response.
- Class III – A system providing 1-1/2 inch (38 mm) hose stations to supply water for use by building occupants and 2-1/2 inch (64 mm) hose connects to supply a larger volume of water for use by those trained in handling heavy fire streams.

4.6.14.3 In addition to class, standpipes are also characterized by type:

- Automatic dry – normally filled with pressurized air that uses a dry pipe valve to admit water into the system piping automatically upon the opening of a hose valve.
- Automatic wet – has a water supply that is capable of supplying the system demand automatically.
- Manual dry – does not have a permanent water supply attached to the system and requires the fire department to provide water through the fire department connection.
- Manual wet – connected to a water supply for the purposes of maintaining water in the system only but which does not have a water supply capable of delivering pressurized water to the system. This type of system also requires the fire department to provide water through the fire department connection.
- Semiautomatic dry – a dry system that uses a device to admit water into the system piping upon activation of a remote control device located at the hose connection. A remote control device must be provided at each hose connection.

4.6.14.4 Automatic sprinkler systems may also be dry or wet systems and are required to be installed in most types of new buildings and structures designed for assembly. NFPA 13, *Standard for the Installation of Sprinkler Systems*, describes the requirements for these types of systems. OSHA 1910.158 also offers guidelines that apply to all small hose, Class II, and Class III standpipe systems installed to meet the requirements of a particular OSHA standard.

#### **4.6.15 Stages**

4.6.15.1 Stages greater than 1000 square feet (93 square meters) must be equipped with a Class III wet standpipe system with 1-1/2 inch and 2-1/2 inch (38 mm and 64 mm) hose connections on each side of the stage. The 1-1/2 inch (38 mm) connection must be equipped with sufficient lengths of 1-1/2 inch (38 mm) hose to provide fire protection to the stage area. This hose must be equipped with an approved adjustable fog nozzle and be mounted in a cabinet or on a rack. In addition, where stages are larger than 1,000 square feet (93 square meters) in area, are greater than 50 feet (15.240 m) in height, and include combustible hangings or curtains, automatic sprinklers may be required.

4.6.15.2 Stages have numerous fire safety requirements due to a long, rich history of fire-related tragedies associated with theatrical stages. Organizers should consult with local fire and building authorities having jurisdiction to determine all the requirements that must be incorporated into stages.

### **4.7 Fire-Fighting Equipment Provision**

4.7.1 With indoor venues specifically designed for public assembly, the scale of provision required in connection with the normal use of the building should be adequate. However, if additional facilities are to be provided, e.g., a stage, concessions on the field, changing rooms, etc., there may be a need for additional equipment.

4.7.2 Indoor venues not designed for public assembly should be cause for the greatest concern as existing provisions may be minimal. However, there may be some provision (e.g., hose cabinets in a warehouse) and provided that the maintenance is satisfactory, this should be taken into account. In deciding what firefighting equipment is appropriate, consider both the structure and the contents of the building including the scale of both. The general principle is that no one should have to travel more than 50 feet (15.24 m) from the site of a fire to reach an extinguisher. Position extinguishers on exit routes near exits.

4.7.3 The provision of firefighting equipment for outdoor venues will vary according to the local conditions and what is brought onto the site. There will need to be equipment for tackling fires in vegetation, vehicles, structures, and tents.

4.7.4 Arrangements may need to be made to protect fire protection equipment located outdoors from the effects of frost, vandalism and theft. Where necessary, provision must be made to clear accumulations of snow, ice and other forms of weather-induced obstructions from fire protection equipment located outdoors. The location of such equipment should be well marked with prominent signs. Further advice should be sought from the fire authority or local authority.

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## 4.8 Special Risks

4.8.1 Besides the recommendations and requirements provided above regarding the provision of fire protection equipment and procedures, address special fire and life safety risks according to the following guidelines:

- Where welding or similar hot work is undertaken, a minimum of one 2-A:20-B:C portable fire extinguisher must be readily accessible within 30 feet (9.144 m). In addition, a fire watch must be established during hot work activities and for 30 minutes after the work ends.
- Portable fire extinguishers with a minimum rating of 2-A:20-B:C must be provided where motor vehicle fuel is dispensed or stored. They must be located such that an extinguisher is not more than 75 feet (22.860 m) from pumps, dispensers, or storage tank fill-pipe openings.
- When open to the public, smoking, open flames, devices emanating flame, fire, flammable or combustible liquids, gas, charcoal or other cooking device are not permitted inside or within 20 feet (6.096 m) of a tent or membrane structure unless specifically authorized by the fire authority having jurisdiction.
- If pyrotechnics or flame effects will be used, the requirements of NFPA 160, *Standard for the Use of Flame Effects Before an Audience*, should be met and may be required;
- If tents, membrane structures, grandstands, or bleachers are involved, comply with the requirements of NFPA 102, *Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures*.
- Portable fire extinguishers installed at heights above occupied areas (e.g., in occupied trusses, on catwalks, on followspot platforms, etc.) should be secured with a reasonable length of safety cable.
- Portable fire extinguishers with a minimum rating of 2-A:20-B:C should be installed, and may be required, in dressing rooms, where scenery is stored, electrical intake rooms (where breaker boxes are located), boilers rooms, mobile concessions, near portable generators, in occupied trusses, at intersections of catwalks and on followspot platforms.

## 4.9 Means of Giving Warning in Case of Fire

4.9.1 The following paragraphs give general recommendations on the means for giving warning if there is fire. More detailed information may be obtained from NFPA 72, *National Fire Alarm and Signaling Code*.

4.9.2 The purpose of a fire-warning system is to provide information to everyone present so that all can be safely evacuated before escape routes become impassable through fire, heat or smoke. The means for giving warning should be suitable for the particular venue, taking into account its size, layout, planned means of egress and the number of people likely to be present.

4.9.3 Fire-alarm and warning systems should comply with NFPA 72, *National Fire Alarm and Signaling Code*. This standard requires that a sign or signal that needs a power supply to operate should also have a back-up power supply. Existing systems designed or installed to an earlier standard may be acceptable subject to satisfactory testing, electrical certification and approval by



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the local authority having jurisdiction (see Chapter 6, *Communication*, for further advice on emergency public announcements).

4.9.4 An indoor venue designed for public assembly which has previously been approved for music events will have an approved means for giving warning in case of fire. However, it will be necessary for the fire authority having jurisdiction to be consulted at an early stage to ensure that the system is appropriate.

4.9.5 Buildings not designed for public assembly such as warehouses, aircraft hangars, agricultural buildings, etc., may have a warning system which is unsuitable for a music event or no fire-warning system at all. It will therefore be necessary to either modify the existing system to use the building for the event or provide a temporary warning system.

4.9.6 If a temporary warning system is installed (and this may be the more appropriate action to take), the provision of a radio-transmission system has a number of advantages as it will not require the laying of electrical wiring or modifications to a building. Static call-points can also be replaced by mobile call-points carried by stewards so that the alarm can be raised instantly at the point of discovery of any fire. It is, however, still necessary for any system to comply with NFPA 72, *National Fire Alarm and Signaling Code*. The fire and building authorities having jurisdiction should be consulted as to the suitability of the system for the venue.

4.9.7 For some buildings not designed for public entertainment, an alarm system incorporating automatic fire detection may be required, particularly in circumstances where a fire could reach serious proportions before discovery. The fire and building authorities having jurisdiction must be consulted regarding these requirements.

4.9.8 Although there is less likelihood of people becoming trapped by fire when the event is staged outdoors it will still be necessary to provide a fire-warning system for temporary and moveable structures such as roofed structures and tents. Campsites should have fire watches and campers should be provided with fire safety advice.

## **4.10 Curtains, Drapes and Other Decorative Materials**

4.10.1 The use of curtains, drapes, and temporary decorations could affect the safe use of a means of egress, and drapes across an exit are explicitly prohibited by the model codes. Any proposal to use combustible decorative materials should be requested in writing of the fire authority having jurisdiction and should be accompanied by full details. Providing samples of the materials proposed to be used may also be required. Where a building is already being used for public assembly the use of these materials will probably have been approved.

4.10.2 The use of decorative vegetation (e.g., fresh cut trees, flowers, etc.) is generally prohibited in assembly occupancies. However, if the use of such material is approved by the fire authority having jurisdiction, there would likely be many limitations to the approval. For example, such materials would not be permitted to obstruct or reduce the width of any required means of egress, be located near heat vents, or be located near any open flame.

4.10.3 Although there are some exceptions where automatic sprinklers are installed, in assembly occupancies (and several other types of occupancies), curtains, draperies, hangings and other decorative materials suspended from walls or ceilings must be approved and meet the flame propagation performance criteria of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*. Combustible decorative materials are also limited to no more than 10 percent of the specific wall or ceiling area to which it is attached. However, artwork and/or teaching materials on the walls of corridors is permitted to be up to 20 percent of the wall area.

4.10.4 Where the weight of the material is more than one pound (0.45 kg) in assembly occupancies, exposed foam plastic materials and unprotected materials containing foam plastic used for decorative purposes or stage scenery or exhibit booths is required to have a maximum heat release rate of 100 kW when tested according to UL 1975, *Fire Tests for Foamed Plastics Used for Decorative Purposes*.

4.10.5 Where motion picture screens are used in assembly occupancies, the screen must meet the flame propagation performance criteria of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*.

4.10.6 Combustible scenery of cloth, film, vegetation (dry), and similar materials must comply with one of the following:

- They must meet the flame propagation performance criteria of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*; or
- They must exhibit a heat release rate not exceeding 100 kW when tested in accordance with NFPA 289, *Standard Method of Fire Test for Individual Fuel Packages*, using the 20 kW ignition source.

4.10.7 Where required to be flame resistant, decorative materials must be tested by an approved agency (approved by the fire authority having jurisdiction) and meet the flame propagation performance criteria of NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, or such materials must be noncombustible.

4.10.8 In ancient Rome, the stage area in front of the scaenae frons (the elaborately decorated background of a Roman theatre stage) was known as the “proscenium,” meaning “in front of the scenery.” Today, the area of a theatre surrounding the stage opening is referred to as the proscenium. A proscenium arch is the arch over this area. Where required by the fire authority having jurisdiction, the proscenium opening must be protected by a listed, minimum 20-minute opening protective assembly, a fire curtain complying with NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, or an approved water curtain complying with NFPA 13, *Standard for the Installation of Sprinkler Systems*. In addition, proscenium opening protection provided by other than a fire curtain must activate upon automatic detection of a fire and upon manual activation.

4.10.9 Scenery and stage properties not separated from the audience by proscenium opening protection must be of noncombustible materials, limited-combustible materials, or fire-retardant treated wood.

## 4.11 Fire Risk Assessment

4.11.1 Underlying plans to keep people and property safe from fire hazards is the idea of a fire risk assessment. This is nothing more than a systematic analysis of the precautions required to prevent fires and, should one occur, how event staff and management will respond to protect life safety and minimize the harm or loss caused by the fire.

4.11.2 Like any other type of risk assessment, a fire risk assessment can be recorded in any format. However, it is useful to follow the basic theme set out below (Table 4.2), where the separate elements of fire prevention and incident response are dealt with as specific topics and the organizer does not have to describe the entire plan in one narrative.

4.11.3 The guidance given here is as a recommendation only. The event organizer must determine an appropriate level of provision that is acceptable to the authorities having jurisdiction.

4.11.4 For smaller events, a single fire risk assessment may be sufficient to cover all activities. For larger events, with multiple stages, production, camping, catering and trade areas, it may be necessary to draw up a number of fire risk assessments to ensure all locations and activities are properly considered. Regardless, the goal of a fire risk assessment is to prevent the combination of the elements in the fire triangle/tetrahedron usually be separating fuels from ignition sources.

**Table 4.2**

*Key Considerations in a Fire Risk Assessment*

<b>Fuels and/or Combustible Materials</b>	What is there in the venue or event site that can burn?
<b>Ignition Sources</b>	How might these fuels ignite?
<b>Detection and Alarm</b>	If a fire does start, how will people become aware and how can they raise the alarm or summon help?
<b>Escape and Evacuation</b>	What arrangements are required to get people away from danger?
<b>Fire Fighting</b>	What resources are appropriate for immediate firefighting (extinguishers etc.) and how can professional assistance quickly be brought to the scene?
<b>Training</b>	What level of skill is required by various staff, and how are people effectively briefed on procedures?

### 4.11.5 Fuels

4.11.5.1 Many materials should be considered potential fuels. This includes obvious substances like generator and vehicle fuel or fuel gases such as propane used for cooking (flammable products), and less obvious materials such as paper, trash, and tents (combustible products). The

organizer must ensure that all flammable and combustible materials are properly controlled and separated from potential ignition sources.

4.11.5.2 This means using tent fabrics, set, dressings and fabrics which meet the fire retardant standard(s) required by the authorities having jurisdiction. Organizers have a duty to limit and control such materials through proper sourcing of supplies and the preferential use of lower risk substances. Using diesel rather than gasoline generators is a good example (diesel is combustible and gasoline is flammable [more volatile]), as is ensuring arrangements for regular collection of trash—especially from trade and catering stalls where paper and food waste can quickly accumulate. Particular attention should be paid to the location. For example, flammable and/or combustible material beneath a seating bleacher is far more significant than overflowing trash in an open field.

4.11.5.3 The “fuels” section of a fire risk assessment will outline what will be done to eliminate or minimize the presence of flammable and combustible materials at the event site, and how those which cannot be avoided will be properly stored and controlled.

#### **4.11.6 Ignition Sources**

4.11.6.1 Ignition sources are the means whereby sufficient heat is added to ignite the fuel and cause a self-sustaining fire. Potential sources include:

- Smoking;
- Cooking or campfires;
- Electrical faults;
- Poorly located appliances, such as lighting fixtures;
- Blocking of ventilation ports on equipment;
- Vehicle exhaust;
- Naturally occurring (e.g., lightning);
- Pyrotechnics and special effects; and
- Intentionally set fires.

4.11.6.2 Each potential ignition source will require its own control measures, and the organizer must establish that appropriate and proportionate steps are taken. In some instances this may mean discussion with stage vendors about the use of pyrotechnic effects, in others it may mean the use of fencing and security to prevent access to sensitive areas.

#### **4.11.7 Detection and Alarm**

4.11.7.1 In fixed venues it is normal to encounter automated smoke /heat/carbon monoxide detection systems which will trigger an integrated alarm—both within in the building and/or to emergency services. At a temporary event venue, the organizer will have to replace all of these elements and come up with an acceptable way (to the authorities having jurisdiction) to identify an incident and rapidly raise the alarm with staff, the public and the fire department.

4.11.7.2 Particular attention must be paid to high risk activities or to locations where a fire may quickly take hold, or develop without being spotted, such as in sleeping accommodations. In such instances, battery operated alarm fittings or a permanent fire watch by designated crew may be required.

4.11.7.3 Arrangements should include continual security and staff supervision, communication systems for reporting an alarm, code words, manual alarms, klaxons (alarm horns), PA announcements, fire watch towers and so on. The organizer must determine what is appropriate to meet the needs of the event and the level of threat from fire, then get the procedures approved by the authorities having jurisdiction.

4.11.7.4 Experience from previous catastrophic fires shows that fatal conditions can develop very rapidly, and the organizer needs to have in place a proper and effective plan for stopping a show and initiating an evacuation.

#### **4.11.8 Escape and Evacuation**

4.11.8.1 Considerable detail has been given above on the requirements of means of egress (e.g., escape and evacuation routes). It is imperative that adequate and properly positioned exits are provided to enable all occupants of the premises to leave in safety.

4.11.8.2 Complications arise for events held in premises with more than one story, or where the exit route is long or complex, or leads past additional risk areas. The guidance of the authorities having jurisdiction is of critical importance.

4.11.8.3 Determining the occupancy load of a premises is not simply limited to managing the density of people within the space, but also includes consideration of the exit capacity (i.e., how many people can safely get out of that space in an emergency).

4.11.8.4 Any exit route must be properly signed and illuminated and provide clear, unobstructed passage along its entire length. This means avoiding positioning stage or scenic elements, or storing flight cases and equipment—even temporarily—in any designated means of egress.

#### **4.11.9 Fire-Fighting Measures**

4.11.9.1 The organizer needs to determine what extinguishers or other facilities are appropriate to the type of fire which may occur, and what skills and training are required for staff members to effectively handle an incident.

4.11.9.2 It should be emphasized that while portable extinguishers can be vital tools to tackle a developing fire, they do not in themselves make an event safe. Extinguishers must be of the correct type and positioned to allow quick access. They should be located to allow occupants to defend exit and escape routes (i.e., at exit doors as well as close to equipment or materials which present the initial fire risk).

4.11.9.3 Portable extinguishers can help tackle small fires and prevent them growing to the point they pose a life safety risk or require the evacuation of a venue. However, to use them safely staff must understand the basics of how to use them and the limitations of both the equipment and the user. Trying to handle a situation already out of control may quickly turn staff into casualties and further delay the reporting of the fire.

### 4.11.10 Training and Briefing

4.11.10.1 An integral part of effective fire safety planning is ensuring all relevant people understand the basics of fire prevention and are aware of what to do should an incident occur. This does not mean that all event personnel need to become trained firefighters. They simply need to recognize fire risks and be familiar with their own role in an emergency.

4.11.10.2 Alongside long-term training programs for staff, the organizer should consider short site briefings to familiarize people with the layout of the show and any particular issues they should be mindful of. The location of exits, extinguishers, alarm points, etc., can be explained very quickly and a few minutes spent on discussing fire safety and emergency actions can transform the speed and effectiveness of response. Those few moments may save lives.

## 4.12 Americans with Disabilities Act of 1990

4.12.1 The extent to which the Americans with Disabilities Act (ADA) Standards for Accessible Design ([http://www.ada.gov/2010ADAstandards\\_index.htm](http://www.ada.gov/2010ADAstandards_index.htm)) and accessible stadiums (<http://www.ada.gov/stadium.pdf>) may apply to buildings and structures that incorporate fire and life safety features, equipment and devices is beyond the scope of this document and must be established by competent legal counsel. However, organizers and venue managers would be prudent to familiarize themselves with these requirements and be constantly mindful of their intent as they relate to event venues: to improve accessibility (to all aspects of the venue, including safety features) and enjoyment of those with disabilities and certain physical limitations who wish to attend.

4.12.2 See Chapter 20, *Facilities for People with Special Needs*, for more information about the Americans with Disabilities Act and its applicability.

## 4.13 Emergency Plans

4.13.1 A fire evacuation plan is recommended and may be required. It must include at least the following:

4.13.1.1 Emergency egress or escape routes and whether evacuation of the building is to be complete or, where approved, by selected floors or areas only.

4.13.1.2 Procedures for employees who must remain to operate critical equipment before evacuating.

4.13.1.3 Procedures for assisted rescue for persons unable to use the general means of egress unassisted.

4.13.1.4 Procedures for accounting for employees and occupants after evacuation has been completed.

4.13.1.5 Identification and assignment of personnel responsible for rescue or emergency medical aid.

4.13.1.6 The preferred and alternative means of notifying occupants of a fire or emergency.

4.13.1.7 The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.

4.13.1.8 Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.

4.13.1.9 A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.

4.13.2 A fire safety plan is recommended and may be required by the authorities having jurisdiction. It must include at least the following:

4.13.2.1 The procedures for reporting a fire or other emergency.

4.13.2.2 The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance.

4.13.2.3 Site plans indicating the following:

- The occupancy assembly point;
- The locations of fire hydrants; and
- The normal routes of fire department vehicles access.

4.13.2.4 Floor plans identifying the locations of the following:

- Exits;
- Primary evacuation routes;
- Secondary evacuation routes;
- Accessible egress routes;
- Areas of refuge;
- Exterior areas for assisted rescue;
- Manual fire alarm boxes;
- Portable fire extinguishers;
- Occupant-use hose stations; and
- Fire alarm annunciators and controls.

4.13.2.5 A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.

4.13.2.6 Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.

4.13.2.7 Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.

# 5. Major Incident (Emergency) Planning

5.0.1 Planning any event is difficult. Planning for the potential risks and hazards associated with an event is even more difficult but essential to the event's success. This chapter covers the issues that should be addressed in the early stages of planning, promoting or sponsoring such an event.

5.0.2 Before scheduling the event, consider the scope of the event or mass gathering, the risks to spectators and participants, community impact, and the emergency support required (personnel and logistics). Also identify the lead agency and members of the planning team.

## 5.1 Preparation

5.1.1 The first concern with contingency planning is to identify times when the event may place strains on the existing public safety agencies. Even in the earliest stages of planning, the organizer should begin to make contingency plans. These plans should consider licensing and regulations, emergency response issues, identifying persons responsible for particular types of hazards and risks, resources and expenses, and jurisdictions. Planning ahead reduces stress for organizers and promoters during the event, if an incident occurs that requires public agencies to work together.

5.1.2 During the initial planning stages, each agency should review resources to ensure that all necessary equipment is available. If the agencies determine that additional equipment is needed, then they may acquire the equipment or supplies and be ready for the event. One way for communities to acquire equipment is to work together or pool equipment.

5.1.3 One way in which agencies work together is by adopting a program known as local mutual aid. This program allows neighboring communities to pool resources and share liability for damages or loss of equipment. If one community needs a particular piece of equipment, it may borrow it from a neighboring community. The equipment will become an asset of the borrowing community and will be covered under their insurance until it is released and returns to its home organization. It is important that those involved in planning the event know the agreements established between neighboring communities and the assets that are available to assist in responding to any unforeseen incidents. These agreements may already be established and included as a part of the local emergency operations plan.

5.1.4 The consequences of a major incident at a music event could be catastrophic and it is necessary to plan for such an occurrence. A major incident will normally require a multi-agency approach in which the event organizer, law enforcement, ambulance service, fire authority, local authority, local emergency planning officer, stewards and first responders may play a part. It is therefore important to have a clear demarcation of duties and that responsibilities are agreed and



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understood at the event planning stage. Agreed procedures should be issued in writing to all relevant parties.

5.1.5 Procedures to deal with serious and imminent danger in the workplace including evacuation are an OSHA requirement.

### **5.1.6 The National Incident Management System (NIMS) and the Incident Command System (ICS)**

5.1.6.1 On Feb. 28, 2003, the President issued Homeland Security Presidential Directive (HSPD)-5, Management of Domestic Incidents, which directs the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS). This system provides a consistent nationwide template to enable federal, state, local and tribal governments and private-sector and non-governmental organizations to work together effectively and efficiently to prepare for, prevent, respond to and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism.

5.1.6.2 The NIMS provides a set of standardized organizational structures—such as the Incident Command System (ICS), multi-agency coordination systems, and public information—as well as requirements for processes, procedures and systems designed to improve interoperability among jurisdictions and disciplines in various areas, to include: training; resource management; personnel qualification and certification; equipment certification; communications and information management; technology support; and continuous system improvement. It is recommended that NIMS and ICS should be followed to prepare for and respond to an incident during a special event. ICS can also be used to organize the functions related to planning an event.

5.1.6.3 For information on the Incident Command System, please see Appendix A, *The National Incident Management System (NIMS) and Incident Command System (ICS)*. For training on NIMS ICS, visit the FEMA Emergency Management Institute Independent Study web site (<http://training.fema.gov/is/nims.asp>).

## **5.2 Major Incident Defined**

5.2.1 OSHA defines an “incident” as an unplanned, undesired event that adversely affects completion of a task. However, the U.S. National Incident Management System (NIMS) adds the element of “emergency response” to its definition of an incident and defines it as follows:

An “incident” is an occurrence or event, natural or human-caused, that requires an emergency response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.

5.2.2 For use in this book, the definition of incident shall be broken into two types. A “minor incident” shall refer to a simple undesired event that adversely affects a task. A “major incident”

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shall refer to an incident that requires implementation of special arrangements and response by one or more emergency services. More precisely, a major incident would require the involvement of the local authorities for:

- The initial treatment, rescue and transport of a large number of casualties;
- The involvement either directly or indirectly of large numbers of people;
- The handling of a large number of enquiries likely to be generated both from the public and the news media, usually to the police;
- The need for the large scale combined resources of two or more of the emergency services;
- The mobilization and organization of the emergency services and supporting organizations (e.g., local authority, to cater for the threat of death, serious injury or homelessness to a large number of people).

5.2.3 For minor incidents that do not require the intervention of emergency services, local authorities will need to be dealt with by developing suitable contingency plans. A minor incident could develop into a major incident if not properly planned for and managed. Event organizers should therefore develop contingency plans to deal with minor incidents along with their major incident plans. Major incident plans should be developed in conjunction with the emergency services.

5.2.4 It is important to identify in the plans precisely what needs to be done and agree on the situations in which it will be necessary to hand coordination of an incident over to the police or other agency. This could be before any actual major incident has taken place if it is thought that a handover might prevent an incident from developing. It is also important to agree with the emergency services the procedures for declaring a major incident and who declares it.

5.2.5 Further information on major incident planning can be found in FEMA's online IS-15.b course titled "Special Events Contingency Planning for Public Safety Agencies," which can be found at <http://training.fema.gov/EMIWeb/IS/is15b.asp>. The manual for the course (FEMA's *Special Events Contingency Planning Job Aids Manual*, 2005, Updated 2010) is also an excellent resource and can be found online at <http://emilms.fema.gov/is15b/assets/SpecialEventsPlanning-JAManual.pdf>.

## 5.3 Planning

5.3.1 Hazard Identification is the key to developing a reliable risk assessment. The ability to identify and mediate risk is essential for those persons charged with writing event risk assessments. The task may appear daunting to a person new to the concept of hazard identification and mediation. The more practiced one is at hazard identification and writing risk assessments, the more routine the process becomes. Anticipate having to address the issue of the task becoming repetitive or mundane, as that itself is a risk. The event risk assessment is a good starting point for any major incident plan. This will help focus on areas to be considered, including:

- The type of event, nature of performers, time of day and duration;
- Audience profile including age, previous or expected behavior, special needs, etc.;
- Existence or absence of seating;

- Geography of the location and venue;
- Topography;
- Fire/explosion;
- Terrorism;
- Structural failure;
- Crowd surge/collapse;
- Disorder;
- Lighting or power failure;
- Weather, e.g., excessive wind/heat/cold/rain;
- Off-site hazards, e.g., industrial plant;
- Safety equipment failure such as CCTV and PA system; and
- Cancellation, delayed start, curtailment or abandonment of the event.

## 5.4 Preparation of Major Incident Plans

5.4.1 Consider the following matters when preparing a major incident plan:

- Identification of key decision-making workers;
- Command post or meeting location where key decision makers will convene;
- Conditions and procedure for stopping the event;
- Identification of emergency routes and access for the emergency services;
- People with special needs;
- Identification of holding areas for performers, workers and the audience;
- Details of the script or coded messages to alert and 'stand down' security and stewards;
- Alerting procedures;
- Public warning mechanisms;
- Evacuation and containment measures and procedures;
- Details of the script of PA announcements to the audience;
- Identification of rendezvous points for emergency services;
- Identification of ambulance loading points and triage areas including helipads for air-evacuations;
- Location of hospitals in the area prepared for major incidents and traffic routes secured to such hospitals;
- Details of a temporary mortuary facility;
- An outline of the roles of those involved including contact list and methods to alert them;
- Details of emergency equipment location and availability; and
- Emergency reporting forms, documentation and message pads.

5.4.2 The plan should provide a flexible response whatever the incident, environment or available resources at the time. It may be necessary to prepare variations of the plan to deal with specific issues. The plan should also build on routine arrangements and integrate them into the existing working procedures on site.

5.4.3 Experience has shown that a multi-agency approach to all planning will share the ownership of problems and lead to effective solutions. A planning team should be created from people and agencies who will be required to respond to any emergency or major incident.

5.4.4 To be effective, the major incident planning team should not be too large. It may be useful to have a number of specialist subgroups. Each organization, e.g., police, fire department, first-aid provider, etc., concerned with the event should give a clear undertaking as to their role and committed resources if a major incident happens. This will be in the form of a statement of intent.

5.4.5 The person leading the planning team must be competent to do so and have a broad appreciation of the issues. This person does not necessarily have to be the event organizer or one of their workers. However, they will be accountable for the plan's effectiveness and for the person chosen to lead the team. The event safety coordinator should be involved in the planning process. Keeping and retaining records of meetings and decisions is important.

5.4.6 The plan should be easily understood and without jargon. Instructions, particularly with respect of action to be taken, must be specific so that a named person/role/rank will carry out a specific function. A glossary of terms may assist. Much time can be saved if the layout of the plan allows for simple and quick updating. Revised copies should be easily identifiable from a date/numbering system.

5.4.7 Off-site implications will form an important part of the plan. Traffic issues will include emergency access and exits, as well as readiness for an off-site incident occurring with consequences for the event. This could include a coach crash or large numbers of visitors stranded. Where a venue is close to county or other administrative boundaries, liaison may be required by the emergency planning officers of the local authority and the ability to provide mutual aid determined. Consult the local (usually county) emergency management coordinator to learn about the existing local emergency plans and give a copy of your event major incident plan to the local emergency management coordinator.

5.4.8 Detailed, gridded site plans containing pertinent geographic and topographic features will be of great value during planning and in the event of a major incident. They will be particularly useful when calculating normal and emergency pedestrian flow.

5.4.9 Think about testing the plan to check its effectiveness and the competence of the individuals and teams who will operate it. Methods can include simulation exercises or tabletop exercises. Exercises need not be full scale and may be designed to test only one element of the plan at a time. Debriefing following an exercise is constructive and will dispel misunderstandings that may have arisen and strengthen future working relationships.

5.4.10 Once the plan has been agreed, each organization must ensure that the people responsible for putting the plan into practice are fully briefed. By doing so, problems can be prevented in the first instance, but if one occurs, properly briefed workers can stop a situation deteriorating. Communication exercises are strongly recommended before the event. The training of event staff is also an essential safety element. Stewards and security staff and others likely to have an emergency role must be issued written details of their duties, major incident procedures and a gridded site plan. Brief relevant people connected with the event, including concessionaires and those supplying other services that could be in a position to provide important assistance.

5.4.11 A major barrier to effective briefing is the transient nature of stewarding and the shift working by the emergency services. This situation can be made more difficult when additional workers are hurriedly brought in. Methods of informing workers in these circumstances can include individual, team or group presentations, written instructions and training videos.

## **5.5 Emergency Service and Responsibilities of Local Authorities**

5.5.1 Once a major incident has been declared the police will coordinate and facilitate the “onsite” and “offsite” response. However, in the case of a fire, the fire department should be responsible for dealing with an onsite response. The agency responsible for emergency medical services will initiate coordination of the overall medical response at the scene, nominating and alerting receiving hospitals, distributing casualties, providing emergency transportation, communications and liaison with the other agencies. Local authorities can provide a range of services in case of a major incident. Services may include reception centers, temporary emergency accommodation, feeding and access to a wide range of special equipment. Know what these capabilities include so duplication of efforts can be avoided.

## **5.6 Cordons**

5.6.1 In the event of a major incident, cordons may be needed. Discuss with the police, fire department and the emergency medical services provider how this would be carried out on site. Place cordons according to the circumstances. They may need to be moved during the incident.

## **5.7 Organizational Structure of Major Incidents**

5.7.1 The United States uses the National Incident Management System (NIMS) and the Incident Command System (ICS) for dealing with major incidents where there is a need to coordinate incident management at operational, tactical and strategic levels. Some event organizers already use this model and if one is managing an event in the U.S. it is recommended everyone be familiar with these systems and consider taking FEMA’s online IS-15b, IS-100 and IS-200 courses to learn more about them (for a course list and course descriptions, visit <http://training.fema.gov/is/crslist.asp?page=all>). At this time, training on the NIMS ICS for event management staff is voluntary. However, all jurisdictions in the U.S. are required to use the system so it is advisable that event organizers, promoters, planners and managers do the same and become acquainted and proficient with the system.

5.7.2 The NIMS ICS offers a simple management structure that eases coordination between responding agencies. This structure includes four sections: Command, Operations, Planning, Logistics and Finance/Administration.

5.7.3 In ICS, Command comprises the Incident Commander (IC) and Command Staff. Command staff positions are established to assign responsibility for key activities not specifically identified in the General Staff functional elements. These positions may include the Public Information Officer, Safety Officer, and the Liaison Officer, in addition to various others, as required and assigned by the IC.

5.7.4 In ICS, the General Staff includes incident management personnel who represent the major functional elements of the ICS, including the Operations Section Chief, Planning Section Chief, Logistics Section Chief, and Finance/Administration Section Chief. Command Staff and General Staff must continually interact and share vital information and estimates of the current and future situation and develop recommended courses of action for consideration by the IC.

5.7.5 ICS is based on proven management tools that contribute to the strength and efficiency of the overall system. The following ICS management characteristics are taught in ICS training programs and should be part of event and major incident planning:

- Common Terminology;
- Modular Organization;
- Management by Objectives;
- Reliance on an Incident Action Plan;
- Manageable Span of Control;
- Pre-designated Incident Mobilization Center Locations & Facilities;
- Comprehensive Resource Management;
- Integrated Communications;
- Establishment and Transfer of Command;
- Chain of Command and Unity of Command;
- Unified Command;
- Accountability of Resources and Personnel;
- Proper Dispatch/Deployment; and
- Information and Intelligence Management.

5.7.6 For more information on the details of NIMS ICS, visit FEMA's online ICS Resource Center at: <http://training.fema.gov/EMIWeb/IS/ICSResource/index.htm>. This site includes an excellent ICS overview document, a list of ICS training courses, ICS job aids, ICS forms, ICS position descriptions, ICS glossary of terms, multiple reference documents, and useful ICS-related links.

5.7.7 Other than at small events, it is essential that an appropriate onsite facility be set aside as a designated incident command post (ICP). While the event is running, make sure this onsite facility is staffed continuously. Consider the location of this facility in the overall venue and site design (see Chapter 3, *Venue and Site Design*, and Chapter 6, *Communication*).

5.7.8 If there is a major incident, the emergency services may dispatch command vehicles to the scene. These vehicles must have access to and be able to park near the incident command post. Make sure to consider this factor in the overall venue or site design.

## 5.8 Communication

5.8.1 Advice on communications and emergency public announcements can be found in Chapter 6, *Communications*.

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## 5.9 Media Management

5.9.1 The media will make enquiries the moment a major incident develops. Some may be present covering the event while others will quickly arrive. Provide an accurate and credible response by developing a suitable strategy. All parties concerned with the event appreciate the media's need to gather information. Consider appointing a chief press officer and identify a media rendezvous point to help with media liaison. In the event of a major incident, the police media manager is responsible for the coordination of the response to the media.

## 5.10 Scene and Evidence Preservation

5.10.1 Any major incident is likely to result in an inquiry that may lead to criminal and civil proceedings. The police, fire department, health and safety inspectors and local authorities carry out evidence gathering and investigations. In the first instance, the police will be responsible for preserving the scene and the evidence. Obviously, this action will not interfere with the saving of life. Make sure that you are clear as to which officers and inspectors will need access to information to carry out any necessary investigations.

## 5.11 Voluntary Agencies

5.11.1 Many voluntary agencies can provide high-quality aid at incidents and if they are available at your event consider involving them in your emergency planning (see chapter on Information and welfare).

## 5.12 Some Specific Scenarios

### 5.12.1 Cancellation of an Event

5.12.1.1 If an event needs to be cancelled after the audience has arrived, or a performance has begun, stopped and not re-started, there will be a wide range of issues to be managed. Even if there has not been an actual major incident, property may have been lost or abandoned and people stranded. There may also be an expectation for refunds or the re-issuing of tickets. Think about preparing statements which can be given to the audience together with a press release to the public.

### 5.12.2 Stopping and Starting an Event

5.12.2.1 Once the event has begun, unscheduled stopping of the event could present serious hazards. Any decision to do so must be taken after careful consideration and consultation with the major incident planning team. Likewise, deciding whether or not and when to evacuate the audience will require fine judgment. Both unscheduled stopping and evacuation are scenarios that must be pre-planned and as far as practical, tested and rehearsed. The major incident plan must state who makes the decision to stop or start the event.

### 5.12.3 Bomb Threats

5.12.3.1 If a telephone bomb threat is received, details of the call must be recorded as accurately as possible. (See Bomb Threat Checklist, below.) It is essential that the information is immediately passed to the police for evaluation and response.

5.12.3.2 The police will advise on the validity of a threat. Generally, any decision to evacuate or move people will rest with the event organizer. The exception is where a device is found or where police have received specific information. In these circumstances the police may initiate action and the directions of the senior police officer present must be complied with. If a bomb is a real threat, care must be taken to be alert for secondary devices (e.g., devices specifically intended to injure or kill responders). These might be aimed at the emergency services or the moved/evacuated audience.



**BOMB THREAT CHECKLIST**

Place by each telephone. Duplicate as necessary.

*(Source: Special Events Contingency Planning Job Aids Manual, 2005, updated 2010, p. A-68)*

Exact date and time of call: \_\_\_\_\_

Exact words of caller: \_\_\_\_\_

**Questions to ask**

1. When is the bomb going to explode? \_\_\_\_\_
2. Where is the bomb? \_\_\_\_\_
3. What does it look like? \_\_\_\_\_
4. What kind of bomb is it? \_\_\_\_\_
5. What will cause it to explode? \_\_\_\_\_
6. Did you place the bomb? \_\_\_\_\_
7. Why? \_\_\_\_\_
8. Where are you calling from? \_\_\_\_\_
9. What is your address? \_\_\_\_\_
10. What is your name? \_\_\_\_\_

**Caller's Voice** (Please circle appropriate terms.)

calm	disguised	nasal	angry	broken
stutter	slow	sincere	lisp	rapid
giggling	deep	crying	squeaky	excited
stressed	accent	loud	slurred	normal

If voice is familiar, whom did it sound like? \_\_\_\_\_

Were there any background noises? \_\_\_\_\_

Remarks: \_\_\_\_\_

Person receiving call: \_\_\_\_\_

Telephone number where call was received: \_\_\_\_\_

Report call immediately to: \_\_\_\_\_

(Refer to bomb incident plan.)

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# 6. Communication

6.0.1 Effective communication is of prime importance if an event is to run smoothly and safely. Communication requirements of all the organizations involved in the event, assessed individually or jointly, need to be examined thoroughly. This includes examining the general and operational management of the event, handling routine health, safety and welfare information and communicating effectively in the event of a major incident.

6.0.2 This chapter explores key communication issues from two main perspectives: internal communication, and public information and communication.

## 6.1 Internal Communication

### 6.1.1 Communication During the Event Planning Phase

6.1.1.1 The communication network during this phase is wide and involves a range of communication activities and information requirements:

- Intelligence gathering about the event characteristics, etc.
- Seeking appropriate licenses
- Preparation of detailed plans for arrangements on and off site
- Commercial arrangements - ticketing policy, publicity, contracts, etc.

6.1.1.2 Everyone involved in the planning of an event will need to keep proper records of decisions and ensure that relevant information is communicated to others. It is particularly important that “statement of intent” documents are clear in their definition of roles and the responsibilities of different agencies and individuals.

### 6.1.2 Preparation of Key Support Documentation

6.1.2.1 Clear language is crucial in providing reliable communication. Avoid jargon and acronyms wherever possible. Where they are necessary, it is worth including a glossary of terms within the main planning documents.

6.1.2.2 Agree on special terminology to be used by people preparing plans, documents and communication procedures in relation to:

- Naming different control points and control workers;
- Labeling different types of rendezvous and collection points;
- Providing unique reference labels for key locations within and around the venue;
- Naming conventions for categories of people involved on site;
- Compatible terminology for assessing risks and grading levels of urgency;
- Contact protocols for establishing communication.

6.1.2.3 Wherever possible, plans should say who does what, not just what is to be done. For example, “the incident control room must be informed,” is not as helpful as, “the duty officer must inform the incident control room.”

6.1.2.4 The Federal Government provides helpful guidance, tips and examples about many aspects of written communication on their Plain Language web site (<http://www.plainlanguage.gov>).

6.1.2.5 Relevant maps and site plans are crucial. Visual data should show key routes for vehicles and people, and restrictions on access. A gridded site plan for the venue and its immediate surroundings is recommended. Discrepancies can result in delayed responses, misdirected resources and communication channels being unnecessarily blocked with requests for clarification and attempts to sort out the confusion.

6.1.2.6 Pay attention to labeling features and functions consistently in different documents. If a feature occurs more than once (e.g., if there are several first-aid points) each should have a unique reference. Consult before altering plans so that the consequences of changes can be considered.

6.1.2.7 Consider establishing a single point-of-contact who would receive, collate, cross-check and spread information and documents relevant to the event.

6.1.2.8 Ensure that major incident plans are compatible with emergency plans drawn up by local authority and emergency services. Make sure relevant information is easily available to people in control rooms at remote locations.

### **6.1.3 Communication During the Event**

6.1.3.1 A physical command center should be established during the event as a centralized hub of communication suitable for the event.

6.1.3.2 Consider the following matters in relation to your event:

- Power supplies for emergency communication equipment
- All key personnel must be connected by radio or other communication device.
- Provide key items of documentation and stationery in all control rooms: site plans, key contact details, alerting cascades, message pads, log sheets, etc.
- Display frequently-used information clearly (site plans, key contacts, etc) and make sure facilities such as white boards or flip charts are available for writing up incident-specific information as it arises.
- The need to maintain and operate emergency communications from an alternative site.
- Production intercom systems should also be powered from a stand-alone emergency power system, as communications between personnel during a power outage can be critical to synchronizing stage activities.

### **6.1.5 Off-Site Links**

6.1.5.1 Provide details of the event to local emergency services.

6.1.5.2 Consider arrangements for communicating with outside organizations that are affected by the event such as local businesses.

### **6.1.6 Radio Communication**

6.1.6.1 Identify and coordinate all radio frequencies for the event.

6.1.6.2 Each organization requiring radio communication will need to consider what operational channels are necessary for identified functions or areas. In addition, emergency services will have to consider the need for command channels at large events.

6.1.6.3 Radio is an important medium for general operational requirements and a prime medium for responding to emergencies. Pre-event checks are therefore essential. Carry out full perimeter tests to ensure coverage is adequate. At an outdoor site, appropriate positioning of masts, antennae and repeaters may require research and testing.

6.1.6.4 The issuing of full ear-defending headsets should be considered for key workers in high-noise areas.

6.1.6.5 Fully charge all batteries at the start of the event. Adequate numbers of spare batteries and charging facilities are essential.

6.1.6.6 All employees equipped with radios should be formally trained in their use, along with the proper operating protocols.

### **6.1.7 Telephone Equipment**

6.1.7.1 Provide external lines for immediate telephone contact between the venue control points and emergency services control rooms off site. Do not use external telephone lines designated for emergency use for other communication.

6.1.7.2 Field telephone networks (or internal telephone networks in a venue such as a sports stadium or arena) provide vital links between on-site communication controls and other key points around the venue. Cell phones are widely used and provide extra communication options. However, they should not be relied upon for important links and especially not used for emergency communication.

### **6.1.8 Closed Circuit Television (CCTV)**

6.1.8.1 A valuable safety and security tool is CCTV which can assist crowd management. Certain fundamental questions are worth considering in the event planning stage:

- Will the use of CCTV make the event safer?
- Where should cameras be located?
- Will there be sufficient light?
- Who should have control over them?
- Who should have viewing access?

6.1.8.2 The CCTV images can greatly enhance the potential to identify problems in a crowd resulting from surges, sways, excessive densities or public disorder.

### **6.1.9 Communication Procedures**

6.1.9.1 There must be a clear framework of information flow procedures - people need to know who should inform whom of what, when, and by what means.

6.1.9.2 Prime concerns are:

- Tight radio discipline with proper use of call signs and contact protocols
- Making the purpose/function of a message clear (is it a question, warning, request for action, command, prohibition, etc.?)
- Concise and precise information
- Cross-checking that messages have been received and interpreted correctly
- Relaying message content clearly and unambiguously
- Keeping accurate records of communication activity
- Keeping accurate logs of decisions and actions

### **6.1.10 Message Delivery and Acknowledgement**

6.1.10.1 Workers must be aware of the possible consequences if messages are not properly communicated and understood. There will be marked differences in levels of local knowledge among workers at and around the event and so procedures for acknowledging or reading back messages should be introduced.

### **6.1.11 Situation Reports**

6.1.11.1 Develop procedures for providing information from the scene of an incident or emergency. Note that a practiced format helps the person providing information to include necessary details for an appropriate response, a familiar communication pattern helps people receiving information to anticipate and recognize items; this assists the receiver to note the information ready for subsequent use or relay.

6.1.11.2 A situation report format must work equally well for any type of incident. It is particularly important to include the following items of information in such a report:

- Identification: call signs, names of calling and called parties
- Location: exact details of where the incident is
- Incident: precise details of what is involved
- Requirements: details of services, equipment and agencies required

6.1.11.3 One example format: CHALET

- Casualty – number and types of injuries.
- Hazard – what hazards are present (fire, toxic gas).
- Access – best route to approach the incident.
- Location – specific location.
- Emergency services – what services are present, what services are required.
- Type of incident – description of the incident.

### **6.1.12 Record Keeping**

6.1.12.1 Keeping records and logging information throughout the event is a key activity. Logs must show key events and actions in sequence and are a valuable tool for keeping workers informed of the progress of any incident.

### **6.1.13 Training, Briefing and Preparation**

6.1.13.1 All organizations have a responsibility for training their workers appropriately, covering everything from using appropriate radio discipline to keeping a decision log. There must be proper briefings for all workers about their duties for the event. This includes briefing workers offsite who need to be aware of special arrangements for an event, e.g., those in incident control rooms.

### **6.1.14 Emergency Communications to Public Vendors**

6.1.14.1 In the unlikely event of an evacuation, ensure that ALL parties (vendors, guests, staff) are notified.

## **6.2 Public Information and Communication**

### **6.2.1 Types of Information**

6.2.1.1 The information requirements of the audience range from performance details, ticketing arrangements, travel options, recommended routes, location of facilities, venue layout and welfare information right through to urgent contact messages or emergency instructions. Anticipating public information needs has an important bearing upon welfare and safety. Consider what information the audience will require if the event is cancelled or curtailed and how to provide that information. Well-informed people are less likely to be frustrated, aggressive or obstructive. Advance information on how to get to the venue, where to go on arrival or what will or not be allowed, all reduce frustration and irritation. If there is a need to communicate rules and restrictions, people are more likely to comply if they are aware of the reasons behind them.

### **6.2.2 Communication Channels**

6.2.2.1 Communication methods include:

- Publicity material and tickets
- Media (press, radio, TV)
- Route-marking
- Signs
- Notices, information displays
- Screens, scoreboards
- Face-to-face contact
- Emergency public announcements
- PA systems
- SMS text alerts
- Interactive event web-site

- Twitter Feeds - Public, with special hash tags (#) for outbound communications that are for public information (weather, lost person, etc.), and separate hash tags (typically more obscure codes) for event staff communications.
- Facebook Feeds - Public, for outbound communications that are for public information (weather, lost person, etc.)

### **6.2.3 Alarms**

6.2.3.1 Audible alarms are useful alerting devices but convey little information. The activation of an audible alarm will most often need to be followed by an explanation about what to do, or simply information that it has been a false alarm.

### **6.2.4 Public Address (PA) Systems**

6.2.4.1 PA systems are a vital method of communication with the audience. Output should be clear and intelligible for everyone of normal hearing in all parts of the venue, including people in the immediate surrounds. Ensure that the PA announcer has a good view over as much of the venue as possible and good communication links with control points. In the event of a major incident, override facilities must allow announcements to be made over the PA system without interference from other sound sources. Agree to the circumstances in which this will happen in your major incident plans. The PA system should be fully tested before the event. In the event of an emergency where power is cut off a contingency plan to make general announcements must be considered (is there an emergency power source available to power the essential portions of the PA system for announcements, is there another means to make announcements to the general audience).

6.2.4.2 The PA System must remain operational until an “All Clear” has been provided.

### **6.2.5 Screens, Scoreboards**

6.2.5.1 Video screens and scoreboards are a useful communication method for putting out public messaging. They can provide information without interruption to a performance. For urgent public announcements, however, they can reinforce the message and give information to those who have hearing difficulties.

### **6.2.6 Battery Operated Megaphones**

6.2.6.1 Provide megaphones at strategic points in the venue for use by stewards and police for urgent communication and as a back-up in case the PA system fails. Train workers how to use them and where they are located. Keep batteries fully charged.

### **6.2.7 Staff (Face-to-Face Contact)**

6.2.7.1 Direct contact between personnel and the public is obviously a vital communication channel, particularly in the safety chain. Approachable and helpful staff have an important role in creating a positive relationship with the audience. Their role in giving people clear and concise directions and assistance in an emergency can be a vital one.

6.2.7.2 Staff with any safety role should be easily identifiable by jackets/vests or other high-visibility items of clothing. These allow the public to seek them out as a source of assistance and

to recognize their authority when appropriate. If people are being directed along a route of safety, staff in high-visibility clothing can help indicate the way much more clearly.

6.2.7.3 When problems are being dealt with, high-visibility clothing also helps colleagues, supervisors or CCTV controllers to pick them out and spot when they may be in difficulty or need support. In some cases, for workers who do not normally need to be visually conspicuous but may need to be identifiable for certain contingencies, reversible jackets that are high visibility on one side are worth considering.



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# 7. Crowd Management

7.0.1 In “The Focal Guide to Safety in Live Performance” (1993, George Thompson, Ed.), John Shaughnessy describes “Crowd Management” as, “the business of ensuring that the demands of a large body of people in one place are analyzed and met by a combination of forward planning, engineering response, adequate information systems and alert general management.” The author recommends avoiding the term “Crowd Control” and suggests it be replaced with “crowd management.”

7.0.2 Shaughnessy also cites the following list as being of particular concern while planning for effective crowd management:

- Barriers and fencing
- Means of access and escape
- Public address capability
- Arrangement of staging, structures and other event infrastructure
- Emergency and general event lighting
- Sightlines
- Production detail
- Enforcement of event policies
- Law enforcement, security, stewarding
- Medical and first aid
- Provisions of emergency services
- Evacuation plans

7.0.3 The overall safety and enjoyment of patrons attending any type of music event or public assembly attraction will depend largely on effective crowd management. This is not simply achieved by attempting to control the audience, but by trying to anticipate their behavior and the various factors which can affect it. It is vital to implement a complete system rather than attempt to control only certain elements of obvious concern.

7.0.4 Many factors in event or venue planning and design discussed throughout this publication will have a bearing on crowd management. Examples include the venue design itself—whether a fixed venue or temporary structure—which must allow maximum entry and exit flow and to support generous crowd movements within the venue, restrooms and concession stand access, emergency response access, etc. Always consider accessibility to all areas for persons with special needs in the planning process.

## 7.1 Audience Profile and Crowd Demographic

7.1.1 Two important aspects to be considered in crowd management are the audience profile (the type of audience a particular artist attracts) and crowd demographic (the social statistics of the expected crowd, e.g., age group, male, female, etc.).

7.1.2 Many factors contribute to the potential for crowd movements and therefore need to be considered at the venue and site-design stage, including:

- The parking layout and relationship to venue entrance(s);
- The box office line management and direction;
- The multiple entrance line management and control;
- Multiple-stage entertainment;
- Provision of satellite stages, platforms and stage thrusts;
- Sound and video towers;
- Sight-line obstructions or restricted views;
- Multiple-barrier systems and pens;
- Location of facilities;
- The psychological state of the audience; and
- Special effects.

7.1.3 The way in which crowds behave and respond is a combination of many factors. Crowd dynamics will depend largely on the activities of the crowd and this will be influenced by the demographics of the crowd and the artists performing.

7.1.4 Matters to be addressed include:

- The performance of the artists or groups (e.g., diving into audience, throwing items into the audience and performing in audience areas)
- The audience profile (e.g., male/female split, age of audience, alcohol or drug consumption, physical behavior such as moshing, body surfing, slam dancing, aerialists and stage diving).

7.1.5 It is important for security and event personnel to be able to recognize and understand in advance what are “normal” activities for the anticipated audience. They can then prepare accordingly by increasing, if necessary, additional perimeter fencing, restrooms, security personnel, medical support and equipment, etc.

## 7.2 Entry and Exit of the Audience

7.2.1 Before the audience enters the venue, checks must be made of all fire and emergency doors, gates, and equipment. In addition, the following should be confirmed:

- All exits are clearly marked, unlocked and staffed;
- Escape routes are clear with appropriate clearly marked signage;
- Fire-fighting equipment and personnel and alarms are in full working order;
- A PA system for use in emergencies can be heard clearly in all parts of the venue; and
- If these checks are to be carried out by security, clear instructions must be given and supervised.

## 7.3 Planning Considerations

7.3.1 There is a tendency to link sporting events with concert events simply on the basis of similar crowd capacities. However, the two types of events differ in venue configuration, crowd

behavior and the general event management. Some sports teams will draw problematic fans as will some types of artists or concerts. Organizers should do their homework on the target audience of the event they are producing and apply during the planning process the knowledge gained. This information should also be freely shared with the venue and all health, safety and security managers.

## **7.4 Entrances and Exits**

7.4.1 Ensure that entrances and exits have clearly posted signage, which reflect venue policies and procedures and operate efficiently. Consider the needs of children and people with disabilities and separate entrances and exits for pedestrian access from entry routes used by emergency services and concession vehicles. Provide information to the audience about any restricted exits that are not in use while the event is in progress (see chapter on Venue and site design for more information on entrances and exits).

### **7.4.2 Pre-Opening Considerations**

7.4.2.1 Events that are general admission (GA) should expect attendees to arrive earlier than an event with reserved seating. In some stadium or open field events, the GA ticket holders may arrive even the day prior to the event. Organizers should consider how many persons may arrive early and plan for what additional infrastructure requirements will be needed by the presences of those persons, e.g., sanitation facilities, waste management and security.

### **7.4.3 Entrance Preparations**

7.4.3.1 One of the more exciting moments on event day is the opening of “doors” and preparing for that moment is no small task. Streamlining the entry process for the crowd’s smooth entry is important and should include:

- Informational signage alerting arriving fans to the event’s “prohibited items” policy that may cause a delay at a the venue’s entry point;
- A soft ticket check as patrons enter the chutes leading to the venue entry point not only verifies the fan has a ticket- it makes sure they know where the ticket is and can shave seconds per person at the entry;
- Event staff with megaphones walking the lines offering information and reminders on event policies can save time and also passively alerts ticket holders there is a strong staff presence at the event;
- If the event is selling alcohol, ID checks and wrist-banding can be done in the line just before the venue entry point;
- Methods of streamlining the ticket holder search process at the entry point can include additional lanes, additional tables for bag checks and additional positions for pat-down searches; however without trained and experienced staffing there to support the additional load capacity the effort is wasted;

7.4.3.2 All streamlining processes generally require additional staffing which, of course, is not free. Organizers must balance the increased efficiency of adding staff with the additional cost as they consider their options.

### **7.4.4 Opening Time**

7.4.4.1 Problems may occur at entry points if large numbers of people seek to enter at the same time. This could result in potential injuries from crowd surges. It is therefore recommended that: Entrances are opened 1-2 hours before the event is due to start and the audience is informed of this by tickets, websites, radio, social media and/or other means. If significant crowding is likely to occur before that time, consider opening gates before the published time, providing that on-site services are ready;

Admission is staggered by providing early supporting acts or other activities. Another suggestion is to provide light entertainment (i.e., radio station promotions in the parking lot to distract and keep patrons entertained).

7.4.4.2 It is important to appreciate that when entrances are opened early, the audience demands will increase on facilities such as waste clearing, sanitary accommodation and concessions.

7.4.4.3 In his chapter on Crowd Management in the book “The Focal Guide to Safety in Live Performance” (1993, George Thompson, Ed., Focal Press), John Shaughnessy recommends, when using turnstiles for entry, that the maximum rate of flow used in calculating throughput should be 660 persons per hour, per turnstile (i.e., 5.45 seconds per person). This rate is accepted by many around the world as the standard maximum rate of flow through turnstiles.

7.4.4.4 Crowd pressure at the entrances can be reduced by:

- Keeping all other activities, including mobile concessions, well clear of entry points;
- Arranging for adequate queuing areas away from entrances;
- Creating holding areas away from entrances to relieve the pressures on these points;
- Ensuring that barriers, fences, gates and turnstiles are suitable and sufficient for the numbers using them;
- Locating ticket sales and pick-up points away from the entrance;
- Providing a sufficient number of trained and competent event staff to maintain line control and provide accurate information to patrons.;
- Arranging for a short-range PA system and megaphones to be made available at entrances to notify people of any delay.

### **7.4.5 Opening the Entrances and Arrangements for the Front-of-Stage Area**

7.4.5.1 When entrances are opened at non-seated events or general admission, the audience tends to rush toward the front, which can cause tripping accidents and injuries. Carefully consider how the area in front of the stage will be managed and secured. If a standing area is provided in front of the stage, make sure entrances do not lead directly to this area from stage right or left.

7.4.5.2 One recommended method of easing the initial rush toward the stage and preventing slipping or tripping accidents is to provide a line or lines of security and/or event personnel across the arena through which the audience can move toward the stage in an orderly manner. This may be supplemented by PA announcements to keep the audience informed about what is happening and encouraging them to slow down and be safe

7.4.5.3 When allowing the public onto the floor of the venue, especially in a general admission situation, a good rule is to always feed from the opposite end of the venue from the stage, even if

you have to temporarily close off the venue's right and left floor access into the front of stage area until the area is occupied, then open those access points. Once people arrive at the front of stage area, they should be allowed to stand—or preferably encouraged to sit—as close as possible to the stage barricade. If the audience is held back from approaching the barricade and allowed to move forward later, the audience will assume the concert is about to start and can cause a crush toward the barrier resulting in possible injuries.

## 7.5 Ticketing

7.5.1 Ticketing policies can have a direct effect on audience safety.

Consider the following:

- Where a capacity or near-capacity attendance is expected for an event, admission should be by advance ticket sales only;
- Tickets for seats which offer restricted views, or are uncovered, are marked accordingly, and the buyer forewarned;
- Tickets for seats with severely restricted views are not sold;
- The ticket stub retained by the audience member after passing through a ticket control point should clearly identify the location of the accommodation for which it has been issued;
- A simplified, understandable ground plan is shown on the reverse side;
- if there is more than one entrance, introduce color coding of tickets corresponding to different entrances and ensure audience members are proportionally divided between entrances;
- All sections of the venue, all aisles, rows and individual seats, are clearly marked or numbered, as per the ticketing information.



Fig. 7-1 - Chutes formed with bike rack barriers lead to bag check tables at the entrance to a venue. Photo courtesy of Steve Lemon.

## 7.6 Admission Policies

7.6.1 As stated above, the admission policies can have a direct effect on the rates of admission and the management of entrance areas and audience accommodation in general. Specific points to be considered include:

### 7.6.2 Cash Sales

7.6.2.1 To ensure a steady flow of audience into the venue when entry is by cash, set the admission price at a round figure. This avoids the need for handling large amounts of small change.

### **7.6.3 Ticket-Only Sales**

7.6.3.1 The advantage of confining entry to ticket-only is that the rate of admission should be higher than for cash sale. If tickets are sold at the event, provide separate sales outlets wherever possible. Ensure that these outlets are clearly signposted and positioned so that queues do not conflict with queues for other entry points.

### **7.6.4 Reserved (or Numbered) Seat Ticket Sales**

7.6.4.1 Selling tickets for specific numbered seats has its advantages: seats are more likely to be sold in blocks and the system allows different categories of audience members (e.g., parent and child) to purchase adjacent seats and enter the venue together. This policy helps to avoid random gaps and ensures that in the key period before the event there will be less need for ushers to direct late-comers to the remaining seats, or move members of the audience who have already settled.

### **7.6.5 Unreserved Seat Sales**

7.6.5.1 Selling unreserved seats has the advantage of being easier to administer. However, people are prone to occupy seats in a random pattern, and it can be hard to fill unoccupied seats before the start of the event. For this reason, when seats are sold unreserved, a reduced number of seats made available for sale may be necessary (in the region of 5-10% of total capacity, according to local circumstances).

### **7.6.6 No Ticket Sales on Site**

7.6.6.1 If all tickets have sold out in advance, or if tickets are not sold on site, every effort should be made to publicize this fact in the media. In addition, place signs advising people of the situation along all approaches to the event, to avoid an unnecessary build-up of crowds outside. This is a preferred method for likely sell-out concerts.

### **7.6.7 Ticket Design**

7.6.7.1 Ticket design can have a direct effect on the rate of admission. Clear, easy-to-read information will speed the ability of the entry-point steward/usher to process the ticket. Similarly, if anti-counterfeiting features are incorporated (as is recommended), ensure that there are simple procedures in place for the event staff to check each ticket's validity. If digital tickets are displayable on smart phones, ensure that the staff can interpret all valid ticket formats to speed the seating times and reduce confusion.

### **7.6.8 Admission of Young Children**

7.6.8.1 It may not be appropriate to allow young children, particularly those under the age of five years, to attend certain events because they may be trampled or crushed. If they are not to be allowed in, clearly advertise this fact in advance. Where young children are allowed, consider arrangements for baby carriers and strollers, and at large events, dedicated children's areas may be useful. Consider contingency planning for dealing with this element of the audience, such as relocation to a specific area. Ensure a procedure is in place for stewards to assist with such relocation.

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### **7.6.9 Re-Entry**

7.6.9.1 The practice of “re-entry” generally enables audience members to leave the event for a short time and return later that day. An example of this is when a visitor to a theme park visits the park in the morning during the cooler hours, then takes a break and departs the venue during the heat of day, then returns again for the evening hours when it is cool again. It is suggested that most venues not allow re-entry and restrict venue policy to “exit, no return” status unless granted a hand stamp, etc., which can be selectively used. Unrestricted access to re-entry can allow patrons to consume alcohol and or drugs in parking lots and vehicles and return to the venue in an intoxicated state, which can increase the potential for problems.

### **7.6.10 Guest/VIP/Restricted Areas**

7.6.10.1 Separate access points may be needed for particular types of ticket holders such as guests and VIPs, artists and their entourage, workers, officials and emergency services workers. Consider the location of the gates between these areas and the main arena to prevent any crowd build-up at such points. Clear identification of people permitted into such areas—using special passes or wristbands—will assist security in controlling admission and in minimizing delays in admission, which reduces queuing.

## **7.7 Entrance Searches**

7.7.1 Searching at entrances using metal detector wands, walk through metal detectors or pat-down searches, along with bag checks, may be necessary to prevent prohibited items and weapons from being brought on site. A list of prohibited items should be posted at all entry gates to allow guests to return the items to their vehicles before the screening process. Arrange for the safe storage/disposal of confiscated items. Searching should only be carried out by properly trained and supervised security personnel. The initial screening process can be streamlined by keeping the chutes moving and immediately sending persons with an issue to a secondary location so they do not obstruct the line moving through the chute.

## **7.8 Late Leavers**

7.8.1 At the end of the event when most of the audience has left, if practical, stewards, event personnel and security can form a line in front of the stage and slowly walk to the furthest exit, moving the remaining audience out of the area.

## **7.9 Crowd Sway/Surges**

7.9.1 At large events it is sometimes effective to subdivide the audience into pens, which reduces the effects of sway and surge. If this method is used, put a system in place to prevent overcrowding. This is accomplished using a T-Style barricade or other audience control barriers.

7.9.2 Think carefully about where to position security and event personnel to monitor the audience for distress, crushing, sway, surges, or mosh pits as they all present a risk to the audience. Use of CCTV and/or the provision of raised viewing platforms, especially stage left and stage right, may help monitor the audience for signs of distress.

7.9.3 If people are at risk, you will need to take immediate action such as enlisting the assistance of performers by making an announcement. The performer's production and or security could be asked to alert you or the safety coordinator if they are concerned about a possible serious audience problem. It can then be investigated immediately.

## 7.10 Means of Escape

7.10.1 It is essential for effective crowd management during emergencies and evacuations that a well-planned and efficient means of escape exists for all occupants of the venue. As a guide, consider the following:

- For outdoor open field sites, a maximum 15 minute evacuation time is recommended;
- For stadiums, the maximum exit times should be between 2 minutes 30 seconds and 8 minutes;
- For indoor venues, the maximum evacuation time should be between 2 and 3 minutes depending on conditions and depending on the venue layout and arrangement;
- Calculate exit door flow rates at 40 persons per minute for a single, fully open door (36 inches or 0.9 m wide) and 60 persons per minute for wider passages;
- Use 24 inches (0.610 m) when calculating the width of a person over the width of wider passage ways. For example, if a passage way is 24 feet wide, 24 inches goes into 24 feet 12 times. Therefore, 12 is the maximum estimated number of people that can fit down that passage way at a time. Multiply the 12 persons wide by the 60 persons per minute mentioned above, and the result is a maximum exit capacity of 720 persons per minute. Note: This formula is intended only to acquaint one with the basics of egress space estimation and is not an official means by which egress capacity is measured. Chapter 4, *Fire Safety*, includes details more about means of egress. But, as always, work with the local fire and building authorities having jurisdiction to establish exactly what is required in terms of means of egress.

7.10.2 An emergency evacuation plan is essential, and it must be approved by the organizer, the venue, the emergency medical services, the fire department and any other relevant local authorities. This plan should provide arrangements for at least the following:

- Identification of key decision making personnel
- Location of a unified command center or point equipped with a communications network
- Arrangements for stopping the event in an emergency
- A gridded venue map
- Identification of dedicated sterile emergency routes
- Rendezvous points for emergency vehicles
- Identification of road closures and holding areas for the public and press
- Detail of the script of coded messages to initiate tasks to management, security and stewards e.g., to open gates, to stand down and so on.
- Detail of first aid casualty arrangements together with lists of hospitals in the area prepared for major catastrophes.

7.10.3 In an emergency at a concert, do not suddenly turn the music off. This can cause a major crowd disturbance and impede the work of first responders. Reduce the volume gradually or wait



until the end of the song. If time allows, advise the artist's management and use them to calm the artist as the events unfold.

7.10.4 Emergency announcements should not be made by the performers, however their assistance may be necessary to calm the crowd. Artist tour management can be helpful here by having the artist help manage the situation. Persons making announcements should use a prepared script, with the most experienced person available making the announcements.

7.10.5 When stopping an event, the organizer, the venue management and the artist's management need to be unified in the actions to be taken.

## **7.11 Police Involvement**

7.11.1 Any police presence in or at the event should be jointly coordinated and agreed to in advance with a clear vision of their functions and deployment. Uniformed police are effective deterrents to a variety of crowd issues, including loitering, vandalism and related crime on the perimeter, monitoring the security searches of prohibited items, and assisting with the ejections and or arrests of unruly patrons.

## **7.12 Aids to Crowd Management**

### **7.12.1 Use of PA Systems and Video Screens**

7.12.1.1 It may be helpful to arrange a safety announcement for the audience before the event starts. The announcement could give information about the location of exits, the identification of stewards, event personnel and security and procedures for evacuation. The use of video screens to provide entertainment before the event and during changeover periods can also help to inform the audience about safety arrangements, facilities on the site and transportation, etc. Screens may not be visible in all parts of the site so it may be necessary to plan supplementary means of giving information.

### **7.12.2 Security and Event Personnel**

7.12.2.1 The main responsibility of security and event personnel is crowd management. They are also there to assist the police and other emergency services if necessary. Apart from the specialist workers provided for the protection of the performers, using separate teams for security and event staffing should not be considered without consulting all interested parties. The roles of these two groups are closely inter-linked and lack of communication can lead to ineffective crowd management

### **7.12.3 Deployment and Quantity of Stewards**

7.12.3.1 The risk assessment will help you to establish the number of event personnel necessary to manage the audience safely. When preparing your risk assessment for crowd management, carry out a comprehensive survey to assess the various parts of the site and consider the size and profile of the audience along with the current trends in audience such as moshing, mud slides, bonfires, etc.

7.12.3.2 Security and event personnel staffing numbers and deployment should be determined primarily based on the size and scope of the venue, audience demographics and performers.

7.12.3.3 Examples to consider for the risk assessment include:

- Previous experience of specific behavior associated with the performers;
- Uneven ground, presence of obstacles, etc., within or around site, affecting flow rates;
- Length of perimeter fencing;
- Type of stage barrier and any secondary barriers;
- Provision of seating.

7.12.3.4 Further information regarding risk assessments for crowd management can be found in the UK Health Safety Executive's document titled "Research to Develop a Methodology for the Assessment of Risks to Crowd Safety in Public Venues" (1998, Parts 1 & 2, RM Consultants, LTD for the HSE). This document is available online at [http://www.hse.gov.uk/research/crr\\_pdf/1998/crr98204.pdf](http://www.hse.gov.uk/research/crr_pdf/1998/crr98204.pdf).

## **7.12.4 Operations**

7.12.4.1 There has to be an established chain of command and the use of the Incident Command System is recommended. In addition, consider appointing a security manager to oversee all security and event personnel contractors at the event. Also consider:

- A number of senior supervisors who are responsible for specific tasks and who report directly to the security manager; and
- A number of supervisors who report directly to a senior supervisor and who are normally in charge of six to ten personnel at specific areas in and around the venue.

7.12.4.2 All event personnel and security must participate in a pre-event briefing to receive a written statement of their duties as part of the incident action plan, a checklist (if appropriate), a plan showing key features, and credentials to be used for access control.

## **7.12.5 Conduct of Event Personnel**

7.12.5.1 All personnel need to be ages 18 or older, need to be able to carry out their allocated duties, and while on duty must concentrate only on their duties and not on the performance. All event personnel must be capable of, and fully aware that, they must:

- Not leave their post without permission;
- Not consume or be under the influence of alcohol or drugs; and
- Remain calm and be courteous toward all members of the audience.

7.12.5.2 All event personnel should wear distinctive uniforms and be individually identifiable using a clearly visible number or ID badge.

## **7.12.6 Competency of Personnel**

7.12.6.1 Duties and responsibilities of security and event personnel include:

- Understanding their general responsibilities toward the health and safety of all categories of audience (including those with special needs and children), others, event workers and themselves;

- Carrying out pre-event safety checks;
- Being familiar with the layout of the site and able to assist the audience by giving information about the available facilities including first aid, toilet, water, welfare and facilities for people with special needs, etc.;
- Staffing entrances, exits and other strategic points; e.g., exit doors or gates which are not continuously secured in the open position while the event is in progress; Controlling or directing the audience in and out, to help achieve an even flow of people into and from the various parts of the site;
- Recognizing crowd conditions to ensure the safe dispersal of audience and preventing overcrowding;
- Assisting in event safety by keeping gangways and exits clear and preventing standing on seats and furniture;
- Investigating any disturbances or incidents;
- Ensuring that combustible refuse does not accumulate;
- Responding to emergencies (such as the early stages of a fire), raising the alarm and taking the necessary immediate action;
- Being familiar with the audience evacuation procedures, including coded messages and undertaking specific duties in an emergency;
- Communicating with the incident control center if there is an emergency.

### **7.12.7 Event Personnel Training**

7.12.7.1 Ensure that all personnel are trained to carry out their duties effectively. The level of training will depend on the type of functions to be performed. Keep a record of the training and instruction provided, including the:

- Date of the instruction or exercise;
- Duration;
- Name of the instructor;
- Name of the trainee; and
- Nature of the instruction or training.

7.12.7.2 All personnel need to be trained in fire safety procedures, emergency evacuation procedures and dealing with situations such as bomb threats. Those working in the pit area should be trained to lift distressed people out of the audience safely and without risk to themselves. They should also be trained to assist with lost children and vulnerable adults. The UK “Guide to Safety at Sports Grounds” (2008, Fifth Edition, UK Department for Culture, Media and Sport) provides further information on specific training of personnel. This publication is available online at <http://safetyatsportsgrounds.org.uk/pdf/GuidetoSafetyatSportsGrounds.pdf>.

## 7.13 The Pit

7.13.1 In a concert environment, the security and medical teams in the pit area should be experienced and disciplined. During the event the two teams will work closely together. It is recommended a single supervisor manage this area and direct both the security and medical groups during event operations. The pit team should be trained to recognize distressed individuals in the crowd. The team must be physically capable of dealing with both disorder and fan extraction—and rescue, if necessary. To assist in the operations of the pit team, remote medical facilities and additional security resources should be located next to the stage to take the hand-off of fans pulled over the barricade. These individuals can then be escorted to the public re-entry point or an ejection point.



Fig. 7-2 - Large rear step on the pit barrier allows staff to monitor the crowd and manage the safe passage of Surfers and recover anyone who needs assistance. Note the well-disciplined and organized pit team – essential for large and highly dynamic audiences. Photo courtesy of The Event Safety Shop, LTD.

7.13.2 If your event is a concert, most artists allow for still photographers to shoot the first three songs and TV crews to film a portion of one song. Organizers should always confirm with the artist’s tour management what the guidelines will be regardless of the comments in the contract rider.

7.13.3 All photographers working in the pit should be escorted by a publicist, tour manager, promoter or other non-pit crew staff member. During this period, the media in the pit serve as an obstruction and can be a distraction to those working there. Because the photographers are typically allowed in the pit at the start of the performance, security and medical teams must be prepared for the initial surge of enthusiasm by the crowd when the house lights go out, while sharing the space with the photographers. This means the pit crew must be even more alert during this period. The organizer should have earplugs on hand and ready for distribution to staff and media in the pit.

7.13.4 Videographers and TV crews usually shoot from another location further out into the house, like the mix location, and will also require an escort provided by the show or the promoter.

7.13.5 Many artists like to get as close to the fans as possible. Depending on the physical condition of the artist, they may attempt to get closer to the fans by whatever means are available, including: stand on anything they think will hold their weight; climb onto structures they feel they can navigate; or jump onto speakers, camera track risers even the crowd barricade

to get closer to the fans and incite more enthusiasm. Any action like this can increase the workload on the pit crew.

7.13.6 Tour staff should inform the organizer and security team whenever they feel the artist is likely to come off the stage and go into the pit.

7.13.7 The pit crew is busiest when the show is general admission or “standing.” This means members of the audience are not in seats, they are on their feet and possibly standing for hours on end, sometimes in adverse weather conditions. This is the crowd with which the pit crew needs to be the most alert and attentive.



Fig. 7-3 - Security, medical and photographers in tight quarters in the pit during a music festival.. Photo courtesy of The Event Safety Shop, LTD.

7.13.8 Considering all the people who may have access to the pit area, it is very important this zone is free of trip hazards and other items that may cause injury. Sharp corners should be padded and marked with high visibility tape, cables should be contained in “cable-ramps” or other cable protector, etc. The more active the pit crew during a performance, the more “pull-overs” there are and the greater the risk of injuries.

7.13.9 Security and medical staff in the pit should always be focused on the needs of the fans and not watch the performers, especially when a performer has left the stage and entered the pit.

7.13.10 The pit can be hazardous even to a seasoned professional. It is even more dangerous for a member of the general public who ends up there. Care should be taken by the pit crew to supply a person to escort those members of the general public from the point of crossing into the pit to the nearest exit. Medical teams should check each person pulled over and exiting the pit in case medical attention is needed.

## 7.14 Personnel Welfare

7.14.1 Ensure that event personnel are not stationed for long periods near any loudspeakers and make sure they are provided with ear protection according to the OSHA Regulations (see Chapter 17, *Sound: Noise and Vibration*). Event personnel and stewards will need adequate rest breaks at reasonable intervals.

7.14.2 Here is a list of posts where security guards or stewards/ushers may need to be placed at an event:

- Parking direction and assistance
- Parking lot patrol

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- Bus and truck parking lots
  - Points where pedestrians and vehicles cross paths
  - Monitoring of unauthorized vending of items
  - Entry line control
  - Soft ticket check
  - ID check
  - Line control
  - Bag check tables
  - Pat downs
  - Magnetometers
  - Secondary screening areas
  - Rovers - both inside and outside the venue
  - Cash locations
  - Cash movements
  - At the head of floor seating aisles and entrances to fixed seating sections
  - Mix platform or control tower
  - Camera platforms
  - Projection towers
  - Pyro and Special Effect locations
  - Storage in public areas
  - Merchandise booths
  - Spotlight platforms
  - Access points to back of house and secure areas like the venue rigging grid
  - Pit in front of the stage
  - Backstage access points
  - Stairs leading to the stage
  - VIP areas
  - Beer gardens
  - Points where access accreditation changes
  - Entrances to hallways or compounds for offices and dressing rooms
  - Office or dressing room doors
  - Meet-n-Greet locations
  - Talent escort
  - Photographer/Media escort
  - Catering/Parking, valuable protection and meal ticket collection
  - Venue perimeter fence
  - Late coverage after the event
  - Overnight

7.14.3 Some posts are only required for short periods, others for the duration of the event. It is common for organizers and security companies to manage the available resources and redeploy event personnel and security staff to multiple posts during an event.

7.14.4 When planning the redeployment of security guards from posts at the entrance areas to other posts inside the venue, carefully consider the type of crowd, their anticipated arrival time to the venue and the pace with which the entrance team can get the ticket holders into the venue. For example, redeployment of security from the entrance to the pit in front of the stage is a common practice. However, if the entrance process is behind schedule with considerable crowd yet to enter, there is risk of understaffing the entrance and delaying the remaining crowd's entry into the venue. In this situation, if the music starts, especially the headline act, the crowd may resort to an act of civil disobedience. Even though there may be costs incurred from such a delay, safety must always take precedent over financial gain.

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# 8. Transportation Management

8.0.1 This chapter discusses the management of traffic and various modes of transportation approaching the site and inside the venue perimeter, including pedestrians.

8.0.2 Traffic management proposals need to be planned to ensure safe and convenient site access and to minimize off-site traffic disruption. Set your traffic management proposals out in a transport management plan and have the police and local highway authorities agree on the plan.

## 8.1 Traffic Signs and Highway Department road Closures

8.1.1 Identify the need for temporary traffic signs before the event. If temporary signs are needed, prepare and agree on detailed traffic sign plans and schedules with the police and local highway authorities before the event. It may be necessary for people living in the area to be consulted over route changes and to be advised of the impact, once agreement has been reached. Consider using a traffic sign contractor for events where the majority of people will be arriving by cars or buses.

8.1.2 Consider the need for temporary traffic regulation orders to provide for road closures, banned turns, lane closures, parking restrictions, temporary speed limits and rest stop closures. For large events and particularly if special traffic management arrangements and temporary traffic regulation orders are required, consultation with the local highway authority is essential. Highway authorities include the highways agency for all thoroughfares and highways, and the local authority for all other roads.

8.1.3 Consult the local highway authority as to the best way of carrying out traffic orders and allow sufficient time for any temporary traffic regulation orders to be processed.

## 8.2 Traffic Marshaling

8.2.1 Only law enforcement, a similar official authority (e.g., authorized road crew, emergency service personnel, etc.) or someone under their direction or authority can legally regulate traffic on the public highway. Consultation is essential to secure the appropriate provision of resources. Authorized personnel or stewards directing traffic on site should have suitable personnel protective equipment such as high-visibility clothing and weather protection. Stewards should receive traffic marshaling training, e.g., safe positioning of the marshal and awareness of visibility problems for drivers of reversing vehicles.

8.2.2 Make sure there is suitable and sufficient communication between on-site and off-site traffic marshaling regarding temporary one-way systems, etc. Also, provide adequate numbers of stewards to manage the traffic flows and deal with the parking of vehicles.



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## 8.3 Public Transportation

8.3.1 The logistics of operating a comprehensive attendee transportation management system can be a very daunting task in planning large scale events and should never be underestimated. Proper planning should be completed well in advance as the companies and vendors who service this area have many tiers of details to set and while they can modify operations with the flexibility of most other departments, the resources required to provide the services could be significant.

### 8.3.2 Trains and Underground Trains

8.3.2.1 If appropriate, consult with rail authorities about introducing additional trains or enhancing existing services to accommodate the demands of the event and to limit the demand for on-site and off-site parking.

8.3.2.2 It may also be worth investigating the use of combined event/rail package tickets. Consideration, however, needs to be given to the distance between railway stations and the venue and the availability of connecting bus and coach services to and from the event. Advertising and additional signage may be carried out on trains and at stations before the event, stating any additional service (or lack of) being provided.

8.3.2.3 It is also important to consult the rail authorities concerning the maximum number of people that a station can accommodate at any one time. Most railway stations will have contingency plans, which identify the safe number of people allowed on the platform at any one time. These contingency plans can be used at the event planning meetings between the relevant authorities.

8.3.2.4 Train-operating companies have responsibility for the queuing of large numbers of people at their stations. Plan how you are going to communicate with the train-operating companies and law enforcement in the event of a major incident to ensure that the stations receive advance information in case the event finishes earlier than planned or emergency evacuation is necessary.

## 8.4 Public Transportation Management

### 8.4.1 Advice to Train-Operating Companies

8.4.1.1 Train-operating companies need to consider their own planning procedures to ensure that they can safely manage the potential increased ‘throughput’ of passengers associated with the event, e.g., ensuring suitable entrances and exits, control of passenger numbers on platforms, footbridges and tunnels, crowd flow plans and temporary queuing system and communicating travel information by PA systems.

8.4.1.2 It is important for transportation providers to draw up their own contingency plans for dealing with train delays or incidents on the track and to consider the suitability of the rolling stock, provision of first-aid points and first aiders, additional toilets and additional workers.

### **8.4.2 Coaches/Buses**

8.4.2.1 Planning the arrival and departure of coaches can greatly reduce congestion at the beginning and end of a large music event. Careful consideration has to be given to the routing of such vehicles. Bus 'loops', parking areas and access roads should be provided to reduce as far as possible the need for coaches/buses to reverse, e.g., creating one-way systems.

8.4.2.2 Coaches need a wide turning radius and easily accessible entrance and exit points, as well as large turning areas into allocated parking areas. Consider specific arrangements to ensure the free flow of coach routes in consultation with the police, and ensure that this is documented in the transportation management plan. Coach parking areas may need to contain toilet facilities.

8.4.2.3 Private bus/coach operators are often prepared to provide special shuttle bus services between local rail and/or bus stations. However, shuttle bus systems may not be appropriate for all events. Congestion caused by a natural mass exodus at the end of an event is likely to prohibit free flow of traffic routes and consequently shuttle buses become unable to operate effectively. Consider the potential for dedicated shuttle bus routes or consult local bus operators about enhancing or extending their established services to serve any proposed event.

### **8.4.3 Vehicle Parking and Management**

8.4.3.1 Include proposals in the transportation management plan for the management of vehicle parking which identify the likely resources required (space necessary, traffic marshals and equipment) and methods to be used for parking management.

8.4.3.2 Make sure the traffic management team and law enforcement can communicate with the vehicle parking management team, so that resources can be directed quickly to deal with any incidents within the parking lots or at the various site accesses. It is good practice to have a tow truck on-site or on call to assist where needed.

8.4.3.3 For large events, consider the appointment of a traffic management coordinator who will liaise with the police, parking lot management, traffic signs contractor, local highway authority and local authority.

### **8.4.4 Vehicular Access**

8.4.4.1 Ensure that the road signs are appropriate and easily visible, the capacities of the parking areas are adequate and the surface is capable of withstanding the anticipated traffic volume. Consider using a suitable temporary surface which can prevent damage to the ground and prove invaluable in wet ground conditions.

8.4.4.2 Detailed capacity assessments may be needed to ensure access entry capacity is adequate. Queuing on entry into the site can cause blocking of traffic flows leading, potentially, to severe congestion. Exit capacity is less problematic as, if congestion occurs on exit, it is contained within the site and will not adversely affect off-site conditions. However, the risks associated with poor vehicle exit management should not be underestimated. Methods for ensuring the safe exit of vehicles from the site need just as much careful planning. Consider planning alternative routes and accesses. These can be used if main access points or routes become blocked.

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8.4.4.3 Consider vehicle access for service vehicles before, during and after the event, e.g., waste collection vehicles and sanitary service vehicles.

### **8.4.5 Parking**

8.4.5.1 Consider separate parking areas for the general audience traffic, vehicles for people with special needs (close to event site), coaches, shuttle buses, guests/VIPs, artists, emergency service workers and event workers. Facilities either on site or at a convenient location off-site to accommodate the potential for excess visitors (e.g., overflow parking) may also need to be planned. This may take the form of a vehicular circulation/holding area as a temporary measure. When parking event workers off-site in a remote location consider a shuttle system to transport them to the staff check-in area. They will likely have tools and work boxes which they need to perform their duties so head counts on shuttles may be reduced and increased numbers of screening security, if applicable, should be on hand.

8.4.5.2 Car and coach parks need to be adequately lit, signposted and labeled with reflective numerals or letters so that vehicles can be easily located at the end of an event or in any other emergency. Ideally, separate coaches from parking lots. For large outdoor events, position signs at exit gates leading from the parking area to the venue to assist in identifying where cars have been parked and consider clear signs for exiting vehicles showing route direction.

8.4.5.3 Ground conditions within parking and walkway areas should be closely monitored. Conditions that may present a safety hazard to those entering or exiting the parking area should be immediately corrected or visibly flagged, such as broken concrete, standing water or deep mud. For the safety and security of guests, adequately mark walkways for the patrons to go safely to and from the event.

### **8.4.6 Emergency Access**

8.4.6.1 Plan to provide for the entry and exit of emergency service vehicles. Ideally these routes should be separate and safeguarded from routine vehicle and pedestrian traffic. The routes and access chosen must allow for access by fire department apparatus (generally, 20-26 feet [6-8 m] wide and capable of supporting at least a 75,000 pound [34 050 kg] vehicle) and may be required to be approved by the local fire department. Even if it is not required, requesting fire department approval for these routes is always prudent and an opportunity to demonstrate one's interest in safety. Be mindful that these routes may include access through gates, and must include access to every structure and fuel storage facility. These routes should also be signposted as a "no parking - fire lane" or whatever is required locally.

8.4.6.2 Get advice from the fire department concerning access route specification and incorporate this into the transportation management plan. In this respect, early application for road closures and temporary traffic regulation orders may be necessary. It is also important to identify allocated emergency vehicle rendezvous points in the transportation management plan.

## 8.5 Pedestrians

8.5.1 Generally speaking, pedestrians sharing the same space as any mode of transportation with wheels should be avoided. When available, alternate routes for vehicles and “bikes, boards and blades” should be utilized.

8.5.2 Identify safe means of entry and exit for pedestrians, ideally segregated from vehicular access. Where pedestrian access is difficult, consider the provision of alternative means of access, e.g., shuttle buses to collect pedestrians en route. Consider making specific arrangements for those attending who have a physical disability and may not be able to walk long distances. Avoid entry and exit routes crossing car or coach parks and traffic routes. Where the latter is unavoidable, plan for adequate traffic control measures.

## 8.6 On-Site Vehicle Management and Temporary Roadways

8.6.1 It is important to minimize traffic movement within the site and conflicts between vehicles and pedestrians. Consider moving vehicles into the parking areas as efficiently as possible and having a dedicated access to parking areas with no ticket checks on entry. In some circumstances, ticket checks can be undertaken on pedestrian exits from the parking into the event area. This may, however, not be practical for camping events.

8.6.2 Restrict traffic movement in the event arena to emergency service vehicles and other essential services. Consider speed restrictions on site and plan separate access for production vehicles.

8.6.3 Temporary roadways are useful to allow suitable hard-surfaced access for pedestrians and service vehicles. Plan temporary access roads, ideally to provide for two-way emergency access or one-way with passing places and working space as appropriate. All on-site vehicles must display adequate lighting during darkness and remember to keep pedestrian and vehicle conflict points to a minimum. Plan how vehicles delivering equipment and provisions enter and exit the site safely during the load-in and load-out of the event.

8.6.4 Where vehicle routes change from those arranged at planning stage, due to heavy rain or some other unforeseen circumstance, make sure that arrangements are in place for reinforcing the alternative route. Vehicle recovery from soft ground should be planned.

## 8.7 Vehicles

### 8.7.1 Lift Trucks

8.7.1.1 No one should be permitted to operate a forklift unless they have been selected, trained and authorized to do so.

8.7.1.2 Trained operators will have a certificate from an accredited organization indicating the type of forklift for which they have received training. A certificate to drive one forklift does not qualify an operator to drive other types of forklifts. Do not allow workers to operate forklifts

without checking that they are fully trained for the type of truck they are to use. Confirm that your event labor provider is supplying trained and certified operators.

8.7.1.3 If the event is renting forklifts, check that the equipment is delivered in a safe working condition with a manual and adequate fuel. Each should be marked with its safe working load and that load should never be exceeded. Ensure that each forklift comes with a current service record which adequately covers the period it will be used on the site.

## **8.7.2 Other Vehicles Used on Site**

8.7.2.1 As well as forklifts, there is likely to be the need for other types of vehicles to operate on site such as:

- Other specialty lifting vehicles (e.g., boom lifts, man lifts or personnel lifts and scissor lifts);
- Vehicles used to deliver equipment around the site or venue (e.g., golf carts, four-wheel drive flatbed carts and electric carts); and
- Other vehicles (e.g., tractors, trailers and waste-collection vehicles).

8.7.2.2 The use of all vehicles on site should be carefully planned and monitored to ensure that accidents do not result from the incorrect use of the vehicle or that pedestrians are not injured as a result of their use. Consider a motor pool check-out and check-in system to track drivers, damage to vehicles as well as fueling or charging as necessary.

# 9. Structures

9.0.1 Many events require temporary structures, such as grandstands, stages, scaffold, tent and roof structures. Managing the hazards connected with these structures is just as important as managing other hazards. This can only be achieved if all those responsible for these structures undertake their duties conscientiously.

9.0.2 The failure of any temporary structure, no matter how small, in a crowded, confined space could have devastating effects. It is therefore essential to design and erect structures to suit the specific intended purpose and to recognize that the key to the safety of these structures is largely in the:

- Choice of appropriate design and materials;
- Correct positioning;
- Proper planning and control of work practices; and
- Careful inspection of the finished product.

9.0.3 This chapter gives guidance on safe temporary structures. It starts with the preliminary decisions that need to be made—choosing the site and the supplier—and continues to give general guidance on:

- The safety requirements for temporary structures;
- The documentation required (for example, guidance on temporary structure safety requirement listed in Appendix C, *Requirements for Outdoor Event Structures, Preparation Checklist*) to ensure that the essential safety requirements are provided; and,
- Advice on operations management of temporary structures.

9.0.4 This document provides general guidelines for structures. It is not meant to replace the advice of a professional engineer or the requirements dictated by the authorities having jurisdiction for the event site.

## 9.1 Scope

9.1.1 This section addresses the kinds of structure usually found at events including stages, sets, barriers, fencing, tents and roof structures, seating, lighting and special effect towers, platforms and masts, video screens, TV platforms and crane jibs, dance platforms and structures erected indoors and outdoors. Temporary structures erected outdoors need to meet all the requirements of indoor structures plus the additional factors created by the effects of the weather and site conditions.

9.1.2 Any structure erected in conjunction with an event, or on the land over which the organizer has control, should be subject to an equal degree of scrutiny and due diligence. Structures in parking lots and peripheral areas may present similar life safety risks as previous examples and the organizer needs to ensure that all such elements are installed and operated safely.

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## 9.2 How the Law Applies

9.2.1 It is the organizer's responsibility to understand and implement the relevant local, state and national requirements as required by the authorities having jurisdiction.

### 9.2.2 Americans with Disabilities Act of 1990

9.2.2.1 The extent to which the Americans with Disabilities Act (ADA) Standards for Accessible Design ([http://www.ada.gov/2010ADAstandards\\_index.htm](http://www.ada.gov/2010ADAstandards_index.htm)) and accessible stadiums (<http://www.ada.gov/stadium.pdf>) may apply to event buildings, structures, equipment and devices is beyond the scope of this document and must be established by competent legal counsel. However, organizers and venue managers would be prudent to familiarize themselves with these requirements and be constantly mindful of their intent as they relate to event venues: to improve accessibility (to all aspects of the venue, including safety features) and enjoyment of those with disabilities and certain physical limitations who wish to attend.

9.2.2.2 See Chapter 20, *Facilities for People with Special Needs*, for more information about the Americans with Disabilities Act and its applicability.

## 9.3 Preliminaries

### 9.3.1 Choosing the Location

9.3.1.1 Many factors may influence the choice of location for temporary structures:

- Is the site adequately drained? If the site is liable to flooding, this could cause either the load-bearing capacity of the ground to be reduced or wash away the ground under the supports. Take measures to control these effects.
- Is the site flat or can it be made flat? Where there is a gradient or the ground is uneven, the structure needs to be capable of being modified to deal with such variations.
- Are there overhead power cables, and if so are they sufficiently clear of the upper part of the structure? Are there cranes, which may be employed in the assembly of temporary structures)?
- Does the proximity of surrounding buildings, structures and vegetation create the possible spread of fire?
- Are there prevailing winds or weather patterns that could affect the location of the stage? The stage should be located to lessen the hazards of potential weather events.
- Do you need to reduce or mitigate sound levels due to current neighborhood zoning?
- Is there enough space for trucks, power generators and other equipment or will it cause a hazard?
- Will the placement of lighting, sound and video equipment affect the safety?
- What about evacuation procedures? Is there enough exit space?

9.3.1.2 Obtain information from appropriate authorities or those with jurisdiction about the load-bearing capacity of the ground or floor. For outdoor events, ensure that the ground load-bearing capacity is capable of supporting the imposed loadings in all weather conditions. Some venues may have gaps or basements under the floor surface. High point-loads may be created by the use of cranes or lift trucks to install sections of structures or equipment as determined by local authorities and/or a qualified person and specialist advice is essential.

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### 9.3.2 Choosing the Structure

9.3.2.1 It should be the responsibility of the organizer to properly specify the requirements of the structure including structural performance, site limitations, equipment access, design and event duration. To establish these requirements, the organizer must consult with all the relevant parties including artist, venue, production suppliers, labor provider and authorities having jurisdiction.

### 9.3.3 Choosing the Supplier

9.3.3.1 Choose a competent supplier for all temporary structures to be erected and used on site. A competent supplier will be able to demonstrate:

- A knowledge and understanding of the work involved;
- That they can manage/eliminate the risks involved in constructing these types of structure;
- That they can supply suitable engineering documentation—drawings and calculations—for their structures as detailed in section 9.11, below, Requirements for Outdoor Events Structures.
- That they comply with the relevant guidelines in section 9.11, below, Requirements for Outdoor Events Structures; and,
- That they employ a suitably trained workforce.

9.3.3.2 It is important to note that the design and engineering of temporary structures is not outside of mainstream civil and structural engineering but is considered a specialized field. Therefore, the design and engineering of temporary structures should only be carried out by suitably qualified people.

## 9.4 Essential Requirements

### 9.4.1 Design

9.4.1.1 All temporary structures must possess strength and stability, in service and during construction consistent with the intended purpose and requirements of the structure.

9.4.1.2 The design of a temporary structure should provide protection against falls during all stages of use including erection, operation and dismantle. Consider handrails for all stage areas, platforms and access ways. The height of the handrails as specified by the local, state or national regulations must be referenced.

9.4.1.3 Consideration should be given to the surface of any ramp or tread, particularly those which could become wet.

### 9.4.2 Erection

9.4.2.1 To prevent the incorrect erection and subsequent use of temporary structures, attention should be paid to the following:

- The assembly of temporary structures should be carried out according to calculations, plans and specifications drawn up by a qualified designer or engineer. It is recommended that a qualified engineer's stamp of approval be required.



- Apparent similarities between proprietary systems used for temporary structures may only be cosmetic.
- The materials used together which come from different manufacturers should be approved by a qualified engineer.
- Erection should take place in a way that ensures stability.
- Many temporary structures cannot be built except by climbing the framework as it is assembled and this should be addressed in the risk assessment and safety method statement.
- Equipment should be checked to ensure it is fit for the purpose intended and fully meets any specification which has been provided; for example, steel, aluminum or other metal structural elements with cracked welds, bent or buckled members, or with large amounts of corrosion should be rejected and replaced where necessary.
- Components should not be bent, distorted or otherwise altered to force them to fit.
- Particular attention should be given to fastenings and connections. It is essential to provide suitable protection for bolts and fittings which project into or adjoin audience areas. Structures should not pose a hazard or risk to the audience.

## 9.5 Guy Wire and Ballast Systems

9.5.1 This section discusses guy wire and ballast stabilization systems for temporary structures.

9.5.2 When temporary structures depend on guy wire and ballast systems to resist external forces, such as wind or seismic forces, their design is critical to the integrity of the structure. These components must be used in a manner consistent with the engineering calculations. Specifically, the location of ballast and angle of guy cables should not deviate from the site plan drawings without the approval of a qualified engineer.

9.5.3 Site conditions are variable for each application and should be independently engineered. The engineering specification for the guying system must be included in the overall engineering documentation for each specific application.

9.5.4 The specification for the guying system should consider a worst-case condition, which should be clearly identified by the qualified engineer.

9.5.5 All fittings, cables and attachments should be specified by a qualified person and have sufficient safe working load. Guy line assemblies should be designed and rated to their weakest link.

9.5.6 Guy wire must not be slack and should be pretensioned as specified by the qualified engineer. Any slack will be removed by wind loading and can result in tilting towers. This condition greatly compromises strength and can lead to catastrophic collapse.

9.5.7 Tension on guy wires will increase roof loading. These forces can reduce total structure capacity and should be considered in overall structure loading.

9.5.8 Fixed point anchors, such as earth anchors (Fig. 9-1) or permanently installed venue anchor points, are preferable to movable ballast, such as “Jersey” barriers. If fixed point anchors are used they must be tested for the anticipated maximum loading before structure erection.

9.5.9 Movable ballast systems must be designed to resist not only potential guy wire loading but also sliding, twisting and rolling. Any ballast movement can lead to towers and structural collapse.

9.5.10 Guy wire attachment to movable ballast must be designed to engage the entire ballast weight. Do not attach guy wires to loops or bales at the ends of Jersey barriers. Unless tested, these points are not reliable. Attachment to Jersey barriers should wrap the entire barrier in such a way that the attachment cannot slide and the loading is not biased to one end or the other. Note that the force to pick up one end of the ballast is less than the total weight of the ballast.



Fig. 9-1 – Installing an Earth Anchor. Earth anchors can be an effective and space efficient alternative to using bulk weight to ballast structures and rigging.

9.5.11 Where guying is used, care should be taken to ensure that the guy wires and their anchors do not cause an obstruction or hazard. The guy wire anchor locations within public access must be barricaded to maintain the integrity of the guy wires and to prevent a hazard from occurring onto a vehicle path or spectator.

## 9.6 Fall Protection

9.6.1 According to OSHA, in 2010 the U.S. Bureau of Labor Statistics reported that 751 construction workers died on the job, with 35 percent of those fatalities (263) resulting from falls (<http://www.osha.gov>). This is why 29 CFR 1926.501 (a)(2) states that,

Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

9.6.2 Fall protection is addressed in OSHA’s standards for the construction industry. The following are some of the OSHA standards, Federal Registers (rules, proposed rules, and notices) preambles to final rules (background to final rules), directives (instructions for compliance officers), standard interpretations (official letters of interpretation of the standards), example cases, and national consensus standards related to fall protection. All can be found in 29 CFR 1926, *Safety and Health Regulations for Construction*.

- 1926.451, General requirements (Scaffolding)
- 1926.452, Additional requirements applicable to specific types of scaffolds
- 1926.454, Training requirements (Scaffolding)
- 1926.501, Duty to have fall protection
- 1926.502, Fall protection systems criteria and practices
- 1926.503, Training requirements (Fall protection)
- 1926.760, Steel erection (Fall protection)
- 1926.800, Underground construction
- 1926.1051, General requirements (Stairways and ladders)
- 1926.1052, Stairways
- 1926.1053, Ladders
- 1926.1060, Training requirements (Stairways and ladders)
- 1926.1423, Cranes and derricks in construction (Fall protection)
- 1926.1501, Cranes and derricks used in demolition and underground construction

9.6.3 Employers must issue personal protective equipment (PPE) in situations where the wearing of PPE, which includes hard hats and harnesses, is determined to be an effective means of preventing injury. Employers are required to train employees on the proper use of PPE and ensure that both the training and the equipment meet the requirements of the applicable local, state and/or federal regulations. In the United States, OSHA and ANSI are suitable references. It is the employer's responsibility to understand and implement the relevant local requirements. See Chapter 34, *Health and Safety Responsibilities*, for additional information.



Fig. 9-2 – Example of a climber clipped in on a wet day. This is an example of appropriate fall protection. Photo courtesy of The Event Safety Shop, LTD.

## 9.7 Protection from Falling Objects

9.7.1 While structures are being erected or disassembled, do not lift materials over the heads of people working or passing below. Such areas should be clear to prevent death or injury. Create secure “no go” areas below working areas to prevent harm to people. For example, it is recommended that the ground riggers be easily identifiable (i.e., wearing a high visibility vest) and responsible for controlling the ground area beneath overhead work.

9.7.2 The employer has the responsibility to provide a workplace free from recognized hazards that may cause injury or fatal injury to employees, audience members and performers and comply with applicable standards, rules and regulations.

## 9.8 Use of Lifting Equipment

9.8.1 Any organization using lifting equipment such as forklifts and scissor lifts has a duty to provide qualified operators and physical evidence to health and safety inspectors to demonstrate that the last inspection has been carried out. People hiring lifting equipment should make sure that it is accompanied by the necessary documentation and is in good repair.

9.8.2 After positioning rigging and similar equipment that is integral to the erection or operation of the structure, the user should ensure that a competent person inspects the lifting equipment before it is put into use to make sure it is safe to operate. The user then has the duty to manage the subsequent lifting operations in a safe manner.

9.8.3 Everyone involved in erecting and dismantling temporary structures must be appropriately trained in the safe technique of high level rigging. Training is now commercially available in safe techniques for high level rigging, and those working at high level must have undergone training and assessment.

9.8.4 Everyone involved in erecting and dismantling temporary structures should be appropriately trained.

## 9.9 Essential Documentation

9.9.1 All proper designs will have calculations to determine the balance of loading and scale of forces acting on the structure. The engineer should provide:

- A statement about the concept and what the structure is designed to do;
- A list of items or connections that require particular checking each time the structure is erected; and
- Particularly for outdoor structures, details of the methods of transferring all horizontal forces, e.g., wind, back to the ground (without which the structure will not be stable).

9.9.2 Construction drawings will normally be required for all but the simplest temporary structures. These should be accompanied by full calculations, design loads and any relevant test results. These documents should normally be sent to the local authority at least seven days before the event.

### 9.9.3 Risk Assessment

9.9.3.1 The structure provider should draw up and carry out a safety plan and risk assessment to cover the design, erection, and suitability of the temporary structure for each configuration. For example, a festival application may require multiple assessments for multiple performances using the same structure. Also, the simple addition of a banner or sign may change the risks and safety plan due to the change in wind resistance.

9.9.3.2 These risk assessments should be submitted with the initial plans and calculations to the local authority and should be specific to the structure.

### **9.9.4 Supervising the Installation**

9.9.4.1 Monitor all activities at the venue relating to the erection and construction of temporary structures to ensure that they are erected to the detailed specification and that the safety plan and safe working practices are followed.

9.9.4.2 Ensure that all structures are checked by a qualified person after they have been erected and before they are used, to ensure that they conform to the drawings and specified details. If this check is carried out by someone employed by the contractor erecting the structure, verify that the checks have been carried out effectively and have been recorded. A completion certificate should be issued before the event. An approved inspection certifies that the work has been carried out to the engineer's specification.

9.9.4.3 It is critical to ensure that the contractor declares their structure/s complete and that this declaration is approved by local, state or federal authorities.

## **9.10 Managing the Completed Structure**

### **9.10.1 Before Admitting the Audience**

9.10.1.1 Temporary structures should comply fully with the design documentation, before the audience is admitted to the site. If modifications to the structure are necessary, then approval must be given by a qualified person and/or local authorities. If a change is necessary then the change must be approved by the qualified engineer.

9.10.1.2 Loads on temporary structures can be applied in various ways but must not exceed the design loads. Therefore, adequate measures must be taken to prevent overload by:

- Unauthorized additions - e.g., banners, billboards, projection screens, scrim, scenic facades, etc. They should never be added to temporary structures without the prior consent of the designer;
- Equipment loads - e.g., lighting, special effects, sound systems, video and TV screens. These can be significant, therefore it is important that the final installation does not exceed levels permitted by the design documentation.

### **9.10.2 Monitoring After Erection**

9.10.2.1 A competent person should monitor a structure which is susceptible to the effects of the weather and/or misuse (by overloading the roof structure, for instance) at all times. This could be a representative of the supplier of the structure or a properly trained promoter representative.

9.10.2.2 For structures that may be unused between performances, the structure must be secured in a way that does not require constant onsite monitoring.

9.10.2.3 Before using a structure that has previously been secured, a thorough inspection should be conducted to ensure the integrity of the structure and its suitability to continue.

### 9.10.3 Managing the Loads

9.10.3.1 Loads on temporary structures can be applied in various ways but must not exceed the design loads. Therefore, adequate measures must be taken to prevent overload by people due to overcrowding any part of a temporary structure.

## 9.11 Requirements for Outdoor Events Structures

9.11.1 The structure shall be a purpose-built system used according to its intended purpose. All aspects of the structure shall comply with ANSI E1.21-2006 or an equivalent standard as identified by a qualified person. If a standard other than ANSI E1.21-2006 is referenced, then a thorough justification must be provided.

9.11.2 The event producer must submit the required documentation including the event structure specific action plan to the artist team by seven days before the commencement of the construction. Any changes, additions and modifications to the structure or the plan must be completed and submitted by three days before construction begins. Changes or modifications after this date will not be accepted.

9.11.3 If local jurisdiction permits/approvals are required, the above timing requirements must be submitted regarding the permit submittal date rather than the start of construction.

9.11.4 Compliance of the structure to ANSI E1.21-2006 must be demonstrated by providing a Letter of Conformity/Compliance before the day of the event. This letter must include the following supporting documentation:

9.11.4.1 Drawings: Assembly diagrams, plan and elevation views, identifying:

- (a) Positions and connections for all structural elements including lifting devices (motors), lock-off devices, guy cable connections, guy cable anchorage/ballast requirements, etc.
- (b) Areas and limits of allowable wind areas including:
  - i. Stage covering;
  - ii. Side/back walls;
  - iii. Additional signage;
  - iv. Suspended audio, lighting, video and scenic equipment.

9.11.4.2 Calculations: Allowable load documentation from licensed engineer indicating limits of the structure for:

- (a) Allowable equipment loads for show equipment (live load) for audio, lighting, scenery, video, etc.;
- (b) Environmental limits including seismic and wind loading;
- (c) Ground conditions, capacities and foundation requirements;
- (d) Lateral stability requirements including anchorage details
  - i. Differences between ground anchorage and ballast requirements must be clearly identified;

- (e) Load assumptions and considerations;
- (f) Operations Management Plan minimum requirements.

9.11.4.3 Event Specific Compliance: Summary of the specific event loads (rigging plot, audio loads, etc.) and conditions that demonstrates the structure is sufficient for the intended purpose including:

- (a) Suitability of the site:
  - i. Access for equipment and erection of structure;
  - ii. Ground conditions;
  - iii. Underground interferences (sprinkler systems, utilities, etc.);
  - iv. Condition of elevation changes affecting structure (changes in ground height);
- (b) Overall site layout diagram showing:
  - i. Location of structure;
  - ii. Access locations;
  - iii. Audience location(s).
- (c) Rigging plot overlaid on structure indicating suitability;
- (d) Copy of permit(s) from the local jurisdiction event is to be held if applicable;
- (e) Inspection records of the structure and its components should be available upon request as needed;
- (f) Upon the completion of the structure erection, a certificate of completion should be provided by the installer.

9.11.4.4 Operations Management Plan: An action plan indicating the various stages of operating conditions of the structure and the actions to be taken when those conditions are met. This is a plan describing the various conditions structures may encounter (e.g., regular and emergency maintenance, overloading, wind, rain, flood, fire, etc.) and the actions to be taken should the structures be confronted with any of the described conditions.

- (a) Wind:
  - i. Monitoring
    - 1. A specified individual responsible for monitoring on site conditions and forecasted conditions must be identified before the event;
    - 2. Wind must always be monitored on site with an anemometer or other appropriate device; and,
    - 3. A reliable line of communication must be established with local weather resources to monitor impending conditions.
  - ii. Actions: Identify what actions will happen at the following measured wind speeds. These actions **MUST** consider the nature of the loads on the structure specific to this event. For example, if there is equipment on the structure that prevents it from being lowered to the ground, then lowering the structures to the ground is not an option to be considered in the action plan.
    - 1. 10 MPH (4 M/S)
    - 2. 20 MPH (9 M/S)
    - 3. 30 MPH (13 M/S)
    - 4. 40 MPH (18 M/S)

5. 50 MPH (22 M/S)
6. 60 MPH (27 M/S)
7. Above 60 MPH (>27 M/S)

- iii. Training/Communication: Before the event, it must be clear to all relevant parties what actions are to be taken and at which thresholds as identified above.
- (b) Responsibility:
- i. Individuals responsible for various tasks must be identified before event. This must include:
    1. Wind/weather monitor;
    2. Stage Manager;
    3. Security Personnel;
    4. Artists Representative;
    5. Promoter Representative;
    6. Stage vendor crew lead;
  - ii. Additionally, if a specific chain of command to any of the key responsible positions is in place, then all individuals in the chain must be aware of their immediate supervisor;
  - iii. The contact information for key responsibility positions including names, phone numbers and work locations must be provided before the event.
- (c) Suspension: The roof owner, production manager, promoter or state/local authorities can make the final decision to suspend the event if the public safety is jeopardized for any reason. The method of initiating the event suspension must be outlined explicitly before the event so a suspension decision can take effect immediately.
- (d) Cancellation: The roof owner, production manager, promoter, state/local authorities can make the final decision to cancel an event based on inclement weather. The method of initiating the event cancellation must be outlined explicitly before the event so a cancellation decision can take effect immediately.

See Appendix C for *Requirements for Outdoor Event Structures, Preparation Checklist*; and, Appendix D for *Requirements for Outdoor Event Structures, Key Personnel*.



# 10. Barriers

10.0.1 Barriers and fences at events serve several different purposes. They can:

- Provide physical security, as in the case of a high perimeter fence at an outdoor event,
- Shield hazards,
- Stream people into queue lanes or similar,
- Provide a protective barricade at the front of a stage, and
- Relieve and prevent overcrowding and the build-up of audience pressure.

## 10.1 Planning

10.1.1 The proposed use of barriers and fencing is an integral part of pre-event planning. As indicated above, they can be used as an effective means of controlling access and managing the safe containment of the audience. Depending on the complexity of the site and the nature of special risks such as high-density crowds or mass movements, a source of competent advice may be needed during planning.

10.1.2 If barriers and fencing are used, a risk assessment should be done.

Although not an exhaustive list, the following should be taken into consideration when determining the location and type of barrier or fence to use:

- Their planned use,
- Layout,
- Ground conditions and topography,
- Weather,
- Loads on the barrier – wind and/or crowd pressure,
- Audience size, nature and behavior, and
- Any relevant factors unique to the location.

10.1.3 It is crucial that the type of barrier and fence does not present greater risks than those they are intended to control. Barriers have failed due to improper selection.

10.1.4 Barriers and fencing should only be erected, maintained and taken down by competent persons who fully understand the construction requirements and limitations of the equipment involved.



Fig. 10-1 – Crowd at entrance. Note the low level queue barriers in use. Photo courtesy of The Event Safety Shop, LTD.

10.1.5 A competent barrier/fencing contractor should be able to provide the event organizer with system calculations, drawings, risk and safe work method statements. They should be knowledgeable of public events and should be able to offer advice and site visits. In the absence of previous experience, they should be able to demonstrate an appropriate level of technical ability. The contractor should also be able to supply a range of appropriate fencing/ barrier options to build the required configuration safely.

## 10.2 Deciding Which Types of Barrier/Fencing to Use

10.2.0 Barriers, in the context of crowd management at events, fall into two main categories: differentiating space and pressure barriers.

### 10.2.1 Differentiating Space

10.2.1.1 Differentiating space barriers include tensor barriers, ropes, tape etc. They are typically deployed where there is no expectation of crowd surges (pressure), such as defining queuing areas and waiting lines. Take into account the size of the crowd and the way people will arrive before deploying these types of barriers.

### 10.2.2 Pressure Barriers

10.2.2.1 Pressure barriers are specifically designed to resist horizontal loads such as those exerted by a crowd at the front of a stage. Pressure barriers need to be deployed when:

- The location can experience large crowds who may push towards the barrier line
- Areas of sustained crowd movements where a dynamic load may be anticipated
- Locations where security need to check and manage access (such as into a viewing enclosure)

10.2.2.2 To assess if a pressure barrier or differential space barrier/fence is required an event organizer and their contractor should consider the number of people present at any one time, the size of the space, the nature of the crowd, the actions in that space (for example a waiting/queuing line may have surges when gates open, busses arrive etc.) and the general conditions (weather protection, duration of waiting time etc.).



Fig. 10-2 - An example of a Primary (silver, A) and Secondary (black, B) barrier lines being installed with block-and-mesh (C) being used to delineate public and working areas. Photo courtesy of The Event Safety Shop, LTD.

### 10.2.3 Product Selection, Design and Build

10.2.3.1 Various different types of fences or barriers are available and used for events. Detailed technical requirements for the various types of barriers referred to in this chapter can be found in

the publication *Temporary Demountable Structures: Guidance on Procurement, Design and Use* (2007, Third Edition, The Institution of Structural Engineers [UK]) (<http://www.istructe.org/>).

## 10.3 Barriers for Differentiating Space

### 10.3.1 Basic Differentiating Barriers

10.4.1.1 Rope and pin, post and rope, and retractable fabric barriers are the most basic forms of barrier used to delineate an area.

10.3.1.2 Rope and Pin is often used in parking areas on greenfield sites to create vehicle lanes and parking areas.

10.3.1.3 Post and Rope is commonly used outside indoor venues as a way of maintaining a clear space at the entrance to the venue.

10.3.1.4 Retractable Fabric Barriers are a lightweight, fast system for create queuing systems in areas where compliance from the queue is predicted and no pressure likely to build.

### 10.3.2 Low Level Barriers

10.3.2.1 There are many different steel-framed, low level barriers on the market suitable for events. These tend to come at a height of 1.5m and in varying lengths. They are free standing and come with a number of different supporting systems: angle, arched feet, or flat footed. The flat footed variety is particularly useful for queue lanes and locations where people have to walk close to the dividing barrier.

10.3.2.2 There is a more robust type of low level barrier often referred to as “Police Barrier.” This has a hooped foot construction and is used extensively at street events, parades and marches.

10.3.2.3 It should be noted that these barriers have little structural strength to withstand crowd pressure. Their main uses are for restricting access, designating routes and queuing systems. They are normally delivered in stacks and can be deployed using a forklift truck and as a result reduce the amount of manual handling required.



Fig. 10-3 - A different foot design, intended to resist a modest degree of pressure. Note the pinning of the foot to further stabilize the barrier. Photo courtesy of The Event Safety Shop, LTD.

### 10.3.3 Mesh Panel Fencing

10.3.3.1 This type of fencing is normally constructed of tubular steel frame with a steel wire mesh infill. Commonly it comes in panels 2m high and 3.5m long. It is supported by inserting the uprights into separate solid plastic or concrete block units and attaching them with an independent clip unit.

10.3.3.2 Mesh fencing is used extensively at event sites for creating perimeters that can be moved quickly and easily opened for access.

10.3.3.3 Mesh fencing has no structural resistance to crowd pressure. It is often commonly used to mount signs and branding panels or covered with plastic sheeting. In such instances it is critical to ensure sufficient braces and ballast are installed to prevent collapse in even modest winds.

10.3.3.4 When using branding or scrim on a roll, ensure there are regular breaks in the material should the barriers/fencing need to be broken for safety reasons to allow people through.

### 10.3.4 Temporary Fence Systems

10.3.4.1 Temporary fence systems (called “hoarding fence systems” in the UK) are similar to mesh panel fencing systems. However the mesh is replaced with a corrugated thin solid steel infill. The panel size is usually reduced to 2 m x 2 m as the weight of the panel is considerably increased (Fig. 10-4).

10.3.4.2 This system should always be installed with the appropriate bracing at right angles to the fence panels and should either be staked directly into the ground or sufficiently weighted to give stability.

10.3.4.3 These systems have limited resistance to lateral loads such as wind or crowd pressure. Manufacturer’s instructions and guidelines regarding support systems should be directly followed when installing this type of fencing.



Fig. 10-4 - Solid temporary fence panels showing diagonal bracing. This is a pedestrian barrier used to channel queue lanes – perfect when no sideways pressure is anticipated. Photo courtesy of The Event Safety Shop, LTD.

### 10.3.5 Steel Panel Fencing Systems

10.3.5.1 This is a solid panel system usually used for creating an enclosed perimeter. This system does offer a reasonably high degree of security e.g. to prevent people accessing and climbing onto a structure for a better view.

10.3.5.2 The fence panel size is normally 3m high x 2.4m wide and is formed of flat plastic coated steel over a fabricated steel frame. These overlapping frames are then bolted together, secured to the ground with pins and then supported by braces at a right angle. The braces should be positioned at every join of the panels to ensure stability. This system is designed to be load and wind bearing.

### 10.3.6 Roadway Panel Systems

10.4.6.1 This system is constructed from temporary roadway panels turned onto their side at right angles to the ground. This is a very efficient way of constructing a solid, secure perimeter (Fig. 10-5).

10.4.6.2 A Roadway Panel is of a similar size to that found in a steel panel system. Due to their weight, a panel needs to be supported by stronger braces and staked to the ground. If properly designed and installed this system should be load and wind bearing.



Fig. 10-5 - A custom-made fence designed to create an impregnable event perimeter. Block and mesh panels form an inner fence to create a moat in which security can operate.. Photo courtesy of The Event Safety Shop, LTD.

## 10.4 Pressure Barrier

10.4.1 A stage barrier (barrier at the front of a stage) is the principle type of pressure barrier (Fig. 10-6).

10.4.2 Because of the variety of uses, stage barriers have become an important piece of equipment for event organizers.

10.4.3 A stage barrier is designed around a basic 'A Frame' to be load bearing and therefore normally used where there is a risk of crowd pressure.

10.4.4 Most stage barriers include the following design features:

- They are constructed of steel or aluminum, ideally fully welded.
- They should not be riveted in parts nor should soft materials such as wood used.
- Their individual sections are usually 1200 mm high and 1 meter wide.
- They have a footplate that the audience stands on to stabilize the system
- The top horizontal rail should be smooth and fall flush on the front vertical fascia (audience side).
- They should have a step on the rear (stage side) that working personnel can use.

10.4.5 To be fully effective, a stage barrier has to be built properly. It will only be as strong as its weakest link, so once a system has been built, the joining method must be in place. It is

imperative that ALL joining mechanisms between barriers are properly engaged, whether these are bolts or locating tenon pins. Any joining bolts should be of suitable quality (high tensile steel) and not simply any bolt that fits.

10.4.6 In terms of appearance, the barrier should have:

- Smooth lines;
- No rust or disfigurement;
- All rivets should be in place and not rotating;
- Welds should be smooth and have no fractures;
- All bolts or fixings correctly installed.

10.4.7 Barrier sections with bent, corroded or missing connections should be rejected.

10.4.8 The barrier must be stable, and if used on uneven ground may require packing or infilling below the footplate to ensure it is properly seated.



Fig. 10-6 - A standard concert stage barrier, note the diagonal bracing stays which allow the barrier to resist horizontal load. Note also the extended rear plate allowing security personnel easy access and a safe platform from which to assist or rescue the public. Photo courtesy of The Event Safety Shop, LTD.

10.4.9 Voids beneath the audience footplate should be avoided; there is a possibility of audience members getting toes or even feet trapped beneath the footplate.

10.4.10 The barrier should not flex, and the junctions between sections should not open and close as the barrier is loaded. This could lead to pinching or even amputation of fingers etc. Joints between sections should be flush, or if this is not possible should be taped to prevent finger traps.

10.4.11 It is common for cables to be run to a control position within the audience, and a proper arrangement must be made where these cross the stage barrier. When ground conditions permit, these can be dug-in to transit the barrier. Be sure that any such trench does not undermine barrier stability. If a “cable gate” section is used (where cables can pass under the barrier because the gate has no footplate), then the gate must be securely attached on either side. It is normal for cables to run from the center point of the stage, and this is where one is likely to encounter peak density, so gates often come at locations where strength is a of critical importance.

10.4.12 The stage barrier should be inspected and signed-off by a competent person to ensure that it is both safe and secure prior to use.

10.4.13 Along with the overall strength and stability of the barrier, the organizer needs to consider its shape. Given that such barriers are designed to retain and resist audience pressure, it is critical to ensure that barrier location and shape does not lead to the creation of “pockets” in which people can become trapped or from which kinetic energy cannot safely be dissipated. A typical example would be preference for a convex and not a concave front face to a stage barrier, allowing crowd energy and movement to be transferred to the side of the barrier rather than “focusing” in the center.

10.4.14 In many instances it is helpful to construct a “Secondary” barrier which replicates the convex shape of the primary barrier, but is some 50 meters or so further back into the crowd (Fig. 10-2). This barrier serves to minimize the risk of excessive crowding at the stage front or the transfer of potentially harmful kinetic energy in the form of crowd surges and shock-waves from the rear. A Secondary barrier will normally consist of two parallel runs of pressure barrier facing outwards, with a narrow “moat” between them where security personal, medics and others can monitor and access the audience.

10.4.15 Careful consideration needs to be given to the design and location of access gates, which may be required to enable workers to move from stage to auditorium or used to relieve pressure in high risk locations. In any such instance a properly experienced and competent person should advise on the location and design.

10.4.16 Where front stage barriers end, they will commonly join to another type of fence or barrier, continuing the secure area backstage. Such junctions need to be properly secured and be free of sharp or projecting edges. Consideration should be given to blanked-out or solid fence sections where sightlines to the stage are still good – this helps prevent a build-up of audience members where the pressure barrier ends and the less robust fencing type begins. If such a junction is required, ensure that the “continuation” barrier is mounted on the front face of the pressure barrier, allowing the load to be safely transferred to the more robust barricade.

# 11. Electrical Installations and Lighting

11.0.1 Electricity can cause death or serious injury to performers, workers or members of the public if the installation is faulty or not properly planned. This chapter gives some general guidance limited to installations of 600 volts or less. Very large loads and high-voltage systems are not covered as they require special considerations. In many circumstances the electrical supply may be of a temporary or portable nature, but this does not mean that it can be sub-standard or of an inferior quality to a permanent installation. Only qualified personnel should plan and carry out electrical work as well as operate electrical equipment.

11.0.2 All electrical installations and equipment must comply with the general requirements of local, state, provincial, and national regulations. For the United States, this would include NFPA 70, National Electrical Code (NEC), and NFPA 101, Life Safety Code. The Occupational Safety and Health Administration (OSHA) 29 CFR 1910 Subpart S, *Electrical*, addresses electrical safety requirements that are necessary for the practical safeguarding of “employees” (including unpaid individuals) in their workplaces. Another important OSHA regulation, 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*, sets forth regulations for the servicing and maintenance of machines and equipment in which the unexpected energizing or startup of the machines or equipment, or release of stored energy could harm employees. It is the responsibility of the organizer to understand and implement the relevant local requirements.

11.0.3 This chapter provides a general overview of some of the matters to be considered by an event organizer when planning electrical installations within the overall venue design. Technicians working on site should refer to the specific guidance mentioned above, the guidance of qualified personnel and should not rely only on the general overview offered herein.

## 11.1 Planning

11.1.1 Factors to consider when planning the electrical installation include:

- The location of any existing overhead power lines or buried cables and other buried utilities;
- Positioning of temporary overhead or underground cables;
- The total power requirements for the site;
- The use and location of generators (separately derived systems) and/or transformers;
- The main service disconnects controlling the electrical supplies to the stage lighting, sound, special effects and lifting equipment;
- Grounding and bonding;
- The location of the stages;
- The location of mixer positions, delay towers, video towers, etc.;



- Special power supplies for some equipment, e.g., equipment from other countries which operates on voltage and frequency other than 120/208V, 60 Hz, e.g., European equipment with power requirements of 230/398 volts, 50Hz;
- Power supplies required for hoists, portable tools, etc.;
- The electrical requirements for emergency power, emergency lighting and exit signs;
- Power supplies for catering equipment, first-aid points, incident control room, CCTV cameras, etc.; and,
- Power supplies for heating or air conditioning.

## 11.2 Installation

11.2.1 The main electrical supply source(s) and disconnects should be located where it is accessible for normal operations and emergencies, but segregated from public areas of the venue. Display danger warning signs around the enclosure(s) of the source(s).

11.2.2 All electrical equipment which could be exposed to the weather and is not rated as weatherproof, e.g., consumer electronic units, distribution boards, etc., should be protected by means of suitable and sufficient covers, enclosures or shelters. As far as is practical, all electrical equipment should be located so that it cannot be touched by members of the public or unauthorized workers. Refer to ANSI E1.19 – 2009, Recommended Practice for the Use of Class A Ground-Fault Circuit Interrupters in the Entertainment Industry. It is the responsibility of the organizer to understand and implement the relevant local requirements.

11.2.3 The electrical installation should be inspected and tested upon completion according to the applicable regulations. A written record of compliance and testing should be kept by the organizer.

## 11.3 Cabling

11.3.1 All cables selected for any event must be well maintained and suitable for their purpose and application.

11.3.2 Temporary overhead cables, whether they are carrying electricity, communication, or television signals, etc., must be installed according to code/regulation. Consideration needs to be given to the minimum height above the ground (final grade) for proper clearance of vehicles, structures, personnel and any other obstacle or object that could pose a risk. Advisory notices should be clearly displayed and effectively warn of the location of the overhead cables and the voltage being carried.

11.3.3 Wherever possible, segregate vehicular and pedestrian traffic and cable routes. If this is not possible, cable height must be of minimum clearance as specified in the NEC or other prevailing local code. Fences should be considered to segregate roadways from overhead cables running parallel to the roadway to prevent inadvertent contact.

11.3.4 If it is necessary to run cables underground, reference all applicable regulations. Consideration must be given to guard against:

- Crushing by vehicles;

- Damage by machinery, equipment or tools;
- Other mechanical damage;
- Damage to buried cables, gas lines, water lines or any other buried utilities by the driving of grounding rods, trenching, or other activity.

11.3.5 Cables run on the surface should be protected against sharp edges or crushing by heavy loads by approved cable protection devices such as cable ramps. Ramps should be conspicuously marked to avoid tripping hazards. In the United States, the use of ADA compliant cable ramps must be used in areas where the general public will cross cable runs. It is the responsibility of the organizer to understand and implement the relevant local requirements.



Fig. 11-1 – Commercial, ADA compliant cable protector in use. Photo courtesy of Cross-Guard®.

## 11.4 Electricity Utility Cables

11.4.1 Overhead or underground electrical supply cables belonging to an electrical supply company may cross the site, or its access roads. If so, precautions must be taken to avoid danger from these cables.

## 11.5 Access to Electrical Equipment

11.5.1 Appropriate minimum clear working space must be established and maintained around electrical equipment to allow access for operation or maintenance. Fire codes also require open space around electrical equipment (e.g., no storage) so that fire fighters can readily access it in an emergency. In the United States, the NEC and OSHA establish these requirements. Other equipment should also be given consideration, including but not limited to:

- Control switches and equipment;
- Amplification equipment;
- Special effects equipment;
- Follow spots;
- Dimmers;
- Ballasts; and,
- High-voltage discharge lighting.

11.5.2 The main control equipment and items specified above should be clearly identified, and their locations marked on a plan located in the command center.

11.5.3 Protect all electrical service, supply and distribution equipment to prevent access by unauthorized people. Where this equipment is installed in a locked enclosure, specific key holders should be given responsibility for operating the equipment to comply safely with any request made by the emergency services. Note: multiple people should be given keys and authorization to operate the equipment.

## 11.6 Generators

11.6.1 If generators are to be used, consider their location and accessibility for refueling. Allow for fuel storage and accessibility for the purposes of refueling. The generator and its fuel source must be protected from unauthorized access (including members of the public) and may require fencing.

11.6.2 If generators are located close to occupied spaces, consider noise nuisance and the risks from exhaust. Generators specifically designed for the entertainment industry should be used.

## 11.7 Electricity to the Stage Area and Effects Lighting

11.7.1 The electrical supply to the stage should be controlled by a switch or switches and installed in a position accessible at all times to authorized people in the stage area.

11.7.2 If there is a structural collapse of the stage, canopy, or an outlying sound / video / lighting tower, then there is the possibility that electrical service cables can be stretched and/or sheared. This can potentially cause the structure to come in contact with live electrical wires which could energize the structure. In the event that electrical service cables are stretched or sheared and could energize equipment or an occupied area, there should be a protocol in place that has numerous personnel trained in the shut-down / disconnect procedure for power sources that serve the event structure(s). Multiple persons are needed so that if any of the trained crew is incapacitated or unavailable then there will still be someone qualified to perform the task.

11.7.3 Follow established local codes/regulations for proper grounding and bonding of electrical systems and of electrically conductive material that is likely to become energized if a fault were to occur. In the United States, the NEC establishes this regulation.

11.7.4 Distribution systems must consist of equipment specifically suitable for their purpose. In the United States, all distribution system equipment must be listed with a Nationally Recognized Testing Laboratory for the purpose for which it is being used. It is the responsibility of the organizer to understand and implement the relevant local requirements.

11.7.5 Use of Ground Fault Circuit Interrupters. Reference ANSI E1.19 – 2009, Recommended Practice for the Use of Class A Ground Fault Circuit Interrupters, gives guidance on the use of GFCIs in the entertainment industry.

## 11.8 Emergency Lighting Systems

11.8.1 In the United States, Article 700 of the NEC (NFPA 70, 2011) establishes requirements for emergency electrical systems including lighting. Emergency lighting systems are legally required, are classified as emergency systems and should be marked as such. It is the responsibility of the organizer to understand and implement the relevant local requirements.

11.8.2 In addition to the normal lighting arrangement, emergency lighting should be provided as determined by the risk assessment and fire-risk assessment. These assessments should cover all possible hazards associated with the venue, including but not limited to emergency evacuation

routes, pits, holes, trenches, ditches, etc. Also consider the provision of emergency lighting within generator enclosures and the main electrical service(s).

11.8.3 The emergency lighting power supply should come from a source independent of the normal lighting. The emergency lighting should be of a maintained type (continuously lit), which includes the exit signs located around the venue for directional purposes, and located above the final exit doors. In the United States, emergency lighting should be installed, operated and maintained in accordance with NFPA 101, *Life Safety Code* (2012), section 7.8 and 7.9 and applicable sections of NFPA 70 (NEC). It is the responsibility of the organizer to understand and implement the relevant local requirements.

11.8.4 Any source of supply used for providing emergency lighting should be capable of maintaining the full light load as determined by the event risk assessment and the major incident plans prepared for the event, in case of a mains failure. It is important to keep any battery used for this purpose in a fully charged condition whenever the venue is in use. Ground fault circuit interrupters (GFCIs) must not be used on emergency lighting circuits.

11.8.5 The normal and emergency lighting systems should be installed independently of one another so that a fault or accident arising with one system cannot jeopardize the other. Suitable provision should be made to enable repairs to be undertaken if one or more parts of these lighting systems fail. Both the normal lighting circuits and emergency lighting circuits, including generators, should be protected from acts of vandalism.

## 11.9 Lighting Levels for Means of Egress

11.9.1 All public areas of the venue should be provided with normal and emergency lighting capable of giving sufficient light for people to leave safely as determined by the risk assessment. Consider providing additional lighting, operating in a maintained mode, to the gangways passing through temporary seating structures. In the United States, lighting for stairways, gangways/corridors, exit doorways, gates, emergency lighting, etc., should be installed, operated and maintained in accordance with NFPA 101, *Life Safety Code* (2012). It is the responsibility of the organizer to understand and implement the relevant local requirements.

## 11.10 Portable Electrical Appliances

11.10.1 Portable electrical equipment is defined as equipment fed with listed portable cords or cables intended to be moved from one place to another. Portable equipment should be used by a competent person and should be appropriately inspected and tested prior to use. In the United States, all portable equipment must be listed with a Nationally Recognized Testing Laboratory for the purpose for which it is being used. It is the responsibility of the organizer to understand and implement the relevant local requirements.

# 12. Food, Drink and Water

## 12.1 Catering Operations

12.1.1 Ensure that the delivery, storage, preparation and sale of food complies with the relevant food safety legislation and where appropriate consideration is given to the advice contained in the relevant industry guides and codes of practice. This will include mobile catering units, catering stalls and tents, crew catering outlets, hospitality catering, bars and ice cream vendors, etc.

12.1.2 Ensure that food businesses carry out their work in a safe and hygienic way. Examine documentary evidence from each caterer regarding:

- The identification and control of potential food hazards by all catering operations;
- The identification and control of potential health and safety hazards by all catering operations;
- Provision of appropriate fire extinguishers;
- Proper training of all food handlers;
- The suitability of all premises used for the production or sale of food;
- The suitability of the equipment being used;
- Transporting food safely and separate from any potential source of contamination;
- Storing and disposing of food waste (solid and liquid) properly;
- The maintenance of high standards of the personal hygiene of food handlers;
- The proper storing, handling and preparation of food;
- The provision of a drinking water supply (see paragraph 472);
- Insurance of all food businesses including public, product and employers liabilities;
- The possession of electrical and gas installation compliance certificates by all food businesses; and
- The possession of a properly equipped first-aid box by each operating unit.

12.1.3 Contact the local authority environmental health officers (EHOs) for advice on food safety and hygiene. EHOs may wish to carry out an inspection of the catering facilities provided at the event. They may also require you to provide them with a list of caterers who will attend the event.

12.1.4 Additional requirements may be necessary in certain types of catering operations, e.g., barbecues and spit roasting. Such operations may present an increased risk of fire, contamination or food poisoning. Carry out a suitable risk assessment, taking into account the particular factors of the operation.

## 12.2 Positioning

12.2.1 The site plan of the event must include a detailed layout of all catering operations (see Chapter 3, *Venue and Site Design*), bearing in mind the need to:

- Prevent any obstruction that may affect the health and safety of people attending or working at the event;
- Prevent, as far as is possible, access to the rear of catering operations by the audience;
- Allow entry and exit for emergency vehicles;
- Take into account suitable spacing between individual operations;
- Provide readily accessible and preferably lockable facilities for the storage and Disposal of solid and liquid waste;
- Allow for the efficient removal of refuse (see chapter on Waste management);
- Position catering operations within close proximity to a supply of drinking water, foul drainage and within a safe minimum distance from any source of possible contamination, i.e. fuel, waste or refuse storage;
- Consider manual-handling issues involved in the disposal of water, the delivery of supplies, etc.;
- Provide separate toilet facilities for the exclusive use of food-handlers, with hot and cold hand-washing facilities;
- Provide suitable facilities for parking and access of support vehicles;
- Position mobile sleeping accommodation away from the catering operations.

## 12.3 Propane

12.3.1 Propane, a liquefied petroleum gas, is the main source of fuel for outside catering operations. It does present a substantial fire/explosion risk, therefore ensure that:

- All operators using propane can demonstrate a basic understanding of its safe use, its characteristics and emergency procedures;
- Storage at each catering operation does not exceed that which is required for a 24-hour period;
- All propane should be handled, stored and used in accordance with *The International Fuel Gas Code*, *The International Mechanical Code*, and NFPA 58, *Liquefied Petroleum Gas Code*, which may be required by the local authorities having jurisdiction; and
- All supplies of propane whether in compounds or within catering operations are protected and isolated from audience interference and vehicular traffic.

## 12.4 Electrical Installations

12.4.1 Electrical power to catering operations should, wherever possible, be provided by the site electrical supply (see Chapter 11, *Electrical Installations and Lighting*). If portable generators are used, preference should be given to propane or diesel-fueled types.

12.4.2 Ensure that:

- They are of a suitable rated power output for the intended use;
- They have been tested and certified by a competent person;
- They are sited in a well-ventilated place away from propane cylinders, combustible and flammable materials;
- They are adequately guarded to avoid accidental contact by people or combustible material;

- Cables and sockets are appropriate for their intended use;
- The electrical installation is protected by a ground fault circuit interrupter (GFCI);
- Cables do not create a trip hazard;
- Fueling and refueling are carried out in a safe manner; and
- Fuel is stored in a safe manner in suitable containers.

## 12.5 Fire-Fighting Equipment

12.5.1 Suitable fire-fighting equipment should be provided at the catering operation dependent on the activity type. The equipment must conform to the relevant U.S. standards (see Chapter 4, *Fire Safety*). No combustible materials should be allowed to accumulate next to any catering outlets.

12.5.2 It is important to use the correct type of fire extinguisher for the particular type of fire. For information on selecting the appropriate type of extinguisher for various situations (ordinary combustibles, flammable liquids, electrical equipment, combustible metals, combustible cooking) see Chapter 4, *Fire Safety*. The U.S. Fire Administration also publishes a guide that can be found online at [http://www.usfa.fema.gov/citizens/home\\_fire\\_prev/extinguishers.shtm](http://www.usfa.fema.gov/citizens/home_fire_prev/extinguishers.shtm).

12.5.3 Generally, at least one portable fire extinguishers with a minimum rating of 2-A:20-B:C should be installed within 30 feet (9.144 m) travel distance of commercial cooking operations. However, if solid fuel or deep fat fryers are in use, a Class K fire extinguishing system may be required and at least one 2.5 gallon (9 L) or two 1.5 gallon (6 L) Class K portable fire extinguishers should be installed and may be required.

## 12.6 Alcohol and Bar Areas

12.6.1 Alcohol comes under the definition of food and should meet the requirements of the relevant food safety regulations, associated industry guides and codes of practice. Ensure that:

- The structure used for the sale of alcohol, usually tents, complies with the structural requirements (see Chapter 9, *Structures*);
- The operation is designed to allow the free flow of people to and from the bar server areas to prevent congestion and crushing hazards (this may involve the use of suitable barriers, providing consideration has been given to the barriers becoming a hazard in themselves);
- The electrical installation complies with the requirements detailed in Chapter 11, *Electrical Installations and Lighting*;
- Suitable and sufficient lighting is provided;
- Alcohol storage tanks are positioned on stable, even ground allowing suitable access for delivery vehicles, particularly in bad weather;
- Risk assessments for both food and health and safety, have been carried out;
- Carbon dioxide cylinders are suitably secured;
- Chemicals to clean pipelines are properly handled and stored;
- The type of containers that drinks are served in conform to any site/event specifications (e.g., no glass policy);

- There is a suitable means of disposal for glass bottles, used to decant drinks before serving;
- Bar areas are kept free of litter and the floors are cleared of spillages; and
- If a “token system” is used instead of cash, the “change areas” need to be separate from the bar service area.

## 12.7 Drinking Water

12.7.1 The provision of free drinking water is important at all events, especially open-air concerts and dance events, due to the volume of people, confined conditions and the weather.

12.7.2 Generally all water should be provided from a mains supply, but if this is not possible then water tanks are permissible provided they are suitable for the purpose. All water dispensing equipment should be clean, well maintained and suitable. It is considered good practice to sample and test temporary water supplies for bacterial safety, especially those provided at outdoor events.

### 12.7.3 Pit Area

12.7.3.1 There should be an adequate supply of drinking water points in the pit area, together with an adequate supply of paper or plastic cups. The number of drinking water points will be determined by the risk assessment.

12.7.3.2 If storage containers are used to supply the water, they should be of sufficient capacity and number for the anticipated needs of the people within the first 16 feet (4.8768 m) of the pit barrier. Pit area water points should not be within the reach of the audience.

### 12.7.4 General Area

12.7.4.1 There must be a supply of drinking water within easy reach of the audience and all catering operations. At outdoor sites (one-day events) a general guideline is one water outlet per 3,000 people and one outlet per 10 caterers provided they are in the same area.

12.7.4.2 All water points should:

- Have unobstructed access;
- Be clearly marked;
- Be clearly lit at night if the event continues after dark; and
- Have self-closing taps.

12.7.4.3 The ground surrounding all water points should be well drained or provision made to “bridge” any flooded areas.



# 13. Merchandising and Special Licensing

13.0.1 There are five aspects to merchandising that need to be planned and managed:

- (a) The merchandising facilities which include the structure of the stalls or stands;
- (b) The space requirements;
- (c) The setting up, dismantling and operation of the stall or stand;
- (d) The items for sale as merchandising; and,
- (e) The solid waste, sanitation, wash up and cleaning facilities. See Chapter 15, *Sanitary Facilities*.

## 13.1 Facilities

13.1.1 It is essential that merchandising stalls and stands are considered in all aspects of the planning and management of the event.

13.1.2 Consider the following matters when planning the venue or site design:

- The position, size and space requirements of the merchandising stalls or stands within the arena or venue to ensure that entrance and exit audience flows are not obstructed, or cause an audience build-up at any strategic points;
- Whether stands and stalls are of a fixed or temporary nature;
- Check that any structures will be erected properly and will satisfy any structural integrity requirements (see chapter on Structures), as well as requirements in respect of fire safety (see chapter on Fire safety);
- Power supplies, if required, need to be considered as part of the overall electrical supplies to the event (see chapter on Electrical installations and lighting);
- Any vehicle or vehicle movements associated with the stands or stalls; vendors generally need to unload their vehicle close to their vending space, then reposition the vehicle;
- Allocation of parking spaces and camping accommodation for people working at the stalls or stands;
- Waste accumulation and collection;
- Security arrangements; and
- Cash or scrip handling and pick up and accounting measures.

13.1.3 Ensure that people working on merchandising stalls and stands are informed of the site safety rules and local health department requirements particularly in relation to practices and the equipment that can or cannot be brought onto site or within the arena or venue. Also, make them aware of the space allocated to them on site and that they must not expand outside their allotted space.

13.1.4 It is recommended that exhibit spaces, vendor tents, stalls and kiosks that have anchoring stakes should have stakes and guy wires marked to reduce potential for injuries. Please refer to

OSHA requirements for protection of works from exposed rebar (rods, posts), which can be found online at [http://www.osha.gov/SLTC/etools/construction/falls/protruding\\_rebars.html](http://www.osha.gov/SLTC/etools/construction/falls/protruding_rebars.html).

## 13.2 Setting Up, Operation and Dismantling

13.2.1 Most workers employed by people running merchandising stalls and stands are temporary. To ensure that all relevant safety information is passed to all workers, brief the people running the stalls and stands about safety matters on site. Define the responsibilities for health and safety and agree on methods of communication with the merchandisers. Give a copy of the site safety rules to the merchandisers when they arrive on site and ensure that they and any subcontractors are informed of the site safety rules.

13.2.2 Checks should be made on any public and product's liability insurance certificates. Agree on the operation time of the merchandising stands with the operator and explain procedures to be taken in the event of a major incident or contingency. Any gas or electrical equipment brought onto site by merchandisers should be accompanied by relevant inspection certificates and have undergone the recommended testing. Other equipment should be examined to ensure that the relevant fire-fighting equipment is available in case of fire. Some health jurisdictions have special certifications for food trucks; check with your local health department for details.

13.2.3 In the case of permanent sites, information on health and safety policies within the premises will already be in place. Therefore, the procedures should be followed at all times by all concerned.

13.2.4 Stewards working on behalf of the merchandisers, who do not form part of the event stewarding teams, should be approved and involved in the event briefing and lines of communication and coordinating activity.

- Discuss the use of radio communication to avoid conflicting frequencies.
- Health departments often require licenses, certifications and testing for stewards and staffing of food and beverage vending locations.

13.2.5 The storage of merchandising stock, particularly if flammable goods are for sale, should be discussed with the fire authority and local authority to ensure that the appropriate fire extinguishers are on hand on the stands or stalls. The control and movements of stock around the site should follow agreed procedures.

## 13.3 Items of Merchandising

13.3.1 The items for sale as merchandising should not breach any license requirements, trading standards, copyright, or trademark regulations.

13.3.2 Ensure that information concerning items that could cause injury or discomfort (e.g., glowsticks) is given to the purchaser at the point of sale and the procedures for their correct use are prominently displayed.

13.3.3 The practice of tattooing, body piercing and massage may require a special license or permit from a local authority in certain parts of the United States. Check that the necessary licenses and permits have been or will be issued by the local authority before allowing tattooing or body piercing to take place.

13.3.4 Offensive materials should be carefully considered and viewed in relation to the audience profile and perhaps not “actively displayed.”

13.3.5 In the case of ticket scalpers and unwanted street traders, liaise with the local authority to determine the methods that can be legally used to deter such practices.

## **13.4 Emergency Communications to Vendors**

13.4.1 It is essential that during an evacuation of the event site (bomb threat, fire, biological attack, etc.) that the vendors be told to cease operations and shutter their booths/kiosks. Guests who pause to peruse or purchase goods block the flow of egress for other patrons. Covering over the merchandise, food, drinks that would normally be for sale and making every appearance that the booths are closed for business is essential to maintaining a smooth and consistent flow of the crowd to a safer area. See Chapter 6, *Communications*, for more information.

# 14. Amusements, Attractions and Promotional Displays

14.0.1 Additional information on this topic can be found on the web site of the International Association of Amusement Parks and Attractions (IAAPA)( <http://www.iaapa.org/>).

## 14.1 Safety Standards, Regulations, and Policies

14.1.1 Standards on Amusement Rides and Devices are available through ASTM International and its F-24 Committee (<http://www.astm.org/COMMITTEE/F24.htm>). This ASTM Committee is composed of consumer advocates, government officials, amusement park operators, ride manufacturers and industry suppliers. The Committee helps to establish standards on design and manufacture, testing, operation, maintenance, inspection, quality assurance and more. These standards undergo periodic review and revision to keep up with new technologies, and have been adopted by many governmental jurisdictions.

14.1.2 Amusement parks are subject to state and local governmental codes, requirements, and safety inspections, and must pass rigorous inspections by insurance companies. According to the Consumer Product Safety Commission, *Directory of State Amusement Ride Safety Officials* (July 2010):

The high level of expertise developed by state amusement ride officials and their willingness to promote knowledge within this area have been invaluable in identifying unsafe mobile amusement rides and preventing future deaths and injuries on a national level (p. 2).

14.1.3 Safety inspections are conducted by amusement park staff on a daily, weekly, monthly and yearly basis. They follow detailed manufacturer guidelines for inspection and safety, and many parks use outside specialty companies to periodically re-inspect rides. ASTM International standards require fixed-site amusement industry operators and manufacturers report both incidents and ride-related defects, including notification of facilities when a ride develops a manufacturer-related safety issue.

14.1.4 The federal government does not regulate amusement parks. As of this writing, 44 states regulate amusement parks. The six who currently do not are Alabama, Mississippi, Nevada, South Dakota, Wyoming and Utah.

14.1.5 Generally, amusement parks follow the manufacturer's guidelines for inspection and safety and many parks contract third party companies to independently inspect their facilities. Amusement parks report incidents to state and local governments.

14.1.6 According to the December 2011 Fixed-Site Amusement Ride Injury Survey (National Safety Council Research and Statistical Services Group; [http://www.nsc.org/news\\_resources/injury\\_and\\_death\\_statistics/Documents/Report%202010-Sep\\_2011\\_rev%2012%205%2011.pdf](http://www.nsc.org/news_resources/injury_and_death_statistics/Documents/Report%202010-Sep_2011_rev%2012%205%2011.pdf)):

- Approximately 290 million guests visit the 400 U.S. amusement parks annually and take 1.7 billion safe rides.
- The chance of being seriously injured on a ride at a fixed-site park in the U.S. is 1 in 9 million.
- 59 of the 1207 ride-related injuries, or less than 5 percent, required some form of overnight treatment at a hospital

14.1.7 The International Association of Amusement Parks and Attractions (IAAPA; [www.iaapa.org/](http://www.iaapa.org/)) created a list of amusement ride safety tips for guest use.

- Obey listed age, height, weight, and health restrictions.
- Observe all posted ride safety rules.
- Keep hands, arms, legs and feet inside the ride always.
- Remain seated in the ride until it comes to a complete stop and you are instructed to exit.
- Follow all verbal instructions given by ride operators or provided by recorded announcements.
- Always use safety equipment provided and never attempt to wriggle free of or loosen restraints or other safety devices.
- Parents with young children should make sure that their children can understand safe and appropriate ride behavior.
- Never force anyone, especially children, to ride attractions they don't want to ride.
- If you see any unsafe behavior or condition on a ride, report it to a supervisor or manager immediately.

14.1.8 Guidance is already available about attractions, rides, amusement devices and stalls found at fairgrounds and amusement parks (see the ASTM International guidelines or the IAAPA website for more information on guidelines for Amusements). This chapter does not replace the need for an event organizer to obtain this guidance. The intention of this chapter is to highlight some areas for consideration when amusements, attractions and displays are incorporated in a music event rather than at a fairground or amusement park.

## 14.2 Amusements and Attractions

14.2.1 If you wish to include amusement activities at your event, it is important to obtain the required safety information about the activity from the operator. This is to ensure that the siting and operation of the amusement does not:

- Compromise safety with the overall risk assessment for the event;
- Block the emergency access routes; or
- Cause audience congestion problems.

14.2.2 Points to consider when incorporating any amusement as part of the overall entertainment include the following:

- Obtain advice about the particular hazards associated with the amusement or attraction from the operator and ask them for copies of their own risk assessment and safety information. Incorporate the information into your overall risk assessment for the event.
- Obtain advice from the relevant enforcement authority (state and/or local authority) about the particular amusement. Local and state authorities should have up-to-date information concerning hazards that have been reported about a particular amusement activity.
- Check the operator's competence. It should be relatively straightforward to check the competence of the operator against information already acquired. Is the operator able to demonstrate compliance with legislation or codes of practice? Are they a member of an association? Do they have current insurance? Does each amusement have a current certificate of thorough examination from an inspection body? What experience have they had in operating the amusement? What safety information can they supply about the amusement?
- Information concerned with the safe operation of the amusement should also be given to other contractors working at the event who may be affected.
- Determine appropriate setting-up times, operating times and dismantling times. Amusements should be set up before the audience enters or approaches the event. Make sure that the amusement is not dismantled until all members of the audience have left or are at a safe distance. Vehicle movements are often prohibited during events and amusement operators need to be informed about this policy.
- Ensure that suitable space has been allocated for the amusement. Space is one of the most important considerations for any amusement. This does not just include space on the ground but often space above. Obstacles such as large trees, overhead cables and power lines can cause major hazards. The sides and rear of the amusement may need barriers.
- When planning the positioning of the amusement, consider emergency access routes as well as space for audience members who may queue to ride the amusement. Space may be needed for family, friends and others to comfortably watch the amusement.
- Ensure that the operation is coordinated with the music event. Crowd management problems can arise if operators are still offering rides on the amusement after the music event has ended and if members of the audience try to have one last ride before leaving. On the other hand, it may be appropriate to continue the operation of the amusement to stagger people leaving the event. Whatever the decision, careful coordination of the activities must be planned and communicated to the operator and event personnel.
- The availability of natural light may also be an important safety factor in the operation of some amusements, particularly where color-dependent safety features are used.

## 14.3 Bungee Jumping

### 14.3.1 Permits

States typically require bungee jumping operators to obtain a permit or license before they can operate in the state. The application process for these permits differs from state to state. For example, Ohio Administrative Code Section 901:9-1-23 sets out the state's permit application requirements for bungee jumping operations. The permit must include information such as a site operation manual; a site plan with detailed information about safety zones, fences, jump zones and equipment locations; and proof of insurance coverage. The state can also require an applicant to submit a "registered engineer's report confirming that the design and construction of

the equipment to be used meets engineering standards acceptable to the department and confirming that all applicable local codes have been complied with.”

### **14.3.2 Prohibited Activities**

14.3.2.1 States also place specific limitations on how and where bungee jumping operations can operate. These laws commonly place restrictions on what kind of jumping is allowed, where operators can set up a jump site and what kind of equipment is or isn't allowed.

For example, the state of South Carolina Code of Laws 52-19-30 sets out the limitations on bungee jumping in the state. These prohibitions include: bungee jumping can only be done from a fixed platform; jumpers cannot use an ankle harness; jumping cannot take place over water, sand or any other surface other than an air bag; and tandem or multiple jumping is not allowed.

### **14.3.3 Insurance and Notification**

14.3.3.1 States also require that bungee jumping operators are properly insured. The amount and kind of insurance required differs, but no bungee jumping operation is allowed to be open unless proof of insurance is first obtained. Operators also have a duty to report injuries or risk losing their permits or licenses. For example, the state of West Virginia imposes both insurance and notification requirements on all bungee jumping operators in the state. West Virginia Code 21-12-11 states that all operators must have an approved insurance policy at all times during operation. The policy must be no less than \$300,000 per person and \$1,000,000 in total for each site or platform the operator has. Further, West Virginia Code 21-12-8 states that an operator must notify state officials within 24 hours of an accident or fatality at any bungee jumping site.

14.3.3.2 Ensure that bungee jumping operators belong to a reputable association and meet the state's requirements.

14.3.3.3 Pre-booking is recommended for those wishing to take part in bungee jumping and this should be discussed with the bungee jumping operator. In particular, advertising before the event may need to be considered.

## **14.4 Inflatable Bouncing Devices**

14.4.1 There are many types of inflatables that can be used for bouncing upon, including: open-sided or flat beds, open-fronted (e.g., castles), and totally enclosed.

14.4.2 Hazards include being blown over or away by the wind, splitting of the fabric, accidental spilling of users, injury to the users by themselves or other users, overcrowding, air loss due to blower disconnection, power supply failure and inadequate means of escape if there is fire. Each inflatable should be thoroughly examined annually for any deterioration by a competent person or company. Height and age restrictions are often necessary for the safe operation of these bouncing devices and such information should be made visible to the audience wishing to take part.

14.4.3 Choose an appropriate site for the device that is large enough for easy entry/exit and allows for cushioning of any hard ground under and around it.

14.4.4 Comprehensive plans should be developed that address any actions required during weather situation that can affect the operation of the device such as high winds and rain.

14.4.5 Inflation and tie-down of the device; stakes should be at least a foot long (304.8mm). Never hire one without means of anchorage if the inflatable is for outdoor use.

14.4.6 The recommended maximum number of children that can be safely accommodated at any one time will be influenced by the age and size of the children who are to use the inflatable.

14.4.7 A responsible adult should supervise and manage children always while it is being used.

14.4.8 A rotation system should be designed to avoid the mixing of different ages or sizes of children.

14.4.9 Appropriate behavior of children should be enforced (e.g., Children should not climb on walls, attempt acrobatics [e.g., somersaults], or take food or drink onto the device.)

14.4.10 Make sure to protect children and others from electrical equipment that may be associated with the device.

14.4.11 Extra insurance coverage may be necessary if you rent a bouncy device.

14.4.12 Adults and children should not be in bouncy devices together. Adults should only use bouncy devices made specifically for adult size and weight.

14.4.13 Inspection should include:

- Is the bouncy device securely anchored? All anchorage points should be used and, if situated on hard ground, tie-down straps should be affixed to solid points.
- Are impact-absorbing mats positioned at the open side of the bouncy castle, extending a sufficient distance forward to ensure sufficient protection? (Mats may not be necessary on soft ground.)
- Is there at least one person constantly supervising the children on the bouncy castle? An attendant who is collecting money cannot also supervise the activity.
- Does the bouncy device seem overcrowded? If children are constantly knocking into each other, the attendant may not be following the maximum load recommendations.
- Are children of different ages/sizes mixed? If the demand is great the attendant should operate a rotation to avoid larger children crushing smaller ones.
- Are children instructed to remove sharp articles of clothing like shoes, buckles and jewelry and is the rule enforced?
- Is there evidence that the attendant is controlling the children? Horseplay should not be allowed, and children should not climb on the walls of the inflatable.

14.4.14 For inflatable devices used as promotional displays, such as rooftop inflatables, dancing inflatables, helium balloons, hot air balloons, parade balloons and more, check the standards offered by the U.S.-based Inflatable Advertising Dealer Association (<http://inflatableads.org/>).



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## 14.5 Flight Simulators and Computer Games

14.5.1 Motion simulators, 4D video presentations and ‘Game Based Learning’ are popular and expanding rapidly into most events.

14.5.2 Care should be taken choosing the environments and designated areas where these activities take place. A replica domain is often used instead of an actual domain, e.g., in paintball or laser tag a virtual forest may be constructed of padded obstacles to reduce injuries to participants. The goal of these attractions is to cause the participant to think, act, experience consequences and pursue goals as if they were real and to find the right course of action based on experimentation—making choices and experiencing the consequences.

14.5.3 Motion simulation hazards include:

- Contact with the outer simulator body during use.
- Contact with the access door when opening automatically.
- Trapping hazard between the simulator body and the surrounding floor.
- Failure of the mountings and/or structure.

14.5.4 Precautions to consider:

- Limit the simulator so it can only be operated with a key. This key should be held by the supervisor on duty and only signed out to authorized personnel.
- Restrict access to the simulator room to card access or other mechanical lockout.
- Position the simulator behind a metal barrier and a gate. Opening the gate stops the simulator's motion.
- The travel and velocity parameters are limited within the control unit.
- Participants will be given full training and safety rules for the use of the simulator.
- One participant in each group will be nominated as being responsible for the safety during each session. e.g., Regular maintenance by contractors to ensure that mountings, fixtures, etc. are satisfactory.
- User maintenance at yearly intervals for visual checks on mountings and fixtures.
- A time lock prevents the use of the simulator outside of portered hours.
- Guards and barriers to prevent access to the moving parts of the simulator.
- Physical interlocked guards will not prevent a person from being caught behind the fencing/guarding whether deliberate or not.
- Endeavor to keep good visibility around the simulator for the operator, this will decrease the risk of accidentally containing someone in the simulator area.
- Line out a “danger area” around the safety perimeter radius in an appropriate caution color.

14.5.5 Mobile flight simulators and associated rides are often very heavy pieces of equipment that need specific ground conditions to operate safely, access requirements and ample space around the device.

14.5.6 Example of Ride Height and Weight signage:

- Minimum height is 48 inches, maximum height is 76 inches.

- Riders feet must be able to reach the foot plate.
- Maximum weight is 250 lbs per rider.
- Must be able to fit in seat fully restrained and keep hands through wrists straps and hold handles always.
- Pregnant women, those with high blood pressure, heart conditions, aneurysms, recent surgery or illness, anyone with back, neck or bone injuries, balance/ear problems and diabetics should not ride.
- These rules are posted and enforced.

#### 14.5.7 Basic checklist of things to consider include:

- Designated area and layout of the attraction
- Attendants
- A means of safely canceling, stopping and restarting the experience
- Participant/user-required safety equipment e.g., helmets, pads
- Maintenance and sanitation of the environment e.g., spraying or wiping down frequently handled items with a disinfectant
- Signage posting policies regarding age, size and weight limitations, health warnings, pregnancy warnings, etc., and enforcing the policies
- Queue line management, ingress and egress

14.5.8 Advancements are being made in this area every day. Along with the information herein, please do not forget to apply common sense when it comes to safety.

## 14.6 Fairgrounds and Fairground Rides

14.6.1 Fairgrounds or individual fairground rides may be incorporated at outdoor events and some larger indoor events. Standards for amusement rides are set by the ASTM International, F-24 Committee on Amusement Rides and Devices. There is also a series of plant and machinery guidance notes that detail the safety requirements.

## 14.7 Circuses

### 14.7.1 General

14.7.1.1 It is relatively unusual for a complete circus to be part of a music event. However, it is not unheard of to find circus performers demonstrating their talents (e.g., fire eating, stilt walking and juggling) in and around the venue or site itself. Make sure to brief performers on audience safety (e.g., emergency exits should always be kept clear) and advise them where and when to start their act.

14.7.1.2 The enforcement responsibility for circuses usually falls to local authorities, except for a small number of circuses operating on certain properties (e.g., state fairs), which may be the responsibility of state agencies.

14.7.1.3 Other state laws and regulations may also apply to circuses such as those required for the handling of animals, amusement rides and food service.

### **14.7.2 Staff**

14.7.2.1 All performers should have appropriate permits and undergo training to perform in the circus.

14.7.2.2 The troupe should have a licensed nurse on staff, and as many performers as possible should be trained in first aid.

14.7.2.3 The circus should provide staff members with the protective clothing they need for their acts. This clothing and any other apparatus used during performances should be inspected before each show to make sure they have not been damaged.

### **14.7.3 Insurance**

14.7.3.1 The circus company needs multiple types of insurance including medical for employees and liability for injuries to customers/the public.

### **14.7.4 Building or Tent**

14.7.4.1 Each state will have rules/regulations regarding the construction and use of tents and similar structures. Please see Chapter 9, *Structures*, for more details and become familiar with all local construction and maintenance requirements for such structures.

14.7.4.2 Some of the most important issues related to tents include the maintenance of multiple, open exits for everyone inside; adequate ventilation; and, assuring that the tent materials, construction and electrical features all meet local fire and life safety code requirements.

14.7.4.3 Tents larger than a certain size usually require a permit. Make sure to check the local requirements. The permit process can help assure compliance with all other requirements.

### **14.7.5 Aerial Acts**

14.7.5.1 During training and practice, aerial artists should have a spotter, harnesses, and/or a net specially designed to withhold the weight of a falling adult.

14.7.5.2 The European Federation of Professional Circus Schools (<http://www.fedec.eu/>) recommends that aerial performers have protective devices during the show (e.g., nets, foam mattresses, harnesses and/or tethers). Protective devices may not always be possible for some acts, and in these situations a plan of action should be devised ahead of time in case the performer falls.

### **14.7.6 Fire Acts**

14.7.6.1 Special precautions must be taken if the circus uses fire in any of its acts. Many states have very specific requirements for the use of fire in an entertainment venue in front of a proximate audience. Become familiar and comply with all local live fire requirements for such situations.

14.7.6.2 Whenever there is fire involved in an act, no less than one person should be specifically made responsible for fire protection and firefighting activities. Although safety is everyone's

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responsibility, specific assignments must be made to provide a level of fire protection that is commensurate with the hazard.

14.7.6.3 All personnel charged with fire protection and firefighting tasks should be fully trained and equipped to perform their duties. All staff should be trained in dealing with fires and their specific role(s) should an unplanned, unfriendly fire ignite. See Chapter 4, Fire Safety, for more details.

14.7.6.4 All performers operating with or near the flame effect should wear fire-resistant clothing.

14.7.6.5 Appropriate methods of fire extinguishment (e.g., appropriate fire extinguisher, fire hose, water bucket, etc.) must be available when fire is used.

14.7.6.6 Fire, when used in an act, should be used at a safe distance from spectators. Most states have very specific minimum distances for this.

### **14.7.7 Animal Acts**

14.7.7.1 Animal exhibitors are required to be licensed by the U.S. Department of Agriculture. The Animal Welfare Act regulates the use of most circus animals and states that there must be “sufficient distance and/or barriers between the animals and the viewing public to assure the safety of the public and the animals. Trained handlers, leashes and stages, for example, are not substitutes for sufficient distance and/or barriers.”

14.7.7.2 Many states also have requirements regarding the storage and use of “exotic” animals in an entertainment venue. Become familiar and comply with all local rule, regulations and laws pertaining to the use of live animals.

### **14.7.8 Safety Professionals**

14.7.8.1 Safety rules vary from state to state as do rules governing the use of animals, insurance and many other aspects of a circus performance. This list is not exhaustive, and anyone interested in circus safety should consult with professionals to ensure the safest atmosphere. There are many safety consultants available for all types of circus acts, so contact a professional to guarantee a safe environment.

14.7.8.2 Circuses using incendiary devices must comply with all local and state ordinances as interpreted by the local authorities with jurisdiction over the event.

## **14.8 Promotional Displays**

14.8.1 Companies sponsoring events may wish to advertise their product by way of a promotional display. These can range from advertising balloons and inflatables, purpose-made structures, video and virtual reality electronic games through to smaller merchandising stands.

14.8.2 It is easy to overlook the effect that some of these displays might have on the safety of the event. Obtain information as to the type of equipment that will be brought on site, its method of

erection and particular hazards the equipment may pose. Drawings of any special structures should also be obtained along with the methods of erection and dismantling.

14.8.3 Consider placement of promotional displays during the venue design phase to ensure that they do not obstruct emergency exit routes or hamper audience movement around the site. Inflatable balloons and displays must have appropriate space allocated to them and be suitably anchored. Banners of all types, soft goods and other materials capable of creating a sail effect must be designed for rapid lowering in the event that the wind loads exceed those in the emergency action plan.

14.8.4 Those bringing the equipment onto site must also be instructed on the site safety rules. Any advertising stands should be treated in the same way as merchandising stands. Electrical equipment must come equipped with the relevant electrical test certificates and be installed by a competent electrician (see Chapter 11, *Electrical Installations and Lighting*).

14.8.5 Some large-scale marketing events take place around major sporting events or air shows. Each activation of a marketing event should be considered a standalone, event-within-an-event. Attention should be paid to all details as if it were the main event. It is easy to underestimate the amount of effort needed to coordinate multiple event marketing activations. Be diligent in the expectations placed on staff assigned to coordinate multiple activations.

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# 15. Sanitary Facilities

15.0.1 Ensure that adequate sanitary provision is made for the number of people expected to attend the event. Consideration should be given to location, access, construction, type of temporary facilities, lighting and signage.

15.0.2 The American Restroom Association provides some guidelines online at <http://www.americanrestroom.org/pr/policy> and FEMA offers their “FEMA Special Events Contingency Planning- Toilets” pamphlet, which can also be found online at <http://www.americanrestroom.org/pr/policy/#fema>.

15.0.3 Construct and locate toilets so that people are protected from bad weather and trip hazards. The floors, ramps and steps of the units should be stable and of a non-slip surface construction. Protect connecting pipe work to avoid damage.

15.0.4 Toilets should be readily visible, lit and clearly signed from all parts of the venue. The areas and, where appropriate, the individual units, should be adequately lit at night and during the day, if required.

## 15.1 Maintenance

15.1.1 Regularly maintain, repair and service toilets using suitably experienced competent workers throughout the event to ensure that they are kept safe, clean and hygienic. Toilets need to be supplied with toilet paper, in a holder or dispenser at all times. Some modern units come equipped with hand sanitizer dispensers which can relieve some pressure from your hand-wash units. Arrangements should be made for the rapid clearance of any blockages.

## 15.2 Location

15.2.1 Where possible, locate toilets at different points around the venue rather than concentrating in one small area, to minimize crowding and queuing problems. Consider placing toilets outside the perimeter fenced venue area (e.g., parking lots, box office queue lines, event campsites, etc.). Attention should be given to access requirements for servicing and emptying. This may include the need for temporary roadways and dedicated access routes for pumper trucks, subject to the layout of the site.

## 15.3 Type

15.3.1 Where temporary toilets are required, an assessment should be made of the suitability of each of the available types of temporary unit, for the nature and duration of the event being organized. Consider the perceived peak usage of any toilet units and the time taken for cisterns to fill. Rapid and constant use of any toilet can cause the bowls to become unsanitary and prone to blockages.

15.3.2 Temporary mains units can be used if a sewer, drain, septic tank or sewage holding tank is available, and provided an adequate water supply and adequate water pressure are available. Recirculating self-contained units do not require drains or water services. Provision must be made for service vehicles and safe access to all units requiring regular maintenance.

15.3.3 Single self-contained units are versatile and easily relocated during events but are limited to a maximum number of uses before requiring service.

15.3.4 Wherever field toilets are used, provision for safe and hygienic waste removal must be arranged with holding tank facilities, if required.

## 15.4 Quantity

15.4.1 Recommendations as to the minimum scale of toilet provision for buildings of public entertainment are available online and from the various vendors who specialize in this service.

15.4.2 In all circumstances, the sanitary accommodation will depend on the nature of the event, the audience profile and the type of venue. To calculate sanitary provision requires knowing the audience size and then estimating the anticipated male to female ratio. When there is insufficient information to assess this ratio, a split of male to female (1:1) should be assumed.

15.4.3 Consider the following when determining the minimum number of units:

- The duration of the event;
- Perceived audience food and fluid consumption and whether alcohol is to be sold;
- Adequate provision during intervals and breaks in performance;
- Requirements for event-related temporary campsites;
- Provision of suitable facilities for children, elderly or infirm people attending who may take longer to use a facility;
- Facilities inside a fenced venue at a 'no-readmission' event; and
- Weather conditions and temperature.

15.4.4 The experience of a competent consultant or responsible contractor could prove invaluable when determining numbers of sanitary conveniences.

15.4.5 Table 15-1 (below) shows a general guideline for a music event, though these figures may be too high for short duration/'non-peak' period events such as fairs and parties, or too low for events with high levels of fluid consumption or where extended use or camping will occur.

15.4.6 Special event organizers should refer to Table 15-1 to determine the approximate number of portable restrooms needed at a special event. Factors that may skew this chart:

- Does not allow for excessive consumption of beer.
- Does not consider existing permanent venue toilet facilities.
- The space available. If space is tight, increasing the frequency of service might be an alternative which will allow your event to use fewer units.

**Table 15-1.***Number of Portable Restrooms Required for Special Events.*

		NUMBER OF HOURS FOR EVENT PER DAY (ASSUMES SERVICING PER DAY)									
		1	2	3	4	5	6	7	8	9	10
N U M B E R  O F  P E O P L E	250	2	2	2	2	2	3	3	3	3	3
	500	2	3	4	4	4	4	4	4	4	4
	1000	4	5	6	7	7	8	8	8	8	8
	2000	6	10	12	13	14	14	14	15	15	15
	3000	9	14	17	19	20	21	21	21	21	22
	4000	12	19	23	25	28	28	28	30	30	30
	5000	15	23	30	32	34	36	36	36	36	36
	6000	17	28	34	38	40	42	42	42	44	44
	7000	20	32	40	44	46	48	50	50	50	50
	8000	23	38	46	50	54	57	57	58	58	58
P E R  D A Y	9000	26	42	52	56	60	62	62	62	64	64
	10000	30	46	57	63	66	70	70	72	72	72
	12500	36	58	72	80	84	88	88	88	88	92
	15000	44	70	84	96	100	105	105	110	110	110
	17500	50	80	100	110	115	120	125	125	126	126
	20000	57	92	115	125	132	138	138	144	144	150
	25000	72	115	144	154	168	175	175	176	176	184
	30000	88	138	168	192	200	208	208	216	216	216

## 15.5 Washing Facilities

15.5.1 An experienced vendor will guide you best when it comes to all sanitation needs. In the event you do not have access to an experienced and knowledgeable vendor or consultant, the following is a good rule of thumb. Where possible, provide hand-washing facilities in the ratio of one per five toilets with no less than one hand-washing facility per 10 toilets provided. Provide suitable hand-drying facilities. If paper towels are supplied, arrange for regular waste disposal and restocking.

15.5.2 Where warm water hand-washing facilities are available, provide adequate supplies of suitable soap. Hand sanitizer, antiseptic hand wipes or antibacterial soap should be provided where warm water is not available.

15.5.3 On sites where hand-washing facilities are supplied in the open air, consider the management of the facility to ensure that the surrounding ground does not become waterlogged leading to localized pooling or flooding.

## 15.6 Long Duration Events

15.6.1 Hand-washing facilities alone may not provide adequate provision for events longer than one day, or when overnight camping is available. In these instances, consider whether it may be



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appropriate to supply shower facilities on site, subject to the availability of adequate water supply and water pressure.

## **15.7 Sanitary Provision for People with Special Needs**

15.7.1 Provide appropriate sanitary accommodation for wheelchair users and other people with special needs attending the event. The Americans with Disabilities Act will apply regarding sanitary accommodation for people with special needs.

15.7.2 Also consider access to toilets for people with special needs. Supply fixed and stable ramps where appropriate. Position facilities close to any area set aside for people with special needs such as viewing platforms, and ensure they are designed to comply with the ADA.

15.7.3 The provision of facilities should relate to the expected numbers of people with special needs attending the event. It is suggested that one toilet with hand-washing facilities should be provided per 50 people with special needs.

15.7.4 If there is any possibility that tampons or sanitary napkins may block sanitation facilities, supply suitable and clearly identified designated containers and arrange for regular emptying of those containers.

15.7.5 If infants are expected at an event, provide appropriate baby-changing facilities including receptacles for the hygienic disposal of disposable diapers and baby wipes. Provide prominent signage within the baby-changing cubicle to ensure the receptacles are used.

15.7.6 If for any reason sewage needs to be stored on site until offsite disposal facilities are open or available, it is essential that adequate holding tanks are provided on site in a safe and secure location. Seek advice on safe sewage disposal from the appropriate authorities and ensure that a licensed contractor is employed to remove and dispose of that sewage. Arrangements should be documented and agreed with the contractor before the beginning of the event.

## **15.8 Facilities for Employees and Event Staff**

15.8.1 OSHA requires that suitable and sufficient toilets and washing facilities must be provided at workplaces. Guidance should be available from your service provider. When in doubt, use the same formulas as for the general public and consider increasing the number of hand wash stations to accommodate 25% more uses than the public units.

15.8.2 Sanitary accommodation for use by event workers should be located near work areas and, in particular, behind the stage, near the mixer tower, next to the catering areas and parking lots, the first-aid areas, welfare, and children's areas. Specific dedicated toilets with hot and cold hand-washing facilities should be provided for food handlers.

## 15.9 Contractors Providing or Servicing the Sanitary Facilities

15.9.1 Discuss requirements for the type, numbers, positioning, servicing and maintenance of sanitary facilities with the contractor before the event. It is advisable to provide contractors with a plan of the site, showing the proposed location of the facilities along with a copy of the site safety rules and information concerning any significant risks highlighted in the overall event risk assessment.

15.9.2 Examine contractors' safety policies and risk assessments. Contractors should ensure that their workers are provided with and wearing the correct personal protective equipment. Protective overalls, boots or shoes, gloves and eye protection are needed to ensure that workers are protected from accidental splashes of the disinfecting and odorizing chemicals as well as accidental contamination by sewage.

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# 16. Waste Management

16.0.1 Large quantities of waste materials will be generated by the concessionaires and the audience at most music events. A waste management plan for a music event must account for waste removal both during and after the event, to minimize the risks associated with accumulated waste.

## 16.1 Types of Waste

16.1.1 Types of waste generated include the following:

- Paper and cardboard packaging;
- Food and drink containers;
- Food waste from attendees and vendors;
- Glass;
- Plastics;
- Metal cans;
- Construction materials (e.g., scrap metal, steel, aluminum, etc.)
- Clothing;
- Human waste products (e.g., vomit, urine and feces, sanitary towels and tampons often placed in miscellaneous containers);
- Medical waste such as needles and bandages;
- Remains of camp fires;
- Fireworks and pyrotechnics;
- Waste water from toilets, showers and hand-washing basins;
- Waste water from food concessions; and
- Needles used by intravenous (IV) drug users.

## 16.2 Hazards Posed by Waste

16.2.1 Hazards posed by waste include the following:

- Injury to workers during collection and removal of waste from the site. Examples include cuts and grazes, needle stick injuries; back strains due to manual handling difficulties and possible infection;
- Blocking emergency access routes, hampering movement around the site, creating tripping hazards to the audience;
- Smoke and fire hazards when waste is accidentally or purposely ignited;
- The misuse of waste by the audience (e.g., throwing bottles, cans, etc.);
- Vehicle movements associated with the collection of waste materials; and
- Waste attracting insects and vermin.

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## 16.3 Areas Where Waste is Generated

16.3.1 Waste and the type of waste products will not be generated evenly across the venue or site. The buildup of waste and the need to collect it promptly will vary in different areas over time. A competent waste contractor will need to manage their workers and equipment to ensure that there are suitable and adequate resources directed to the appropriate areas at appropriate times. Each area of the venue or site may need to be managed differently.

16.3.2 Pay special attention to the following areas:

- Access routes to music event (e.g., surrounding streets or land);
- Entrances and exits;
- Arenas and stages;
- Sanitary areas;
- First-aid areas;
- Food service areas; and
- Camping areas.

## 16.4 Information to be Exchanged with Waste Contractor

16.4.1 Ensure that details are given to the waste contractor concerning audience size, arena size, site boundaries, numbers of campers, food concessions and other relevant factors. The waste contractor cannot accurately plan working methods or employ the correct number of workers without this information. Insufficient information could have serious consequences for the audience and employee health, safety and welfare, and the overall success of the event.

## 16.5 Methods of Collection

16.5.1 Waste collection from the site or arena usually involves a combination of the following:

- Contractors' workers specifically trained to pick the waste up (litter pickers), and/or empty the receptacles placed around the site or venue;
- The use of sweeper vehicles and vacuum suction vehicles;
- Vacuum tankers for collection of waste water temporarily held in smaller tanks; and
- Other vehicles, trailers and towing vehicles.

16.5.2 Discuss arrangements with the waste contractor before the event so that any special requirements regarding access or height restrictions, storage space for vehicles or accommodation for the litter pickers can be incorporated into your overall event planning.

## 16.6 Receptacles

16.6.1 Waste receptacles can be positioned around the perimeter of the venue or site, and they can also be positioned within the venue or site or other areas as appropriate. Care must be exercised in choice, size and location of receptacles. Wheeled containers or similar receptacles appear to be the most versatile at present as they can be obtained in a variety of sizes, are equipped with lids and are easily positioned as required. Also consider providing tamper-proof bins for sharp objects.

16.6.2 Steel drums are difficult to maneuver and empty when full so assess their use.

16.6.3 Large onsite compactors can reduce the bulk of the refuse. Compactors requiring a power source should only be operated by trained personnel. Compactors, dumpsters and other front-end-loader containers should be separated from the audience for reasons of safety, access for loading and to prevent the audience placing non-compacting, hazardous or other inappropriate waste into these units.

16.3.4 The collection company must be a licensed waste hauler that dumps in a professionally managed landfill that complies with federal regulations. The collection company's trucks must be well maintained to prevent leakage of the waste materials being hauled.

## 16.7 Times of Collection

16.7.1 Discuss with the waste contractor the strategy for waste collection for the duration of the event, including pre- and post-event collections. Different collection methods may be planned for each of these phases.

## 16.8 Methods of Removal

16.8.1 Discuss with the waste contractor the methods of waste removal from the venue or site. There may be areas that are subject to a ban on vehicle movements during the event to protect the audience. The sites chosen for the bulk collection must have a suitable access route capable of taking the weight of heavy collection vehicles. Consider local noise ordinances (and common courtesy) when scheduling late night and early morning trash hauls.

## 16.9 Health, Safety and Welfare of Employees and Event Workers

16.9.1 Waste contractors have a legal duty to ensure that the health, safety and welfare of their employees are protected on site. OSHA requires the use of personal protective equipment (PPE) to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. Employers are required to determine if PPE should be used to protect their workers. If PPE is to be used, a PPE program should be implemented. This program should address the hazards present; the selection, maintenance, and use of PPE; the training of employees; and monitoring of the program to ensure its ongoing effectiveness. See Chapter 37, *Personal Protective Equipment*, for more information.

16.9.2 Examples of suitable clothing and personal protective equipment for event personnel who are handling waste include:

- Protective boots or shoes with metal toe caps;
- Trousers and jackets;
- Waterproof suits, as appropriate;
- Fluorescent vests;
- Hard hats;

- Goggles; and
- Different types of gloves for different tasks.

16.9.3 Ensure that hand washing stations are available throughout the waste collection process. Those handling waste need access to hot and cold running water, soap and nail brushes to wash their hands and bodies if they become contaminated. Toilets and washing facilities must be available, particularly at the final waste collection process and in some circumstances showers will be necessary.

16.9.4 Brief workers before beginning work to explain site hazards and risks, hours of work and meal breaks and estimated completion time.

## 16.10 Recycling

16.10.1 Two commonly used methods of recycling during public assembly events are single stream and multiple stream recycling.

16.10.2 Single stream (also known as “fully commingled” or “single-sort”) recycling systems refer to a system in which all paper fibers, glass, plastics, and metals are commingled in one container at the collection point. These recyclable materials are hauled to a recycling facility for sorting. A benefit of single stream recycling is that only two types of containers have to be deployed: trash and recycling. Attendees are likely to sort waste at this level.

16.10.3 Multiple stream recycling systems require separate containers for the different recyclable materials: paper, glass, plastics, steel, aluminum, etc. When recyclable materials are sorted at the site, many haulers will pay for the materials or waive hauling fees. However, more containers are required for multiple stream recycling and event attendees are less likely to sort their waste materials at this level.

16.10.4 The effectiveness of the segregation systems for recycling will depend upon the cooperation of the event attendees, adequate supervision, suitable clear labeling and the location of the containers.

## 16.11 Planning Guide

16.12.4 A planning guide titled *Developing Trash-Free Special Events* was put together by the Eno River Association in North Carolina in 2000, in conjunction with the North Carolina Division of Pollution Prevention and Environmental Assistance, Department of Environmental and Natural Resources. This thorough guide discusses recycling programs, waste producers, placement, etc. and can be found online by doing an Internet search for “Developing Trash-Free Special Events.”

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# 17. Sound: Noise and Vibration

17.0.1 High sound levels present a risk to hearing, both for those working at an event and for the audience. High levels of vibration can affect the integrity of temporary and permanent structures if not properly constructed and assembled. Both sound and vibration can lead to noise nuisance outside the venue. Therefore, proper control and management of sound and vibration levels is needed both in rehearsal/sound check and during the event.

17.0.2 If sufficiently loud, any sound, including music, can damage hearing if people are exposed to it long enough. The risk to hearing from loud sounds is directly related to the dose of sound energy a person is exposed to. The risk of hearing damage increases the louder the sound and the longer a person is exposed to it. At high sound levels the risk of damage to hearing occurs at much shorter exposure times than at lower levels; at extreme high or impulsive levels the risk of injury to the ear is almost immediate.

## 17.1 Hearing Damage

17.1.1 Deafness is caused by damage to the structures within the cochlea. This damage results in loss of both frequency sensitivity and increase in hearing threshold, i.e., noises need to be louder to be able to hear them.

17.1.2 Sometimes after being subjected to loud noises people experience deafness that goes away after a while. This is called temporary threshold shift. But after sudden, extremely loud explosive noises, or more usually prolonged lower level exposures to noise over a number of years, permanent hearing loss can occur. It may be that the damage caused is only noticeable when it becomes severe enough to interfere with daily life. This incurable hearing loss may mean that the individual's family complains about the television being too loud, the individual cannot keep up with conversations in a group, or they have trouble using the telephone. Eventually everything becomes muffled and people find it difficult to catch sounds like “t,” “d” and “s,” so they confuse similar words. Social situations can become difficult.

17.1.3 Age and general fitness are no protection from hearing loss - young people can be damaged as easily as the old. Someone in their mid-twenties can have the hearing that would be expected in a 65-year old. Once ears have been damaged by noise there is no cure.

17.1.4 Hearing loss is not the only problem. Tinnitus or ringing in the ears may be caused as well. Most people suffer temporary tinnitus from time to time, often after a spell in a noisy place, but with noise-damaged ears it can become permanent. Some people find it more distressing than the hearing loss.

17.1.5 Most members of the audience will not attend events regularly enough to suffer serious hearing damage solely as a result of going to music events. However, the louder events can contribute to the overall sound exposure that members of the audience receive throughout their

life, including noise from other leisure activities, at work and at home, therefore increasing the risk of damage to their hearing.

17.1.6 The OSHA Occupational Noise Exposure Standard (29 CFR 1910.95) establishes uniform requirements to make sure that the noise hazards associated with all U.S. workplaces are evaluated, and that the hazards associated with high sound/noise levels are communicated to all affected workers so that effective protective measures can be taken.

17.1.7 For the community impact of noise from events, many local authorities already have environmental music noise control protocols which they apply to venues in their district. Refer to this source for guidance for the control of environmental music noise and its impact on communities neighboring outdoor music events.

17.1.8 In terms of vibration impact, the effects off site will generally be much less significant than on site, with the nuisance aspect of vibration being most significant.

## 17.2 Workers

17.2.1 OSHA Occupational Noise Exposure Standard 29 CFR 1910.95 establishes employer requirements to prevent damage to the hearing of workers from excessive noise at work. The regulation sets out actions which must be taken when stated levels of noise exposure are reached. It should be noted that a main objective of a music event is to amplify sound and distribute it. As such, administrative procedures and personal protective equipment such as earplugs or earmuffs become an integral measure to mitigate overexposure. Engineering methods can also be used regarding the type of sound systems used and placement of those systems.

17.2.2 When employees are subjected to sound levels exceeding those listed in Table 17-1, OSHA 1910.95(b)(1) states that, "...feasible administrative or engineering controls shall be utilized." If such controls fail to reduce sound levels within the levels of Table 17-1, hearing protection must be provided and used to reduce sound levels to within the levels of the table. Earplugs will have a Noise Reduction Rating (NRR) such as NRR-33 (i.e., NRR-33 is a noise reduction of 33 decibels). To compensate for known differences between laboratory-derived attenuation values and the protection obtained by a worker in the real world, the labeled noise reduction ratings shall be derated as follows:

1. Earmuffs: subtract 25% from the manufacturer's rating labeled NRR;
2. Slow-recovery formable earplugs: subtract 50%; and
3. All other earplugs: subtract 70%.

17.2.3 These derating values must be used until such time as manufacturers test and label their products in accordance with a subject-fit method such as Method B of ANSI S12.6-1997.

17.2.4 Consideration needs to be given to the nature of the noise, including its component frequencies. In some locations such as work within stage pit areas, the proportion of low frequency sound may be very high, and the hearing protection provided must be able to properly attenuate at such frequencies.



**Table 17-1**

*Permissible Noise Exposure (1) (from OSHA 29 CFR 1910.95, Table G-16)*

<b>Duration per Day, Hours</b>	<b>Sound Level dBA Slow Response</b>
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 or less	115

Footnote(1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions:  $C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n)$  exceeds unity, then, the mixed exposure should be considered to exceed the limit value.  $C_n$  indicates the total time of exposure at a specified noise level, and  $T_n$  indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

17.2.5 If noise exposure is likely to reach the action levels listed in Table 17-1, employers must: provide workers with information and training; reduce exposure as far as is reasonably practical by reducing sound levels or the time exposed to the noise or both (without hearing protection); provide hearing protection to all workers and ensure that they are used correctly. The regulation also requires workers to comply with the employer's instructions regarding noise exposure, including wearing hearing protection or taking breaks when necessary.

17.2.6 For more information refer to 29 CFR 1910.95 which can be found online at <http://www.osha.gov/>.

## 17.3 Audience

17.3.1 There is no specific legislation setting noise limits for the audience exposure to noise. However, reasonable efforts should be made to maintain sound levels that are rational.

17.3.2 When portions of the event are likely to exceed 96 dB(A), consider advising the audience of the risk to their hearing in advance, e.g., either on tickets, advertising or notices at entry points.

17.3.3 Sources of noise other than music also need to be properly controlled. In particular, the noise from pyrotechnics should be restricted so that at head height in the audience area, noise from pyrotechnics does not exceed peak sound pressure level 140 dB or 200 Pa. Discuss this

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requirement with the specialist pyrotechnic technicians before the event, as charge density and altitude of deployment may need adjusting to meet this requirement.

17.3.4 Noise sources such as music associated with fairs and sound systems brought onto site by merchandising concessions can also add to the overall noise levels produced by the event as a whole. Also consider an assessment and control of these sources.

## 17.4 Noise Assessments

17.4.1 To enable effective management of sound and vibration levels, both in terms of hearing protection and external nuisance to the nearby community, a pre-event assessment of likely sound levels, coupled with monitoring and control of sound levels during the event will be necessary.

17.4.2 This assessment should include the following:

- Sound levels in the audience area: if the sound levels likely in the audience area are expected to exceed the values in table 17-1, then advance warnings for the audience should be considered.
- If any worker's noise exposure reaches or exceeds any of the action levels in table 17-1, then hearing protection must be made available to them.
- Arrangements for monitoring and control of sound levels during the event should be considered.
- The type, placement, composition and articulation of sound systems used can have significant benefits in controlling and managing noise levels and vibration levels at the venue and outside in the nearby community.
- For vibrations of structures caused by high, prolonged intensity of sound, refer to Chapter 9, *Structures*, for more information. Most temporary structures are built to withstand the typical vibrations caused by sound systems; if there is cause for concern, alternative placement and/or arrangement/articulation of sub enclosures may need to be considered.

## 17.5 Myths

17.5.1 Within the music business there is a radically different approach to noise management than in most other industries. In other workplaces time, effort and investment is made trying to minimize the creation and transmission of noise; in the event industry we are more commonly deliberately trying to create the hazard. However, there is little doubt loud music – even music you like – can cause long term harm.

17.5.2 There are a number of myths and misconceptions regarding music, noise and hearing damage, and these cultural factors are serious impediments to taking effective steps to protect workers and others.

<b>Myth</b>	<b>Reality</b>
“Music is not really noise. If I like what I hear, it won’t harm me.”	Loud music you like is certainly less irritating than the sound of loud machinery; but there is no evidence that the physiological damage caused is any different. On the contrary, there is plenty of evidence to show that musicians and others have been seriously harmed by the music they enjoy.
“It doesn’t affect me; I’m half-deaf already.”	A common response from crew members when asked to wear hearing protection (HP). If you stop for just a second to consider this, you’ll see how crazy this myth is. Firstly, the fact that you are “half-deaf” indicates that noise could be playing a real part. More importantly, being “half-deaf” doesn’t mean that your remaining hearing function has somehow been toughened up. It means it is even more at risk and you need to take steps to look after your remaining hearing. The one-eyed man needs to take extra care of his eyesight – you wouldn’t say, “Oh I don’t bother with goggles, you see I lost one eye already!”
“You can’t communicate properly with earplugs in.”	Wearing ear protection takes a bit of getting used to, but reducing the overall level of sound reaching the ear will make it easier to distinguish speech. Correct selection of HP type will also help.
“If I go deaf, I’ll just wear a hearing aid.”	Noise induced hearing loss (going deaf from too much sound) is only one possible outcome. There are equally if not more unpleasant side effects such as Tinnitus, Hyperacusis & Diplacusis - a condition where each ear hears a pure tone as a different note, causing distortion in even the most harmonic sounds.
“It takes ages to get damaged.”	The reality depends on several factors, including actual noise level, duration of exposure and your own physiology. In truth some people do take years to show any signs of damage – but that is usually at relatively modest levels. In extreme environments where the average noise level can be over 100 dB, the damage can happen rapidly indeed. For very loud peak levels, the damage from acoustic trauma can be instantaneous.
“So audiences will have to wear ugly ear protection at concerts in future.”	No. The regulations do not apply to members of the public. When attending concerts they are making an informed choice to do so. They attend relatively infrequently when compared to workers. However, members of the public can and do buy their own earplugs.
“The levels set are way too low, I can shout at 85 dB.”	Aside from extremely loud instantaneous peaks, all noise levels given in Noise at Work Regulations are average levels evened out over a nominal 8-hour working day. You may be able to shout over 85 dB, but try keeping it up continually for 8 hours.

<p>“All loud leisure noise is dangerous noise.”</p>	<p>No. There is a tendency when talking about the risk, for the less well informed, to consider only the level of noise exposure and not the duration of exposure. There is also a tendency to sensationalize the risks of non-occupational exposure. For example, a story may warn that rock concerts are typically ‘130 dB SPL’ (sound pressure level). This is one of the highest levels reported for rock concert noise. The mean of published sound levels from rock concerts is closer to 100 dB.</p> <p>There is also confusion over the annoyance and temporary effects of a loud exposure (e.g., TTS or temporary threshold shift) which are widespread, and the risk of permanent hearing damage, which is minimal. Studies show that most listeners sustain moderate TTS and recover within a few hours to a few days after exposure. The risk of sustaining permanent hearing loss from attending rock concerts is small, and limited to those who frequently attend such events.</p>
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## 17.6 Noise Control Measures

17.6.1 The first, simplest and most effective measure is to turn down the volume wherever practical. Unfortunately this is often overlooked and goes against the ‘Rock and Roll’ attitude. However, the simple step of keeping levels under control at every stage of the instrument/signal/amplification/reinforcement chain is fundamental.

17.6.2 Loud stage noise levels can compromise the quality of the performance and the sound that is delivered to the audience. It has been known for stage monitoring levels to be so loud that the front-of-house engineer in an arena has been unable to hear his own mix. This seriously compromises the possibility of creating a suitable sound for the audience.

17.6.3 On-stage control measures include the following:

17.6.3.1 Turning it down does not necessarily mean reducing the overall output of the main PA, but requires an analysis of why things are so noisy and then targeting measures to control the main “offenders.” This is particularly true on stage where amplification of individual instruments (backline) often competes with on-stage monitoring (fold-back, side-fills) and the PA itself.

17.6.3.2 First consider substituting quieter instruments and amps. High-quality amplifiers and speakers that operate without distortion are far preferable to driving inferior systems at higher rates. Introducing distortion makes the output less intelligible and leads to increases in sound level in attempting to achieve clarity. The result is often a spiral of increasing volume without ever achieving clear monitoring.

17.6.3.3 Consider increasing distance, isolation or shielding of noisier instruments where possible. Drum kits can be positioned and shielded/enclosed to minimize noise levels for

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performers and workers situated close by. Ideally shielding should be acoustically absorbent rather than reflective material.

17.6.3.4 Position and angle guitar amplifier/speakers (guitar combos) for maximum ease of listening for the player. Additionally simply raising a guitar combo on a flight-case could significantly reduce exposure for other players, have a marked reduction in overall stage noise and improve clarity for the player. Guitar combos could be positioned and mic'd in a separate area from the performance area.

17.6.3.5 Consider using technology that eliminates the need for loud backline amplifiers on stage. This could range from simply plugging instruments into a mixing desk by means of Direct Injection (DI) boxes rather than mic'ing up an amplifier, through to using amplifier modeling software, foot pedals or other hardware. Whatever system is used, sound engineers can achieve greater control of on-stage levels through careful management of monitor levels rather than expecting musicians to fight it out in a battle of escalating stage volume.

17.6.3.6 Use risers to separate sections of the band, and to elevate particularly noisy instruments above the heads of other performers – or move to the front of the stage, particularly where very loud instruments may be used – brass instruments, amplified guitar and snare drums can produce extremely high sound levels.

17.6.3.7 A “shaker” or “thumper” is especially useful for reducing drum monitor levels. Shakers allow performers to use hearing protection and monitor their performance while still maintaining contact with their instruments.

17.6.3.8 Consider altering the drum kit set-up to ensure cymbals etc. are not at ear-height. Experiment with raising or lowering the cymbals as necessary to protect the hearing of everyone who is close by. Try hanging small strips of cloth from each cymbal's center nut.

17.6.3.9 Some drummers are happy with headphones/in-ear monitors and a shaker rather than a traditional drum fill. The headphones should be selected to provide hearing protection; the devices that reproduce sound inside the headphones should be limited. This alone may save several dB of overall stage level.

17.6.3.10 Consideration should also be given to limiting the time necessary to work in high noise areas. If properly considered and applied these techniques may mean that the noise exposure dose for staff can be kept below the threshold at which HP is required.

## **17.6.4 On-Stage Monitoring**

17.6.4.1 The need for musicians to hear their own performance and that of other performers is fundamental, but this can lead to an excessively loud and confusing stage environment if not planned and managed correctly.

17.6.4.2 A well-balanced monitor system should allow all the players to hear what they need at a comfortable level while maintaining a reasonable work environment for everyone else on the

stage. This needs time and planning, as well as a skillful monitor engineer who understands the needs of musicians.

17.6.4.3 An effective means of avoiding monitor spill is to use monitor headphones or in-ear monitors (IEMs). IEMs and monitor headphones allow a quiet stage environment with benefits for all workers. IEMs' benefits include clarity, controllability and comfort. Be aware that IEMs themselves can produce harmful levels to the user and so the use of limiters is strongly recommended.

## 17.7 Hearing Protection (HP)

17.7.1 Employers are required to provide employees with hearing protection if they ask for it and their noise exposure is expected to approach exposures depicted in Table 17-1.

17.7.2 Employers must provide employees with hearing protectors and make sure they use them properly when their noise exposure exceeds the upper exposure action values depicted in Table 17-1.

17.7.3 The main types of hearing protection are:

- Earmuffs, which completely cover the ear;
- Earplugs, which are inserted in the ear canal;
- Semi-inserts (also called “canal caps”), which cover the entrance to the ear canal.

17.7.4 You should use the results from your noise assessment and the information from hearing protection suppliers to make the best choice of hearing protection. Aim to get below 85 dB at the ear, and ensure it is suitable for the employees' working environment and compatible with other protective equipment used by the employee (e.g., hard hats, dust mask, eye protection).

17.7.5 We can all more or less tell when something is loud and could cause harm, but selecting the right kind of hearing protection to ensure people are protected takes a bit more effort. The kind of noise produced at events is variable. Depending on the phase of the event cycle, noise may be produced by construction work. During the public phase, concert PA system and generators are likely to be the sources. There will be huge variations in not just overall level, but in the component frequencies which make up the sound.

17.7.6 Effective HP needs to absorb enough of the incoming energy to protect the ear, but it needs to target the frequencies which are most prominent and which contribute most to the overall energy of the sound. Simply getting HP with a high overall attenuation rating (the SNR value) is not necessarily the best approach.

17.7.7 As an example, consider the pit area of a large festival that receives a high proportion of low frequency sound. Effective HP for pit crews in this environment needs to be effective at absorbing low frequencies, which all HP do not necessarily provide. The protection provided by a particular HP device must be matched to the sound energy the device is intended to protect against.

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## 17.8 Managing Use of HP

17.8.1 The noise level may subject people to exposure above established safe levels in a short period of time (less than a minute). Therefore consistent and proper use of HP throughout the exposure period is vital.

17.8.2 To be accepted and implemented workers need to understand the reason behind using HP and the basics of how to fit and use it. Fit, feel and comfort are just as important as the attenuation values discussed above. If the protection provided is bulky or uncomfortable, or it gets in the way of people carrying out normal duties, it is likely to be ignored or removed on a regular basis.

17.8.3 Overprotection should also be avoided. Bar and concession staff need to communicate clearly with customers, and providing excessively attenuating HP may appear to “err on the safe side,” but may mean staff remove the plugs every time they speak to a customer – resulting in over-exposure.

17.8.4 Workers should be offered a choice of HP, so they can decide which is the most comfortable and usable. They must also be shown how to wear or insert muffs and plugs – particularly expanding foam plugs – and to recognize when they are improperly fitted or should be replaced.

17.8.5 In complex environments where many subcontractors operate, it will normally fall to the event organizer to implement a system for the enforcement of HP use among contractors and suppliers – whether they be carrying out technical operations on the stage or working in retail units. Such a requirement does not override the primary duty of the employer to conduct a Risk Assessment and make suitable provision for their staff; however the organizer has a duty to ensure that all contractors and third parties are properly warned of the extent and nature of the noise hazard on site.

17.8.6 In some instances noise maps may be appropriate to give an indication of the areas of site where noise levels can be expected to be above acceptable levels as defined in OSHA 1910.95. Such a plan will clearly identify mandatory hearing protection zones.

## 17.9 Using Contracts to Help with Noise Control

17.9.1 Contracts can help the planning process by setting out the arrangements for noise control. They have been found particularly helpful where there are several contractors working together with a producer/venue provider(s). Contracts can be useful when dealing with the specific requirements of the Noise Regulations and can form part of the overall health and safety considerations for the event/production.

17.9.2 A contractual approach is often more readily understood by the parties concerned as so many matters are already covered in this way - from performers' riders to equipment specifications. The contractual approach can also act as a memo. Experience shows joint meetings can often slip by because of time constraints, whereas specified contractual obligations for consultation are usually taken on board.

17.9.3 Including things in a contract can help principal contractors/producers to pass on relevant information to subcontractors. For example, a contract stipulating a hearing protection zone could insist that subcontractors' crews wear earmuffs.

17.9.4 For smaller-scale events, contracts may be the most direct way of ensuring noise-control issues are considered. Key points can easily form part of standard contracts for musicians. These may be of most help to those with individual contractual arrangements, particularly for short hire periods. Similarly, venue operators can include some standard points relating to their requirements from performers - for example, which instruments and equipment will be brought to the performance by the performers and what, if any, control measures will be carried out by them.

17.9.5 In small venues a contract should help remove gray areas about who would do what and identifying what needs to be done by laying down responsibilities early on (apart from the non-transferable legal responsibilities).

## 17.10 Noise Measurement

17.10.1 Regular review of noise control is important to assure that all the controls are operating properly. To make sure noise control actions are still effective the following is required:

- Ensure that performers and crew understand why they need to follow instructions on control measures. Provide additional training or team talks if necessary.
- Ensure that hearing protection is used correctly and consistently.
- Review the results of hearing health checks to see how well the noise controls are working.
- Review the steps you have taken.
- Regular spot checks of noise levels can help to monitor how well controls are working.

## 17.11 Sound-Related Terms

17.11.1 Please see Chapter 40, *Glossary of Useful Terms*, for definitions of terms related to sound, noise and vibration.



# 18. Special Effects, Fireworks and Pyrotechnics

Content forthcoming.

# 19. Camping

19.0.1 At many events, camping is an integral part of the event. The camping area should be provided within the defined event site and incorporated as part of the event planning. An adequate level of services and facilities must be planned for the duration of the camping event and not merely during the event's entertainment.

19.0.2 In isolated locations or where the music starts early or finishes late, contingency provision may have to be made for camping even when people were not intended to camp. Some consideration may also have to be given to crew camping and camping for booth vendors with their booths.

19.0.3 Services provided for people camping, including fire, stewarding, medical facilities, water supply, etc., need to be available for the time that campers are allowed to remain on the site. Ensure your event publicity states the opening and closing times of the campsite. If large numbers of campers are likely to remain after the event, consider a gradual closing of the site to encourage those people to move, but without exposing them to risk.

## 19.1 Site Design

19.1.1 The camping area will need to be reasonably well drained and level with grass cut short to minimize the risk of fire spread. Camping should not be allowed on stubble. Break the camping areas up into discrete smaller areas to:

- Provide an identifiable camping area;
- Allow for the management of each area;
- Control the densities of each area; and
- Provide information and communications.

19.1.2 Music events involving camping are likely to attract a broad mix of people and it might be desirable to create a separate area for family camping. Separating areas can be carried out by using posts and tape while at larger events it may be necessary to provide some physical barrier to prevent camping such as metal trackways, road barriers, etc. Wherever possible the site layout should provide for an entertainment area in the middle of the site with camping on the periphery and parking beyond that. Crowd movements will therefore disperse away from the focus of the event. It is important that campsite layout plans are fully integrated between the various agencies involved, so that the site features and descriptions of locations will be identical for all the agencies.

19.1.3 Site arrangements and boundaries need to take account of natural hazards such as ponds, ditches, rivers, etc. Other hazards such as electricity pylons may need to be assessed to prevent access or risk of shock from activities such as kite flying and the use of tethered commercial balloons.

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## 19.2 Site Densities

19.2.1 Experience has shown that a density of up to 430 tents per hectare (1 hectare = 10,000 square meters or 107,639 square feet or 2.471 acres) for rock/pop events is a realistic standard. At more family-orientated events, perhaps with larger tents with greater number of occupants, this density would need to be reduced possibly by half.

19.2.2 It is desirable to provide separation distances between individual tents to make the site safer from fire and trip hazards, etc. Provide people entering the site with information and maps showing the camping areas and ensure there are sufficient stewards to direct people to the appropriate areas as the campsite fills up.

## 19.3 Segregation of Vehicles/Live-In Vehicles

19.3.1 It is desirable to physically separate camping areas from vehicle parking areas. The reasons for this are to remove risks from cruising or joyriding, car fires or runaway vehicles.

19.3.2 Minimize the distance between parking areas and campsites. Consider providing internal transport—such as shuttles—for campers to and from the campsite. This is important for families with children who need to carry considerable amounts of equipment.

19.3.3 It may be justifiable to permit parking with camping in certain circumstances on a level site and where the audience is compliant (e.g., families). Where there is a desire to allow camping and car parking next to each other, the density will need to be substantially reduced to allow for increased roads and separation. The campsite should be designed in advance so that blockages of tents and cars cannot happen. It may be acceptable to allow vehicles and tents to mix in an area provided for campers with special needs.

19.3.4 If live-in vehicles (e.g., RVs, camper vans or camper-trailers or adapted vehicles) are to be allowed on site, set aside a special area for this purpose. Such vehicles should not be used for camping in a parking area.

## 19.4 Information, Organization and Supervision

19.4.1 Include right on the ticket information important on-site restrictions, such as no unauthorized PAs, campfires, etc. At strategic points on the site (including the campsites) provide information including a “you are here” map and key information to direct people to important facilities such as toilets, water, medical facilities, fire points, etc. Make information easily available, including site safety and restrictions. In a large event this could be by using a mobile patrol that would operate 24 hours a day. Ensure the mobile patrol has radio communication and can respond to information requests about emergency situations involving medical issues, fires, etc.

19.4.2 By breaking up the camping area into smaller discrete areas, people can be given an identifiable camping area to which they can more easily return. On complex sites involving many camping areas and a large entertainment area, provide all campers with maps on entry and/or preferably an information pack with safety advice.

19.4.3 Locate stewards within the camping areas before campers arrive to assist with the general build-up of the campsite, and to monitor key facilities such as toilets, fire provision, water supply, etc. These stewards will also have a role in helping to ensure that camping is dispersed in the best way over the designated camping areas.

## 19.5 Contingency Planning

19.5.1 Aspects of contingency planning that require particular attention where there is camping on site include:

- Adverse weather;
- Failure of water supply; and
- Other need to clear the area.

19.5.2 At certain types of events attracting young people, it is common for them to attend without tents. Similarly, people attending with tents may find that the tents are unusable so that they are without accommodation. Campers might also have their tents stolen. Contingency provisions should allow members of the audience to obtain shelter where they are unable to provide any themselves.

19.5.3 If temporary accommodation needs to be provided, existing canopies and tents may be suitable. In the case of adverse weather conditions, particularly wet weather combined with high winds, such structures may not be stable. A source of smaller tents may be advisable to provide emergency shelter.

19.5.4 At large events where people arrive in large numbers by public transportation it may be impossible to close the event and clear the camping area in an emergency. Facilities will have to be brought to the camping areas rather than the people removed to another place of safety.

## 19.6 Public Health

19.6.1 It is useful to provide advice to individuals on basic personal hygiene matters and the type of food that they should or should not bring with them. Given the undeveloped nature of a camping area, large numbers of people involved, basic sanitation and remoteness from care, it is essential to ensure that food outlets and personal hygiene are satisfactory. The consequences of an infectious disease outbreak would be significant in terms of both the numbers that could be involved and the likely amount of care that could be provided. Provide adequate catering facilities, some overnight, and outlets where campers can buy basic provisions such as food and beverages.

19.6.2 Sites that are grazed will naturally be contaminated with animal droppings and may expose campers to health risks such as *Escherichia coli* bacteria (a.k.a. *E. coli*) infection. Exclude animals from all areas other than parking lots for as long as possible before public access. *E. coli* can survive for long periods in most environments.

19.6.3 Dogs should not be permitted onsite and advance publicity should be given. Unnecessary health risks include fouling and dog bites, and stray dogs pose a nuisance. However, it is likely that people will bring dogs, in which case provision should be made to deal with strays.

## 19.7 Crime

19.7.1 Campers are vulnerable to having property stolen from tents but may be unable to carry around items that might be stolen if left unprotected in their tents. Consider providing secure accommodation on campsites where people can leave bulky or valuable items.

19.7.2 Campsites should be adequately lit and patrolled by stewards to deter both isolated and organized criminal activity. Patrols will also help to identify other matters such as fire outbreaks, unruly camp fires, etc.

## 19.8 Fire Safety

19.8.1 Campfires constitute a risk of burns, tent fires and can cause smoke pollution. They are undesirable and should be discouraged. At some types of events, however, it would be impossible to prohibit fires and for certain audience profiles more regulated (communal) fires are unlikely to be an attractive option. Where fires are allowed, consider providing chopped firewood to avoid destruction of trees and hedges and the potential for burning plastics and other material that could produce noxious fumes.

19.8.2 Consider the hazards and risks of camp fires in the event risk assessment to include the following:

- Suitably trained stewards or fire marshals;
- Fire points (locations where fire extinguishing materials are kept): as a minimum these should consist of a means of reporting a fire, such as a gong or triangle, and supplies of water and buckets, although these are probably of limited use in a tent fire;
- Watchtowers consisting of raised platforms staffed by trained personnel on fire watch with radios are a more effective means of observing for uncontrolled fires and suspicious behavior. They should be supplemented by the provision of fire extinguishers and, depending on the scale of the event, an on-site capability to attend to fires with specialized vehicles; and
- The fire points themselves becoming a hazard due to trash accumulation, etc.

## 19.9 Site Services

19.9.1 Ensure that facilities are maintained throughout the site 24 hours a day and services are provided for the duration that people are actually on site. All facilities must be lit at night.

## 19.10 First Aid

19.10.1 See Chapter 21, *Medical, Ambulance and First-aid Management*. At camping events that run through several days, it will not be sufficient to provide only a first-aid facility. Expect the demands that would be placed on a GP practice serving a community of similar size. Routine

medical supplies, therapeutic drugs, etc., may need to be provided, including pharmacy facilities, dentistry and psychiatric facilities.

### 19.11 Welfare

19.11.1 See Chapter 22, *Information and Welfare*. Many children are likely to be on site and facilities will have to be provided, including potentially accommodating children overnight. Communications and availability of information on lost children, lost friends, etc., must be established (see Chapter 23, *Children*).

### 19.12 Telephones

19.12.1 Ideally, provide telephones in suitable numbers and ensure they are easily accessible, well signed and available 24 hours a day to cater for the demand from individuals to contact parents, friends, etc. However, with the increased use of mobile phone, this may become less necessary.

### 19.13 Sanitary Facilities

19.13.1 See Chapter 15, *Sanitary Facilities*. In the case of events with large camping areas, assess where and when facilities will be under pressure. There will inevitably be a peak morning demand.

19.13.2 It is suggested that a plan is established whereby sanitary accommodation, drinking water supplies, washing facilities and showers are all clustered together, creating an easily identifiable location for all facilities. Monitor the condition of sanitary accommodation to ensure they are regularly emptied and cleaned as required in addition to routine programmed servicing.

### 19.14 Trash

19.14.1 Provide trash receptacles along the walkways and access ways for vehicles and also at conspicuous points such as sanitary facilities, etc. Ensure that bins are emptied on a regular basis to encourage careful disposal and to avoid creating a fire hazard. On undeveloped sites with potentially difficult terrain this is likely to be achieved by tractors and trailers. Reductions in volume of trash are likely to be achieved by using recycling points to take separated waste.

### 19.15 Site Lighting

19.15.1 Provide adequate lighting to enable orientation at night, with higher levels of lighting at toilet areas, fire points, information and guard points, etc. Consider the nature of lighting. Lighting tower rigs are likely to be unsuitable for camping areas due to generator noise as well as providing an overly bright source of light. They may, however, be suitable for intersections, crossroads, facilities, etc. Festoon lighting can be tampered with so it won't work or becomes a safety hazard. Wherever possible, provide the camping areas with some illumination provided from "borrowed light" from other areas of higher lighting nearby, which can be supervised.

## **19.16 Access**

19.16.1 Provide both vehicular and pedestrian tracks to and through camping areas to ensure ready access for emergency vehicles and also to provide safe routes for pedestrians free of trip hazards such as guy ropes, etc.

## **19.17 Noise**

19.17.1 Plan for preventing or reducing the impact of potentially noisy activities within campsites or of dealing with any overnight activities that become problematic. Dependent upon the nature and proximity of residences to the site, restrictions may be needed in limiting the background music provided by concessionaires to avoid noise disturbances.

# 20. Facilities for People with Special Needs

20.0.1 Consider suitable arrangements, wherever possible, to ensure that all people with special needs are able to attend. It is also recommended that a complete access strategy is prepared which includes the technical issues as well as factors which will encourage and attract persons with special needs to your event.

20.0.2 Organizers should always keep in mind that not all disabled persons are in wheelchairs or mobility impaired.

## 20.1 Americans with Disabilities Act (ADA)

20.1.1 The Americans with Disabilities Act of 1990 (ADA) is a U.S. Federal law that was enacted by the U.S. Congress in 1990 and later amended with changes (ADA Amendments Act of 2008 or ADAAA) effective January 1, 2009. The ADA is a wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability. It affords similar protections against discrimination to Americans with disabilities as the Civil Rights Act of 1964, which made discrimination based on race, religion, sex, national origin, and other characteristics illegal. Disability is defined by the ADA as, "...a physical or mental impairment that substantially limits a major life activity." The Equal Employment Opportunity Commission (EEOC) later interpreted the phrase "substantially limits" more narrowly to mean "significantly or severely restricts." Certain conditions are excluded as disabilities, such as current substance abuse and visual impairment that is correctable by prescription lenses.

20.1.2 There are five major sections or Titles in the ADA. Titles II and III are most likely to be of interest to those constructing or modifying entertainment venues:

- **Title I – Employment** - The ADA states that a covered entity shall not discriminate against a qualified individual with a disability. This applies to job application procedures, hiring, advancement and discharge of employees, workers' compensation, job training, and other terms, conditions, and privileges of employment.
- **Title II – Public Entities (and public transportation)** - Title II prohibits disability discrimination by all public entities at the local (i.e. school district, municipal, city, county) and state level and applies to public transportation provided by public entities through regulations by the U.S. Department of Transportation. It includes all commuter authorities.
- **Title III – Public Accommodations (and commercial facilities)** - Under Title III, no individual may be discriminated against on the basis of disability concerning the full and equal enjoyment of the goods, services, facilities, or accommodations of any place of public accommodation by any person who owns, leases (or leases to), or operates a place of public accommodation. "Public accommodations" include most places of lodging (such as inns and hotels), recreation, transportation, education, and dining, along with



stores, care providers, and places of public displays, among other things. Under Title III of the ADA, all “new construction” (construction, modification or alterations) after the effective date of the ADA (approximately July 1992) must be fully compliant with the Americans With Disabilities Act Accessibility Guidelines (ADAAG) found in the Code of Federal Regulations at 28 CFR, Part 36, Appendix A. Title III also has application to existing facilities.

- Title IV – Telecommunications - Title IV of the ADA amended the landmark Communications Act of 1934 and requires that all telecommunications companies in the U.S. take steps to ensure functionally equivalent services for consumers with disabilities, notably those who are deaf or hard of hearing and those with speech impairments.
- Title V – Miscellaneous Provisions - Title V includes technical provisions. It discusses, for example, the fact that nothing in the ADA amends, overrides or cancels anything in Section 504 of the Rehabilitation Act of 1974.

20.1.3 In the United States, compliance with The Americans with Disabilities Act by event organizers is not optional, it is mandatory. The Americans with Disabilities Act is readily available online and is recommended reading for all event organizers (<http://www.ada.gov/>).

20.1.4 ADA Title III mandates the immediate removal of architectural and communications barriers from existing public accommodations if such action is “readily achievable.” Changes must be made whenever it is possible to remove barriers, “without much difficulty or expense.” Unfortunately, there are no solid guidelines for when changes must be made. The determination is made on a case-by-case basis.

20.1.5 No numerical formula or threshold is provided to indicate whether a given action is readily achievable. Many non-compliant offenders of the ADA choose to gamble that they will not have a problem at their event. This approach is not recommended.

## 20.2 General Accommodation

20.2.1 The kinds of accommodations to consider at an event include:

- Accessibility ramps with an incline less than 1:12, e.g., 1 unit in vertical height over a 12 unit distance;
- Curb cuts at access points;
- Accessible parking spaces;
- Widening of doors;
- Lowering of drinking fountains and phones if applicable;
- Accessible counters at select food and beverage outlets;
- Adding braille to elevator control buttons and signage and informational literature;
- Replacing door knobs with handles;
- Widening toilet seats and installing grab bars in restrooms; and
- Using a signer to sign lyrics or spoken word, use of a picture in picture (PIP) in the live image magnification using cameras (IMAG) video can help here also.

20.2.2 Consider provision for people with:

- Mobility problems (including wheelchair users);
- Difficulty in walking; and
- Impaired vision and/or hearing.

20.2.3 Event publicity should provide a contact number and website where people with special needs can obtain information on arrangements the event has made to accommodate persons with special needs.

20.2.4 When designing your event site or venue consider how people with special needs can best be accommodated. This includes easy access and adequate means of escape in an emergency. The number of wheelchair users who can be admitted will be dependent upon a number of factors including the structural and internal layout of the venue.

20.2.5 In open field events, creation and/or compaction of pathways or creating a road for wheelchairs may need to be considered.

20.2.6 Wheelchair spaces in parts of a seated area should allow for adequate room for maneuvering a wheelchair. Generally, a manual wheelchair needs approximately 3 feet (1 m) in width and about 5 feet (1.5 m) in depth including an attendant. Electric wheelchairs may need more space.

20.2.7 Avoid placing accommodations in dense crowded areas.

## 20.3 Access

20.3.1 Place parking facilities for people with special needs at the most directly accessible point to those areas set apart for wheelchair users. Spaces allocated should be wider than normal (about 12 feet or 3.6 m) to allow room to maneuver. At outdoor events parking for people with special needs should also be placed at the most directly accessible point to the allocated seating areas, as well as the most directly accessible point to designated and accessible campsites. Thought should be given to the means of having direct and safe access links between the designated parking, camping and seating areas. Use flat surfaces or ramps to provide access from parking or drop-off areas to designated areas.

20.3.2 Ramps for wheelchairs should comply with the ADA. The ramp should not be steeper than 1 in 12. Ramps should begin with a 6 feet (1.8 m) long level landing and have a five foot (1.5 m) long level resting space landing every 30 feet (9.1 m). They should also have raised safety edges and handrails 2 feet 8 inches (0.81 m) high.

## 20.4 Viewing Areas

20.4.1 As standing audiences can cause surging movements, all people attending the event that have any mobility difficulties should be located in an area where they will not be affected. When setting aside viewing areas for people with special needs, the area should have a clear view of the stage, often beside the “mixing” tower or area. The area should be constructed using non-slip materials with direct access to an exit. Accessible toilets should be located nearby.

20.4.2 At outdoor concerts wheelchair users can be accommodated either on an open area or on a flat terrace with direct access to toilet facilities and concessions. The eye level of a wheelchair user is estimated to be between 43 and 49 inches (0.9144 m and 1.2446 m) high.

20.4.3 Many wheelchair users will be accompanied by an able-bodied companion. Make sure that space in the wheelchair users area can accommodate these companions, preferably with chairs provided which do not block the view of other wheelchair users in the area.

20.4.4 When someone transfers from a wheelchair to a seat, provision needs to be made for the wheelchair to be readily accessible without it causing an obstruction in any aisle or exit route. Where a person remains in their wheelchair, the wheelchair should be placed in a position where there is a ready means of escape and it will not create an obstruction for other people.

## 20.5 Facilities

20.5.1 Concession stands should also be encouraged to have either varied level of serving counter space or an access ramp in front of the serving counter. When using temporary sanitation facilities, ADA toilets should be unisex with wheelchair access and it is suggested that one unit per 50 wheelchair users should be provided, along with additional provision for the use of attendants, etc. (see Chapter 15, *Sanitary Facilities*).

## 20.6 Support

20.6.1 Stewards or special needs assistants should be in attendance to ensure that facilities which are provided for people with special needs are available for the intended purpose.

20.6.2 Consider providing designated “ground support” staff. They could be people with special skills (e.g., signers, medics, etc.) who can provide on-site support for people with special needs. These workers should be easily recognizable by the use of an easy-to-read emblem or logo. Stewards operating in and near the area set aside for people with special needs require specialized training in the evacuation and exit procedures. Also consider using safe sites for people with special needs in the event of an evacuation.

## 20.7 People with Impaired Vision

20.7.1 People with impaired vision or color perception may have difficulty in recognizing information signs including those used for fire safety. Signs therefore need to be designed and positioned so that they can easily be seen and are distinguishable. Good lighting and the simple use of color contrasts can also help visually impaired people find their way around. Where practical, consider admitting guide dogs.

## 20.8 Evacuation

20.8.1 People in the audience may be affected by a range of disabilities, including restricted mobility, epilepsy, impaired hearing, mental health problems, etc., so their needs and requirements should be included in major incident and contingency plans. Where they exist,

electronic display systems should be used to give information, including evacuation messages, particularly for people with impaired hearing.

## **20.9 Publicity**

20.9.1 It would be helpful to potential visitors if the facilities that are available are publicized. This can be achieved by contacting a local disability association, access groups and local clubs or organizations for people with disabilities.

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# 21. Medical, Ambulance and First Aid Management

21.0.1 This chapter lists the responsibilities of the event organizer to ensure that medical, ambulance and first-aid assistance are available to all those involved in an event. The event organizer must minimize the effects of an event on the healthcare provision for the local population and, wherever possible, reduce its effect on the local hospital facilities and emergency medical services (EMS).

21.0.2 The number of people requiring medical treatment at any music event will vary considerably as will the type of ailment. These will vary with environmental conditions and can range from traumatic injuries due to crushing, falls, fighting or conditions such as hyperventilation, exhaustion, dehydration, sunstroke, hyperthermia or hypothermia, emotional or anxiety attacks, food poisoning or the serious effects of drugs or alcohol. Acute medical emergencies such as heart attack or stroke will need to be provided for as well.

21.0.3 At events lasting several days, such as festivals, conditions common in general practice are likely to predominate. In addition, people with existing disabilities and medical conditions such as asthma, diabetes, heart or psychiatric problems may attend events where their condition could be worsened.

21.0.4 Previous experience suggests that approximately 1-2 percent of an audience will seek medical assistance during an event day. Of these, around 10 percent will need further treatment on site. Approximately 1 percent of the number requiring initial medical assistance will require subsequent referral to a hospital. Other factors such as ineffective hospitality facilities, poor weather conditions, absence of free drinking water or the presence of other “on site” hazards may increase this number.

21.0.5 It is essential that all major music events have suitable arrangements for the triage, treatment, and transport of those in need of medical care. Ensure that this provision is approved by the local authorities having jurisdiction.

## 21.1 Planning

21.1.1 Plan the provision of medical, ambulance and first-aid services along with the statutory services and appoint a competent organization to provide medical management. This organization need not be the sole provider of resources at the event, but must demonstrate competence in operating the medical arrangements. In addition, the appointed organization should be experienced in the medical management of similar events, and must accept responsibility for providing an appropriate management and operational control infrastructure and coordinate the activity of other medical providers. Ensure that the appointed medical

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provider liaises with other statutory services and first-aid providers on site. Respective roles and responsibilities should be set out in a medical, ambulance and first-aid plan.

21.1.2 It is considered good practice to consult with the local hospital and EMS services so that they can advise both the event organizer and the local authorities on the likely effect of the event on pre-hospital accident and emergency services.

21.1.3 A manager from the medical provider should be appointed to take overall control and coordination of first-aid provision. This person should also be readily available during the event. The event organizer and the appointed medical provider should liaise with all interested parties which may include the local authorities, health board, ambulance service or competent first-aid providers, as appropriate.

21.1.4 It is recommended that the final details of the event are confirmed in writing to the appointed medical provider as soon as possible.

21.1.5 Consider the availability of medical, ambulance, and first-aid provision during the load-in and load-out of the event (see section on *First-Aid for Employees and Event Workers*, below).

21.1.6 Consider the need for medical, ambulance and first-aid arrangements for any audience members lining up before the gates or doors open and when they leave at the end of the event.

21.1.7 The location of first-aid facilities must be available to all those attending. Provide adequate signage and consider printing the location of first-aid facilities on tickets for the event. In addition, stewards should be aware of the nearest facility.

21.1.8 At events with overnight campsites, appropriate provision should be made to have medical, ambulance and first-aid cover available while the campsite is open. Because of the likely range of conditions requiring medical advice, also consider general medical services through the appointed medical provider during the times the campsites are in operation.

21.1.9 Where practical, consider the provision of suitable sterile, unoccupied or unused routes for the exclusive use of emergency vehicles.

21.1.10 The location of responders is important when assessing the response times for the arrival of emergency care to individual casualties at any location within the event.

21.1.11 Only in exceptional circumstances should ambulance vehicles be allowed to enter audience areas. Ambulances should not move from their designated position except on the instruction of their control unless compromised on grounds of safety. At events with high audience densities consider the use of foot patrols or golf carts to remove casualties.

21.1.12 The appointed medical provider should have arrangements in place to ensure that cover is maintained at the correct level throughout the event. If a casualty needs to be removed from the site by ambulance, arrangements must be in place to replace that vehicle or to transport the

casualty using an ambulance dedicated to offsite patient movement (if there is the need for ambulances on site).

21.1.13 At certain events, an area for medical evacuation by helicopter may be required and a suitable landing site, either at the site or nearby, should be identified, prepared and maintained. Advice from the local airspace manager, qualified pilot or airport should be solicited. In the U.S., call 1-800-WX-BRIEF to speak with someone at a nearby Flight Service Station. The person who answers the phone should be able to answer your questions or refer you to someone who can.

## **21.2 Communications**

21.2.1 At large events, there may be a need for a separate medical radio channel connecting the ambulance service with ambulance workers, key medical workers, mobile response teams, and key first-aiders. A protocol for the use of radio equipment, including consistent call signs, must be agreed before the event. A communications plan detailing medical communications links should be produced and held at both the medical control point or incident control room and central ambulance control.

21.2.2 If there is more than one medical facility, there should be a designated main medical facility with an external telephone line (which does not go through a switchboard) and a list of appropriate numbers. All other medical facilities should have an internal telephone or radio link to the main position.

## **21.3 Documentation**

21.3.1 An event log should be maintained, which should include any actions or decisions taken by the manager of the medical provisions and the reasons for those actions.

Note: Event logs, report forms and records completed at an event may be required later to assist in the reporting of accidents and injury to workers and audience members.

21.3.2 Ensure that the appointed medical provider maintains a record of all people seeking treatment. In some locations, for consistency and ease of documentation, suitable patient report forms may be supplied by the ambulance service. This record should include details such as: name, address, age, gender, presenting complaint, diagnosis, treatment given, the onward destination of casualties (e.g., home, hospital, own GP), and the signature of person responsible for treatment. The only people who may be shown patients' records are those that are involved in the treatment or those that have legal authority.

21.3.3 Regular reports of the total number of casualties and the type of medical complaint should be provided to the event organizer during the event. This report should identify event conditions that may be contributing so that action can be taken.

21.3.4 Consideration should be given to being able to confirm to friends/relatives at the event whether a missing individual has received/is receiving treatment or has been taken to the hospital.

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## 21.4 Definitions and Competencies for Medical Workers

21.4.1 First-aiders, ambulance and medical workers must all:

- Be at least 16 years old (first-aiders under 18 years old must not work unsupervised);
- Have no other duties or responsibilities and be dedicated to their first-aid duties;
- Have identification;
- Have all necessary personal protective equipment (PPE) and appropriate clothing;
- Have relevant experience or knowledge of requirements for first-aid at major public events;
- Be physically and psychologically equipped to carry out the assigned roles.

21.4.2 A “physician” is a professional (doctor) who has been educated, trained, and licensed to practice the art and science of medicine. In the United States and Canada, the term physician also describes all medical practitioners holding a professional medical degree. Each state in the United States, and each province in Canada, has its own requirements for licensing physicians—a requirement for legally practicing medicine in North America.

21.4.3 A physician working at a live event should be familiar with—or better, be well experienced at—specific subject matter in which all physicians are not necessarily trained. A physician working at an event should:

- Have a working knowledge of the National Incident Management System (NIMS) Incident Command System (ICS);
- Be familiar with, and have access to, local/county/regional emergency plans such as mass casualty, emergency operations, and disaster plans;
- Have experience with handling multiple, simultaneous emergencies in the pre-hospital (out of hospital) setting;
- Be familiar with the operation of the local emergency medical services (EMS) and casualty transport (ambulance) service, which may not both be the same entity; and
- Be familiar with the training and capabilities of the local EMS responders.

21.4.4 A “registered nurse” (RN) is a nurse who has graduated from a nursing program at a college or university and has passed a state licensing exam. To be effective in a live event, a qualified RN should have knowledge and recent experience in dealing with emergencies in the pre-hospital or emergency environment.

21.4.5 A “paramedic” is a person who is trained to give emergency medical treatment or to assist physicians in providing medical care. In the United States, a paramedic is a state-certified healthcare professional who may exercise the full authority of his or her certification only while working under the license of a medical director physician. Paramedics provide advanced levels of care for medical emergencies and trauma. A paramedic’s required competencies and capabilities vary from state to state but usually include the administration of limited medications via intramuscular, subcutaneous, sublingual and intravenous routes; cardiac monitoring and defibrillation; insertion of advanced airways (e.g., endotracheal intubation, etc.); treating medical emergencies such as hypoglycemia, imminent child birth, trauma, apnea/dyspnea, shock, allergic reactions, etc.; and, selected emergency invasive techniques such as needle reduction of a tension pneumothorax (collapsed lung) and cricothyrotomy (emergency surgical airway).



21.4.6 Paramedics operate away from a hospital on written standard operating procedures approved by a specific medical director physician (a.k.a. “protocol). This set of standard procedures describes what a paramedic is permitted to do medically in certain situations. A paramedic away from a hospital may also establish direct communication with the medical director, or his/her designee, to receive specific instructions (orders) via radio or, more commonly, telephone.

21.4.7 Many states also refer to a paramedic as an “Emergency Medical Technician – Paramedic” (EMT-P), which should not be confused with lesser trained and qualified levels of EMT described below.

21.4.8 An “emergency medical technician” (EMT) responds to emergency calls, performs certain medical procedures and transport patients to hospital in accordance with protocols and guidelines established by physician medical directors. They may work in an ambulance service (paid or volunteer), as a member of technical rescue teams/squads, or as part of an allied service such as a fire or police department. EMTs are trained to assess a patient’s condition, and to perform such emergency medical procedures as are needed to maintain a patent airway with adequate breathing and cardiovascular circulation until the patient can be transferred to an appropriate destination for advanced medical care. Capabilities include cardiopulmonary resuscitation (CPR), defibrillation, controlling severe external bleeding, preventing shock, body immobilization to prevent spinal damage, and splinting of bone fractures.

21.4.9 “Certified first responders” (CFRs)(a.k.a. “Emergency Medical Responders”) in the U.S. can either provide emergency care first on the scene (police/fire department/park rangers) or support emergency medical technicians and paramedics, provide basic first aid, CPR, automated external defibrillator use, spinal immobilization, oxygen administration, and assist in emergency childbirth (in some areas they are trained in the use of suction and airway adjuncts). CFRs can also assist with administering glucose, aspirin, and epi-pens and are trained in packaging, moving and transporting patients. CFR is considered a higher level of medical training than basic first-aid (first-aider) and a lesser level of training than an EMT. The American Red Cross now offers the “Emergency Medical Response” course, which fits this definition. In the U.S. in 2012, the term “Emergency Medical Responder” began replacing the term “Certified First Responder.”

21.4.10 A “first-aider” is a person who holds a current certificate of first-aid, usually at the advanced first-aid level, such as provided by the American Red Cross. To be effective at a live event, the first aider should have prior training or experience in providing first aid at crowd events. In the United States, there is no universal schedule of first aid levels that are applicable to all agencies that provide first aid training. Training is provided typically through the American Red Cross, but may also be conducted by local fire departments and, for CPR and automated external defibrillator (AED) use, the American Heart Association (AHA).

21.4.11 An “appointed medical provider” is a competent organization chosen by the event organizer, to provide overall management of medical, ambulance and first-aid services at an event.

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## 21.5 Medical, Ambulance and First-Aid Provision

21.5.1 Following the risk assessment and agreement on levels of medical, ambulance and first-aid cover, this and any further arrangements relating to health care should be written in a statement of intent and signed by the relevant parties and included in the event management plan. Ensure that a suitable skills mix exists and that medical, ambulance and first-aid providers are located effectively throughout the site.

21.5.2 The decision on the level of medical provision and whether the ambulance service will be directly involved, or not, at any particular event will depend on a number of specific factors including:

- Size of audience;
- Nature and type of event and entertainment;
- Nature and type of audience - including age range;
- Location and type of venue - outdoor or indoor, standing or seated, overnight camping and the size of the site;
- Duration of event - hours or days;
- Seasonal/weather factors;
- Additional activities and attractions;
- Proximity/capability/capacity of local medical facilities;
- Intelligence from other agencies regarding previous experience of similar events;
- Availability and potential misuse of alcohol or drugs (illicit, recreational, or controlled);
- External factors including the complexity of travel arrangements;
- Time spent in queues;
- Availability of facilities on site including hospitality and other social services;
- Range of possible major incident hazards at or associated with the event (structure collapse, civil disorder, crushing, explosion, fire, chemical release, food poisoning); and
- Availability of experienced first-aiders.

21.5.3 Tables are provided at the end of this chapter, which show a way of calculating the quantities of medical, first aid and ambulance provision suggested for various event types. These tables are borrowed from the U.K.'s Event Safety Guide (1999, Second Edition, pp. 121-124) and are included only as a means of estimating the number of personnel and equipment that might be needed. Use these reference tables with caution and at your own risk.

### 21.5.4 First-Aiders

21.5.4.1 The recommended minimum number of first-aiders at small events where no special risks are considered likely is 2:1000 for the first 3,000 attending. No event should have less than two first-aiders.

21.5.4.2 At indoor venues or stadiums, first-aid facilities are likely to have been agreed. However, the historical number of first-aiders provided at an existing venue does not replace the need to carry out an assessment for each event. Some venues will be in multiple use. In such cases, the overall provision of medical, ambulance and first-aid resources should take account of all activities taking place within that venue.

21.5.4.3 At events attended by a young audience, and at long events or street carnivals, the number of first-aiders may need to be significantly increased or the ratio of first-aiders to professional EMTs, doctors and/or nurses altered. In these circumstances, the ambulance provision required should be discussed with the local EMS provider, which may recommend special requirements such as a Medical Group Supervisor and/or extra EMS equipment.

### **21.5.5 Physicians**

21.5.5.1 The risk assessment may indicate the need for the provision of physicians on site. Any physicians should be provided along with any medical workers allocated for the care of performers.

21.5.5.2 Usually one suitably experienced physician should be able to fulfill the role of Medical Group Supervisor (or Medical Branch Director, as the size of the event requires) with overall responsibility for the management of medical resources at the scene of a major event.

### **21.5.6 Psychiatric Care**

21.5.6.1 At lengthy or large events, consideration should be given to any requirement for a psychiatric care team including psychiatrists, psychiatric nurses and drug advisers. This team may need to liaise with the local authority, social services department, hospital authorities and the police.

### **21.5.7 Nurses**

21.5.7.1 Qualified nurses may be required to care for patients requiring longer-term management on site. Unless trained as part of a mobile-response team, nurses should undertake the specific duty of staffing the main medical facility, working as a team with the physicians, paramedics and first-aiders in the triage and treatment of casualties.

### **21.5.8 Paramedics and EMTs**

21.5.8.1 Paramedics and EMTs may need to be positioned in the pit area, medical facilities (first-aid stations) or areas of perceived risk, or deployed in immediate response to emergencies arising throughout the event area.

21.5.8.2 Non-medically trained staff may assist paramedics, EMTs and first-aiders in the transport of those with non-urgent medical conditions or with minor injury.

### **21.5.9 Medical Cover in Pit Areas**

21.5.9.1 The risk assessment may indicate that medical cover may be required within the pit area. Medical workers in this area should be suitably experienced and trained to provide advice on casualty handling to stewards, appropriate triage to casualties and, where required, can facilitate the rapid evacuation of any casualties to a medical facility. As a minimum, the area in front of the stage should have the following equipment quickly available:

- Rescue board and neck collars;
- Oxygen therapy and resuscitation equipment; and
- Assorted splints.

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### **21.5.10 Onsite Medical Facilities (First-Aid Stations)**

21.5.10.1 The number, location and suitability of medical facilities should be planned. If there is more than one medical facility, one should be designated as the main medical facility. Primary medical facilities, including those in the pit area, will refer those requiring further treatment to the second-line main medical facility. The main medical facility may be equipped as a medical center or field hospital. If there is a major incident, according to local major incident procedures, a medical facility will be established or designated as the casualty clearing station.

### **21.5.11 Maps and Plans**

21.5.11.1 Detailed gridded maps or site plans with position of medical facilities clearly marked must be available before the event. This should include the surrounding roads and access routes.

### **21.5.12 Structures**

21.5.12.1 At outdoor events, if a suitable permanent structure is not available, provide suitably equipped mobile first-aid units or tents with appropriate flooring. At indoor events, position the medical facility in or next to the main arena.

### **21.5.13 Staffing Plan**

21.5.13.1 An appropriate number of competent first-aiders should staff each medical facility and, as appropriate, EMTs, nurses, and physicians, some of whom should be available to offer assistance within audience areas. At large outdoor events ensure that a proportion of mobile first-aiders are strategically positioned or asked to patrol a defined area, in consultation with the EMS provider, if present. All workers must be clearly identified. Mobile first-aiders should be in constant radio contact with their supervisor.

### **21.5.14 Mobile Response Teams**

21.5.14.1 At high-risk events, consider the use of a suitably equipped mobile response team with an appropriate skills mix and means of transport to attend medical emergencies where their specific skills are required.

### **21.5.15 Position**

21.5.15.1 At larger events, provide a medical facility near to the stage area with unrestricted access to this position from the pit area. Other medical facilities are situated on the perimeter of the audience area enabling unrestricted access and exit for ambulances without entering audience areas.

### **21.5.16 General Considerations for the Main Medical Facility**

21.5.16.1 As a minimum requirement, the main medical facility should be:

- Designated as a “no smoking area;”
- Of an adequate size for the anticipated number of casualties and readily accessible for the admission of casualties and ambulance crews;
- Large enough to contain at least two examination couches or ambulance stretchers or cot, with adequate space to walk around, and an area for the treatment of sitting casualties;
- Accessible at ground level and have a doorway large enough to allow access for an ambulance cot or wheelchair;

- Maintained in a clean and hygienic condition, free from dust and with adequate heating, lighting and ventilation;
- Provided with adequate first-aid and medical equipment and screens, etc., including resuscitation equipment, patient-care consumables and where appropriate, a defibrillator, all of which should be separate from those contained in ambulances. An agreement should be reached during the planning stage about who will provide such items;
- Within proximity of an easily accessible wheelchair-user's toilet and workers' facility;
- Provided with a supply of running hot and cold water. If this is not possible, provide adequate fresh clean water in containers;
- Provided with a supply of drinking water over a sink or hand-wash basin or suitable receptacle;
- Provided with a worktop or other suitable surface for equipment and documentation, e.g., folding tables;
- Provided with suitable secure storage facilities for drugs and equipment used by the medical providers;
- Next to appropriate paved areas or parking facilities for ambulances or associated emergency vehicles.

21.5.16.2 The workers at medical facilities should be made aware of the arrangements for social/well-being provision so that people can be suitably redirected to those facilities.

## **21.6 Clinical Waste**

21.6.1 Specific arrangements for the disposal of clinical waste must be planned. Special "bio-hazard" containers for the disposal of needles and such (a.k.a. "sharps") or appropriately marked "bio bags" for the disposal of dressings or other contaminated materials will be required. Suitable arrangements must also exist for the disposal of non-clinical waste at medical facilities.

## **21.7 First-Aid for Employees and Event Workers**

21.7.1 Employers are responsible for ensuring that first-aid facilities, equipment and personnel are provided for all event personnel (employed/paid or not) if they are injured or become ill at work. In an ICS organization, this is referred to as the Medical Unit, which is defined as the functional unit within the Logistics Section responsible for the development of the Medical Emergency Plan, and for providing emergency medical treatment of incident personnel. It is recommended that the event organizer establish a Medical Unit at each event to attend to the medical needs of event personnel.

21.7.2 To decide on the level of first-aid provision necessary, an employer should make an assessment of the first-aid needs appropriate to the circumstances of the workplace. Employees who are appointed as first-aiders must have successfully completed the necessary training with an approved training organization. It is also good practice to have an "incident book" available in which to record incidents which require first-aid treatment. It is strongly recommended to have a written agreement between the various employers, e.g., contractors, subcontractors and others working at the event, to ensure that the first aid provided meets all their needs and to avoid misunderstandings.

21.7.3 Plan the welfare of the medical, ambulance, nursing and first-aid workers. At any event which lasts more than four hours, provide rest areas, sanitary and dining facilities. Where possible, separate these areas from the audience facilities.

21.7.4 Further guidance on Health and Safety (First Aid) Regulations is contained in the U.S. Department of Labor's Workplace Safety & Health laws, which are described online at: <http://www.dol.gov/dol/topic/safety-health/index.htm#.UOCoho7FXR0>.

## **21.8 Medical, Ambulance and First-Aid Provision**

21.8.1 It is recognized that medical cover at events can be organized in different ways and that the most appropriate model will vary according to the medical provider and the nature of the event. The following tables set out one method of estimating a reasonable level of resource.

21.8.2 It is emphasized that these figures may require modification as some providers may choose to substitute medical staff or paramedics for first-aiders. In any case, the suggested levels of resource are intended only as general guidance and should not be regarded as prescriptive. The tables are not a substitute for a full risk assessment of the event. Figures do not take account of dedicated medical personnel for performers or VIPs and do not incorporate the availability of alcohol at the event as a relevant factor.

- Use Table 21-1 to allocate a score based on the nature of the event.
- Use Table 21-2 to allocate a score based on available history and pre-event intelligence.
- Use Table 21-3 to consider additional elements, which may affect the likelihood of risk.
- Use Table 21-4 to indicate a suggested resource requirement.

**Table 21-1***Event Nature* - From the U.K.'s Event Safety Guide (1999, Second Edition, pp. 121-124)

<b>Item</b>	<b>Details</b>	<b>Score</b>
(A) Nature of event	Classical performance	2
	Public exhibition	3
	Pop/rock concert	5
	Dance event	8
	Agricultural/country show	2
	Marine	3
	Motorcycle display	3
	Aviation	3
	Motor sport	4
	State occasions	2
	VIP visits/summit	3
	Music festival	3
	Bonfire/pyrotechnic display	4
	New Year's celebrations	7
	Demonstrations/marches/political events	
	Low risk of disorder	2
Medium risk of disorder	5	
High risk of disorder	7	
Opposing factions involved	9	
(B) Venue	Indoor	1
	Stadium	2
	Outdoor in confined location, e.g., park.	2
	Other outdoor, e.g., festival	3
	Widespread public location in streets	4
	Temporary outdoor structures	4
	Includes overnight camping	5
(C) Standing/seated	Seated	1
	Mixed	2
	Standing	3
(D) Audience profile	Full mix, in family groups	2
	Full mix, not in family groups	3
	Predominately young adults	3
	Predominately children and teenagers	4
	Predominately elderly	4
	Full mix, rival factions	5
Add A+B+C+D	Total score for Table 21-1	

**Table 21-2**

*Event Intelligence* - From the U.K.'s Event Safety Guide (1999, Second Edition, pp. 121-124)

<b>Item</b>	<b>Details</b>	<b>Score</b>
(E) Past History	Good data, low casualty rate previously (less than 1%)	-1
	Good data, medium casualty rate previously (1% - 2%)	1
	Good data, high casualty rate previously (more than 2%)	2
	First event, no data	3
(F) Expected numbers	< 1,000	1
	< 3,000	2
	< 5,000	8
	< 10,000	12
	< 20,000	16
	< 30,000	20
	< 40,000	24
	< 60,000	28
	< 80,000	34
	< 100,000	42
	< 200,000	50
	< 300,000	58
Add E+F	Total score for Table 21-2	

Note: As attendance numbers may vary throughout the longer events, resource requirements may need to be adjusted accordingly.



**Table 21-3**

*Sample of Additional Considerations - From the U.K.'s Event Safety Guide (1999, Second Edition, pp. 121-124)*

<b>Item</b>	<b>Details</b>	<b>Score</b>
(G) Expected queuing	Less than 4 hours	1
	More than 4 hours	2
	More than 12 hours	3
(H) Time of year	Summer	2
	Autumn	1
	Winter	2
	Spring	1
(I) Proximity to definitive care (nearest suitable Emergency Medical facility)	Less than 30 min by road	0
	More than 30 min by road	2
(J) Profile of definitive care	Choice of Emergency departments	1
	Large Emergency department	2
	Small Emergency department	3
(K) Additional hazards	Carnival	1
	Helicopters	1
	Motor sport	1
	Parachute display	1
	Street theatre	1
(L) Additional on-site facilities	Suturing	-2
	X-ray	-2
	Minor surgery	-2
	Bandaging	-2
	Psychiatric / GP facilities	-2
Add G+H+I+J+K Subtract L	Total score for Table 21-3	

### 21.8.3 Calculation

21.8.3.1 To calculate the overall score for the event, add the total scores for Tables 1+2+3 above to give an overall score for the event.

21.8.3.2 Use the score from the above calculation to gauge the levels of resource indicated for the event.

21.8.3.3 Note: The following shows the resources that may be required to manage an event based on assessment of factors set out in the previous tables. This table, in conjunction with the medical chapter, is intended for guidance only. It cannot encompass all situations and is not intended to be prescriptive.

21.8.3.4 The score refers to the suggested resources that should be available on duty at any time during the event and not the cumulative number of personnel deployed throughout the duration of the event.

**Table 21-4**

*Suggested Resource Requirement*

Score	Ambulance	First Aider	Ambulance Crew <sup>1</sup>	Physician	Nurse	Group Supervisor <sup>2</sup>	Support Crew <sup>3</sup>
<20	0	4	0	0	0	0	0
21-25	1	6	2	0	0	Visit	0
26-30	1	8	2	0	0	Visit	0
31-35	2	12	8	1	2	1	0
36-40	3	20	10	2	4	1	0
41-50	4	40	12	3	6	2	1
51-60	4	60	12	4	8	2	1
61-65	5	80	14	5	10	3	1
66-70	6	100	16	6	12	4	2
71-75	10	150	24	9	18	6	3
>75	15+	200+	35+	12+	24+	8+	3

Note 1: An ambulance crew, as a minimum, consists of two EMTs; however, it most often includes at least one paramedic, which is preferred.

Note 2: A Group Supervisor is an Incident Command System (ICS) position that is responsible for a group—the medical group, in this case. Groups are established to divide the incident into functional areas of operation. The maximum ratio of personnel to supervisor is 7:1 (span of control), although 5:1 is a preferred ratio.

Note 3: "Support crew" is a collection of personnel and equipment necessary to support the personnel operating in the medical group. Members of a support crew (or support task force, as the medical group grows) might include administrative support, facilities management personnel (e.g., lighting, restrooms, etc.), and equipment management personnel.

# 22. Information and Welfare

Content forthcoming.

## 23. Children

Content forthcoming.

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# 24. Performers

24.0.1 The requirements and responsibilities of performers have to be considered in event planning. Contract negotiations provide an opportunity to raise concerns and resolve safety issues in advance. Performers have responsibilities related to the safety of the audience and site workers. Performers could be held directly responsible for injury that results from their behavior such as throwing things from the stage or not keeping to performance timings.

24.0.2 Supply the performer's management with a full briefing document before the event, including: how to reach the site and a map of the site showing specific artists' entrance, stage, stage plan and accommodation plan; an itinerary of what is happening, site access times, sound check times, performance times, etc.; specific security arrangements as well as meet and greet, hospitality and press-related locations.

## 24.1 Performers' Areas and Accommodation

### 24.1.1 Arrival and Departure

24.1.1.1 Ensure that changing and "warm-up" facilities are weatherproof, well lit and secure. Provide toilet and dressing room facilities (if necessary) for male and female artists and consider separate toilet provision close to the stage.

24.1.1.2 Plan the arrival and departure times for performers. Their entry and exit points, if practical, should be different from those used by the audience. Where there is a risk of significant audience attention, try to keep their vehicles out of view. Designate appropriate numbers of site staff and security to the area, if it is felt that performers will attract significant attention. Also consider the route to be taken to and from the venue. Some performers may arrive by helicopter so your risk assessment will need to cover the selection, marking and location of the landing zone.

### 24.1.2 Buses and Other Vehicles

24.1.2.1 Parking facilities for performers should, where possible, be separate from audience car parking and close to the stage. Where this is not possible, workers should be on hand, with appropriate transportation if necessary (e.g., a passenger van or golf cart to help move people and equipment).

24.1.2.2 The number of vehicles should be kept to a minimum. Allocate a specific parking area for the vehicles, with the drivers available at all times in case they need to be moved.

24.1.2.3 Many vehicles carry on-board generators and it is undesirable to keep these powered by leaving engines running. The vehicle operator should carry cabling to connect to a site power supply where possible. Where practical, consider providing a site power supply commonly referred to as shore power for the vehicles to connect. (see Chapter 11, *Electrical Installations and Lighting*).

### **24.1.3 Workers and Guests**

24.1.3.1 Control the number of workers and guests permitted into restricted areas to avoid overcrowding, especially on stage and performance areas. Try to keep workers associated with performers to a minimum and ensure that they have suitable security clearance, which should be graded with access to key areas such as dressing rooms.

## **24.2 Security of Performers**

24.2.1 Ensure that performers are met and logged in on arrival at the venue, suitable security passes are issued and where any threat, such as mobbing by fans, seems likely, suitably trained security staff are employed. During the performance every effort should be made to secure the performance space. Artists and management should always be made aware of the part they play in this process.

24.2.2 Advise performers and their staff of evacuation procedures and the locations of medical facilities. If this is not practicable, advise a senior representative who can shadow performers while on site, keeping in mind security needs and escape routes.

## **24.3 Performers' Help in Emergency Planning**

24.3.1 While also being aware of the site safety arrangements, performers or their representatives can participate in the emergency procedures planned, for example, by helping to calm a situation and asking the audience to stand back from a crowded stage barricade.

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## 25. TV and Media

25.0.1 Music events attract a wide cross-section of media interest. Depending on the size, location and type of event, this can range from local media coverage to global media attention. In addition to Image Magnification (IMAG, a.k.a. large screen video presentations) and video capture crews, large events can attract as many as 30 TV crews, 150 photographers, 200 journalists and up to 50 radio stations. This can quickly add up to a small community of as many as 500 people—and this is without social media, which should be addressed under marketing.

25.0.2 The management of TV and media can be split into two areas: pre-event (just before the event) and during the event.

### 25.1 Pre-Event

25.1.1 As an aid to crowd management and public information, consider issuing a press release containing as much information as possible about the event: name, dates, times, location, line-up, ticket information, public transport information and contact name and telephone number.

25.1.2 Make sure that as well as national media outlets, all local media have been contacted with details of the event. If the event sells out or is cancelled or if a major incident occurs, good communications with local media will ensure that information is carried to the public quickly and efficiently.

25.1.3 Decide the amount of media that is manageable for the event. Setting an acceptable level of media attendance depends on available space and infrastructure, how many people are able to look after them and how long the event lasts.

25.1.4 All media can usefully provide advance advice to the public, such as conditions on site, travel arrangements, site facilities and restrictions. Ensure that each media representative who will attend your event, receives information on site safety arrangements.

### 25.2 During the Event

25.2.1 If producing medium- to large-scale events, consider setting up a small press tent or press office within the VIP or guest hospitality area (if provided). Ideally this should be situated away from production or artist dressing room areas in a location with easy access to the front-of-house.

25.2.2 On occasion, to preserve the privacy of all artists, the dressing room compound is closed to press and media. Communicate this situation to the artists and the media before the event so all parties can plan accordingly.

25.2.3 Festival documentary crews are often allowed in the artist compound as part of the contract between the organizer and artist.

25.2.4 The press tent or office is where information about the event can be posted, interviews organized and a meeting place set up for photographers, film and radio crews before media activity. If possible, provide the press tent or office with Internet service and power points so that the media can recharge batteries, phones, etc. Water and beverages are always a hit with the press and some organizers even provide snacks or meals.

### **25.2.5 Photographers**

25.2.5.1 Make sure photographers are escorted into and out of the pit area and display appropriate passes. Where possible, photographers should enter and exit the pit area from the same side to allow security and medical services total access from the opposite side. If for any reason the pit becomes crowded or the safety of the audience is compromised the photographers should be escorted out of the pit immediately. If there are a large number of photographers on site, it is recommended that they should be escorted to the pit area in smaller manageable groups to prevent overcrowding of the area.

25.2.5.2 If the photographer shoot location is in the pit, photographer platforms may be required to elevate them to a reasonable level to get flattering shots of the artists.

25.2.5.3 On occasion, a second media viewing/camera platform is required front-of-house near the mix area. This area should be equipped with an audio multi-box and power strips for those who need it.

25.2.5.4 When placing any camera platform, consider what the camera eye is going to capture around and behind the subject being photographed. The PR and Marketing department will always have an opinion on this location and it is good practice to accommodate their requests, if reasonable, whenever possible. The footage and stills captured by these photographers will be used to market the careers of the artists, the next event as well as any show-related commercial video or audio products resulting from the event.

25.2.5.5 The area square footage of all platforms including the space between the riser and any barriers used to protect them must be deducted from the usable public viewing area square footage.

### **25.2.6 Radio Broadcasters**

25.2.6.1 Local radio stations often attend the site with a mobile or outside broadcast unit (OB unit) to feed live inserts or sound-bites back to the studios. The OB unit usually takes the form of a van or four-wheel drive vehicle with a large telescopic mast. Once the interviews are completed ensure the OB unit is moved off site or to allocated parking areas.

25.2.6.2 Sometimes a radio station is set up on site specifically to broadcast programs to the station's listening audience. This provides entertainment with interviews with performers and the audience and can be extremely useful in transmitting important safety information and messages for people. Plan how you will access the radio station with safety information you may wish to be transmitted.



### **25.2.7 Press Journalists**

25.2.7.1 Press journalists normally require the least amount of attention as they attend to review the event as a whole rather than acquire individual interviews. Ensure any interviews with artists are pre-arranged before the event begins to limit the amount of on-site organization between the press office and artists.

### **25.2.8 TV Broadcasters**

25.2.8.1 TV requires the most amount of attention and the type of TV crews and workers can be broken down into three main areas: event filming crews, TV news crews, and production companies.

25.2.8.1.1 *Event Filming Units.* A large event will generally be recorded by a dedicated production company or broadcaster for live or future broadcast. Plan these arrangements in advance as they require special facilities such as filming platforms, OB vehicles parked backstage, audio mixing trucks, video production trucks, front-of-house filming platforms, etc. These arrangements need to be considered in venue and site design.

25.2.8.1.2 *TV News Crews.* TV news crews will consist of local news crews, cable and satellite crews. These crews are normally small (two to four people). They will require only a short amount of time on site and therefore can be serviced relatively quickly. They should be supervised wherever possible and escorted quickly and efficiently to key locations (production offices, services offices, front-of-house, etc.).

25.2.8.1.3 *Production Companies.* This is normally the largest part of the TV mix and is made up of television broadcast programs interested in covering the event. TV crews tend to need access to vehicles for equipment and storage, so consider space allocation close to the hospitality/VIP area as possible. Other non-essential vehicles can be allocated spaces in designated parking areas.

### **25.2.9 Foreign Media**

25.2.9.1 Foreign media workers need to be clearly briefed in advance and given assistance to understand the safety requirements especially regarding the provision, compatibility and use of electrical equipment.

### **25.2.10 Student Media**

25.2.10.1 Student media can be helpful to the event and useful for communicating with the audience at events attended by predominantly young people.

## **25.3 On-Site Structural Considerations**

25.3.1 In addition to requirements already mentioned for facilities, vehicles and accommodation, the presence of media workers, and TV broadcasters in particular, will have to be considered in your venue and site design. Media provision such as camera cranes may restrict viewing areas for audiences and therefore cannot be counted in occupant capacity calculations.

25.3.2 Media may need to use platforms or other structures, as outlined in the chapter on Structures, such as scaffold towers and the use of barriers around media installations. Similarly, requirements for electricity supplies will need to conform to recommendations (e.g., burying cables).

## **25.4 On-Site Public Relations Staffing Requirements**

25.4.1 The number of workers required to manage media will vary according to the size of the event, the number of days over which the event is held, the type of event, the capacity and the amount of media expected. As an example, for a large three-day music event with a 50,000 or more capacity, at least 10 people will be required to deal with the media. At smaller one-day events, four to six people should suffice.

25.4.2 Issue radios to all workers handling the press and media and assign them their own dedicated channel to avoid taking up unnecessary time on production channels dealing with media questions, guest lists, artists' whereabouts, etc. Ensure that all media workers are fully briefed and aware of any emergency procedures.

25.4.3 Media liaison workers need to have a base; normally this will be at the point where media representatives check-in or a press tent. These areas are best located close together to avoid large distances between the production areas, pit, press-tent and media check-in locations.

25.4.4 Over the course of an event, the event's media and press officers will get to know the individuals involved and this is extremely useful in the case of emergencies or important announcements. Ensure that the chief press officer is introduced to key security and stewarding staff, local authority officers, police spokespersons, welfare organizers, event film units, etc. This will enable a direct line of communication between the media and services that is controlled and efficient.

25.4.5 In the event of a large-scale incident, the above entities should convene together and determine what and how appropriate information should be communicated to the press and media. If a serious catastrophic incident has occurred, organizers and event related commercial PR agencies should anticipate the lead government agency on site will step in and control the dissemination of all information to the press and media.

# 26. Stadium Music Events

Content forthcoming.

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# 27. Arena Events

27.0.1 This chapter aims to highlight some of the factors to consider when organizing an event in an arena-type environment. An arena can be defined as an indoor area used for the purpose of public assembly. This definition can therefore cover a variety of different premises ranging from purpose-built arenas specifically designed for hosting music events through to premises not originally designed and built for the purpose of hosting music events.

27.0.2 Many arenas are multi-functional so as well as hosting music events they will also be likely to host fashion shows, sporting events, exhibitions and conferences.

In larger complexes, with several different sized arenas, it is possible that more than one event could be in progress at any one time. This chapter gives advice about music events although there may be elements of good practice contained in this chapter that can be applied to other type of events in arenas.

## 27.1 Planning and Management

27.1.1 Arenas specifically built for the purposes of hosting music events may require a permit, which will be held by the arena owner or manager (referred to as the arena operator for the rest of this chapter). If you wish to stage your own event in an arena already holding a permit you will need to work directly with the arena operator. The most important planning aspect will be determining the responsibilities for health and safety between the respective parties and documenting the agreements.

27.1.2 Arena operators will already have in place a written safety policy, risk assessment and major incident and contingency planning documents required for their own workers and events they promote themselves. If you are renting an arena (or part of it) and/or obtaining a permit in your own name you will also need to work with the arena operator so that information about the existing safety management policies and procedures can be exchanged.

27.1.3 Health and safety responsibilities need to be determined for the preparation of the risk assessment for every event. Agreements also need to be documented on the services supplied by the arena operator including labor sources and equipment. There may be a need to appoint a safety coordinator from one of the parties.

27.1.4 Arena operators are likely to have prepared their own in-house safety procedures which need to be communicated to any external contractors brought on site. In multi-occupied premises it is important that agreement is reached and health and safety responsibilities assigned between the parties, in relation to major incident planning. Ensure that the planning for the event is coordinated with the planning of the premises as a whole.

27.1.5 A system to ensure that health and safety information is communicated to other users of the building, especially if there is more than one event occurring at the same time, also needs to be documented and agreed.

27.1.6 The breakdown of the event may have to take place very quickly if the arena has been booked for other events. Working to tight deadlines needs careful planning to avoid a fatigued workforce more prone to physical and mental errors, which can lead to injuries.

27.1.7 All these matters should be discussed at the initial planning meetings with the local authority at the event safety planning meetings. It is recommended that arena operators and event organizers should follow the guidance set out in the Planning and management chapter.

## **27.2 Crowd Management**

### **27.2.1 Peer Security**

27.2.1.1 Employees of an arena's peer security staff (ticket takers, ushers, and security guards) should possess a merchant guard license issued by local or state authorities. Most merchant guard applications require a background check, a physical exam, and reference letters. Peer security should have a uniform that visibly sets their staff apart from members of the general public, and from other building staff such as concession and housekeeping workers. Peer security staff should have general peer security training and should be familiar with the arena's venue- and event-specific policies. Each staff member should have a clear understanding of the post orders for the position they're assigned to.

27.2.1.2 In planning the deployment of peer security for an arena event, a "dot map" should be created and agreed upon between the venue and the promoter. A dot map shows the post position of each member of the peer security staff.

### **27.2.2 Public Safety**

27.2.2.1 In addition to peer security staffing, it is recommended that local law enforcement officers be contracted for arena events. Anticipated attendance and the nature of the event should dictate the level of staffing for local police, sheriff's deputies, etc.

27.2.2.2 In planning for an arena event, the roles and responsibilities of local law enforcement should be agreed upon by the venue staff and the promoter.

27.2.2.3 In many U.S. cities, seating charts and egress plans have to be approved by the local fire department prior to the event going on sale to the public. The venue representatives and the local promoter should work together on the documents submitted to the fire department.

27.2.2.4 Fire department staffing is required for arena events in most U.S. cities. Firefighters assigned to arena events are responsible for ensuring that local fire codes are adhered to. Staffing levels of firefighters for arena events can vary depending on the anticipated attendance, and specific details of an event, such as the use of pyrotechnics or fireworks.

27.2.2.5 Most U.S. cities require emergency medical technicians (EMTs) be on-site as first responders for minor injuries and/or illnesses. Venue representatives should be familiar with minimum EMT staffing requirements for their arena. Recommended EMT staffing levels can

vary depending on the anticipated attendance level, seating configuration (e.g., reserved, general admission, open floor, etc.) and the nature of the event.

27.2.2.6 Some arenas require their contracted security provider be used exclusively for all events, others do not. If outside security contractors are to work alongside the building's contracted security provider, clear lines of control and co-operation need to be established. All security staff should operate through a central control suitably trained and competent for their role. The roles and responsibilities of ticket takers, ushers, and security staff should also be clearly defined.

27.2.2.7 Arenas not originally designed for music events, especially located in city centers, are unlikely to have adequate queuing areas. Ticket holders may arrive a few hours before the announced 'doors' time of the event. In these circumstances it will be necessary to deploy barriers to prevent audience members from blocking sidewalks and city streets. Communication with early arrivals should to be considered in these circumstances to keep the ticket holders informed, and to relay any special safety information.

27.2.2.8 Large amounts of litter can be generated in queues including glass bottles and cans. Trash and recycling receptacles should be deployed along the barrier line to keep the sidewalks clean, and to minimize cleanup after the doors open. You may need to provide portable toilet facilities outside the arena.

27.2.2.9 Management of the audience arriving and leaving the arena should be discussed with the local public safety officials. Extra security may be needed at venue exits during egress to direct guests leaving the venue as to where to find taxis, shuttle buses, or public transportation. The majority of the audience members will leave the event at the end. It is important that there has been proper consultation with the public transport providers to ensure that sufficient public transport is available (see Chapter 8, *Transportation Management*).

27.2.2.10 An agreement should be reached with the local law enforcement agency to control unruly behavior outside of the arena. Most of the time, there will be a staggered arrival of audience members to the arena. However, this is dependent upon the allocation of numbered seated events as opposed to standing events. In the latter case, audience members may wish to arrive early to secure a standing position close to the performance/stage area.

## 27.3 Venue design

27.3.1 When planning arena events, remember that there is a certain degree of inflexibility compared to Greenfield sites, e.g., the size of the premises, existing bathroom facilities and fixed entry and exit points. The occupant capacity of the arena will therefore be primarily dependent upon the means of escape in case of fire, the limiting factor being the width and suitability of the exit doors for the different standing/seating configurations. To ensure that the arena is suitable for the music event it may also be necessary to bring in temporary equipment, such as extra toilets and electrical generators.

27.3.1 Arena operators need to agree with the fire department and the local jurisdiction the different standing/seating configurations that can be used within the arena. Event organizers can

then be supplied with a copy of the various acceptable arrangements. Prior approval of specific arena layouts can be useful and may be required.

27.3.1 The positioning of all structures, no matter how small, should be discussed with the arena operator (e.g., food concessions and display stands) as these can have an effect on the safe evacuation of people in the event of fire or other emergency.

## **27.4 Structures**

27.4.1 Arena operators may have their own facilities and staff to erect the necessary structures for a music event (e.g., stages and seating). However, the organizer may also need to install structures. Agreement should be clearly documented as to what structures and other equipment will be brought into the arena and who will be responsible for its correct positioning, safe erection and use. Incorrect positioning of stages can have a serious effect on viewing areas (see Chapter 26, *Stadium Music Events*).

27.4.2 Health and safety management systems between an external workforce brought onto site and the existing internal workforce should be defined and documented. You will need to ensure the competence of external contractors brought onto site. The existing health and safety procedures must be brought to the attention of the contractors.

27.4.3 The organizer and arena operator should review the suitability of the arena for the event including but not limited to floor loading, roof capacity, electrical suitability, equipment receiving, and loading docks.

27.4.4 Engineering documentation should be provided by the arena operator validating the structural suitability. (For further information, see Chapter 36, *Rigging*.)

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# 28. Large Events

28.0.1 For the purposes of this chapter a “large event” normally has one or more of the following components:

- Multistage;
- Multi-performance;
- Multi-activity;
- Multiday; and/or
- Physical size of venue (outdoors).

28.0.1 The significant factor is, however, the size of the audience—commonly 15,000-35,000, but sometimes more than 100,000. It would be easy to regard a large event as being the same as any event but with more facilities, services and workers, etc. While reference should be made to the specialist chapters of this publication, there are a number of areas where the size of the event alone demands particular attention.

## 28.1 Planning and Management

28.1.1 The need for extensive consultation and planning for a large event cannot be overemphasized. The formation of an event safety management team, comprising representatives of the emergency services and local authority, is a useful method of addressing the practicalities of event organization. Team meetings can be scheduled before, during and after the event and can run in parallel to any formal public permitting procedures. Given a sufficient lead-in period, it should be possible for the safety management team to evolve into a responsive unit that can resolve any difficulties.

28.1.2 See Chapter 2, *Planning and Management*, for more general details on this topic.

## 28.2 Crowd Management

28.2.1 While the proposed attendance figure is the key to the provision of services and facilities, account should be taken of the number of guests and staff. Dependent on the event, up to 10 percent of the capacity could be guests or staff at the event with the consequent additional load on site infrastructure.

28.2.2 Also consider easing local traffic congestion by opening the site early and restricting exits. Incremental occupation of the site should be accompanied by a similar incremental provision of services.

28.2.3 In some instances for nominally non-camping events, it may be useful to make contingency camping provision and low key entertainment on a normally silent night. There is, however, a danger of changing the nature of the event for subsequent years. Ticket pricing structures may control arrival, particularly for late Friday arrivals for a Saturday event.



28.2.4 Within the site there needs to be active crowd management. The technical issues of stage layout, audience size and barriers are dealt with elsewhere. At a large event the layout should take account of audience movement across the site and minimize cross flow and points of congestion. Ideally a wheel layout, with entertainment at the hub and camping at the rim, could be combined with one or more of the following:

- Area or small team of stewarding to maintain a controlled scale of audience movement;
- Dynamic entertainment management where the programs on separate stages are integrated into the audience management program;
- Ensuring that timing and running orders are adhered to, to avoid conflicts at the end of performances;
- Gradual close down of main stages;
- Continuing (perhaps for 24 hours) low level entertainment such as cinema or markets; and
- No entertainment within the defined areas of campsites.

28.2.5 See Chapter 7, *Crowd Management*, and Chapter 10, *Barriers*, for more general details on this topic.

## 28.3 Major Incident Planning

28.3.1 The size and complex infrastructure associated with a large event reinforces the need for a comprehensive major incident plan. The event safety management team in consultation with the local authority emergency planning officer, who would be familiar with local arrangements, should develop the plan. The following aspects should be considered:

- Is the evacuation of the entire site practical or would selective evacuation be preferable?
- Is the evacuation of the site desirable, given that under some circumstances food, water and sanitary facilities may still be operational on a scale unavailable elsewhere?
- What infrastructure is available elsewhere?
- What would be the impact of a mass exodus from one part of the site on other parts or on the locality?
- What implications are there for public address systems in various emergency situations?

28.3.2 See Chapter 5, *Major Incident Management*, and Chapter 6, *Communications*, for more general details on this topic.

## 28.4 Transportation Management

28.4.1 If public transportation links are available they may be encouraged with integrated ticketing. Depending on the event and availability, many people may choose integrated bus/event travel. In rural locations, or where other transport is unavailable, much of the audience will, almost inevitably, travel by car and the logistics and impact on the locality should form an early item for consultation.

28.4.2 Traffic should be removed from the public road system onto site as quickly and efficiently as possible; the use of professional stewarding may be the best option. Within the site, parking

areas should be divided into easily identifiable zones (perhaps associated with nearby camping) and traffic should be routed to avoid designated pedestrian routes/areas.

28.4.3 See Chapter 8, *Transportation Management*, for more general details on this topic.

## 28.5 Children

28.5.1 People may become more easily lost in a large event. The need for overnight provision and the implications for lost children need to be considered.

28.5.3 See Chapter 23, *Children*, for more general details on this topic.

## 28.6 Information and Welfare

28.6.1 The provision of a comprehensive information and welfare service that can assimilate and coordinate information in an active way as the event progresses allows other agencies, such as emergency medical and police services, to undertake their specialist functions. Everything possible that an individual requires for the duration should be readily available on the site.

28.6.2 See Chapter 22, *Information and Welfare*, for more general details on this topic.

## 28.7 TV and Media

28.7.1 The presence of regional, national and international media may in itself influence the progress of an event. In particular, incorrect ticket availability broadcasts may cause problems. Ensure that channels of accurate information are available for coordinated release to the media.

28.7.2 See Chapter 25, *TV and Media*, for more general details on this topic.

## 28.8 Venue and Site Design

28.8.1 The site design for a multiday event must recognize the need for 24-hour access to facilities for both the audience and for servicing the facilities.

28.8.2 See Chapter 3, *Venue and Site Design*, for more general details on this topic.

## 28.9 Fire Safety

28.9.1 Discussion should take place, pre-event, on the areas of responsibility for fire safety teams. There needs to be a clear understanding of the circumstances under which the local fire department will respond and lines of communication must be established. There should be a policy and procedure in place for safely dealing with small arena fires.

28.9.2 See Chapter 4, *Fire Safety*, for more general details on this topic.

## 28.10 Sanitary Facilities

28.10.1 Water availability is a limiting factor on the audience size at all events on undeveloped sites. In particular, the logistics of moving large quantities of liquid—whether water or effluent (sewage)—need to be addressed. While flush toilets are a preferred option, they are vulnerable to failure of water supply and can be difficult to bring back into use when the supply has been restored. The use of fewer toilet blocks with more units can, subject to proper access routes and efficient continuous servicing, mean that a greater number of toilets will remain in operation. For overnight or multiday events, there will inevitably be a peak morning demand, particularly if showers are provided in camping areas.

28.10.2 See Chapter 15, *Sanitary Facilities*, for more general details on this topic.

## 28.11 Food and Drinking Water

28.11.1 Supplies of both food and drinking water must be adequate for the duration of the event; the facility for campers to buy basic commodities such as bread, milk, etc., needs to be available. To ensure sufficient supplies of water there will need to be a considerable amount of temporary pipework, which is susceptible to damage and vulnerable to contamination. Consideration should be given to splitting the water supply on the site into several independent supply zones. In this way the consequences of a serious incident affecting the water supply will not affect the whole site. It may be necessary to protect the quality of the supply by increasing chlorination above normal mains levels. The use of percussion taps will help reduce waste.

28.11.2 See Chapter 12, *Food, Drink and Water*, for more general details on this topic.

## 28.12 Health and Safety of Event Workers

28.12.1 Set up a proper management infrastructure with delegation of authority. The safety management team should include people with experience from previous or similar events. One of the issues that will be encountered with large events running over many days is one of fatigue among both management and contractors. All will be working long hours under stressful conditions and if this is not addressed, the quality of decisions, some of which may be critical, could be poor.

28.12.2 See Chapter 34, *Health and Safety Responsibilities*, for more general details on this topic.

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# 29. Small Events

29.0.1 This chapter contains advice aimed at the small-event organizer. The important factor to consider is not whether an event can be defined as “small” or “large” but the proportionate level and extent of facilities and safety management systems required at the event to ensure the health, safety and welfare of the event staff and the people attending.

29.1.2 For the small-event organizer this publication can help you think about the safety matters to be considered. Your overall event risk assessment will help to determine what systems or precautions you need to put into place to manage the event safety. Remember, however, that managing any size of event will require good safety planning procedures.

29.0.3 While this chapter covers small events taking place either fully or partially in the open air or in tents or other temporary structures, it may also contain useful safety advice for small events taking place indoors in permanent indoor venues.

## 29.1 Planning and Management

29.1.1 It is suggested that small-event organizers use the chapter headings in this publication as a framework or checklist for event planning. All event organizers must be clearly aware of their responsibilities for the audience and other participants at their event, including performers, merchandisers, etc.

29.1.2 Small-event organizers should not assume that because a proposed event is perceived to be small, the associated risks are less. Not only will the number of people attending be significant for the event management, but the activity itself and the audience type will also influence the safety requirements. It is just as important for a small-event organizer to carry out a risk assessment for the event, to identify which hazards are of greatest significance and therefore which parts of this publication are of most relevance.

29.1.3 A safety policy statement should be produced that describes how the event organizer intends to manage safety, who has specific responsibilities, and how these will be carried out. The risk assessment and safety policy need not be long or complicated, but should clearly demonstrate the approach taken to ensure the safety of all those involved in the event. Assistance in drawing up a risk assessment and safety policy can be found in Chapter 2, *Planning and Management*.

29.1.4 The safety management responsibilities could be handled by the existing management team for the event if they can effectively put the actions outlined in the safety policy into practice, otherwise a separate team should be established. All workers and/or volunteers need to be aware of safety procedures. Ensure that any contractors or subcontractors hired to build the stages, erect tents, booths or stalls, etc., are competent in managing their own health and safety on site. Ask for copies of the contractors’ safety policies, risk assessments for their work and safety method statements.

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## 29.2 Staffing

29.2.1 Small events may operate with small budgets and rely on enthusiastic volunteers rather than paid employees or contracted service companies. The crucial aspect is good coordination by the event management team and close supervision, support and monitoring of volunteers. The organizing group can sometimes provide many services at small events such as catering and security, rather than buying them in from commercial companies.

29.2.2 Management of staff, including paid staff, vendor workers and volunteers requires clear job functions and responsibilities to be identified. It is important for inexperienced staff to receive proper briefing and supervision.

29.2.3 Everyone working or providing services at the event should be clear about what they are required to do, how to do it and when it needs to be done. This can be achieved by preparing a schedule when work is required to be carried out and by whom, and informing everyone involved.

## 29.3 Levels of Provision of Site Services and Facilities

29.3.1 While some of the recommended levels of provision in this publication may be reduced for small events, there are areas where a minimum provision will be required. For example, the number of toilets obviously cannot be below two. Realistically, the number of medical staff, security, etc., should never be less than two, to allow for contingencies.

## 29.4 Local Authority Liaison

29.4.1 Small-event organizers should consult with the relevant local authorities and emergency services representatives with responsibility for the event. These officers will be prepared to offer advice and assistance including whether any permits are required.

29.4.2 Provide the local authorities with sufficient written information to enable officers to understand the nature of the event. This documentation will in any case already have been prepared as part of your event planning and should include:

- A description of the event, including key event timing, e.g., load-in, show and load-out times, audience size, type of activities, etc.;
- A site plan showing relevant features and the event's relationship with any adjacent neighborhoods;
- A list of key members of the organizing team and their responsibilities;
- The risk management strategy, including a copy of the risk assessment, safety policy and site-safety rules.

29.4.3 Further documentation should be available on site during the event, including:

- The safety policies, risk assessments and safety method statements for any contractors or subcontractors hired to erect stages, tents, roofed structures, booths, stalls, etc.;
- Risk assessments and safety documentation of any activities associated with the event such as inflatable structures, trampolines, etc.;

- Appropriate certificates for any work equipment brought onto site, such as electrical equipment, generators, lifting equipment;
- Copies of flame certificates for treated materials.

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# 30. Classical Music Events

30.0.1 A classical music event for the purposes of this chapter is defined as an outdoor performance on a greenfield site—typically parkland or an open air venue—with an audience who bring with them their own chairs, food and drink and sit where they want within a designated area.

30.0.2 As with any event, the initial planning meetings with the local authorities and emergency services are critical. It is common for a load-out immediately on concluding an evening performance.

## 30.1 Crowd Management

30.1.1 Working a classical music concert is different from a pop/rock concert. The audience profile tends to be older and less reactive. However, some classical musicians have a following similar to a pop performer and it would be wise to treat their performance as a rock music event.

30.1.2 Local voluntary organizations may serve as event staff and will require training. An experienced event staff leader should be appointed who has been trained to deal with areas of potential conflict (extinguishing grills, moving audience to avoid over-crowding, etc.). A ratio of one non-law enforcement, event staff to 250 audience members has been found to be effective.

## 30.2 Transportation Management

30.2.1 It is unusual for a classical concert on a greenfield site to be located close to a major transportation route. Much of the audience will travel by car and vehicular access through minor roads and gated entrances, all of which may be limiting factors on audience capacity. Contingency planning is needed for bad weather including availability of tow vehicles and possible rerouting of traffic.

30.2.2 It is common for voluntary stewards to direct traffic on site and organize parking. A more experienced group may be required where the audience exceeds 4,000-5,000. Voluntary stewards must not direct traffic on or from a public road unless the police have specifically requested it.

## 30.3 Performers

30.3.1 A classical orchestra may comprise 75 or more musicians. The addition of choirs can greatly increase this number. It is important that they are provided with dedicated parking and welfare facilities.

## 30.4 Venue and Site Design

30.4.1 When using a field site as a music venue, problems arise which would not be met in a purpose-built arena. An open field may quickly show signs of strain in handling a large number of people in one evening. If part of the site, narrow gateways and steps may also become a

considerable hazard when used by thousands of people and suitable access routes for site infrastructure (staging, portable toilets, etc.) need to be identified. Some hazards, such as lakes, are easily identified. Others, such as rabbit holes, are not, and are only found by tapping local knowledge and walking the site.

30.4.2 Livestock may take fright at the sound of music, or the fireworks which may accompany such events. Arrangements should be made to remove livestock before the concert.

30.4.3 Evacuation of the site in an emergency, and dispersal of the audience, is not normally a problem in open parkland but a venue in a formal garden, with access through gateways, requires careful consideration.

## **30.5 Sanitary facilities**

30.5.1 The water supply to the site may be a limiting factor on audience size unless re-circulating or non-flush units are employed. A high expectation of the facilities should be anticipated and therefore all units should be serviced throughout the concert.

30.5.2 The number of toilets should be based on the recommended standard in Chapter 15, *Sanitary Facilities*. Toilets are used more efficiently if they are sited in the same location and easily accessible from the audience area. An exception to this would be wheelchair accessible facilities, which on larger sites could be located on either side of the audience to reduce travel distance.

## **30.6 Food**

30.6.1 At a typical classical event, the audience will picnic. Personal barbecues are not normally permitted, so the catering facilities will need to serve food and drinks, which the audience cannot provide for themselves.

## **30.7 Waste**

30.7.1 Greenfield sites are often the home of animals such as deer and cattle that may suffer considerable harm if the waste is not cleared efficiently. On sites with grazing animals it is important that as much waste as possible is collected on the night of the concert with a sweep the following morning to pick up loose material such as firework debris, nails, bolts and plastic fittings, etc.

30.7.2 Additionally, many venues may be open to the public on the day following the concert and it is important that the site is left in the same condition that it was found. Audiences will normally respect the venue and if issued with a trash bag (white for visibility after dark) will either take trash home or deposit it for collection.



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# 31. Unfenced or Unticketed Events, Including Radio Roadshows

31.0.1 Unfenced and/or unticketed events are popular at open-site venues such as local parks. Occasionally free events will be organized in existing arenas or stadiums. This chapter aims to highlight specific issues that have to be considered when looking at health and safety at unfenced/unticketed events in open spaces. A few specific suggestions have been made for such events in arenas, stadiums and radio roadshows.

## 31.1 Planning and Management

31.1.1 The Planning and Management chapter provides information concerning the application of good health and safety management systems.

### 31.1.2 Risk Assessment

31.1.2.1 The whole of the park or open space should be inspected to determine if there are any particular hazards that present greater risks with a large number of people in attendance. Events taking place near a water feature such as a lake, river or pond will need include a provision so as to prevent people from falling or swimming in the water. Security and stewards trained in life-saving skills may need to be employed and extra warning signs erected. In certain circumstances, it may be necessary to physically separate areas of the park or open space from the area chosen for the event.

31.1.2.2 If there are rivers, lakes, or ponds next to or near the event, additional provision may need to be made to prevent any runoff making its way into them. Examples might include oil and fuel from vehicles or overflow from fueling, sewage from any source, and any discarded waste.

### 31.1.3 Build-up/Breakdown

31.1.3.1 The fact that there is no perimeter fencing can cause added problems for contractors working on site. The public will often want to wander around the site to see what is happening. Vehicle movement should keep to dedicated paths and observe strict speed restrictions (5 mph) and use hazard lights. If the park or open space is heavily used it may be necessary to consider having a person on lookout while walking in front of the moving vehicle.

31.1.3.2 Areas where work is being undertaken can be temporarily cordoned off for security. Greater security will be needed especially at night to ensure that the temporary structures erected are not vandalized or tampered with. Consideration should be given to temporary barriers and the provision of specialist security guards.

31.1.3.3 When erecting temporary structures, follow the guidance contained in Chapter 9, *Structures*. Radio roadshows tend to use rapid deployment mobile stages, vehicles specially adapted for the purpose that contain an integral stage. These vehicles need to be situated on firm level ground that has adequate drainage. If the vehicle is to be placed on grass and there is the possibility of rain, temporary hard pads may need to be considered to avoid penetration into the surface beneath the stage. It is important that sufficient space be provided for the vehicle/stages in the venue design. Keep in mind the vehicle must be driven to the area and also consider the weight of the vehicle as well as the terrain and surfaces it will drive over to access the location.

### **31.1.4 Crowd Management**

31.1.4.1 The benefit of free events held in parks or similar locations is that there is no enclosed arena, so there is no physical restraint to crowd dynamics. However, the numbers that are likely to turn up on the day are always difficult to predict and should be carefully considered. As always, planning for the safety and welfare of those in attendance is directly related to the size and nature of the audience attending the event. The number of stewards required is dependent upon the overall risk assessment. The fact that members of the audience are likely to be spread out over a greater area should be a constant consideration.

31.1.4.2 In these circumstances, you will need to estimate the expected audience levels. This estimate can vary considerably, dependent upon the performer's popularity, the weather, other events organized at the same time in the local area and the amount of media attention given to the event. Acquire as much information as possible concerning the expected numbers of audience likely to turn up and all site facilities including stewarding numbers will need to be based on this number. It is better to overestimate the audience numbers rather than underestimate.

31.1.4.3 Free or un-ticketed events organized in existing fenced venues may cause problems when ensuring that the occupant capacity determined for the premises is not exceeded. It may be appropriate to issue free tickets to gain entry to the event or a system for counting audience members in and out of the venue.

## **31.2 A March Before the Event**

31.2.1 A march sometimes precedes an event so that the majority of people arrive at the same time. Care must be taken to ensure that the site and services are ready and able to cope with the large number of people arriving within a limited time. Security and event personnel training is essential at this type of event to ensure that the crowd is directed to where it is expected.

## **31.3 Crowd information**

31.3.1 When an event has tickets, information on event times and transportation routes can be given on the reverse of the ticket. When this medium is unavailable, emphasis needs to be placed on providing information about the event on leaflets (flyers), local radio, newspapers, the event website, social media sites and smartphone apps. Information could also be made available throughout the event by electronic notice boards.

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## 31.4 Major Incident Planning and Emergency Access Routes

31.4.1 Emergency planning and the design of dedicated emergency access routes can prove more difficult at unfenced events as the audience members are not contained in one area. At fenced events, there is relatively easy access around the site once members of the audience are in the arena watching the event. At unfenced events, members of the audience are able to move to all parts of the park or open space and this can hamper the movement of emergency vehicles. Consider providing cordons with appropriate security and stewarding to dedicated access routes. Adjustments may need to be made to the existing perimeter fencing of the park to allow for the safe evacuation of the audience from the park, other than through restricted park entrances and exits.

## 31.5 Communication

31.5.1 Good communication systems are vitally important to health and safety management. At unfenced events, planning for the location of security and event personnel around the site can be a problem as there are fewer easily defined positions and posts, e.g., entrances and exits to the fenced arena. Security and event personnel need to exhibit greater discipline to remain in the area that they have been stationed and not to wander around the site. Greater reliance on radio communication may be needed at a large site and event staff will need to have clearly gridded plans so that they can be more accurate in summoning assistance and identifying their own position.

## 31.6 Performers

31.6.1 It may be necessary to provide a secure backstage area for performers that is securely fenced to prevent members of the audience trying to get access to the performer. Planning for the arrival and departure of the performer may require cordoning separate areas and road closures.

## 31.7 Children

982 There may be a greater proportion of families with children attending this type of event compared to the traditional ticket/fenced concerts. There is also a higher probability that children and young adults will attend the event on their own. Provide 'help points' and a lost children's facility (see Chapter 23, *Children*).

## 31.8 Information and Assistance

31.8.1 Make sure to provide facilities for information and assistance. Establishing meeting points, information booths and first aid stations for the audience will be more important as there will not be the usual entrances and exit points for audience members to identify with.

## 31.9 Venue and Site Design

31.9.1 Venue design should consider overflow areas if the audience is larger than predicted. Overflow areas are required to prevent audience members from blocking roads or designated emergency escape routes.

31.9.2 The quantity of food and merchandising concessions, toilets, first-aid stations and other site facilities will depend upon the predicted size of the audience. Careful consideration should be given to the location of the food and merchandising concessionaires, first-aid stations, assistance and information points and toilets. It is likely that the audience will be spread over a greater area than is usually calculated for a fenced or enclosed arena. The location of these facilities should reflect this.

31.9.3 In an unfenced venue, way-finding and directional signage requirements will increase because the attendees will potentially be arriving from all directions instead of through a primary venue entrance.

## **31.10 Food and Drink**

31.10.1 Glass bottles should not be sold on the site. Local public houses and food outlets should be contacted to request that during the event food and drink is not sold in glass containers.

## **31.11 Waste**

31.11.1 At unfenced events, it will be impossible to prevent members of the audience taking glass bottles and cans on to the site. Consider providing as much pre-publicity about this aspect as possible. Special containers should be provided to encourage the audience members to dispose of their glass containers safely and if possible encourage people to decant the contents of glass containers into another container, e.g., recyclable cups.

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## 32. All Night Events

32.0.1 This chapter highlights some of the matters to consider when organizing an all-night music event. All-night events may take place in any of the following: open field sites, warehouses, leisure centers/facilities, exhibition halls, parking lots, race tracks, purpose-built arenas night-clubs and convention centers.

32.0.2 Trends evolve quickly with this demographic so the best training ground for organizers of these events is going to similar events to see what works, what doesn't work and under what conditions. Production vendors of these events tend to do many of them and they are a valuable resource when it comes to what is successful and not.

### 32.1 Audience Profile

32.1.1 All-night events attract an age range of 18-30 years (often with slightly more male attendees). At events more in tune with the concept of "clubbing," a slightly older audience would be expected: 20-35 years with a 1:1 male to female ratio. People coming to these events will dress in all varieties of clothing, from evening attire and high-heels to t-shirts with bikini bottoms and sandals. Excessive use of controlled substances may be present. Additional guidelines can be found later in this document.

### 32.2 Duration of the Event

32.2.1 All-night events vary in duration, but 10 hours is not unusual for indoor events, with over 16 hours for outdoor weekend events. There will also be a load-in period, followed by load-out period after the show which will have an impact on the local environment.

### 32.3 Management

32.3.1 The arrangements for these events mirror those referred to in other chapters of this publication. For multiple night events, a night working crew is likely to be necessary to affect 'running repairs' around the site. Due to the duration of these events, ensure that adequate rest periods are taken by workers and contractors.

### 32.4 Format

32.4.1 The format of these events is that different types of music will be played in different areas if the venue layout permits. The audience will move from one area to another throughout the event. This has crowd management implications due to the crowd dynamics of people trying to get into particular locations where the main DJs or live acts are taking place.

32.4.2 Ensure that the 'running order' with the artist's name, the stage name and its location is openly advertised in advance on the event website, flyers, on signage at the venue and queuing lanes where people are waiting to enter the venue, fence panels and at information points. Programming should ensure that crowds are safely distributed around the site according to the

capacity of the different areas, to avoid over-crowding, pressure on access points and mass movement around the site.

## **32.5 Medical**

32.5.1 The medical practitioner must be familiar with symptoms and treatment of heat exhaustion, dehydration and drug and alcohol intoxication.

32.5.2 Local government provided medical services, e.g., paramedics and advanced life support (ALS) ambulance services will likely be required by the local authorities. If not, the organizer should seriously consider these services, regardless of the disposition of local authorities. In some communities the number of available resources in-market may be limited and local authorities may require the organizer to augment their resources with the additional services of a private emergency medical response company.

32.5.3 An on-site medical room or triage location, such as a large room or a tent should be considered. This location will need hot and cold running water and restrooms exclusively dedicated to this room immediately adjacent to the room with a member of the event staff to monitor access, restock of supplies and cleanliness of the units.

32.5.4 When resources are limited or the site is in a remote location, organizers should consider the services of experienced emergency room medical doctors and nurse staff to work in this room in addition to first aid and EMT staff, to assist in the determination of whether ‘emergency transport’ of patients to a hospital is required. The presence of this additional experienced emergency staff in the medical room can help the on-site medical supervisor better manage the resources available on site and in the environment.

## **32.6 Graffiti**

32.6.1 Graffiti is common and cleaning it up should be planned. There are a number of topical applications and sealers that can limit spray paint and marking pen adhesion to some surfaces. Organizers should investigate options available in the market for protection and clean up.

## **32.7 Admission**

32.7.1 To minimize the guest’s time in the queue, consider a pre-check of ticket, bag and ID as the people enter the queue line chutes at the entry portal. At the head of the line where actual ID checks occur and tickets are torn, it is advisable to place a “secondary ID check” area to send people with ID or ticket problems who have arrived at the head of the line. This area should be staffed with people familiar with government issued identification.

## **32.8 Queue Line Layout and Management**

32.8.1 It is good practice to use actual measurements from advance surveys or scouts when ordering fencing and bike rack barriers required at entrances. The entrance area often uses more equipment than anticipated so it is recommended you do not rely on a “scale diagram” as diagrams rarely indicate current site topography and landscaping.

32.8.2 An “ejection lane” should be designed into the entrance plan to expedite exiting from the area by persons who will not be allowed into the venue.

32.8.3 The following is an example of a successful sequence at the head of the line:

- ID CHECK (1 staff per lane)
- BAG CHECK (1 security guard minimum and a table per lane)
- PAT DOWN (2 security guards per lane)
- TICKET TEAR or SWAP (1 staff per lane)

32.8.4 A list of prohibited items, and acceptable forms of identification for entry and the size of bag they are allowed to bring into the venue must be publicized in advance.

32.8.5 VIP and other premium tickets often have their own dedicated entrances, away from the general public entrance. All infrastructure and checks required at the main entrances are also required for these entrances. Once inside the venue, VIPs are typically given unrestricted access to exclusive areas behind and/or beside the stages. These areas generally have their own sanitation facilities, bars and concessions.

## 32.9 Occupancy

32.9.1 Organizers need to agree on occupancy levels with authority having jurisdiction and resist the temptation to “oversell” the venue. For information on venue capacity, see Chapter 3, *Venue and Site Design*.

## 32.10 Venue and Site Design

32.10.1 For information on this topic, please refer to Chapter 3, *Venue and Site Design*. The general principals noted in Chapter 3 should be followed for all night events.

## 32.11 Tents

32.11.1 Outdoor events are usually held in dance music tents and/or the open air. An issue affecting the audience safety is the availability of tented cover for the occupant capacity of the event. An outdoor daytime concert could last up to 13 hours, with no cover provided against the weather for the audience. However, at night the air temperature can drop rapidly and with the possibility of limited public transport or remoteness of the site from other facilities, the risk assessment should consider the possibility of hypothermia.

32.11.2 A reasonable percentage of the audience should be able to find cover, particularly in bad weather. All tented accommodation must comply with the relevant structural and fire safety standards referred to in Chapter 9, *Structures*, and Chapter 4, *Fire Safety*.

## 32.12 “Chill-Out” Areas

32.12.1 Fast dancing can result in rising body temperatures in the participants and this can be exacerbated by the effects of some drugs. It is essential to provide a “chill-out” area (or possibly

several). This will allow people to cool down in a more calming environment. There may be music, but it will be quieter and more relaxing. It can take a variety of forms such as a room, tent, roofed structure with seats, or space outdoors.

32.12.2 If an outdoor “chill-out” facility is provided in the winter, the air temperature may be so low that heating may be necessary in the area set aside for this use. Staff should maintain a presence in this area(s), and look out for individuals who may need medical attention or assistance. If youth/drug counselors are on site, they should also pay particular attention to these areas.

### **32.13 Ventilation at Indoor Venues**

32.13.1 Due to the quantity of hot and humid air that needs to be moved, high velocity fans (forced or induced draught) will be needed to achieve sufficient air changes. If possible, a ‘balanced’ system should be used where extracted air is replaced by fresh air drawn into the venue. The use of ‘smoke’ machines or similar effects will need to be carefully assessed.

32.13.2 If the premises cannot be ventilated as previously described, temporary facilities can be brought in to give some relief to the audience, such as high velocity fans placed at approximately 5 feet (face level). They can be positioned next to areas where individuals will stand, e.g. bars.

32.13.3 In small arenas or rooms, portable air conditioning units can be used, and will bring about a reasonable reduction in temperature. Lightweight structures will quickly cool in the winter months and will become extremely warm during the summer.

### **32.14 Drinking Water**

32.14.1 Drinking water fountains ensure that waste water can be retained and floors do not become slippery and dangerous. Drinking water taps should always be labeled as such. The pressure of the water supply should be adequate for the number of taps being used from it. Seek technical advice from the local water company. One drinking water fountain per 750 people has been found to work in practice.

32.14.2 Water is the most important aspect of maintaining personal safety at dance events. Individuals may perspire profusely and need rehydration. A good guideline of 16 ounces (556 ml) of fluid per hour can be used.

32.14.3 It is essential for the “core” of the human body to be kept cool; otherwise it could overheat (heat stroke). However, a cautionary note: too much water, consumed too quickly can also be hazardous and may cause medical problems with serious consequences.

32.14.4 The provision of a free drinking water supply, regardless of the venue type, is an absolute necessity. The staff and security staff should know the location of these facilities.



## **32.15 Alcohol and Sports Drinks**

32.15.1 The consumption of alcohol at all-night events varies depending on the nature of the event. High sugar content drinks, such as sports drinks or fruit juices, help to replace body salts and minerals lost through dancing in a hot environment.

## **32.16 Relief Assistance**

32.16.1 Some additional relief provisions may be needed. As the majority of people attending such events are young people it is essential to have trained youth or drug workers onsite so that they can identify people who may require support or assistance. These staff should be identifiable by the wearing of suitable external identification. They should have an accessible base on site so that they can be easily contacted when their services are needed. A clearly visible meeting point will be required for missing people. The local fire department, medical provider, department of health or peer group security firm may be good sources of this expertise.

## **32.17 Mass Transportation**

32.17.1 Management of the audience arriving and leaving the arena should be discussed with the local public safety officials. Extra security may be needed at venue exits during egress to direct guests leaving the venue as to where to find taxis, shuttle buses, or public transportation. The majority of the audience members will leave the event at the end. It is important that there has been proper consultation with the public transport providers to ensure that sufficient public transport is available. See Chapter 8, *Transportation Management*, for more information.

## **32.18 Weather forecast**

32.18.1 Up-to-date weather information will assist both the production team and the audience. If night temperatures drop, lightly clothed participants may suffer medical conditions (e.g., hypothermia) if they are ill prepared.

## **32.19 Controlled Drugs**

32.19.1 It may be prudent to arrange for an appropriate drug/alcohol counseling agency to be on site to help people are in need of advice or assistance. A number of staff should be retained after the event until the site is cleared or no problems are reported.

## **32.20 Amnesty Box**

32.20.1 With the endorsement of law enforcement and local health authorities, some organizers have begun placing an “amnesty box” outside the event perimeter, near the entry portals. An amnesty box is a sealed one-way deposit container operated by a firm approved by the local authorities in which members of the audience may dispose of contraband objects brought to the venue without consequence. Certification and accreditation of disposal firms may vary; check with local authorities before hiring a disposal company. Law enforcement should be advised of the use of these boxes, and two officers should be held over after the event to supervise the collection and disposal process and sign an affidavit of destruction.

# 33. Unlicensed Events

Content forthcoming.

# 34. Health and Safety Responsibilities

Content forthcoming.

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# 35. Weather Preparedness

35.0.1 Inclement weather can strike any geographical location at any time. Such severe weather threats can take the form of tornadoes, hurricanes, lightning, hail, strong straight-line winds, flooding, blizzards, and many others. Public venue managers, stage rigging crews, and performing artists should be as prepared as possible. Inclement weather preparedness is a fundamental responsibility of all persons involved with an event in protecting the safety of guests, event personnel, employees, performing artists as well as the assets of the venue.

35.0.2 Alongside such extreme weather threats, which may require an immediate emergency response from the Organizer, consideration needs to be given to less severe activity which nonetheless may challenge the viability of an event or the welfare of attendees. Such instances may include extensive rain which compromises parking areas, or unexpected hot weather leading to medical and welfare concerns for an exposed audience.

35.0.3 Determining an appropriate reaction to weather can be a complicated process. Such a judgment requires input from various entities knowledgeable in the structure of the venue, the size and distribution of the spectators and participants, the weather conditions involved and the amount of advance warning time.

35.0.4 The starting place for weather planning is to first assess the potential threats and then recognize and understand the inherent strengths and weaknesses of the venue's infrastructure and available resources.

## 35.1 Chain of Command

35.1.1 The event command structure should clearly establish the responsibilities related to weather including planning, and incident management. For example, the individual responsible to make decisions to react to a weather threat must be designated and clearly understood by all relevant parties, and the authority of this individual should be final. Life safety must at all times be the first priority.

## 35.2 Weather Planning

35.1.1 Have a plan.

35.1.2 A proper plan will clearly define trigger points and the action required at those points for a range of weather threats. Threats may include but be not limited to: thunderstorms, lightning, wind, heat, hail, tornadoes, etc. The establishment of these trigger points shall require input from technical providers, engineers, structure suppliers, etc.

35.1.3 An example of a weather decision matrix related to an event production is shown in Fig. 35-1. Organizers are reminded that each event needs to establish their own matrix relevant to their event. The organizer will also need to consider a similar set of triggers and actions to

protect event attendees and a similar decision matrix to protect the lives and safety of the audience should be established.

Threat	Alert Method	Concourse	FOH	Pyro	Back Line	Video	Audio	Lighting	Stage	Catering
Thunderstorms	Radio alert from production	Double check security of anchors	Secure and cover gear	Safe all pyro	Secure and cover gear	Secure and cover gear	Secure and cover gear	Secure and cover gear	Monitor proximity	Monitor
Lightning Inside 6 miles	Radio alert from production	Take shelter	Take shelter	Safe all pyro	Take shelter	Take shelter	Take shelter	Take shelter	Take shelter	Evacuate to fixed structure
Non-Severe Hail < 3/4 inch	Radio alert from production	Take shelter	Shelter in place	Safe all pyro	Secure and cover gear	Secure and cover gear	Secure and cover gear	Secure and cover gear	Monitor	Monitor
Severe Hail >3/4 inch	Radio alert from production FTF voice communication	Shelter in fixed structure	Shelter in fixed structure	Safe all pyro	Shelter in fixed structure	Shelter in fixed structure	Shelter in fixed structure	Shelter in fixed structure	Shelter in fixed structure	Evacuate to fixed structure
Surface Winds 15-25 MPH	Radio alert from production	Carps proceed to concourse, collapse and stow pop up tents	Secure gear and monitor conditions	Safe all pyro	Secure and cover gear	Clear wall swing obstructions	Monitor PA swing	Monitor rig swing	Monitor	Monitor
Surface Winds 25-40 or Tornado Watch Issued	Radio alert from production	Evacuate to fixed structure	Secure gear and monitor conditions	25 MPH threshold for pyro – no pyro	Secure and cover gear	Video wall to the deck	Land PA	All truss to the deck	Secure and cover gear	Secure gear and monitor
Surface Winds > 40 MPH or Tornado Warning	1 long air horn blast + radio communication	Evacuate to fixed structure	Evacuate to fixed structure	Evacuate to fixed structure	Evacuate to fixed structure	Video wall to the deck	Land PA	All truss to the deck	Evacuate stage to fixed structure	Evacuate to fixed structure
Surface Winds > 60 MPH or Tornado Activity	1 long air horn blast + radio communication	Immediate retreat to shelter	Immediate retreat to shelter	Immediate retreat to shelter	Immediate retreat to shelter	Immediate retreat to shelter	Immediate retreat to shelter	Immediate retreat to shelter	Everything to the deck; immediate retreat to shelter	Immediate retreat to shelter
Common sense is key – Protect yourself and your family first – We can rebuild the show.										

Fig. 35-1. Weather Decision Matrix related to an event production.

35.1.4 Predicting the reaction of people to severe weather threats is difficult. Many things must be taken into consideration when trying to foresee the behavior of the crowd in a severe weather situation, particularly if the threat becomes reality.

35.1.5 The organizer must generate an atmosphere of trust through clear and accurate communication with everyone entering the event site. If visitors feel as if their best interests and safety are a priority, they will be more likely to respond in a cooperative and predictable manner.

35.1.6 Proper planning will identify ways to prepare for and mitigate problems associated with moving people to safe shelter.

35.1.7 Sheltering will vary based on the threat, venue, and shelter type. For example, a large tent may be appropriate to shelter for heavy rain, however this same structure may require evacuation in the event of extreme winds. Depending on the severe weather threat, potential locations for shelter could include: cars, shelter in place at the venue, tents, permanent structures, under bleachers or grandstands, or even simple evacuation from the event site.

35.1.8 The path to safe shelter needs to be clearly identified and free of any equipment, material or debris that might slow down or hinder the movement of people.

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## 35.3 Weather Monitoring

35.3.1 The National Weather Service (NWS) monitors all types of weather, making forecasts for the general public available on its website and to private meteorologists, including various media outlets and weather forecasting services. Private forecasting services can provide a tailored approach to your specific venue or location, and can also implement direct alerting for specific trigger criteria for your action plan. Use of a private consulting meteorologist is strongly encouraged.

35.3.2 The Storm Prediction Center (SPC) (<http://www.spc.noaa.gov>) is part of the National Weather Service (NWS) and the National Centers for Environmental Prediction (NCEP). The mission of the SPC is to provide timely and accurate forecasts and watches for severe thunderstorms and tornadoes over the contiguous United States. The SPC also monitors heavy rain, heavy snow, and fire weather events across the U.S. and issues specific products for those hazards.

35.3.3 While the SPC issues products for the entire country, the local NWS (<http://www.nws.noaa.gov>) offices issue weather information for their County Warning Area (CWA). They are considered the experts in their region and publish area specific forecasts, warnings and advisories.

35.3.4 Given the complexity of weather forecasting, use of professional weather consulting services is strongly encouraged. Such sources can focus specifically on your event's physical address and threats specific to your event with expert meteorologists making precise forecasts. Such service providers are able to offer customized data such as lightning strike detection and proximity, surface level winds, accurate radar interpretation, etc.

35.3.5 Additionally, there are subscription services available online that provide real-time lightning and weather data as well as phone applications that can aid in situational awareness. Many of these services provide alerts as well, based on user-defined criteria.

35.3.6 An event should utilize suitably located anemometers (wind speed meters) in order to monitor the weather at that specific site. These devices can also keep a record of weather conditions, which is useful information.

35.3.7 On-site weather monitoring should be used in conjunction with other monitoring and forecasting services.

## 35.4 Communication

35.4.1 During severe weather, communication amongst venue staff needs to be efficient, accurate and targeted. As time is of the essence during a severe weather situation, all communication should, as much as possible, be rehearsed during training and exercises.

35.4.2 The sequence of communication needs to be considered, allowing technical departments, security and event staff and food and beverage/merchandising to make preparations before the audience is advised.

35.4.3 Performers can be of great value in calmly asking guests to take action, assuming that they are willing and able to relay this important information. They should not be solely relied upon to communicate this important information, but should be asked to do so if their special connection with audience members could make the process much smoother.

35.4.4 Any weather information or action announcement should be accurate and unambiguous. Communication should continue throughout the implementation of an evacuation or sheltering process which may require utilizing additional means such as bullhorns, radio, social media, etc.

### **35.5 All-Clear and Determination of Event Continuation/Cancellation**

35.5.1 Once a weather situation has moved past the event, an “All-Clear” should be declared. The organizer needs to consult with local authorities, technical staff, security and other relevant parties to determine if the event can proceed safely. Particular attention must be given to temporary structures which may have been compromised by the weather.

35.5.2 Organizers should have professional relationships with first responders. An effective severe weather response is likely to include coordinated efforts with first responders.

35.5.3 In the event that there is serious damage to the interior or exterior of the venue, the best decision is to terminate or cancel the event. If there is serious damage, evacuation of people in shelters or remaining at the event site should be conducted in a safe manner. This may require delaying movement until it is safe to do so or using safe routes.

### **35.6 Post-Incident Analysis**

35.6.1 It is valuable to have a post-incident review as soon as possible. Information gained may be helpful for future events, and incident audits by local authorities or insurance providers.

### **35.7 Training and Resources**

35.7.1 Training is an essential component of an event or venue’s preparedness for severe weather. Preparedness planning must include all components of the event’s operations and production; and, training must be provided to managers and supervisors, security, event and operations staff, artists, production staff, and anyone else who may be involved in event operations.

35.7.2 The International Association of Venue Managers (IAVM) offers a helpful guide titled *Severe/Hazardous Weather Preparedness Plan and Guideline*. The guide gives venue and event managers important tools and was written with the assistance of top experts from the National Weather Service, the insurance industry, and legal counsel specializing in public assembly venue issues. Visit <https://www.iavm.org/> for more information.

35.7.3 The IAVM also offers a 2-day course titled *Severe Weather Preparedness & Planning for Public Assembly Venues and Events*. The course teaches how to develop a severe weather preparedness plan for all types of public assembly venues, fairs, expositions, and other events where large crowds assemble. Visit <https://www.iavm.org/> for more information.

35.7.4 The NOAA National Weather Service offers an excellent, 8-page toolkit titled *Lightning Safety: Large Venues* that includes advice on what to do before, during, and after a severe weather event. It also includes multiple venue preparation checklists. Visit <http://www.lightningsafety.noaa.gov/> to access the free document.

37.7.5 The NOAA National Weather Service offers a program called “StormReady®” that better prepares communities through advanced planning, education and awareness to save lives from the onslaught of severe weather. Businesses, schools, and other non-governmental entities often establish severe weather safety plans and actively take part and promote severe weather safety awareness activities. An entity that meets the principles and guidelines and completes the large/public assembly venue preparedness toolkit for the StormReady program may be recognized as a StormReady “Supporter.” Visit <http://www.stormready.noaa.gov> for more information.



# 36. Rigging

36.0.1 Rigging is the system of devices used to support or manipulate suspended objects. Rigging systems may include wires, ropes, winches, counterweights, electric chain hoists or other such elements. For events, the suspended objects typically include lighting, sound, scenery, video, special effects, banners and soft goods.

36.0.2 This is not a tutorial or list of specifications. It is a selection of recommendations and best practices to be considered when planning or using a rigging system for an event. Specialized conditions of permanent installations are not discussed here.

## 36.1 Individuals Involved with Rigging

36.1.1 Rigging creates life safety hazards for every person associated with an event. Large forces and complex structures are often involved, even in small events. The consequences of a catastrophic rigging failure must be considered by all responsible parties. Even a single instance of a dropped rigging shackle or a falling rope can cause serious injury to someone in the area. In rigging there can be no compromise in the planning, engineering, equipment, or the qualifications of rigging supervisors and crew members. No person should engage in the organization, planning and supervision, in relation to work at height or work equipment for use in such work, unless he or she is competent to do so or, if being trained, is being supervised by a competent person. Rigging is not exclusive to a stage area. All structures with hanging signs, banners, delay speakers or other items are potentially hazardous. Each person involved with the production should consider how he or she can contribute to a safe rigging system.

36.1.2 Examples of individuals involved with rigging include the following:

36.1.2.1 Promoter, Producer or Venue Manager: As an organizer and leader of the event, this person is responsible for:

- Procuring reputable and competent rigging suppliers;
- Ensuring that a professional rigging consultant or engineer is involved in the entire rigging operation including the design, installation and final inspection of the system;
- Verifying that suppliers and individuals involved with rigging have the appropriate qualifications, training, certifications, insurance and experience commensurate with the size and complexity of the event; and
- Ensuring that appropriate method statements, safety policy documents, contracts and insurance are in place before the onsite work begins.

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36.1.2.2 Engineer: The qualified engineer is responsible for establishing and approving the capacities and limitations of the entire rigging system and how it applies to the structure, along with the operation of any show elements that move or may cause loads to change during the event, load-in and load-out. This includes but is not limited to:

- The locations and weights of all rigging points;
- The application of loads to the structure including static and dynamic (moving) loading;
- The effects of weather related loading (e.g., snow, wind, etc.); and
- The effects of any other loading that is applied to the structure (e.g., scrim, soft goods, score boards, etc.).

36.1.2.3 Production supervisor: This person is responsible for the following:

- Overseeing the installation and operation of all the physical elements of a production;
- Communicating with the various vendors to organize the production;
- Representing the promoter, the production, a vendor and/or the venue;
- Integration of the show elements and the coordination of suppliers;
- In conjunction with the production rigger and or professional engineer, the management of all pertinent information that applies to rigging;
- Serving as the primary representative and liaison between the promoter, the venue and the local authorities;
- Obtaining and having available written approval for the rigging signed by a professional engineer for the project (documents that must be in hand before work starts);
- At the conclusion of the rigging installation, obtaining signed statements from the responsible rigging installer that the rigging system is safe for use; and
- For many events, the production rigger (see below) will assume many of these duties or work in cooperation with the production supervisor.

36.1.2.4 Production rigger or tour rigger: This person is responsible for the following:

- The integrity of the entire rigging operation;
- Supervision of the installation in conjunction with the local labor and apply the event rigging plan to venue conditions and capacities;
- Usage of the rigging equipment, maintenance and inventory;
- Ensuring that the rigging is properly executed per the approved documents and drawings;
- Maintaining all documentation including relevant engineering information and an accurate as-built rigging plan;
- Verification of the actual rigging loads, particularly dynamic loads;
- Directing the local crew chiefs;
- Providing the local crew with the list of tasks to be completed;
- Participating in the development of the rigging risk assessment, fall protection plan, rigging rescue plan and the overall event emergency response plan;
- Inspection of all show elements for integrity before the equipment is raised and also inspection of the equipment once it has been secured;
- Oversight of the overall operation and working crew for all show elements that move, including any automation; and
- Ensuring that all rigging equipment operators are competent and removing incompetent workers from the rigging crew.

36.1.2.4.1 At a minimum, a production rigger or lead rigger should meet the definition of a “qualified person” as defined by OSHA, which is “One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work or the project.”

36.1.2.5 Riggers: Riggers install and operate the rigging components and competency of rigging staff is central to safety. The riggers should be familiar with the applicable regulations, industry standards and practices, have an understanding of the specifics of the venue supporting structure, either temporary or permanent, and always use proper personal protection equipment (PPE)(see Chapter 37, *Personal Protective Equipment*). Rigging teams consist of high riggers and ground riggers. High riggers install rigging points with the assistance of the ground riggers. All members of the rigging teams touch and inspect each element of the rigging and should look for questionable (worn or compromised) rigging equipment. They must know and use proper equipment handling and rigging nomenclature. Describing the full responsibilities of a qualified entertainment rigger is beyond the scope of this document.

36.1.2.5.1 At a minimum, a rigger should meet the definition of a “competent person” as defined by OSHA, which is “One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.”

## 36.2 Safe Rigging Environment

36.2.1 Everyone associated with the event should work together to create a safe rigging working environment. Factors to consider include:

36.2.1.1 Chain of command: It is essential that a clear chain of command and control is established and understood by everyone on the job site.

36.2.1.2 Area control: All workers setting equipment must be aware at all times of where the riggers are working overhead and avoid working directly below them. The ground rigger or another designated person has the responsibility of keeping other personnel on the ground out of immediate harm’s way. Only the ground rigger should work directly below the high riggers. Only the required workers should be allowed in the specific area where work is performed overhead.

36.2.1.3 PPE: Workers near overhead work should have personal protective equipment (PPE) suitable to the working environment, according to local authority. The PPE must include hard hats as a minimum (see Chapter 37, *Personal Protection Equipment*).

36.2.1.4 Loud and clear communication: Often radios are used to communicate with high riggers when they cannot be easily heard on the deck. However, in many cases simple voice commands are more efficient. Limit communication to clearly understood terms. It is important that everyone is aware of the rigging work going on around them. Even if radios are used the ground rigger must keep the workers in the vicinity informed of the rigging process.

36.2.1.5 Lifting or moving operations: When lifting, moving or lowering rigging equipment, a loud and clear announcement must be made, such as “truss moving” or “grid moving” to inform all workers. Work, especially noisy operations, such as construction, audio checks and loud conversations must be suspended before and during the lift. This is a critical issue because often the first sign of trouble will be heard before being seen, such as a motor problem or a running lift chain. All workers should move to a safe position and closely watch the lift ready to call out STOP if they see a problem. Designated competent persons must observe all hoist locations, watching for uneven conditions, fouled rigging, stopped motors, or other problems. One very serious and common problem is the occurrence of a hoist chain not feeding into the chain bag during a lift, causing the chain to run free. The running chain can whip to the floor, causing serious injury.

**NEVER stand directly under a  
lifting or lowering operation!**

36.2.2 Fall Protection: A personnel risk assessment must be conducted in the rigging planning stage. Workers at height **MUST BE TRAINED** in proper safety practices prior to coming to the jobsite. On the jobsite they must use the appropriate fall protection equipment as required by law, the venue and best practices. This requirement also includes workers involved with the use of equipment such as articulated boom lifts, man lifts, scissor lifts or similar equipment. The production should contact the venue in advance to determine if specialized equipment is necessary or specific regulations are required for rigging. If there is a fall protection system in the venue, all riggers must be trained in its proper use.

### 36.3 Rigging Rescue

36.3.1 Fall protection equipment does not prevent falls, rather it prevents the worker from falling to his death by arresting the fall. This can result in an injured or unconscious worker hanging in mid-air in a safety harness. Time is critical in rigging rescue. A worker hanging in a harness will suffer from Orthostatic Shock or “Suspension Trauma” due to a restriction in blood flow caused by the safety harness. Suspension Trauma can be fatal.

36.3.2 For all work that is performed at height a rescue plan must be created. This plan outlines the procedures to rescue a worker from an elevated location. The Rigging Rescue Plan must be understood by all pertinent parties, not just the rigging crew. This includes venue representatives, production and stage management, touring representatives, local responders, event EMT services and labor supervisors. All workers performing work at heights must review and be knowledgeable of the rescue plan. Rescue plans must include methods of self-rescue when possible and safe, assisted recovery performed by trained personnel, and include the process of how and when to contact local emergency responders. There must be a designated Rescue Leader assigned the responsibility of implementing the rescue plan. In the event of a rescue operation, the Rescue Leader must have the authority and means to stop all other work in progress.

36.3.3 A prepared kit of rescue equipment must be available in a known and readily accessible location. It should be packaged in a suitable bag and clearly labeled for rigging rescue. It must not be used for any other purpose. This equipment may consist of general rigging gear and specialized equipment designed for the specific event or venue. Do not depend on rescue equipment being available for use by the other riggers on the job. Their personal equipment will most likely be in use or not be applicable to the rescue operation.

36.3.4 Local emergency responders, such as fire, police or mountain rescue teams, should be contacted in advance of the event and be made familiar with the local venue and the planned rigging operations. In an emergency, the designated rigging Rescue Leader must be involved in making the decision to contact the emergency responders, depending on the nature of the incident.

36.3.5 The rescue plan cannot depend solely on local responders for rescue. Time is of the essence in these situations. The rescue plan should first involve trained and qualified onsite personnel. This is the best approach in many circumstances. The rescue plan must be created specific to the anticipated local event rigging situations.

**Effective rigging rescue requires a defined plan, proper equipment, a well-trained team and frequent practice**

## 36.4 Emergency Preparedness

36.4.1 Riggers are integral to emergency preparedness plans. Riggers are often required to lower wind walls or backdrops in the possibility of high winds or other emergency conditions. The supervising rigger must be included in all meetings regarding event emergency planning. Emergency plans must consider the safety of all responders. Workers must not be required to work in hazardous conditions. Do not wait until the situation deteriorates! No show elements such as banners, backdrops or video screens are worth creating a life-threatening situation.

36.4.2 Sufficient crew: The production should have a supervising rigger present on the job site at all times. In the event of any possible bad weather or high winds, it is essential to have a suitable number of riggers standing by to carry out the emergency plan.

## 36.5 The Rigging Plan

36.5.1 The rigging plan is a document, typically drawings, that identifies the location and magnitude of the loads to be applied to the supporting structure. The accuracy of this data is the responsibility of the production, act, rigging vendor or event coming into the venue. The plan must be submitted to the venue in advance so the venue can verify that all locations and loads will be accommodated. This verification must be done by a qualified person, preferably a licensed professional engineer familiar with the venue. The complete plan must be available to the venue supervising rigger or other supervising person for review before the start of the work.

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## 36.5.2 Rigging Plan Requirements

36.5.2.1 Rigging plans can be generic in nature, with no indication of the overhead supporting structure, or they can be specific to the production and venue. Generic load plans, such as for touring productions, require a reference point (usually indicated by 0' – 0' on the drawings at down stage center) to locate rigging. With this information, the promoter, in conjunction with the venue, can determine where the show will hang in the structure. The structural engineer or qualified person can then determine how or if the structure can support the rigging loads.

36.5.2.2 Markings and legend: The rigging load plan must communicate the location and maximum magnitude of all loads to be attached to the supporting structure. All markings on the rigging plan should be clear and obvious as to their maximum loading, hoist capacity and any other information pertinent to the loads to be applied.

36.5.2.3 Identify loads: All loads must be accurately identified for each rigging point. Load figures should include the weight of hoists and an allowance for typical rigging cable lengths.

36.5.2.4 Dynamic loads: A dynamic load changes in the direction or degree of force during operation. If loads are dynamic, they must be indicated and show their maximum potential loading. Typically these loads are associated with a video screen, scenic or lighting element that moves during the presentation. This causes the loads to change as the total loading moves in relation to the rigging points. These loads can produce large changes in structure loading and can lead to an overload condition. If accurate information of these loads cannot be obtained through pre-production documentation, load measurement equipment, such as dynamometers or load cells, must be employed. Any dynamic rigging loads must be analyzed and monitored in use by a qualified person.

36.5.2.5 Identification of suspended elements: The plan must indicate by illustration and label what specific equipment is to be suspended at each point, such as lighting, sound or scenic.

36.5.2.6 Elevation of suspended elements: The final elevation of all elements must be indicated.

36.5.2.7 The rigging plot should be adaptable to local venue conditions. The rigging plot must carry information regarding its date, source, certification and author.

## 36.6 Flying People

36.6.1 It is beyond the scope of this document to discuss “flying” or aerial suspension of performers for any reason. Never suspend persons from any rigging without qualified professional consultation. The related safety issues are too numerous to include here.

## 36.7 Rigging Installation

36.7.1 The rigging crew call: Always consider the possibility of scheduling the rigging work prior to the general overall crew call. Most other installation work cannot take place until the rigging is completed. The rigging process requires a clear floor and quiet environment. Scheduling rigging a few hours early or on a prior day contributes to safety and can be cost

effective. It allows the rigging work to be carried out in a careful manner without the pressure of other departments waiting to work.

**36.7.2 Staffing:** Provide sufficient crew. A minimum crew is two high riggers and one ground rigger. Generally at least two rigging crews are required for an efficient load-in. Bridle points can easily require three high riggers and can take many minutes to rig if there are building obstructions such as HVAC ductwork or dropped ceilings. Large scale productions often require four or more rigging crews for efficient installation and removal. Skimping on the rigging crew is false economy.

**36.7.3 Onsite changes:** Even though the rigging plan has been submitted to the venue in advance for proper assessment and application, changes often take place at installation. If changes are required in the rigging plan at installation, the production rigger and the responsible venue representative must be consulted. This situation may also require consultation with the structural engineer of record and the designer/author of the original rigging plan. Some examples of changes due to venue specific rigging issues include the following:

- If a suitable directly vertical point (a “dead hang”) is not available, rigging loads are often hung with a bridle to two or more points in the structure. Bridle legs will exert horizontal forces on the support structure. These horizontal forces need to be considered and allowed for in the structural analysis.
- Other materials can also be used in conjunction with the primary overhead structure to provide supplemental support for rigging points. Spanner beams and sub grids are some examples. When these secondary elements are used, the loads transferred from them to the primary overhead structure must be clearly identified, analyzed and approved.
- Rigging in “non-standard” venue locations, such as over auditorium seats or in areas not normally used may require specific analysis.

## **36.8 Real Time Load Monitoring**

**36.8.1** While loads can be calculated from adding up the specifications of supported elements, this is often not accurate. Only by actually weighting the loads at the rigging points can an exact figure be determined. This is often done in pre-production or during the initial dates of a touring production. As event rigging is becoming more complicated, the need for accurate rigging information is becoming greater.

**36.8.2 Indeterminate loads:** A simple straight truss supported at two points can be considered a determinate load. That is, as long as the truss is level, we can determine with some confidence the point loads. Indeterminate loads are created when additional support points are added such as a center hoist on a long continuous truss. Any single element supported by three or more rigging points can have significant differences between point loads, even with careful analysis and leveling. This is because it is very difficult to balance the loads between multiple points on a single object. The only sure way to verify indeterminate loads to a structure is with load measuring devices. This requires real time load monitoring.

**36.8.3 Guy wire loads:** Guy wire systems on temporary outdoor structures can create static loads that reduce the overall structure load capacity. Guy wire loads will also increase or decrease in

windy conditions. Load measuring devices on guy wires can identify overloads due to winds. This information can be essential to the implementation of the Event Safety Plan.

36.8.4 Automation or high speed winch loads: Many productions use specialized winches for moving effects. This type of rigging can increase point loading dramatically and should be monitored with measuring devices. When moving elements start and stop they create momentary increases in loading. For a high speed winch in operation, or especially in an emergency stop situation, the rapid increase in point loading can be well over twice the static load. Never use automated winches without qualified professional consultation.

36.8.5 Measuring devices: Dynamometers are scales that display the applied load with a needle and a dial. These devices need to be read up close where they are installed, which in many cases is impractical. Load cells are devices inserted in the suspension system that can produce an electronic readout of load data which can be monitored from a convenient location below. This enables the production rigger to monitor loads during lifting and show conditions. Some load cell systems also have the ability to stop entire groups of motors should one fail. They can also monitor dynamic loads and record data.

36.8.6 Load cell usage: Any truss system that moves during the event should be actively monitored by a load monitoring system. Indeterminate loads should be monitored, as well as loads generated during load-in and load-out. In time, it may be possible to monitor every rigging point with a load cell system. Load cells are particularly valuable where suspended elements are subject to external sources such as wind loading.

36.8.7 Load cell development: Currently there are available a number of load cell systems specifically designed for entertainment rigging systems. As the market for these systems grows they will become more economically accessible. Rigging equipment vendors will be able to incorporate them into each rigging package as a standard practice and productions will be able to specify them as a condition of use. This is generally viewed as a positive development and the use of load cells in an appropriate event rigging application is encouraged.

## **36.9 Rigging Training and Certification**

36.9.1 Entertainment rigging knowledge is generally acquired through experience. There are also various nationally recognized programs to advance rigging knowledge and provide certification. All workers are encouraged to research and further their education. Many rigging suppliers have created training programs for their employees.

36.9.2 The Entertainment Technician Certification Program (ETCP; <http://etcp.plasa.org/>) offers certification programs for both theatre and arena riggers. This program has become widely accepted in the United States for the certification of entertainment riggers. Many venues have adopted the requirement that riggers must be ETCP certified, or that at least the lead rigger is ETCP certified.



# 37. Personal Protective Equipment (PPE)

37.0.1 Personal protective equipment, commonly referred to as “PPE,” is equipment worn to minimize exposure to a variety of hazards.

37.0.2 Hazards exist in most workplaces, including sites and venues of live entertainment events. Sharp edges, falling objects, flying sparks, noise and a myriad of other potentially dangerous situations present risks to workers at event sites and venues. Commonly used PPE for the concert and live event industry includes gloves, foot and eye protection, protective hearing devices and hard hats.

37.0.3 The U.S. Occupational Safety and Health Administration (OSHA)(<http://www.osha.gov/>) requires that employers protect their employees from workplace hazards that can cause injury. The information in this chapter is general in nature and does not address all workplace hazards or PPE requirements.

37.0.4 The information, methods and procedures in this chapter are based on the OSHA requirements for PPE as set forth in Title 29, *Labor*, of the U.S. Code of Federal Regulations (a.k.a., 29 CFR) at Part:

- 1910.132 (General requirements);
- 1910.133 (Eye and face protection);
- 1910.135 (Head protection);
- 1910.136 (Foot protection);
- 1910.137 (Electrical protective equipment); and
- 1910.138 (Hand protection);

37.0.5 The information, methods and procedures in this chapter are also based on the OSHA requirements that cover the construction (Part 1926) and maritime (Part 1915) industries as set forth in 29 CFR at Part:

- 1926.95 (Criteria for personal protective equipment);
- 1926.96 (Occupational foot protection);
- 1926.100 (Head protection);
- 1926.101 (Hearing protection);
- 1926.102 (Eye and face protection);
- 1915.152 (General requirements);
- 1915.153 (Eye and face protection);
- 1915.155 (Head protection);
- 1915.156 (Foot protection); and
- 1915.157 (Hand and body protection).

37.0.6 This guide does not address PPE requirements related to respiratory protection (29 CFR 1910.134) as this information is covered in detail in OSHA Publication 3079, *Respiratory Protection*.

## 37.1 The Hazard Assessment

37.1.1 A first critical step in developing a comprehensive safety and health program is to identify physical and health hazards at the work site. This process is known as a “hazard assessment.” Potential hazards may be physical or health-related and a comprehensive hazard assessment should identify hazards in both categories. Examples of physical hazards include moving objects, fluctuating temperatures, high intensity lighting, rolling or pinching objects, electrical connections and sharp edges. Examples of health hazards include overexposure to harmful dusts, chemicals or radiation.

37.1.2 The hazard assessment should begin with a walk-through survey of the facility to develop a list of potential hazards in the following basic hazard categories:

- Impact;
- Penetration;
- Compression (roll-over);
- Chemical;
- Heat/cold;
- Harmful dust;
- Light (optical) radiation; and
- Biologic.

37.1.3 In addition to noting the basic layout of the work site and reviewing any history of occupational illnesses or injuries, things to look for during the walk-through survey include:

- Sources of electricity
- Sources of motion such as machines or processes where movement may exist that could result in an impact between personnel and equipment
- Sources of high temperatures that could result in burns, eye injuries or fire
- Types of chemicals used in the workplace
- Sources of harmful dusts
- Sources of light radiation, such as welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
- The potential for falling or dropping objects
- Sharp objects that could poke, cut, stab or puncture
- Biologic hazards such as blood or other potentially infected material.

37.1.4 When the walk-through is complete, the employer should organize and analyze the data so that they may be efficiently used to determine the proper types of PPE needed at the work site. The employer should become aware of the different types of PPE available and the levels of protection offered. It is recommended that employers select PPE that will provide a level of protection greater than the minimum required to protect employees from hazards.

37.1.5 Documentation of the hazard assessment is required through a written certification that includes the following information:

- Identification of the workplace evaluated;
- Name of the person conducting the assessment;
- Date of the assessment; and
- Identification of the document certifying completion of the hazard assessment.

## **37.2 Training Employees in the Proper Use of PPE**

37.2.1 Employers are required to provide the following information to each employee who must use PPE:

- When PPE is necessary;
- What PPE is necessary;
- How to properly put on, take off, adjust and wear the PPE;
- The limitations of the PPE; and
- Proper care, maintenance, useful life and disposal of PPE.

37.2.2 The employer must document the training of each employee required to wear or use PPE by preparing a certification containing the name of each employee trained, the date of training and a clear identification of the subject of the certification.

## **37.3 Eye and Face Protection**

37.3.1 OSHA requires employers to ensure that employees have appropriate eye or face protection if they are exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, potentially infected material or potentially harmful light radiation.

37.3.2 Everyday use of prescription corrective lenses will not provide adequate protection against most occupational eye and face hazards, so employers must make sure that employees with corrective lenses either wear eye protection that incorporates the prescription into the design or wear additional eye protection over their prescription lenses. It is important to ensure that the protective eyewear does not disturb the proper positioning of the prescription lenses so that the employee's vision will not be inhibited or limited. Also, employees who wear contact lenses must wear eye or face PPE when working in hazardous conditions.

## **37.4 Eye Protection for Exposed Workers**

37.4.1 OSHA suggests that eye protection be routinely considered for use by carpenters, electricians, pipefitters, sheet metal workers and tinsmiths, grinding machine operators, welders, and laborers.

37.4.2 Examples of potential eye or face injuries include:

- Dust, dirt, metal or wood chips entering the eye from activities such as chipping, grinding, sawing, hammering, the use of power tools or even strong wind forces.

- Chemical splashes from corrosive substances, hot liquids, solvents or other hazardous solutions.
- Objects swinging into the eye or face, such as tree limbs, chains, tools or ropes.
- Radiant energy from welding, harmful rays from the use of lasers or other radiant light (as well as heat, glare, sparks, splash and flying particles).

37.4.3 Some of the most common types of eye and face protection include:

37.4.3.1 Safety spectacles. These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Side shields are available on some models.

37.4.3.2 Goggles. These are tight-fitting eye protection that completely cover the eyes, eye sockets and the facial area immediately surrounding the eyes and provide protection from impact, dust and splashes. Some goggles will fit over corrective lenses.

37.4.3.3 Welding shields. Constructed of vulcanized fiber or fiberglass and fitted with a filtered lens, welding shields protect eyes from burns caused by infrared or intense radiant light; they also protect both the eyes and face from flying sparks, metal spatter and slag chips produced during welding, brazing, soldering and cutting operations. OSHA requires filter lenses to have a shade number appropriate to protect against the specific hazards of the work being performed in order to protect against harmful light radiation.

37.4.3.4 Laser safety goggles. These specialty goggles protect against intense concentrations of light produced by lasers. The type of laser safety goggles an employer chooses will depend upon the equipment and operating conditions in the workplace.

37.4.3.5 Face shields. These transparent sheets of plastic extend from the eyebrows to below the chin and across the entire width of the employee's head. Some are polarized for glare protection. Face shields protect against nuisance dusts and potential splashes or sprays of hazardous liquids but will not provide adequate protection against impact hazards. Face shields used in combination with goggles or safety spectacles will provide additional protection against impact hazards.

37.4.4 An employer may choose to provide one pair of protective eyewear for each position rather than individual eyewear for each employee. If this is done, the employer must make sure that employees disinfect shared protective eyewear after each use.

37.4.5 Protective eyewear with corrective lenses may only be used by the employee for whom the corrective prescription was issued and may not be shared among employees.

37.4.6 Each type of protective eyewear is designed to protect against specific hazards. Employers can identify the specific workplace hazards that threaten employees' eyes and faces by completing a hazard assessment as outlined in the earlier section.

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## 37.5 Head Protection

37.5.1 Protecting employees from potential head injuries is a key element of any safety program. A head injury can impair an employee for life or it can be fatal. Wearing a safety helmet or hard hat is one of the easiest ways to protect an employee's head from impact and penetration hazards as well as from electrical shock and burn hazards.

37.5.2 Hard hats must have a hard outer shell and a shock-absorbing lining that incorporates a headband and straps that suspend the shell from 1 to 1 1/4 inches (2.54 cm to 3.18 cm) away from the head. This type of design provides shock absorption during an impact and ventilation during normal wear. Optional brims may provide additional protection from the sun and some hats have channels that guide rainwater away from the face.

37.5.3 Construction workers, carpenters, scaffold erectors, stagehands, ground riggers, electricians, welders, among others, should be required to wear head protection on an event site.

### 37.5.4 Types of Hard Hats

37.5.4.1 There are many types of hard hats available in the marketplace today. In addition to selecting protective headgear that meets ANSI standard requirements, employers should ensure that employees wear hard hats that provide appropriate protection against potential workplace-specific hazards. It is important for employers to understand all potential hazards when making this selection, including electrical hazards. This can be done through a comprehensive hazard analysis and an awareness of the different types of protective headgear available.

37.5.4.2 Hard hats are divided into three industrial classes:

- Class A hard hats provide impact and penetration resistance along with limited voltage protection (up to 2,200 volts)
- Class B hard hats provide the highest level of protection against electrical hazards, with high-voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.
- Class C hard hats provide lightweight comfort and impact protection but offer no protection from electrical hazards.

37.5.4.3 Another class of protective headgear on the market is called a "bump hat," which is designed for use in areas with low head clearance. They are recommended for areas where protection is needed from head bumps and lacerations. These are not designed to protect against falling or flying objects and are not ANSI approved. It is essential to check the type of hard hat employees are using to ensure that the equipment provides appropriate protection. Each hat should bear a label inside the shell that lists the manufacturer, the ANSI designation and the class of the hat.

37.5.4.4 A daily inspection of the hard hat shell, suspension system and other accessories for holes, cracks, tears or other damage that might compromise the protective value of the hat is essential. Paints, paint thinners and some cleaning agents can weaken the shells of hard hats and may eliminate electrical resistance. Consult the helmet manufacturer for information on the effects of paint and cleaning materials on their hard hats. Never drill holes, paint or apply labels

to protective headgear as this may reduce the integrity of the protection. Do not store protective headgear in direct sunlight, such as on the rear window shelf of a car, since sunlight and extreme heat can damage them.

37.5.4.5 Hard hats with any of the following defects should be removed from service and replaced:

- Perforation, cracking, or deformity of the brim or shell; or
- Indication of exposure of the brim or shell to heat, chemicals or ultraviolet light and other radiation (in addition to a loss of surface gloss, such signs include chalking or flaking).

37.5.4.6 Always replace a hard hat if it sustains an impact, even if damage is not noticeable. Suspension systems are offered as replacement parts and should be replaced when damaged or when excessive wear is noticed. It is not necessary to replace the entire hard hat when deterioration or tears of the suspension systems are noticed.

## 37.6 Foot and Leg Protection

37.6.1 Employees who face possible foot or leg injuries from falling or rolling objects, or from crushing or penetrating materials, should wear protective footwear.

37.6.2 If an employee's feet may be exposed to electrical hazards, non-conductive footwear should be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear.

37.6.3 Examples of situations in which an employee should wear foot and/or leg protection include:

- When heavy objects such as barrels or tools might roll onto or fall on the employee's feet;
- Working with sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes;
- Exposure to molten metal that might splash on feet or legs;
- Working on or around hot, wet or slippery surfaces; and
- Working when electrical hazards are present.

37.6.4 All ANSI-approved footwear have a protective toe and offer impact and compression protection, but the type and amount of protection is not always the same. Check the product's labeling or consult the manufacturer to make sure the footwear will protect the user from the hazards they face.

37.6.5 Foot and leg protection choices include the following:

- Leggings protect the lower legs and feet from heat hazards such as molten metal or sparks from sawing or welding. Safety snaps allow leggings to be removed quickly
- Metatarsal guards protect the instep area of the foot from impact and compression. Made of aluminum, steel, fiber or plastic, these guards may be strapped to the outside of shoes.
- Toe guards fit over the toes of regular shoes to protect the toes from impact and compression hazards. They may be made of steel, aluminum or plastic

- Combination foot and shin guards protect the lower legs and feet, and may be used in combination with toe guards when greater protection is needed.
- Safety shoes have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in scaffold erection, and work on asphalt.

37.6.6 The metal insoles of some safety shoes protect against puncture wounds. Safety shoes may also be designed to be electrically conductive to prevent the buildup of static electricity in areas with the potential for explosive atmospheres or nonconductive to protect workers from workplace electrical hazards.

## 37.7 Special Purpose Shoes

37.7.1 Electrically conductive shoes provide protection against the buildup of static electricity. Event site workers in explosive and hazardous locations such as and pyrotechnics assembly areas must wear conductive shoes to reduce the risk of static electricity buildup on the body that could produce a spark and cause an explosion or fire. Foot powder should not be used in conjunction with protective conductive footwear because it provides insulation, reducing the conductive ability of the shoes. Silk, wool and nylon socks can produce static electricity and should not be worn with conductive footwear. Conductive shoes must be removed when the task requiring their use is completed.

37.7.2 Note: Employees exposed to electrical hazards must never wear conductive shoes.

37.7.3 Electrical hazard, safety-toe shoes are nonconductive and will prevent the wearers' feet from completing an electrical circuit to the ground. These shoes can protect against open circuits of up to 600 volts in dry conditions and should be used in conjunction with other insulating equipment and additional precautions to reduce the risk of a worker becoming a path for hazardous electrical energy. The insulating protection of electrical hazard, safety-toe shoes may be compromised if the shoes become wet, the soles are worn through, metal particles become embedded in the sole or heel, or workers touch conductive, grounded items.

37.7.4 Note: Nonconductive footwear must not be used in explosive or hazardous locations.

## 37.8 Care of Protective Footwear

37.8.1 As with all protective equipment, safety footwear should be inspected prior to each use. Shoes and leggings should be checked for wear and tear at reasonable intervals. This includes looking for cracks or holes, separation of materials, broken buckles or laces. The soles of shoes should be checked for pieces of metal or other embedded items that could present electrical or tripping hazards. Employees should follow the manufacturers' recommendations for cleaning and maintenance of protective footwear.

## 37.9 Hand and Arm Protection

37.9.1 If a workplace hazard assessment reveals that employees face potential injury to hands and arms that cannot be eliminated through engineering and work practice controls, employers

must ensure that employees wear appropriate protection. Common potential hazards on event work sites include bruises, fractures, abrasions, cuts, punctures, and electrical or thermal burns.

37.9.2 Protective equipment includes gloves, finger guards and arm coverings or elbow-length gloves.

37.9.3 Employers should explore all possible engineering and work practice controls to eliminate hazards and use PPE to provide additional protection against hazards that cannot be completely eliminated through other means. For example, machine guards may eliminate a hazard. Installing a barrier to prevent workers from placing their hands at the point of contact between a table saw blade and the item being cut is another method.

## 37.10 Types of Protective Gloves

37.10.1 There are many types of gloves available today to protect against a wide variety of hazards. The nature of the hazard and the operation involved will affect the selection of gloves. The variety of potential occupational hand injuries makes selecting the right pair of gloves challenging. It is essential that employees use gloves specifically designed for the hazards and tasks found in their workplace because gloves designed for one function may not protect against a different function even though they may appear to be an appropriate protective device.

37.10.2 The following are examples of some factors that may influence the selection of protective gloves for a workplace:

- Area requiring protection (hand only, forearm, arm);
- Grip requirements (dry, wet, oily);
- Thermal protection;
- Size and comfort; and
- Abrasion/resistance requirements.

37.10.3 Gloves made from a wide variety of materials are designed for many types of workplace hazards. In general, gloves fall into four general groups: (1) leather, canvas or metal mesh gloves, (2) fabric and coated fabric gloves, (3) chemical and liquid-resistant gloves, and (4) insulating rubber gloves. For detailed requirements on the selection, use and care of insulating rubber gloves, see 29 CFR 1910.137. The other three groups will be described briefly here.

### 37.10.4 Leather, Canvas or Metal Mesh Gloves

37.10.4.1 Sturdy gloves made from metal mesh, leather or canvas protect against cuts and burns. Leather or canvas gloves also protect against sustained heat.

- Leather gloves protect against sparks, moderate heat, blows, chips and rough objects.
- Aluminized gloves provide reflective and insulating protection against heat and require an insert made of synthetic materials to protect against heat and cold.
- Aramid fiber gloves protect against heat and cold, are cut- and abrasive-resistant and wear well.
- Synthetic gloves of various materials offer protection against heat and cold, are cut- and abrasive-resistant and may withstand some diluted acids. These materials do not stand up against alkalis and solvents.



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### **37.10.5 Fabric and Coated Fabric Gloves**

37.10.5.1 Fabric and coated fabric gloves are made of cotton or other fabric to provide varying degrees of protection.

37.10.5.2 Fabric gloves protect against dirt, slivers, chafing and abrasions. They do not provide sufficient protection for use with rough, sharp or heavy materials. Adding a plastic coating will strengthen some fabric gloves.

37.10.5.3 Coated fabric gloves are normally made from cotton flannel with napping on one side. By coating the un-napped side with plastic, fabric gloves are transformed into general-purpose hand protection offering slip-resistant qualities. These gloves are used for tasks ranging from handling bricks and wire to chemical laboratory containers.

37.10.5.4 When selecting gloves to protect against chemical exposure hazards, always check with the manufacturer or review the manufacturer's product literature to determine the gloves' effectiveness against specific workplace chemicals and conditions.

### **37.10.6 Chemical- and Liquid-Resistant Gloves**

37.10.6.1 Chemical-resistant gloves are made with different kinds of rubber: natural, butyl, neoprene, nitrile and fluorocarbon (viton); or various kinds of plastic: polyvinyl chloride (PVC), polyvinyl alcohol and polyethylene. These materials can be blended or laminated for better performance. As a general rule, the thicker the glove material, the greater the chemical resistance but thick gloves may impair grip and dexterity, having a negative impact on safety.

37.10.6.2 Some examples of chemical-resistant gloves include:

- Butyl gloves are made of a synthetic rubber and protect against a wide variety of chemicals, such as peroxide, rocket fuels, highly corrosive acids (nitric acid, sulfuric acid, hydrofluoric acid and red-fuming nitric acid), strong bases, alcohols, aldehydes, ketones, esters and nitro compounds. Butyl gloves also resist oxidation, ozone corrosion and abrasion, and remain flexible at low temperatures. Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.
- Natural (latex) rubber gloves are comfortable to wear, which makes them a popular general purpose glove. They feature outstanding tensile strength, elasticity and temperature resistance. In addition to resisting abrasions caused by grinding and polishing, these gloves protect workers' hands from most water solutions of acids, alkalis, salts and ketones. Latex gloves have caused allergic reactions in some individuals and may not be appropriate for all employees. Hypoallergenic gloves, glove liners and powderless gloves are possible alternatives for workers who are allergic to latex gloves.
- Neoprene gloves are made of synthetic rubber and offer good pliability, finger dexterity, high density and tear resistance. They protect against hydraulic fluids, gasoline, alcohols, organic acids and alkalis. They generally have chemical and wear resistance properties superior to those made of natural rubber.
- Nitrile gloves are made of a copolymer and provide protection from chlorinated solvents such as trichloroethylene and perchloroethylene. Although intended for jobs requiring dexterity and sensitivity, nitrile gloves stand up to heavy use even after prolonged exposure to substances that cause other gloves to deteriorate. They offer protection when

working with oils, greases, acids, caustics and alcohols but are generally not recommended for use with strong oxidizing agents, aromatic solvents, ketones and acetates.

## 37.11 Hearing Protection

37.11.1 Determining the need to provide hearing protection for employees can be challenging. Employee exposure to excessive noise depends upon a number of factors, including:

- The loudness of the noise as measured in decibels (dB);
- The duration of each employee's exposure to the noise;
- Whether employees move between work areas with different noise levels; and
- Whether noise is generated from one or multiple sources.

37.11.2 Generally, the louder the noise, the shorter the exposure time before hearing protection is required. For instance, employees may be exposed to a noise level of 90 dB for 8 hours per day (unless they experience a Standard Threshold Shift) before hearing protection is required. On the other hand, if the noise level reaches 115 dB hearing protection is required if the anticipated exposure exceeds 15 minutes.

37.11.3 Table 17-1 in Chapter 17, *Sound: Noise and Vibration*, shows the permissible noise exposures that require hearing protection for employees exposed to occupational noise at specific decibel levels for specific time periods. Noises are considered continuous if the interval between occurrences of the maximum noise level is one second or less. Noises not meeting this definition are considered impact or impulse noises (loud momentary explosions of sound) and exposures to this type of noise must not exceed 140 dB. Examples of situations or tools that may result in impact or impulse noises are powder-actuated nail guns, a punch press or drop hammers.

37.11.4 If engineering and work practice controls do not lower employee exposure to workplace noise to acceptable levels, employees must wear appropriate hearing protection. It is important to understand that hearing protectors reduce only the amount of noise that gets through to the ears. The amount of this reduction is referred to as attenuation, which differs according to the type of hearing protection used and how well it fits. Hearing protectors worn by employees must reduce an employee's noise exposure to within the acceptable limits noted in Table 17-1. Refer to Appendix B of 29 CFR 1910.95, *Occupational Noise Exposure*, for detailed information on methods to estimate the attenuation effectiveness of hearing protectors based on the device's noise reduction rating (NRR).

37.11.5 Manufacturers of hearing protection devices must display the device's NRR on the product packaging. If employees are exposed to occupational noise at or above 85 dB averaged over an eight hour period, the employer is required to institute a hearing conservation program that includes regular testing of employees' hearing by qualified professionals. Refer to 29 CFR 1910.95(c) for a description of the requirements for a hearing conservation program.

37.11.6 Some types of hearing protection include:

- Single-use earplugs are made of waxed cotton, foam, silicone rubber or fiberglass wool. They are self-forming and, when properly inserted, they work as well as most molded earplugs.
- Pre-formed or molded earplugs must be individually fitted by a professional and can be disposable or reusable. Reusable plugs should be cleaned after each use.
- Earmuffs require a perfect seal around the ear. Glasses, facial hair, long hair or facial movements such as chewing may reduce the protective value of earmuffs.

37.11.7 Refer to OSHA Publication 3074, *Hearing Conservation*, for more detailed information on the requirements to protect employees' hearing in the workplace.

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Lyle Centola, Alotnec LLC, ESA	Donald C. Cooper, PhD, Akron General Medical Center, ESA, Managing Editor
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John Conk, Event Services, Inc., ESA	Spike Falana, Independent Consultant, Production Manager
Anthony Davis, Anthony Davis Entertainment Services, Inc.	Jeff Giek, Rhino
Mike Eltis, Weather Decisions Technology	Harold Hansen, International Association of Venue Managers, Academy for Venue Safety & Security
Mary Lou Figley, Stageco U.S.	Hadden Hipplesley, Lambda Productions, ESA
Tim Franklin, Theta Consulting	Chris Jones, Doodson Insurance Brokerage
Brian Haas, Vistalogix Corporation	Ken Keberle, Karls Event Services
Charlie Hernandez, Just a Bunch of Roadies, ESA	Steve Lemon, Steve Lemon & Associates, Inc., ESA
Simon James, The Event Safety Shop	Terry Lowe, PLSN
Kent Jorgensen, IATSE	Steve Macfadyen, Pollstar
Laurie Kirby, IMFCON	Matt Monahan, Just a Bunch of Roadies
Dave Lester, Clair Global	Stuart Ross, Red Light Management
Stephanie Siewert, Weather Decision Technologies, Inc.	Scott Nacheman, Thorton Tomasetti
Tom McClain, Projects of Interest	Karl Ruling, PLASA
Tim Roberts, The Event Safety Shop	David Shaw, Indiana State Fair
Debi Moen, Projection, Lights and Staging News, General Editor	Ron Stern, ESA
Alan Rowe, IATSE Local 728	David VandenHeuvel, Weather Decision Technologies, Inc.
Roger Sandau, Doodson Insurance Brokerage	Mike Tierney, Kroenke Sports & Entertainment, ESA

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- Suspicious activity awareness video: Check It! - Why is it important?
- Check It! - How to check a bag? training video
- Risk Self-Assessment Tool for Stadiums and Arenas
- How to respond to an active shooter situation
- Soft target awareness course
- Protective measures course

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## 39.1 Standards, Regulations and Model Codes

NOTE: Although the latest versions of the following standards are listed, some states require the use of older versions because a specific edition (year) of the standard is used in the language of the state’s law or administrative rule. Event organizers must work with local authorities having jurisdiction to determine which version of a standard or code is required to be used. Also, please note that not all standards published by each of the standard setting organizations is listed herein, and all standard setting organizations are not necessarily included in this list. The standards and codes listed were selected by the editors to include those referenced in this guide and some others that may be relevant to the live event industry. This is not a comprehensive or exhaustive list.

American National Standards Institute [ANSI], Washington, DC: ANSI. ([www.ansi.org](http://www.ansi.org))

- ANSI S12.6, Subject-fit test method for measuring the real ear attenuation of hearing protectors, 1997.

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International Code Council [ICC]. Country Club Hills, Illinois: ICC. ([www.iccsafe.org](http://www.iccsafe.org))

- International building code, 2012.
- International energy conservation code, 2012.
- International existing building code, 2012.
- International fire code, 2012.
- International fuel gas code, 2012.
- International mechanical code, 2012.
- International plumbing code, 2012.
- International private sewage disposal code, 2012.
- International property maintenance code, 2012.
- International wildland-urban interface code, 2012.
- ICC 300, Bleachers, folding and telescoping seating, and grandstands, 2012.
- ICC A117.1, Accessible and usable buildings and facilities, 2009.
- ICC G3, Global guideline for practical public toilet design, 2011.
- ICC G2, Guideline for acoustics, 2010.

National Fire Protection Association [NFPA], Quincy, Massachusetts: NFPA. ([www.nfpa.org](http://www.nfpa.org))

- NFPA 1: Fire code, 2012.
- NFPA 70: National electric code, 2011.
- NFPA 70B: Recommended practice for electrical equipment maintenance, 2010.
- NFPA 13: Standard for the installation of sprinkler systems, 2013.
- NFPA 14: Standard for the installation of standpipes and hose systems, 2010.
- NFPA 30: Flammable and combustible liquids code, 2012.
- NFPA 58: Liquefied petroleum gas code, 2011.
- NFPA 72: National fire alarm and signaling code, 2013.
- NFPA 80: Standard for Fire Doors and Other Opening Protectives, 2013.
- NFPA 101: Life safety code, 2012.
- NFPA 101B: Code for means of egress for buildings and structures, 2002.
- NFPA 102: Standard for grandstands, folding and telescopic seating, tents, and membrane structures, 2011.
- NFPA 160: Standard for the use of flame effects before an audience, 2011.
- NFPA 289: Standard Method of Fire Test for Individual Fuel Packages, 2013.
- NFPA 297: Guide on principles and practices for communications systems, 1995.
- NFPA 551: Guide for the evaluation of fire risk assessments, 2013.
- NFPA 610: Guide for emergency and safety operations at motorsports venues, 2009.
- NFPA 701: Standard methods of fire tests for flame propagation of textiles and films, 2010.
- NFPA 730: Guide for premises security, 2011.
- NFPA 1123: Code for fireworks display, 2010.
- NFPA 1126: Standard for the use of pyrotechnics before a proximate audience, 2011.
- NFPA 1561: Standard on emergency services incident management system, 2008.
- NFPA 1600: Standard on disaster/emergency management and business continuity programs, 2010.

- NFPA 5000: Building construction and safety code, 2012.

Occupational Safety and Health Administration [OSHA], U.S. Department of Labor,  
Washington, DC: OSHA. ([www.osha.gov](http://www.osha.gov))

- OSHA Publication 3071, Job hazard analysis, 2002 (revised).
- OSHA Publication 3074, Hearing conservation, 2002 (revised).
- OSHA Publication 3075, Controlling electrical hazards, 2002.
- OSHA Publication 3079, Respiratory protection, 2002 (revised).
- OSHA Publication 3088, How to plan for workplace emergencies and evacuations, 2001.
- OSHA Publication 3122, Principal emergency response and preparedness—requirements and guidelines, 2004.
- OSHA Publication 3124, Stairways and ladders, 2003.
- OSHA Publication 3143, Industrial hygiene, 1998.
- OSHA Publication 3151-12R, Personal protective equipment, 2003.
- OSHA Publication 3317, Best practices guide: Fundamentals of a workplace first-aid program, 2006.
- OSHA Publication 3335, Preparing and protecting security personnel in emergencies, 2007.
- OSHA Publication 3494, Fire service features of buildings and fire protection systems, 2012.
- OSHA 29 CFR 1904.10, Recording criteria for cases involving occupational hearing loss.
- OSHA 29 CFR 1910.95, Occupational noise exposure.
  - Appendix A, Noise exposure computation
  - Appendix B, Methods for estimating the adequacy of hearing protector attenuation
  - Appendix C, Audiometric measuring instruments
  - Appendix D, Audiometric test rooms
  - Appendix E, Acoustic calibration of audiometers
  - Appendix F, Calculations and application of age corrections to audiograms
  - Appendix G, Monitoring noise levels non-mandatory informational appendix
  - Appendix H, Availability of referenced documents
  - Appendix I, Definitions
- OSHA 29 CFR 1910.132, Personal protective equipment, general requirements.
- OSHA 29 CFR 1910.133, Personal protective equipment, eye and face protection.
- OSHA 29 CFR 1910.134, Personal protective equipment, respiratory protection.
- OSHA 29 CFR 1910.135, Personal protective equipment, head protection.
- OSHA 29 CFR 1910.136, Personal protective equipment, foot protection.
- OSHA 29 CFR 1910.137, Personal protective equipment, electrical protective devices.
- OSHA 29 CFR 1910.138, Personal protective equipment, hand protection.
- OSHA 29 CFR 1910.147, The control of hazardous energy (lockout/tagout).
- OSHA 29 CFR 1910.157, Portable fire extinguishers.
- OSHA 29 CFR 1910.158, Standpipe and hose systems.
- OSHA 29 CFR 1915, Occupational safety and health standards for shipyard employment.
- OSHA 29 CFR 1926, Safety and health regulations for construction.

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Underwriters Laboratories [UL], Ann Arbor, Michigan: UL. ([www.ul.com](http://www.ul.com))

- UL 1975: Fire tests for foamed plastics used for decorative purposes, Third Edition, 2006.
- ANSI/UL 711, CAN/ULC-S508: Rating and fire testing of fire extinguishers.
- ANSI/UL 8, CAN/ULC-S554: Water-based agent fire extinguishers.
- ANSI/UL 154, CAN/ULC-S503: Carbon dioxide fire extinguishers.
- ANSI/UL 299, CAN/ULC-S504: Dry chemical fire extinguishers.
- ANSI/UL 626, CAN/ULC-S507: Water fire extinguishers.
- ANSI/UL 2129, CAN/ULC-S566: Halocarbon clean agent extinguishers.

PLASA, New York, New York: PLASA. ([www.plasa.org](http://www.plasa.org)). Note that PLASA's Technical Standards Program (TSP) is ANSI accredited and highly recommended.

- ANSI E1.1, Entertainment technology: Construction and use of wire rope ladders, 2012.
- ANSI E1.2, Entertainment technology: Design, manufacture and use of aluminum trusses and towers, 2006.
- ANSI E1.3, Entertainment technology: Lighting control systems – 0-10V analog control specification, 2001, revised 2011.
- ANSI E1.4, Entertainment technology: Manual counterweight rigging systems, 2009.
- ANSI E1.5, Entertainment technology: Theatrical fog made with aqueous solutions of di- and trihydric alcohols, 2009.
- ANSI E1.6-1, Entertainment technology: Powered hoist systems, 2012.
- ANSI E1.6-3, Selection and use of chain hoists in the entertainment industry, 2012.
- ANSI E1.8, Entertainment technology: Loudspeaker enclosures intended for overhead suspension—classification, manufacture and structural testing, 2005.
- ANSI E1.9, Reporting photometric performance data for luminaries used in entertainment lighting, 2007, revised 2012.
- ANSI E1.11, Entertainment technology: USITT DMX512-A, asynchronous serial digital data transmission standard for controlling lighting equipment and accessories, 2008.
- ANSI E1.14, Entertainment technology: Recommendations for inclusions in fog equipment manuals, 2001, revised 2007.
- ANSI E1.15, Entertainment technology: Recommended practices and guidelines for the assembly and use of theatrical boom & base assemblies, 2006, revised 2011.
- ANSI E1.16, Entertainment technology: Configuration standard for metal halide ballast power cables, 2002, revised 2012.
- ANSI E1.17, Entertainment technology: Architecture for control networks (ACN), 2010.
- ANSI E1.19, Recommended practice for the use of class A ground-fault circuit interrupters (GFCIs) intended for personal protection in the entertainment industry, 2009.
- ANSI E1.20, Entertainment technology: RDM-remote device management over USITT DMX512 networks, 2010.
- ANSI E1.21, Temporary ground-supported overhead structures used to cover stage areas and support equipment in the production of outdoor entertainment events, 2006.
- ANSI E1.22, Entertainment technology: Fire safety curtain systems, 2009.
- ANSI E1.23, Entertainment technology: Design and execution of theatrical fog effects, 2010.

- ANSI E1.24, Entertainment technology: Dimensional requirements for stage pin connectors, 2012.
- ANSI E1.25, Recommended basic conditions for measuring the photometric output of stage and studio luminaries by measuring illumination produced on a planar surface, 2012.
- ANSI E1.26, Entertainment technology: Recommended testing methods and values for shock absorption of floors used in live performance venues, 2006, revised 2012.
- ANSI E1.27-1, Entertainment technology: Standard for portable control cables for use with USITT DMX512/1990 and E1.11 (DMX512-A) products, 2006, revised 2011.
- ANSI E1.27-2, Entertainment technology: Recommended practice for permanently installed control cables for use with ANSO E1.11 (DMX512-A) and USITT DMX512/1990 products, 2009.
- ANSI E1.28, Guidance on planning followspot positions in places of public assembly, 2011.
- ANSI E1.29, Product safety standard for theatrical fog generators that create aerosols of water, aqueous solutions of glycol or glycerin, or aerosols of highly refined alkane mineral oil, 2009.
- ANSI E1.30-1, EPI 23, device identification subdevice, 2010.
- ANSI E1.30-3, EPI 25, time reference in ACN systems using SNTP and NTP, 2009.
- ANSI E1.30-4, EPI 26, device description language (DDL) extensions for DMX512 and E1.31 devices, 2010.
- ANSI E1.30-7, EPI 29, allocation of internet protocol version 4 addresses to ACN hosts, 2009.
- ANSI E1.30-10, EPI 32, identification of draft device description language modules, 2009.
- ANSI E1.31, Entertainment technology: Lightweight streaming protocol for transport of DMX512 using ACN, 2009.
- ANSI E1.32, Entertainment technology: Guide for the inspection of entertainment industry incandescent lamp luminaries, 2012.
- ANSI E1.34, Entertainment technology: Measuring and specifying the slipperiness of floors used in live performance venues, 2009.
- ANSI E1.35, Standard for lens quality measurements for pattern projecting luminaries intended for entertainment use, 2007.
- ANSI E1.36, Model procedures for permitting the use of tungsten-halogen incandescent lamps and stage and studio luminaries in vendor exhibit booths in convention and trade show exhibition halls, 2007, revised 2012.
- ANSI E1.37-1, Additional message sets for ANSI E1.20 (RDM) – part 1, dimmer message sets, 2012.
- ANSI E1.40, Recommendations for the planning of theatrical dust effects, 2011.
- ANSI E1.41, Recommendations for measuring and reporting photometric performance data for entertainment luminaries utilizing solid state light sources, 2012.

## 40. Glossary of Useful Terms

<b>TERM</b>	<b>DEFINITION</b>
A-Weighting	An artificial filter which is applied to measuring devices to make them more accurately mimic the way a human ear responds to sound. A-weighting of a sound measurement effectively ignores a proportion of the bass frequency because the ear is less sensitive to low register sounds.
Accident	The National Safety Council defines an “accident” as an undesired event that results in personal injury or property damage.
Agency	An agency is a division of government with a specific function, or a nongovernmental organization (e.g., private contractor, business, etc.) that offers a particular kind of assistance. In ICS, agencies are defined as jurisdictional (having statutory responsibility for incident mitigation) or assisting and/or cooperating (providing resources and/or assistance).
Air-Inflated Structure	A building where the shape of the structure is maintained by air pressurization of cells or tubes to form a barrel vault over the usable area. Occupants of such structures do not occupy the pressurized areas used to support the structure (International Fire Code, 2009).
Air-Supported Structure	A structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area (International Fire Code, 2009).
Area of Refuge	An area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation (International Fire Code, 2009). At least one state’s code uses the term “Areas of Rescue Assistance” as an equivalent term.
Assembly Occupancy (Group A)	“Assembly occupancy” (Group A) is a specific classification of specific classification of building occupancy. It includes, among others, the use of a building or structure, or a portion thereof, for the gathering together of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation. More specifically, an “A-4” assembly occupancy includes arenas and skating rinks, and an “A-5” assembly occupancy includes amusement park structures, bleachers, grandstands, and stadiums (International Fire Code, 2009).
Attenuation	The ability of hearing protection or other material (such as a wall or tent lining) to absorb sound and reduce the amount of energy transmitted.
At-Will	Generally, "At-Will" simply means to do as one chooses. However, employment at-will is a common-law rule that an employment contract of indefinite duration can be terminated by either the employer or the employee at any time for any reason; also known as terminable at will. The at-will category encompasses all employees who are not protected by express employment contracts that state that they may be fired only for good cause.

Automatic Sprinkler System	An automatic sprinkler system, for fire protection purposes, is an integrated system of underground and overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply and a network of specially sized or hydraulically designed piping installed in a structure or area, generally overhead, to which automatic sprinklers are connected in a systematic pattern. The system is usually activated by heat from a fire and discharges water over the fire area (International Fire Code, 2009).
AV or A/V	Audio Visual
Banter	Chit-chat, often in spirit of humor
Bus Loop	Location where buses load and unload
Chain of Command	A series of management positions in order of authority.
Clear Text	The use of plain English in radio communications transmissions. No Ten Codes or agency-specific codes are allowed when using Clear Text.
Command	The act of directing and/or controlling resources by virtue of explicit legal, agency, or delegated authority. May also refer to the Incident Commander.
Command Center	See "Incident Command Post"
DAR	Daily Action Report
Decibel	A measure of the energy in a sound wave. The human ear is incredibly adaptable and can detect quiet sounds and tolerate momentary loud noises with a huge range of energies. If these were written in normal numbers, it would span from 1 to 100,000,000,000,000 which is an unwieldy number to use in calculations or measurements. To make things simpler, sound is measured using a logarithmic scale – so instead of going from 1 to 10 <sup>14</sup> the numbers go from 1 to 140. Using a logarithmic scale means some of the everyday way we use numbers no longer works. For example, if you had an amplifier which made 100 dB of sound, and you stood it next to an identical amplifier, there wouldn't be 200 dB of sound. Instead there would be 103 dB. So as a rough rule of thumb +/- 3 dB means a doubling of halving of the energy in a sound. This is further complicated by the fact that the ear does not have a linear response to sound energy, so perceived sound is not directly proportional to energy.
Division	Divisions are used to divide an incident into geographical areas of operation. In ICS, a Division is located within the organization between the Branch and the Task Force/Strike Team. (See Group.) Divisions are identified by alphabetic characters for horizontal applications and, often, by floor numbers when used in buildings.
DRS	Daily Run Sheet
DOL	Department of Labor
Egress	The action of going out of or leaving a place.
Emergency	Any incident(s), human-caused or natural, that requires responsive action to protect life or property.



Emergency Management Coordinator/Director	The individual within each political subdivision that has coordination responsibility for jurisdictional emergency management.
Emergency Operations Center (EOC)	The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, and medical services).
Emergency Operations Plan (EOP)	The plan that each jurisdiction has and maintains for responding to appropriate hazards.
Event	A scheduled, planned, non-emergency activity.
Exit	That portion of a means of egress system that is separated from other interior spaces of a building or structure by fire-resistance-rated construction and opening protective as required to provide a protected path of egress travel between the exit access and the exit discharge (International Fire Code, 2009).
Exit Access	That portion of a means of egress system that leads from any occupied portion of a building or structure to an exit (International Fire Code, 2009).
Exit Discharge	That portion of a means of egress system between the termination of an exit and a public way (International Fire Code, 2009).
Exposure Limit Value = 87dB(A) or 140dB (C-weighted)	A measure of the energy which actually reaches the persons' ear, i.e., taking account of variations in daily or weekly routine and the attenuating effect of hearing protection. This relates to the cumulative Personal Exposure which varies as the individual carries out different duties and not to measurements of noise in the environment.
Fire Code	A set of standards established and enforced by government for fire prevention and fire and life safety. Consult the local authority having jurisdiction for details regarding the applicable fire code.
Fire Watch	A temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department.
Frequency	The speed of vibration. All natural sounds are made up of a complex mix of sounds vibrating at different frequencies. More rapid vibration (high frequency) produces the bright treble notes, low frequency results in bass sounds. The proportion of each in a sound gives it its distinctive characteristics and tone. Frequency is measured in hertz (Hz), one hertz meaning one cycle of vibration per second. The normal human ear can detect from around 20Hz up to 20,000Hz or 20KHz.
Frequency Analysis	A mathematical measure of how much each "slice" across the frequency spectrum contributes to the overall sound. This process is also known as Octave Band Analysis – the whole frequency spectrum from 20Hz to 20kHz

	being divided into segments of 1/3 of an octave. It is by this process that the precise content of a sound is determined and suitable hearing protection is selected.
Front of House or "FOH"	"Front of House", areas the attendees and public can access; can also be slang for the mix platform or control area at a concert.
Group	Groups are established to divide the incident into functional areas of operation. Groups are composed of resources assembled to perform a special function not necessarily within a single geographic division. (See Division.) In ICS, groups are located between Branches (when activated) and Resources in the Operations Section.
Hazard	An object, substance or circumstance which has the <i>potential</i> to cause harm. (George Thompson-Focul Guide to Safety in Live Performance. Also see "Risk" below.)
Helibase	The main location for parking, fueling, maintenance, and loading of a helicopter operating in support of an incident or event. This is often located at an airport or airfield.
Helispot	A designated location, usually temporary, where a helicopter can safely take off and land.
HSSE	Health, Safety, Security and Environment
ICT	Information and Communications Technology (Same as "IT")
Incident (OSHA)	OSHA defines an "incident" as an unplanned, undesired event that adversely affects completion of a task.
Incident (ICS)	An occurrence or event, natural or human-caused, that requires an emergency response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.
Incident Action Plan (IAP)	An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.
Incident Commander (IC):	The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.
Incident Command Post (ICP)	The field location at which the primary tactical-level, on-scene incident command functions are performed. The ICP may be collocated with the incident base or other incident facilities and is normally identified by a green rotating or flashing light.
Incident Command System (ICS)	A standardized on-scene emergency management construct specifically designed to provide for the adoption of an integrated organizational structure that reflects the complexity and demands of single or multiple incidents,

	without being hindered by jurisdictional boundaries. ICS is the combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, designed to aid in the management of resources during incidents. It is used for all kinds of emergencies and is applicable to small as well as large and complex incidents. ICS is used by various jurisdictions and functional agencies, both public and private, to organize field-level incident management operations.
Incident Management Team (IMT)	The Incident Commander and appropriate Command and General Staff personnel assigned to an incident.
KPI	Key Performance Indicator
Leq	The instantaneous measure of energy in a sound wave is constantly changing for everything except artificially generated tones. The mathematical process of taking an average of the sound energy over a given period results in a measure called the Leq. This gives the level of a steady tone which would have the same energy as the variable noise over the same period. In effect this means smoothing out the continually changing peaks and troughs to get a single average value. In sound measurements, this is normally given as an average over an 8-hour working day.
Lower Exposure Action Value = 80dB(A) 135dB (C-weighted)	The A-weighted the sound level (averaged over an 8-hour day) which is the threshold at which hearing protection should be made available to workers. Use is not compulsory. The equivalent level in peak noise is 135 dB(C)
Mag-n-Bag	Magnetometer and Bag Check; a method of security screening similar to that done at an airport.
Major Disaster	As defined under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5122), a major disaster is any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, tribes, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.
Mass Gathering	A subset of a special event (defined below). Mass gatherings are usually found at special events that attract large numbers of spectators or participants. Both special events and mass gatherings require the kind of additional planning identified in special events. (FEMA's <i>Special Events Contingency Planning Job Aids Manual</i> , 2005, Updated 2010).
Means of Egress	a.k.a., Means of Egress System. A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. (International Fire Code, 2009)
Membrane	An air-inflated, air-supported, cable or frame-covered structure (usually

Structure	further defined in the building code)(International Fire Code, 2009).
Mitigation	The activities designed to reduce or eliminate risks to persons or property or to lessen the actual or potential effects or consequences of an incident. Mitigation measures may be implemented prior to, during, or after an incident. Mitigation measures are often formed by lessons learned from prior incidents. Mitigation involves ongoing actions to reduce exposure to, probability of, or potential loss from hazards. Measures may include zoning and building codes, floodplain buyouts, and analysis of hazard-related data to determine where it is safe to build or locate temporary facilities. Mitigation can include efforts to educate governments, businesses, and the public on measures they can take to reduce loss and injury.
MSDS	Material Data Safety Sheets, manufacturer provided paperwork regarding a product's hazard identification and safe usage
National Incident Management System (NIMS)	A system mandated by HSPD-5 that provides a consistent nationwide approach for Federal, State, local, and tribal governments; the private sector; and nongovernmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among Federal, State, local, and tribal capabilities, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multiagency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources.
NCC	National Command Center
Near Miss	Incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred. The reporting and investigation of near misses has great potential to reveal how accidents and incidents can be prevented.
NGO	Non-Governmental Organization
Occupant Load	a.k.a., Design Occupant Load. The number of persons for which the means of egress of a building or portion thereof is designed (International Fire Code, 2009).
Panic Hardware	A door-latching assembly incorporating a device that releases the latch upon the application of a force in the direction of egress travel (International Fire Code, 2009).
PPE	Personal Protective Equipment
PSA	Pedestrian Screening Area
Public Way	In terms of fire safety, a street, alley or other parcel of land open to the outside air leading to a public street. The International Fire Code (2009) also define "public way" as having a minimum clear width and height of not less than 10 feet (3.048 m).
Risk	The probability that a hazard will cause actual harm. (George Thompson-Focul Guide to Safety in Live Performance. Also see " <i>Hazard</i> " above.)
SNR	Single Number Rating – an overall measure of the attenuation of hearing protection. The SNR gives an indication of how good a product may be at

	reducing overall volume, however it does not identify how frequencies are absorbed across the spectrum.
SOW	The division of work to be performed under a contract or subcontract in the completion of a project, typically broken out into specific tasks with deadlines. (BusinessDictionary.com)
Span of Control	The number of individuals a supervisor is responsible for, usually expressed as the ratio of supervisors to individuals. (Under the NIMS, an appropriate span of control is between 1:3 and 1:7.)
Special Event	A non-routine activity within a community that brings together a large number of people. Emphasis is not placed on the total number of people attending but rather the impact on the community's ability to respond to a large-scale emergency or disaster or the exceptional demands that the activity places on response services. A community's special event requires additional planning, preparedness, and mitigation efforts of local emergency response and public safety agencies (FEMA's <i>Special Events Contingency Planning Job Aids Manual</i> , 2005, Updated 2010).
Standard Operating Procedure (SOP)	Complete reference document or an operations manual that provides the purpose, authorities, duration, and details for the preferred method of performing a single function or a number of interrelated functions in a uniform manner.
Steward	In this body of work, "steward" is used to identify a category of event staffing, who are not security yet interact with the public and/or attendees to an event. A synonym may be "Host". Stewards may be paid staff or volunteer staff.
Strike Team	A specified combination of the same kind and type of resources with common communications and a Leader.
Table-top Session	An effective training exercise, this is typically a meeting of those persons involved in the emergency planning and management aspects of the event to talk through, test and reveal weaknesses of the various emergency plans in place. On an event operations level, this can also be a meeting of event staff to talk-through various event operations scenarios.
Tactics	Deploying and directing resources on an incident to accomplish incident strategy and objectives.
Task Force	A combination of single resources assembled for a particular tactical need with common communications and a Leader.
Tent	A structure, enclosure or shelter, with or without sidewalls or drops, constructed of fabric or pliable materials supported by any manner except by air or the contents that it protects (International Fire Code, 2009).
Threat	An indication of possible violence, harm, or danger.
TMV	Theoretical Market Value
Unity of Command	The concept by which each person within an organization reports to one and only one designated person. The purpose of unity of command is to ensure unity of effort under one responsible commander for every objective
Upper Exposure Action Value = 85dB(A)	The A-weighted the sound level (averaged over an 8-hour day) which is the threshold at which the use of suitable hearing protection is mandatory to maintain the person. The equivalent level in peak noise is 137 dB(C)

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VSA	Vehicle Screening Area
Weekly Exposure	Given that work tasks and hence noise exposure can vary dramatically from day to day, CNAW allows a weekly average to be taken for a persons' Noise Dose. This means warehouse and office days can be balanced against louder activities such as rehearsals or performances. Overall the personal weekly exposure must not exceed the Exposure Limit Value noted above.
WFX	Workforce Volunteers

# 41. Useful Addresses

<p>International Association of Venue Managers - IAVM 635 Fritz Drive, Suite 100 Coppell, TX 75019-4442 972.906.7441 <a href="http://www.iavm.org">http://www.iavm.org</a></p>	<p>National Fire Protection Association 1 Batterymarch Park Quincy, Massachusetts 02169-7471 617.770.3000 <a href="http://www.nfpa.org">http://www.nfpa.org</a></p>
<p>U.S. Department of Labor Occupational Safety &amp; Health Administration - OSHA 200 Constitution Ave., NW Washington DC 20210 800.321.6742 <a href="http://www.osha.gov">http://www.osha.gov</a></p>	<p>Reed Construction Data - State Building Codes <a href="http://www.reedconstructiondata.com/building-codes">http://www.reedconstructiondata.com/building-codes</a></p>
<p>EPA - United States Environmental Protection Agency <a href="http://www.epa.gov">http://www.epa.gov</a></p>	<p>USA Government <a href="http://www.usa.gov">http://www.usa.gov</a></p>
<p>US Department of Health &amp; Human Services 200 Independence Avenue SW Washington DC 20201 877.696.6775 <a href="http://www.hhs.gov">http://www.hhs.gov</a></p>	<p>Society of Cable Telecommunications Engineers - SCTE 140 Phillips Road Exton, PA 19341 -1318 800.542.5040 <a href="http://www.scte.org/default.aspx">http://www.scte.org/default.aspx</a></p>
<p>ANS/SCTE I - 121 2011 <a href="http://www.scte.org/documents/pdf/standards/ANSI_SCTE_121_2011.pdf">http://www.scte.org/documents/pdf/standards/ANSI_SCTE_121_2011.pdf</a></p>	<p>Professional Lighting And Sound Association - PLASA 630 Ninth Avenue Suite 609 New York, NY 10036 212.244.1505 <a href="https://www.plasa.org">https://www.plasa.org</a></p>
<p>International Alliance of Theatrical Stage Employees - IATSE 1430 Broadway 20th Floor New York, NY 10018 212.730.1770 <a href="http://www.iatse-intl.org">http://www.iatse-intl.org</a></p>	<p>National Weather Service - NWS 1325 East West Highway Silver Spring, MD 20910 <a href="http://www.weather.gov">http://www.weather.gov</a></p>
<p>National Oceanic and Atmospheric Administration - NOAA 1401 Constitution Avenue, NW Room 5128 Washington DC 20230 <a href="http://www.noaa.gov">http://www.noaa.gov</a></p>	<p>National Safety Council 1121 Spring Lake Drive Itasca, IL 60143-3201 800.621.7615 <a href="http://www.nsc.org/Pages/Home.aspx">http://www.nsc.org/Pages/Home.aspx</a></p>

Centers for Diseases Control - CDC 1600 Clifton Road Atlanta, GA 30333 800.232.4636 <a href="http://www.cdc.gov">http://www.cdc.gov</a>	American Council of Engineering Companies 1015 15th Street 8th Floor NW Washington, DC 20005-2605 202.347.7474 <a href="http://www.acec.org">http://www.acec.org</a>
The American Institute of Architects 1735 New York Avenue NW Washington DC 20006-5292 800.242.3837 <a href="http://www.aia.org">http://www.aia.org</a>	International Code Council - ICC 500 New Jersey Avenue, NW 6th Floor Washington DC 20001 888.422.7233 <a href="http://www.iccsafe.org/Pages/default.aspx">http://www.iccsafe.org/Pages/default.aspx</a>
The Risk Management Society - RIMS 1065 Avenue of the Americas 13th Floor New York, NY 10018 212.286.9292 <a href="http://www.rims.org/Pages/Default.aspx">http://www.rims.org/Pages/Default.aspx</a>	National Council of Structural Engineers Associations - NCSEA 645 N. Michigan Avenue, Suite 540 Chicago, IL 60611 312.649.4600 <a href="http://www.ncsea.com">http://www.ncsea.com</a>
National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814 301.657.3110 <a href="http://www.necanet.org">http://www.necanet.org</a>	National Electrical Installation Standards <a href="http://www.neca-neis.org">http://www.neca-neis.org</a>
The Event Safety Shop 59 Prince Street Bristol, BS1 4QH United Kingdom +44 (0) 117 904 6204 <a href="http://www.the-eventsafetyshop.co.uk/index.php">http://www.the-eventsafetyshop.co.uk/index.php</a>	U.S. Fire Administration 16825 S. Seton Ave., Emmitsburg, MD 21727 301.447.1000 <a href="http://www.usfa.fema.gov/index.shtm">http://www.usfa.fema.gov/index.shtm</a>
USA Football - Football's National Governing Body 45 N. Pennsylvania St., Suite 700 Indianapolis, IN 46204 <a href="http://usafootball.com">http://usafootball.com</a>	National Association of Police Organizations - NAPO 317 South Patrick Street Alexandria, Virginia 22314 703.549.0775 <a href="http://www.napo.org">http://www.napo.org</a> E-mail: <a href="mailto:info@napo.org">info@napo.org</a>
PLASA 630 Ninth Avenue, Suite 609 New York, NY 10036, USA 212.244.1505 <a href="http://www.plasa.org">www.plasa.org</a>	



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# Appendix A – The National Incident Management System (NIMS) and Incident Command System (ICS)

This Appendix is derived from Chapter 3 of FEMA’s *Special Events Contingency Planning Job Aids Manual* (2005, Updated 2010).

## Introduction

The importance of pre-event planning, organization, and leadership cannot be over emphasized. Many suggest a planning team use the Incident Command System (ICS) to manage the event planning process effectively. In a large-scale event involving numerous agencies, people can become confused as to who is in charge, what role everyone plays, and what responsibilities everyone has. ICS is an excellent tool that can resolve these issues. This appendix discusses ICS, how it can be applied to special events, and the concept of Unified Command.

Unfortunately, even the best-planned special events may not run entirely smoothly. During any special event, you must be prepared to respond to one or more incidents that may occur during the event. The way these incidents are managed has a great deal to do with the ultimate success of the special event. Everyone must know his or her role and tasks, and where to seek information. This appendix also discusses the use of ICS during these situations.

## National Incident Management System

The National Incident Management System (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand in hand with the National Response Framework (NRF). NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management.

NIMS integrates existing best practices into a consistent, nationwide, systematic approach to incident management that is applicable at all levels of government, nongovernmental organizations (NGOs), and the private sector, and across functional disciplines in an all-hazards context. Five major components make up this systems approach: Preparedness, Communications

and Information Management, Resource Management, Command and Management, and Ongoing Management and Maintenance.

The components of NIMS were not designed to stand alone, but to work together in a flexible, systematic manner to provide the national framework for incident management. The Emergency Management Institute (EMI), located at the National Emergency Training Center in Emmitsburg, MD, offers a broad range of NIMS-related training. Additional information about NIMS and ICS training can be found at <http://training.fema.gov>.

## Preparedness: Overview

NIMS provides the mechanisms for emergency management/response personnel and their affiliated organizations to work collectively by offering a consistent and common approach to preparedness.

Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. Ongoing preparedness efforts among all those involved in emergency management and incident response activities ensure coordination during times of crisis. Moreover, preparedness facilitates efficient and effective emergency management and incident response activities.



This component describes specific measures and capabilities that emergency management/response personnel and their affiliated organizations should develop and incorporate into their overall preparedness programs to enhance the operational preparedness necessary for all-hazards emergency management and incident response activities. In developing, refining, and expanding preparedness programs and activities within their jurisdictions and/or organizations, emergency management/response personnel should leverage existing preparedness efforts and collaborative relationships to the greatest extent possible. Personal preparedness, while an important element of homeland security, is distinct from the operational preparedness of our Nation's emergency management and incident response capabilities and is beyond the scope of NIMS.

## Communications and Information Management: Overview

Effective emergency management and incident response activities rely on flexible communications and information systems that provide a common operating picture to emergency management/response personnel and their affiliated organizations. Establishing and maintaining a common operating picture and ensuring accessibility and interoperability are the principal goals of the Communications and Information Management component of NIMS. Properly planned, established, and applied communications enable the dissemination of information among command and support elements and, as appropriate, cooperating agencies and organizations.

Incident communications are facilitated through the development and use of common communications plans and interoperable communications equipment, processes, standards, and architectures. During an incident, this integrated approach links the operational and support units of the various organizations to maintain communications connectivity and situational awareness. Communications and information management planning should address the incident-related policies, equipment, systems, standards, and training necessary to achieve integrated communications.

## **Resource Management: Overview**

Emergency management and incident response activities require carefully managed resources (personnel, teams, facilities, equipment, and/or supplies) to meet incident needs. Utilization of the standardized resource management concepts such as typing, inventorying, organizing, and tracking will facilitate the dispatch, deployment, and recovery of resources before, during, and after an incident.

Resource management should be flexible and scalable in order to support any incident and be adaptable to changes. Efficient and effective deployment of resources requires that resource management concepts and principles be used in all phases of emergency management and incident response.

The resource management process can be separated into two parts: resource management as an element of preparedness and resource management during an incident. The preparedness activities (resource typing, credentialing, and inventorying) are conducted on a continual basis to help ensure that resources are ready to be mobilized when called to an incident. Resource management during an incident is a finite process, as shown in the below figure, with a distinct beginning and ending specific to the needs of the particular incident.

## **Command and Management: Overview**

The NIMS components of Preparedness, Communications and Information Management, and Resource Management provide a framework for effective management during incident response.

## **Command and Management Overview: Incident Command System**

The Incident Command System (ICS) is a standardized, on-scene, all-hazards incident management approach that:

- Allows for the integration of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure.
- Enables a coordinated response among various jurisdictions and functional agencies, both public and private.
- Establishes common processes for planning and managing resources.
- ICS is flexible and can be used for incidents of any type, scope, and complexity. ICS allows its users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents.

ICS is used by all levels of government—Federal, State, tribal, and local—as well as by many nongovernmental organizations and the private sector. ICS is also applicable across disciplines. It is typically structured to facilitate activities in five major functional areas: Command, Operations, Planning, Logistics, and Finance/Administration. All of the functional areas may or may not be used based on the incident needs. Intelligence/Investigations is an optional sixth functional area that is activated on a case-by-case basis.

As a system, ICS is extremely useful; not only does it provide an organizational structure for incident management, but it also guides the process for planning, building, and adapting that structure. Using ICS for every incident or planned event helps hone and maintain skills needed for the large-scale incidents.

ICS Management Principle	Description
<b>Common Terminology</b>	<p>ICS establishes common terminology that allows diverse incident management and support organizations to work together across a wide variety of incident management functions and hazard scenarios. This common terminology covers the following:</p> <ul style="list-style-type: none"> <li>• <b>Organizational Functions:</b> Major functions and functional units with incident management responsibilities are named and defined. Terminology for the organizational elements is standard and consistent.</li> <li>• <b>Resource Descriptions:</b> Major resources—including personnel, facilities, and major equipment and supply items—that support incident management activities are given common names and are “typed” with respect to their capabilities, to help avoid confusion and to enhance interoperability.</li> <li>• <b>Incident Facilities:</b> Common terminology is used to designate the facilities in the vicinity of the incident area that will be used during the course of the incident.</li> </ul> <p>Incident response communications (during exercises and actual incidents) should feature plain language commands so they will be able to function in a multijurisdiction environment. Field manuals and training should be revised to reflect the plain language standard.</p>

ICS Management Principle	Description
<b>Modular Organization</b>	<p>The ICS organizational structure develops in a modular fashion based on the size and complexity of the incident, as well as the specifics of the hazard environment created by the incident. When needed, separate functional elements can be established, each of which may be further subdivided to enhance internal organizational management and external coordination.</p> <p>Responsibility for the establishment and expansion of the ICS modular organization ultimately rests with Incident Command, which bases the ICS organization on the requirements of the situation. As incident complexity increases, the organization expands from the top down as functional responsibilities are delegated. Concurrently with structural expansion, the number of management and supervisory positions expands to address the requirements of the incident adequately.</p>
<b>Management by Objectives</b>	<p>Management by objectives is communicated throughout the entire ICS organization and includes:</p> <ul style="list-style-type: none"> <li>• Establishing overarching incident objectives.</li> <li>• Developing strategies based on overarching incident objectives.</li> <li>• Developing and issuing assignments, plans, procedures, and protocols.</li> <li>• Establishing specific, measurable tactics or tasks for various incident management functional activities, and directing efforts to accomplish them, in support of defined strategies.</li> <li>• Documenting results to measure performance and facilitate corrective actions.</li> </ul>
<b>Incident Action Planning</b>	<p>Centralized, coordinated incident action planning should guide all response activities. An Incident Action Plan (IAP) provides a concise, coherent means of capturing and communicating the overall incident priorities, objectives, and strategies in the contexts of both operational and support activities. Every incident must have an action plan. However, not all incidents require written plans.</p> <p>The need for written plans and attachments is based on the requirements of the incident and the decision of the Incident Commander or Unified Command. Most initial response operations are not captured with a formal IAP. However, if an incident is likely to extend beyond one operational period, become more complex, or involve multiple jurisdictions and/or agencies, preparing a written IAP will become increasingly important to maintain effective, efficient, and safe operations.</p>

<b>ICS Management Principle</b>	<b>Description</b>
<b>Manageable Span of Control</b>	<p>Span of control is key to effective and efficient incident management. Supervisors must be able to adequately supervise and control their subordinates, as well as communicate with and manage all resources under their supervision.</p> <p>In ICS, the span of control of any individual with incident management supervisory responsibility should range from 3 to 7 subordinates, with 5 being optimal. During a large-scale law enforcement operation, 8 to 10 subordinates may be optimal. The type of incident, nature of the task, hazards and safety factors, and distances between personnel and resources all influence span-of-control considerations.</p>
<b>Incident Facilities and Locations</b>	<p>Various types of operational support facilities are established in the vicinity of an incident, depending on its size and complexity, to accomplish a variety of purposes.</p> <p>The Incident Command will direct the identification and location of facilities based on the requirements of the situation. Typical designated facilities include Incident Command Posts, Bases, Camps, Staging Areas, mass casualty triage areas, point-of-distribution sites, and others as required.</p>
<b>Comprehensive Resource Management</b>	<p>Maintaining an accurate and up-to-date picture of resource utilization is a critical component of incident management and emergency response. Resources to be identified in this way include personnel, teams, equipment, supplies, and facilities available or potentially available for assignment or allocation.</p>
<b>Integrated Communications</b>	<p>Incident communications are facilitated through the development and use of a common communications plan and interoperable communications processes and architectures. The ICS 205 form is available to assist in developing a common communications plan. This integrated approach links the operational and support units of the various agencies involved and is necessary to maintain communications connectivity and discipline and to enable common situational awareness and interaction.</p> <p>Preparedness planning should address the equipment, systems, and protocols necessary to achieve integrated voice and data communications.</p>
<b>Establishment and Transfer of Command</b>	<p>The command function must be clearly established from the beginning of incident operations. The agency with primary jurisdictional authority over the incident designates the individual at the scene responsible for establishing command. When command is transferred, the process must include a briefing that captures all essential information for continuing safe and effective operations.</p>

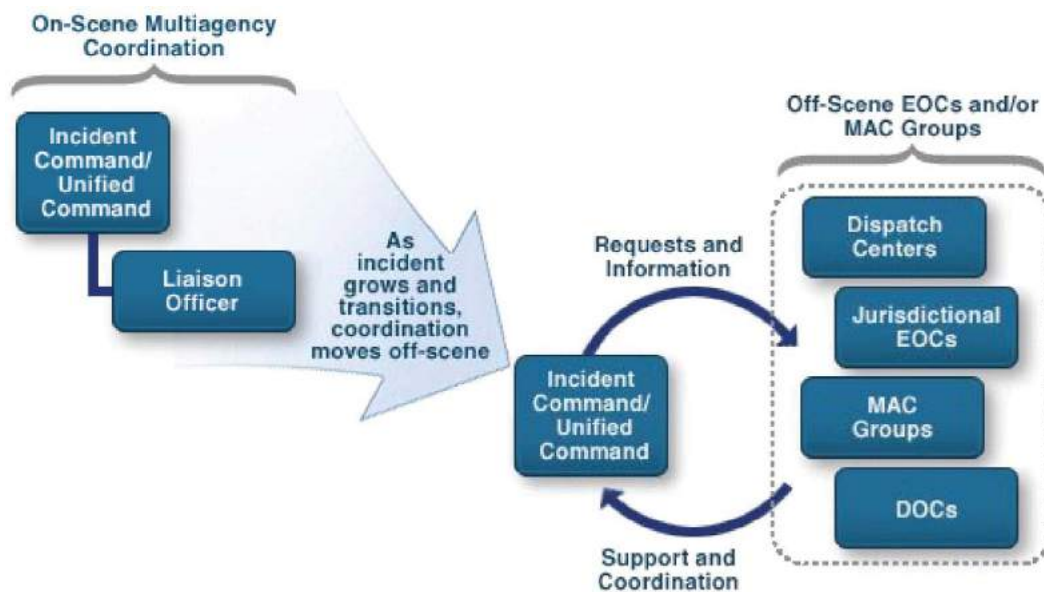
ICS Management Principle	Description
<b>Chain of Command and Unity of Command</b>	<ul style="list-style-type: none"> <li>• Chain of Command: Chain of command refers to the orderly line of authority within the ranks of the incident management organization.</li> <li>• Unity of Command: Unity of command means that all individuals have a designated supervisor to whom they report at the scene of the incident. These principles clarify reporting relationships and eliminate the confusion caused by multiple, conflicting directives. Incident managers at all levels must be able to direct the actions of all personnel under their supervision.</li> </ul>
<b>Unified Command</b>	In incidents involving multiple jurisdictions, a single jurisdiction with multiagency involvement, or multiple jurisdictions with multiagency involvement, Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.
<b>Accountability</b>	<p>Accountability: Effective accountability of resources at all jurisdictional levels and within individual functional areas during incident operations is essential. Adherence to the following ICS principles and processes helps to ensure accountability:</p> <ul style="list-style-type: none"> <li>• Resource Check-In/Check-Out Procedures</li> <li>• Incident Action Planning</li> <li>• Unity of Command</li> <li>• Personal Responsibility</li> <li>• Span of Control</li> <li>• Resource Tracking</li> </ul>
<b>Dispatch / Deployment</b>	<p>Resources should respond only when requested or when dispatched by an appropriate authority through established resource management systems.</p> <p>Resources not requested must refrain from spontaneous deployment to avoid overburdening the recipient and compounding accountability challenges.</p>
<b>Information and Intelligence Management</b>	The incident management organization must establish a process for gathering, analyzing, assessing, sharing, and managing incident-related information and intelligence.

## Command and Management Overview: Multiagency Coordination Systems

Multiagency coordination is a process that allows all levels of government and all disciplines to work together more efficiently and effectively. Multiagency coordination occurs across the different disciplines involved in incident management, across jurisdictional lines, or across levels of government. Multiagency coordination can and does occur on a regular basis whenever personnel from different agencies interact in such activities as preparedness, prevention, response, recovery, and mitigation.

Often, cooperating agencies develop a Multiagency Coordination System (MACS) to better define how they will work together and to work together more efficiently; however, multiagency coordination can take place without established protocols. MACS may be put in motion regardless of the location, personnel titles, or organizational structure.

Initially the Incident Command/Unified Command and the Liaison Officer may be able to provide all needed multiagency coordination at the scene. However, as the incident grows in size and complexity, off-site support and coordination may be required.



Integral elements of MACS are dispatch procedures and protocols, the incident command structure, and the coordination and support activities taking place within an activated Emergency Operations Center. Fundamentally, MACS provide support, coordination, and assistance with policy-level decisions to the ICS structure managing an incident.



## Command and Management Overview: Public Information

Public Information consists of the processes, procedures, and systems to communicate timely, accurate, and accessible information on the incident's cause, size, and current situation to the public, responders, and additional stakeholders (both directly affected and indirectly affected). Public information must be coordinated and integrated across jurisdictions, agencies, and organizations; among Federal, State, tribal, and local governments; and with NGOs and the private sector.

Well-developed public information, education strategies, and communications plans help to ensure that lifesaving measures, evacuation routes, threat and alert systems, and other public safety information are coordinated and communicated to numerous audiences in a timely, consistent manner.

A Joint Information System (JIS) provides the mechanism to organize, integrate, and coordinate information to ensure timely, accurate, accessible, and consistent messaging across multiple jurisdictions and/or disciplines with nongovernmental organizations and the private sector. A JIS includes the plans, protocols, procedures, and structures used to provide public information. Federal, State, tribal, territorial, regional, or local Public Information Officers and established Joint Information Centers (JICs) are critical supporting elements of the JIS.

A Joint Information Center (JIC) is a central location that facilitates operation of the Joint Information System. The JIC is a location where personnel with public information responsibilities perform critical emergency information functions, crisis communications, and public affairs functions. JICs may be established at various levels of government or at incident sites, or can be components of Multiagency Coordination Systems. A single JIC location is preferable, but the system is flexible and adaptable enough to accommodate virtual or multiple JIC locations, as required.

## Incident Command System Forms

Copies of the following Incident Command System forms can be found on the NIMS Resource Center at <http://www.fema.gov/nims>:

ICS 201, Incident Briefing	ICS 213, General Message
ICS 202, Incident Objectives	ICS 214, Unit Log
ICS 203, Organization Assignment List	ICS 215, Operational Planning Worksheet
ICS 204, Assignment List	ICS 215a, Incident Safety Analysis
ICS 205, Incident Radio Communications Plan	ICS 216, Radio Requirements Worksheet
ICS 206, Medical Plan	ICS 217, Radio Freq. Assignment Worksheet
ICS 207, Organizational Chart	ICS 218, Support Vehicle Inventory
ICS 209, Incident Status Summary	ICS 220, Air Operations Summary
ICS 210, Status Change Card	ICS 221, Demobilization Plan
ICS 211, Check-In List	ICS 308, Resource Order Form

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## Incidents Occurring During a Special Event

As discussed above, certain incidents occurring during a special event may dictate the need for a specific Incident Commander to manage that particular incident (e.g., isolated structure fire, vehicle crash, HazMat incident, structure collapse, multiple casualty incident, etc.).

When an incident occurs within a special event, immediate action must be taken to control and manage the incident. As the incident grows, the issues that must be considered will grow as well. The Incident Commander of the special event may assign command of the emergency incident to a ranking responder. This responder must take initial steps to bring order to the incident, just as in situations that require more traditional applications of ICS.

The Incident Commander of the special event may authorize the responder to implement his or her own command structure and/or call upon the resources of the event command structure. This responder must:

- Assess the situation.
- Determine whether human life is at immediate risk.
- Establish the immediate priorities and objectives.
- Determine whether there are adequate and appropriate resources on-scene or ordered.
- Establish an appropriately located on-scene Command Post (CP), if needed.
- Establish an appropriate initial command structure, if needed.
- Develop an action plan.
- Ensure that adequate safety measures are in place.
- Coordinate activity for all Command and General Staff.
- Consider whether the span of control is approaching, or will soon approach, practical limits, taking into account the safety of all personnel.
- Determine whether there are any environmental concerns that must be considered.
- Monitor work progress and coordinate with key people.
- Review and modify objectives and adjust the action plan as necessary.
- Approve requests for additional resources or for the release of resources.
- Keep the overall event Incident Commander informed of incident status.
- Authorize release of information to the news media.
- Order the demobilization of the incident, when appropriate.

# Appendix B – Bomb Threat Stand-Off

This table is derived from the Appendix of FEMA’s Special Events Contingency Planning Job Aids Manual (2005, Updated 2010, p. A-69).

<b>Threat Description</b>	<b>Explosive Capacity</b>	<b>Lethal Airblast Range</b>	<b>Mandatory Evacuation Distance</b>	<b>Desired Evacuation Distance</b>
Pipe Bomb	5 LBS / 2.3 KG	25 FT / 8 M	70 FT / 21 M	850 FT / 259 M
Briefcase or Suitcase Bomb	50 LBS / 23 KG	40 FT / 12 M	150 FT / 46 M	1850 FT / 564 M
Compact Sedan	220 LBS / 100 KG	60 FT / 18 M	240 FT / 73 M	915 FT / 279 M
Sedan	500 LBS / 227 KG	100 FT / 30 M	320 FT / 98 M	1050 FT / 320 M
Van	1000 LBS / 454 KG	125 FT / 38 M	400 FT / 122 M	1200 FT / 366 M
Moving Van or Delivery Truck	4000 LBS / 1814 KG	200 FT / 61 M	640 FT / 195 M	1750 FT / 534 M
Semi-Trailer	40,000 LBS / 18,144 KG	450 FT / 137 M	1400 FT / 427 M	3500 FT / 1607 M

Explosive Capacity is based on maximum volume or weight of explosives (TNT equivalent) that could reasonably fit or be hidden in a suitcase or vehicle.

Lethal Airblast Range is the minimum distance personnel in the open are expected to survive blast effects. This minimum range is based on anticipation of avoiding severe lung damage or fatal impact injury from body translation.

Mandatory Evacuation Distance is the range within which all buildings must be evacuated. From this range outward to the Desired Evacuation Distance, personnel may remain inside buildings but away from windows and exterior walls. Evacuated personnel must move to the Desired Evacuation Distance.

# Appendix C – Requirements for Outdoor Event Structures, Preparation Checklist

Use this list as a tool in conjunction with requirement details in Structures chapter.

	<b>Action</b>	<b>Completion Date</b>	<b>Verified</b>
1.	Structure assembly drawings		
2.	Stamped engineering calculations		
3.	Rigging plot overlay on structure		
4.	Site layout drawing		
5.	Permits		
6.	Inspection records of components		
7.	Operations Management Plan		
8.	Local weather resource established		
9.	Responsible individuals identified		
10.	Pre-event meeting reviewing OMP		
11.	Completion certificate of structure		

# Appendix D – Requirements for Outdoor Event Structures, Key Personnel

Use this list as a tool in conjunction with requirement details in Structures chapter. Positions listed must have a designated person.

<b>Title</b>	<b>Name</b>	<b>Phone</b>	<b>Main Work Area (i.e. stage, FOH, office)</b>
Stage Manager			
Artists' Representative			
Promoter Representative			
Stage Vendor			
Wind/Weather Monitor			
Crowd Management Representative			

### **A-3: Clark County – Las Vegas, NV:**



# Clark County Fire Prevention

Mission Statement: "To provide the highest level of fire protection and related services"

- TITLE:** Tent and Canopy Permit Requirements
- SCOPE:** Tent(s) in excess of 200 square feet, or canopy(s) in excess of 400 square feet shall be permitted and installed in accordance with this guideline and the requirements contained in the 2005 Clark County Fire Code. Temporary membrane structures, tents and canopies shall be used for a period of not more than 180 days within a 12-month period on a single premise.
- PURPOSE:** This guideline was written to provide an outline of the Clark County Fire Code requirements for permitting tent(s) and canopy(s).

## SPECIFICATIONS AND REQUIREMENTS

At the time of permit application, three (3) sets of plans, drawn to an indicated scale, must be submitted for review and approval. Minimum permit and expedite fees (if required) must be paid at this time. The minimum permit fee for this submittal is \$75. However, permit fees for this type of submittal vary. Please see the **Clark County Fire Department Permit and Service Fee Schedule** for specific information. In addition, expedite fees (minimum fee of \$85) are also variable based on the complexity of the submittal. Again, please see the Clark County Fire Department Permit and Service Fee Schedule for exact details. When plans have been reviewed, you will be notified by this office. If approved, an inspection will need to be scheduled. To schedule an inspection, go to <http://www.accessclarkcounty.com/fire/firedept.htm>. Click on "Services" in the teal strip on the top. On the left side under **Inspection** click on "Fire Inspection" and follow the instructions to schedule a fire inspection.

After the review, two sets of the plans and the permit must be picked up prior to erection of the tent or canopy. One Fire Department stamped plan set must be onsite and available for review at all times. Permits must be conspicuously posted in public view. Plans for tents and canopies shall be drawn to architectural scale (min. 1/8") on uniform sheets no larger than 30" by 36", meet all requirements of the 2005 Clark County Fire Code Article 32, and contain the following:

- 1) Fire access, location and parking: Show minimum 20 foot set-back from property lines, buildings, other tents/canopies, parked vehicles, and internal combustion engines.
- 2) Fire extinguishers: Show fire extinguishers (2A10BC rated) located in the path of egress, and so that no portion of the structure is more than 75 feet from a fire extinguisher.
- 3) Means of Egress: Show the location and width of all exits and indicate locations of exit signs. Indicate if doors are to be installed (direction of swing) or if curtains will be used (only free sliding, contrasting curtains on rod mounted 8 feet above floor).
- 4) Emergency lighting: Indicate type and locations of emergency lighting.
- 5) Heating and/or Cooling: indicate type and location of equipment, including ducting.
- 6) Fire Hydrants: Show location of fire hydrants.
- 7) Event Contact: provide event contact name and phone number.
- 8) Provide a copy of Title 30 (Zoning) approval from the Comprehensive Planning Division of C.C. Development Services. Temporary uses of this type require Comprehensive Planning Division approval. Contact the Zoning Division at 455-4314 for further information.

Provide evidence that the sidewalls, drops, and tops of temporary membrane structures, tents, and canopies are constructed of flame resistant material or treated with flame retardant in an approved manner. Certificates for all flame treated materials must accompany the submittal.

**Insurance**-Provide a copy of a valid bond or current certificate of insurance showing the Clark County Fire Department as additional insured, with a minimum coverage for bodily injury or property damage in the amount of 1 million dollars.

**Inspection**-Prior to occupancy for any purpose and in order to finalize the permit, you must schedule an inspection by calling the Fire Department scheduling hotline at (702) 226-8991 before 2 P.M. the day prior to your desired inspection date.



# Clark County Department of Building & Fire Prevention

4701 West Russell Road, Las Vegas, NV 89118

(702) 455-7316 FAX (702) 455-7347

Ronald L. Lynn Director/Building & Fire Official  
Samuel D. Palmer, PE., Assistant Director · Girard Page, Fire Marshal

**Permit Type:** 104.9 – IFC 2012  
**CCFC Adopted:** 07/01/2014  
**Effective Date:** 09/14/2011  
**Revision Date:** 04/27/2015

**TITLE:** TEMPORARY STRUCTURES – Places of Assembly

**SCOPE:** Clark Department of Building & Fire Prevention requirements for the permitting and inspection of Temporary Assembly Structures not otherwise classified as temporary membrane structures, canopies, special amusement buildings, free-standing platforms, stages and tents. These provisions apply to outdoor temporary structures used in the convention, trade show and exhibition industry. Any other associated activity, such as fire sprinklers, fire alarms, vehicle display, assembly, generator, etc., shall have separate permits prior to commencing those other activities.

Temporary Assembly Structures include all structures that have or solid (hard shell or glass) sides not governed by the Clark County Building Code or Clark County Fire Code that exceed 4,500 ft<sup>2</sup> (418 m<sup>2</sup>) in area. The roof may be made of a membrane material or solid.

### DEFINITIONS:

**Assessor’s Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor’s office.

**Crowd Managers:** Uniformed or otherwise identified security personnel with fire reporting and evacuation assistance duties. They are to be in continuous communication with an active Fire Command Center or an Incident Command Center for events held without a Fire Command Center.

**Exit Access Travel Distance:** Distance from any point within a building to an exit.

**Fire Department Ingress Points:** Locations where emergency responders can access the Temporary Assembly Structures.

**Fire and Life Safety Professionals:** Professionals with training and knowledge specific to fire protection engineering or building life safety design that are registered in the State of Nevada to provide such service. These are typically registered architects or engineers.

Prepared By	Concurred By	Approved By
Edward J. Kaminski, P.E. Fire Dept. Protection Engineer	Girard W. Page Senior Deputy Chief	Ronald L. Lynn Director, Building/Fire Code Official
Reviewed By	Reviewed By	
Kurt Gottschalk Deputy Fire Marshal	Donna Starkes Deputy Fire Marshal	Julia Staples Deputy Fire Marshal



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**Incident Command Center:** The Incident Command Center is the location designated for managing an emergency. The facilities Fire Command Center is normally also the Incident Command Center. The location of the Incident Command Center is to be approved by the FP.

## **SPECIFICATIONS AND REQUIREMENTS:**

An application must be completed for each submittal. A minimum of three sets of plans and reports shall be submitted with the permit application. Plans and reports shall show compliance with this guideline.

Plans and reports shall address the following:

### **Required Submittals:**

1. Fire Protection Report: FP requires a Fire Protection Report (FPR) for all Temporary Assembly Structures covered by this guideline. The report shall cover the fire and life safety requirements noted below and include a statement of the Fire and Life Safety Professional's assessment of the structure. The report shall be sealed by a State of Nevada Registered Engineer or Architect. The FPR shall indicate all related activities that occur within the structure and within 24 ft (7.3 m) of exterior walls.
2. Fabric Flame Resistance Certificates: Certification(s) of all membrane materials for the roof and walls, fabric hangings and drapes and any other textile interior finishes. Membrane materials, fabrics, drapes and textile interior finishes are to be certified as meeting the requirements of Standard Methods of Fire Tests for Flame Propagation of Textiles and Films, NFPA 701, 2004 edition. (Test Method 2 of NFPA 701 is to be used for materials with densities greater than 21 oz / yd<sup>2</sup> (700 g/m<sup>2</sup>). California State Fire Marshal, Title 19 Flame-Retardant Fabric Certifications are not acceptable in lieu of NFPA 701 testing.
3. Certificate of Insurance: A Certificate of Insurance issued by an insurance company authorized to transact business in the State of Nevada shall be provided. The structure's Operator or Owner shall be named as the insured. Clark County Nevada, its agents, employees and volunteers shall be named as additional insured's and certificate holders. The limit of liability shall be a minimum of \$1,000,000. A greater limit of liability may be required at the direction of the Chief.
4. Scaled Site Plan: A scaled diagram of the site for each structure that includes:
  - Location of the structure on the site
  - Incident Command Center
  - Dimensions of all fire access lanes
  - Fire access lanes shown by color code or shading
  - Fire hydrants
  - Spacing between structures and generators
  - Locations of outdoor displayed equipment
  - Locations of signs, fences or other items outdoors
  - Locations of cross streets
  - Locations where the fire department can enter the fire lanes from the public ways
  - Assessor's Parcel Number (APN)
5. Scaled Floor Plan: Scaled floor plans for each level showing:
  - Dimensions of egress elements
  - Fire extinguishers
  - Exit signs
  - Emergency lights
  - Fire alarm features (as applicable)
  - Seating, furniture etc.
  - Indoor displayed vehicles

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### **Construction and Site Conditions:**

6. Fire Department Access: The Temporary Structure shall have exterior and interior fire department access. Fences, signs and displayed equipment shall not obstruct access from the fire lane to the structure.
7. Exterior Routes: The Temporary Structure shall have exterior routes for pedestrian traffic so that personnel being evacuated from the building may have safe routes to Assembly Points.
8. Fire Hydrants: All portions of the Temporary Structure are to be within 300 ft (9.1 m) of a fire hydrant. There shall be a clear lane at least 24 ft (7.3 m) wide.
9. Separation Distances: There shall be at least 24 ft (7.3 m) of fire separation distance between a Temporary Assembly Structure and any other structure.
10. Interior Finish: Interior finish shall meet NFPA 701 and/or Chapter 8 of the International Fire Code as adopted in the Clark County Fire Code.
11. Structure Height: The highest occupied walking surface shall not exceed 30 ft (9.1 m) above the lowest level of fire department access.
12. Openness: A minimum 24-ft (7.3 m) wide unobstructed fire lane shall be provided on at least two sides of every structure. The site diagram shall show the lane continuous from the public way. Locations for Fire Department Ingress are to be identified.
13. Sub-Floor Concealed Spaces: Concealed spaces under the structures shall be provided with solid skirting to prevent storage and accumulation of debris.

### **Fire Suppression:**

14. Automatic Sprinklers: Automatic sprinklers, installed according to the Standard for the Installation of Sprinkler Systems, NFPA 13, 2010 edition, are required in any Temporary Structure having a total occupied area exceeding 20,000 ft<sup>2</sup> (1,858 m<sup>2</sup>). A separate permit is required for the installation of automatic sprinklers. System design shall be detailed in the Fire Protection Report.
15. Fire Extinguishers: Provide a minimum 2A10BC rated fire extinguisher for every 3,000 ft<sup>2</sup> (279 m<sup>2</sup>) within 75 feet of travel distance on every level. The fire extinguishers shall be installed in conspicuous locations on hangers and brackets supplied with each unit.

### **Fire Alarm and Electrical Service:**

16. Voice Alarm: A voice notification system shall be required for structures exceeding 20,000 ft<sup>2</sup> (1,858 m<sup>2</sup>). Conduit is not required where fire alarm wiring meets NFPA 70. The fire alarm system shall be installed by individuals having a Nevada State Fire Marshal's Office F-Card. A separate permit is required for the installation of a fire alarm system. System design shall be detailed in the Fire Protection Report.
17. Electrical Service: Electrical service shall be supplied from industrial grade wiring. Electrical installation shall be accomplished by qualified electricians.
18. Transformers: Transformers shall not be located within concealed spacing in temporary structures.

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## Means of Egress – Exiting Systems:

19. Occupant Loads: Each Temporary Structure's minimum occupant load shall be based on 15 ft<sup>2</sup> (1.4 m<sup>2</sup>) per person. Other conditions, that have greater occupant loads, are to be evaluated according to Table 1004.1.1 of the Clark County Fire Code. Structures found to exceed the maximum permitted occupant load (over crowded) shall be brought into compliance as required by CCFD.
20. Exits: Exits shall be in accordance with Chapter 10 of the Clark County Fire Code. Variances from the dimensional requirements of Chapter 10 are to be noted in the FPR. Rationale for the acceptance of the variances is also to be presented. The FPR is to describe:
- Exit door dimensions and hardware.
  - Exit signs
  - Stairways – number and arrangement
  - Stair dimensions – width, riser height, tread run length etc.
  - Stair landing dimensions
  - Handrails and guards
21. Number and Separation of Exits: There shall be a minimum of two exits from each level above grade. Exits shall be separated by not less than 1/2 the diagonal of the space. An exit must be at least 25 ft (7.6 m) away from another exit to be considered a separate exit.
22. Stairs: When only unclosed stairs are used, at least one exit from levels above grade shall discharge to an exterior stair that has no more than one 90 degree turn.
23. Exit Access Travel Distance: The travel distance to an exit shall not exceed 100 ft (30.5 m).
24. Emergency Lighting: Emergency lighting shall be provided for all assembly and business occupancies within the temporary structure. The emergency lights shall have self-contained power an emergency power circuit connected to a redundant generator.
25. Exit Signs: Self contained internally illuminated exit signs or exit signs connected to an emergency power circuit shall be provided. As noted in the IFC, main exit doors or gates that are obviously and clearly identifiable as exits need not have exit signs when approved by FP. The locations of exit signs are to be addressed in the FPR.

## Crowd Managers and Inspections:

26. Crowd Managers shall be provided for facilities or events where more than 1,000 persons congregate. The minimum number of Crowd Managers shall be established at a ratio of one Crowd Manager per every 250 persons and there shall be enough relief Crowd Managers to facilitate breaks and meal times. Where approved by the fire code official, the ratio of Crowd Managers shall be permitted to be reduced where the facility is equipped throughout with an approved automatic sprinkler system or based upon the nature of the event per Section 403.3 of the Clark County Fire Code. The minimum qualifications for a Crowd Manager are as follows:
- a) Be physically capable and contracted to patrol the building during the duration of the event.
  - b) Patrol the designated areas and other fire exposures continuously during the duration of the event.
  - c) Be equipped with and able to use a bullhorn, flashlight, and have equipment capable of communication (cellular or radio) with the Incident Command Center.
  - d) Be capable of and willing to direct occupants vacating the building in an emergency situation while utilizing a flashlight to illuminate the path of egress for evacuating occupants.

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- e) Be trained in the use of a portable fire extinguisher and capable of extinguishing incipient fires utilizing a portable fire extinguisher.
  - f) Be instructed in and familiar with evacuation procedures.
  - g) All Crowd Managers on the property are responsible for relaying the alarm and assisting in the evacuation.
  - h) Upon discovery of a fire or other emergency, the Incident Command Center shall notify FP immediately (Dial 9-1-1), then advise all other Crowd Managers of the emergency in order to obtain their assistance in notification and evacuation.
27. Cooking, open flames gelled alcohol (Sterno) smoking, welding, pyrotechnics and flame effects or are not allowed in Temporary Structures. Electric warming tray and magnetic induction food warmers used according to their manufacturer's instructions are allowed. Continued use is subject to inspection by FP.

**APPROVAL OF PLANS IS ONLY FOR COMPLIANCE WITH THE FIRE CODE AND CLARK COUNTY DEPARTMENT OF BUILDING & FIRE PREVENTION ENFORCEMENT. IT DOES NOT INCLUDE REVIEW OR APPROVAL OF STRUCTURAL ASPECTS OF TEMPORARY STRUCTURES EXCEPT AS REQUIRED BY THE FIRE CODE. IT IS THE APPLICANT'S RESPONSIBILITY TO ENGAGE A LICENSED STRUCTURAL ENGINEER TO CERTIFY THE STABILITY OF THE STRUCTURE. THESE STRUCTURAL REVIEWS ARE THE APPLICANT'S RESPONSIBILITY AND WILL NOT BE REVIEWED BY THE CLARK COUNTY DEPARTMENT OF BUILDING & FIRE PREVENTION.**

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## **PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved plans and reports are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan and report shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

## **PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:

[www.clarkcountynv.gov/building/fire-prevention](http://www.clarkcountynv.gov/building/fire-prevention)

## **PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. Plans and reports will be reviewed within a 4-week time frame from date of plan submittal. For applications that are expedited, additional fees shall apply.

## **INSPECTION SCHEDULING INSTRUCTIONS:**

When approved, an inspection will need to be scheduled. To schedule an inspection, go to:

[www.clarkcountynv.gov/building/fire-prevention](http://www.clarkcountynv.gov/building/fire-prevention)

A fire inspector will review your site in accordance with the approved plans and this guideline.

The Fire Prevention (FP) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Code Official, the Fire Code or opinion of the Code Official prevails.

Technical Assistance, when required by the fire chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Code Official and the owner. The Code Official is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Code Official and the owner. The Code Official is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.



CLARK COUNTY FIRE DEPARTMENT  
Fire Prevention Bureau  
575 E. Flamingo Road, Las Vegas, NV 89119  
(702) 455-7316 FAX (702) 455-7347



**Permit Type: 105.6.32.b**  
**Control Number: A.0**  
**Effective Date: 11/15/11**

**TITLE: CANDLES AND OPEN FLAME**  
(Decorative Open Flame Devices)

**SCOPE:** Clark County Fire Department requirements for the submittal of decorative open flame devices for use in assembly areas.

Separate permits are required for other open flame devices such as food warming appliances, fire performer torches, flame effects, tiki torches, fire pits and open flame for food and beverage preparation. These are covered in require separate permits.

**PURPOSE:** To standardize plan/permit requirements of the Clark County Fire Department in accordance with the Clark County Fire Code. Permits issued for open flame devices expire one year from the date of issue and shall be renewed annually.

**DEFINITIONS:**

**Assessor's Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor's office.

**Candle Assembly:** Candles are described as a decorative base (if applicable), the votive/vase/holder, the type of candle (standard wax, liquid or self extinguishing liquid) and other items included in these arrangements (plant or floral arrangements, linen skirting, statues, water, gels, rocks, etc.)

**Open-flame decorative device:** Candles, torches, oil lamps and the like used as decorations and lighting.

**ANNUAL RENEWABLE PERMIT PROCEDURE:**

After issuance of your initial permit(s), your permit(s) will be valid for one year. Approximately 30-60 days prior to the expiration of your permit, a renewal notice will be mailed to you with instructions for the annual permit renewal.

If you do not receive this notice, it is your responsibility to submit the renewal application. Please refer to the website for additional information.

## **PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

## **SPECIFICATIONS AND SUBMITTAL REQUIREMENTS:**

An application must be completed for each submittal. A minimum of three copies of a photograph of each candle assembly, three sets of the narrative description of each candle and one sample of each candle shall be submitted with the permit application. Plans shall show compliance in accordance with Section 308 of the Clark County Fire Code, as adopted and amended. All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

Each candle assembly requires a separate permit. Candle assemblies may be permitted for several locations within the same facility.

Provide one complete candle assembly for testing. Note if the device is intended for use in multiple locations.

Each submitted sample will be tested according to Section 308.3.1 of the Fire Code. Design and test criteria for candles include those given as items 1 thru 5 of Section 308.3.1 of the Fire Code noted as follows:

- Class I and Class II liquids and LP-gas will not be used.
- Liquid or solid fueled lighting devices containing more than 8 ounces of fuel must self-extinguish and not leak fuel at a rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.
- The device or holder shall be constructed to prevent spillage of liquid fuel or wax at a rate more than 0.25 teaspoon per minute (1.26 ml per minute) when the device or holder is not in an upright position.
- The device or holder shall be designed so that it will return to the upright position after being tilted to an angle of 45 degrees from vertical. (See exception for self-extinguishing candles in the Fire Code.)
- The flame shall be enclosed except where openings on the side are not more than 0.375 inch diameter or where openings are on top and the distance to the top is such that a piece of tissue paper placed on top will not ignite in 10 seconds.

## **Required Submittals:**

Plans and reports shall address the following:

1. Photographs of every candle assembly must be provided. The entire candle assembly must be photographed as depicted in the detailed description. Provide three (3) copies of the photographs.
2. A detailed written description of the entire candle assembly, including dimensions must be provided for each submittal. Each item listed in the candle assembly must be described in detail with dimensions provided. Excluding the candle itself, all items must be inherently fire resistant. *(Example: Candle assembly #1 consists of a 4 inch tall X 5 inch diameter fishbowl shaped clear glass Votive filled with a 2 inch tall X 2 inch tall wide brown square votive housing a 1 inch tall X 1 inch wide (1 ounce) Self extinguishing liquid fueled candle. The larger Votive is filled with 4 ounces of water and a handful of blue stones. The smaller votive and candle are placed in the middle of larger votive partially submerged in water and surrounded by blue stones. A 12 inch X 12 inch piece of white flame retardant fabric is used for skirting around the base of this candle assembly.)*
3. Provide one sample of each candle assembly for testing according to Section 308.3.1 of the Clark County Fire Code.

## **PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved devices or plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan or sample of device shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

## **PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:  
[www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire)



## **INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:**

If approved, an inspection will need to be scheduled. To schedule an inspection, go to: [www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire) . A fire inspector will review your site in accordance with the approved device, plans and this guideline and, if compliant, will issue a permit.

Each open flame device will be inspected in its location and condition of use.

The Clark County Fire Department's Fire Prevention Bureau (FPB) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Chief, the Fire Code or opinion of the Fire Chief prevails.

Technical Assistance, when required by the Fire Chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.



# CLARK COUNTY FIRE DEPARTMENT

## Fire Prevention Bureau

575 E. Flamingo Road, Las Vegas, NV 89119

(702) 455-7316 FAX (702) 455-7347



**Permit Type: 105.6.50**  
**Control Number: A.0**  
**Effective Date: 11/15/11**

**TITLE:** **FLAME EFFECTS**  
**Fire Performer**

**SCOPE:** Clark County Fire Department requirements for the submittal for permit to conduct a fire act/performance before a proximate audience. This is including, but not limited to, live theatrical/tribal performances, rehearsals, research and development, video/audio taping or filming of any television, radio or motion picture production. Fire jugglers, magicians, dancers, fire stunts and the like in accordance Section 105.6.50, Flame Effects, of the Clark County Fire Code are included.

Pyrotechnics, permanent propane flame effects, temporary propane flame effects, candles, food warming open flame devices, fireplaces, fire pits, and restaurant cooking and consumer fireworks are not covered in this guideline.

**PURPOSE:** To standardize plan/permit requirements required Sections 105.6.50 and 308.3.2 of the Clark County Fire Code. Permits issued for flame effects expire one year after the date of issue. Permits for the same effect may be renewed.

**PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

**DEFINITIONS:**

**Assessor's Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor's office.

**Fire Performer:** Person manually manipulating an open flame or flaming equipment in a performance before a proximate audience.

**Proximate Audience:** An audience closer to a fire performers display than would be permitted by the Standard for Fireworks Displays, NFPA 1123 (70 feet).

#### **PERMIT PROCEDURE INFORMATION:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. Plans will be reviewed within a 4-week time frame from date of plan submittal. For applications that are expedited, additional fees shall apply. Expedited plans will be reviewed within a 2-week time frame from date of submittal.

#### **SPECIFICATIONS AND REQUIREMENTS:**

An application must be completed for each submittal. A minimum of three sets of plans or manufactures' literature for the flame effect, as described below, shall be submitted with the permit application. Submittals shall show compliance in accordance with Section 308 of the Clark County Fire Code. Plans shall be legible or shall be rejected for cause.

#### **Required Submittals:**

An application must be completed for each performance or show. Multiple shows of the same performance may be submitted under one permit. Descriptions of the performance and devices used shall be submitted with other information and noted below:

#### Licensing:

A copy of a valid Nevada State Fire Marshal "Fire Performer" certificate of registration is required for any performer (manually manipulating an open flame or flaming equipment in a performance before a proximate audience). Nevada State Fire Marshal certified "Apprentice" Fire Performers and or any Fire Performers not currently licensed by the Nevada State Fire Marshals office are permitted to perform a display only when observed by at least one Fire Performer licensed by the Nevada State Fire Marshal's office. All performances overseen by a Nevada State Fire Marshal licensed Fire Performer will be the under the observing Fire Performer's CCFD Flame Effects (Fire Performer) permit, license and insurance coverage.

#### Insurance:

A copy of the Certificate of Insurance for the specified event under the permit application is required. "Clark County, its agents, employees and volunteers" shall be named as additional insured and certificate holder. General liability limits, including contractual liability, in the minimum amount of \$1,000,000 shall be provided to conduct each Flame Effect (Fire Performance) display. Greater liability insurance amounts may be required in certain cases as required by the Chief. All Apprentice or unlicensed Fire Performers must be listed as additional insured on the insurance certificate.

### Production Schedule:

Submit a detailed description to include the following:

- Property name, address, location (i.e. showroom, convention center)
- Date and time of each performance.
- Demonstration date and time.
- Name, address and age of each performer.
- List of all effect(s) to be used along with a brief description of each.
- A detailed written description of the each performance using each different effect. Include number of performances, dates and times.
  
- Construction type and materials used for stage and proximate surroundings. Certificates of flame resistance are required for any materials proximate to this effect and performance.
  
- Provide the ceiling height measured from the top surface of the performance location to the ceiling or nearest overhead obstruction.
  
- A detailed site plan indicating stages, location of spectators (15 feet from any effect), location of other performers on stage during the effect, location of fire performers on stage and the separation distance from effect to the edge of stage (15 feet minimum) and overhead obstructions, separation distances from the effect to spectators and the nearest flammables/combustibles (15 feet minimum). Site plan must also identify use/performance area with location(s) of effect(s) and storage/work areas, (use separate map if necessary).
  
- Material Safety Data Sheets (MSDS) on product(s) being used note name of effect(s) or corresponding MSDS.

### Appliance Design Data:

- Pictures of all appliances (at rest and in motion); torches, fans, batons, swords, staffs and all other effects to be used are required for all submittals.
  
- A detailed description of how each device is constructed including all safety features associated with these effects (safety wire, screws, wire mesh and retaining materials). Note if the device is pre-engineered from a third party manufacturer or constructed by the performer or performer's company.
  
- A detailed written description of how each open flame device is used and the location of use. Each separate appliance requires a description. (*Example: The open flame device is used by the performer in a juggling act. Juggling appliance will not leave the performers hands at any time during the performance.*) And any other information that may be deemed pertinent to the performance.

- A detailed description of how each effect is fueled. Location of fueling, how they are fueled, distance of fueling from buildings. All fuels must be absorbed into the effect dripping or leaking equipment will not be permitted. Include quantities used and stored on site for each performance.
- Provide the manufacturers specification sheets/schematics for the proposed flame effect equipment or appliances.
- A detailed list of all fire extinguishing equipment used, location of extinguishing equipment, minimum number of persons assigned to fire watch and extinguishing duties. Note the location of these individuals and a detailed narrative regarding how effects will be normally extinguished and during emergency situations.
- Description or means of activation (firing/lighting) appliance or effect.

Security:

A security detail shall be provided for each fire performer. Qualifications are:

1. Be physically capable to maintain a constant watch over the fire performer.
2. Replacement security personnel must be provided to continue the watch in the event of a shift change.
3. Be trained in the use of a portable fire extinguisher and capable of extinguishing a small incipient fire utilizing a portable fire extinguisher.

Cancellations:

1. The permit has been used by a person other than the person to whom the permit was issued.
2. The permit has been used for a location other than that for which it was issued.
3. Any of the conditions or limitations set forth in the permit has been violated.
4. The permittee failed, refused or neglected to comply with orders or notices duly served in accordance with the provisions of this governing code within the time provided there.
5. An emergency/fire alarm condition identified in or proximate to areas of the performance may delay the start or the continuation of the performance until such condition is corrected. If true emergency is identified, the display will be cancelled.

6. A breach of the display area or area depicted for required separation distance by a spectator or other performer will delay the start or continuation of the performance until such condition is corrected. Continued breaches of these areas may prompt a cancellation of the performance.

### **PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved devices or plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan or sample of device shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

### **PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:  
[www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire).

### **INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:**

If approved, an inspection will need to be scheduled. To schedule an inspection, also go to: [www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire). A fire inspector will review your site in accordance with the approved plans and this guideline and, if compliant, will issue the permit.

Each open flame device will be inspected in its location and condition of use.

The Clark County Fire Department's Fire Prevention Bureau (FPB) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Chief, the Fire Code or opinion of the Fire Chief prevails.

Technical Assistance, when required by the fire chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.



CLARK COUNTY FIRE DEPARTMENT  
Fire Prevention Bureau  
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(702) 455-7316 FAX (702) 455-7347



**Permit Type: 105.7.10**  
**Control Number: A.0**  
**Effective Date: 11/15/11**

**TITLE: LIQUEFIED PETROLEUM GAS**

**SCOPE:** Clark County Fire Department requirements for a permit to store and/or use LPG

**PURPOSE:** To standardize plan/permit requirements of the Fire Department in accordance with the Clark County Fire Code. Permits are valid through the duration of construction. Work must commence within 180 days, and remain active with no period of inactivity exceeding 180 days, or the permit becomes invalid. It is the desire of the Fire Department to attempt to have just one permit of each type for each location. Insofar as possible, it is preferable to revise an existing permit of the same type rather than open another permit of the same type for the same address.

**DEFINITIONS:**

**Assessor's Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor's office.

**Liquefied Petroleum Gas:** A material which is composed predominantly of the following hydrocarbons or mixtures of them: propane, propylene, butane (normal butane or isobutene) and butylenes.

**PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

**ANNUAL RENEWABLE PERMIT PROCEDURE:**

After approval of your initial permit(s), your permit(s) will automatically set-up a renewal reminder. Approximately 30-60 days prior to the expiration of your permit, a renewal notice will be mailed to you with instructions for the annual permit renewal.

If you do not receive this notice, it is your responsibility to submit the renewal application. Please refer to the website for additional information.

## **SPECIFICATIONS AND SUBMITTAL REQUIREMENTS:**

An application must be completed for each submittal. A minimum of three copies of plans shall be submitted with the permit application. The plans shall be drawn to an indicated scale. Plans shall show compliance in accordance with Chapter 38 of the Clark County Fire Code, as adopted and amended. Plans must show distance relationship between storage tanks, and other storage tanks, nearest habitable structure, property line, and public ways. On the plans, indicate the project name, address, and APN (Assessor's Parcel Number). All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

- An annually renewable permit is required for all storage/use of LPG in excess of 30 gallons aggregate water capacity.
- For reference, the size tank normally used on a barbeque grill is nominally 5 gallon water capacity, the size tank normally used on a LPG powered forklift is nominally 8 gallons water capacity. Therefore a permit must be sought when storing and/or using more than 6 barbeque grill size tanks or more than 3 common forklift size tanks.

### **Exceptions:**

- 1) Individual containers of 500 gallon water capacity or less serving occupancies in Group R-3 need not be renewed (however an initial permit is required).
  - 2) An LPG permit is required for any amount of LPG used for demonstration purposes in an assembly.
- Plans must include manufacturer's specifications for tank(s).
  - Plans must indicate whether tank is indoors or outdoors and whether it is above grade, buried or mounded. An outdoor tank, that is buried or mounded must be provided corrosion protection.
  - Plans must show that appropriate distance to building, public ways, property lines and other tanks, meet code requirements.
  - When LPG is being dispensed into a vehicle tank as a motor fuel, an additional motor fuel dispensing permit must be obtained.

## **PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.



Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

### **PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:

[www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire)

### **INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:**

If approved, an inspection will need to be scheduled. To schedule an inspection, go to: [www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire). A fire inspector will review your site in accordance with the approved plans and this guideline.

The Clark County Fire Department's Fire Prevention Bureau (FPB) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Chief, the Fire Code or opinion of the Fire Chief prevails.

Technical Assistance may be required and when it is it will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.



CLARK COUNTY FIRE DEPARTMENT  
Fire Prevention Bureau  
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(702) 455-7316 FAX (702) 455-7347



**Permit Type: 105.6.23.b**  
**Control Number: B.0**  
**Effective Date: 9/14/11**

**TITLE: HOT WORK OPERATIONS; NON-RENEWABLE (6 MONTHS OR LESS)**

**SCOPE:** Clark County Fire Department requirements for the submittal and approval of Hot Work Operations. This guideline covers hot work operations conducted at a specific location for a limited duration (maximum six months), such as welding, cutting, open torches, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch-applied roof systems, and any other similar activity. Any other associated activity, such as compressed gases, hazardous materials, flammable/combustible liquids, open flames and candles, etc. shall have separate permits prior to commencing those other activities.

**PURPOSE:** To standardize plan/permit requirements of the Fire Department in accordance with the Clark County Fire Code.

**DEFINITIONS:**

**Assessor's Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor's office.

**Hot Work:** Operations including welding, cutting, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation or torch-applied roof systems or any other similar activity.

**Hot Work Area:** The area exposed to sparks, hot slag, radiant heat, or convective heat as a result of the hot work.

**PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

**SPECIFICATIONS AND SUBMITTAL REQUIREMENTS:**

An application must be completed for each submittal. A minimum of three sets of plans and three sets of specifications shall be submitted with the permit application. The plans shall be drawn to an indicated scale (1/8" scale and 1/4" scale are preferred). Plans shall show compliance in accordance with the Clark County Fire Code. All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

A permit is required and shall be obtained from CCFD for hot work operations including, but not limited to:

1. Public exhibitions and demonstrations where hot work is conducted.
2. Use of portable hot work equipment inside, upon, or within 10 feet of a structure.  
**Exception:** Work that is conducted under a construction permit.
3. Fixed-site hot work equipment such as welding booths.
4. Hot work conducted within a hazardous fire area.
5. Application of roof coverings with the use of an open-flame device.

Three submittal packages are required to be submitted to CCFD Plans Intake and shall include the following:

1. Provide a floor plan of the building indicating the following information:
  - a. Location and type of hot work operation and equipment in relation to combustible materials, elevators, stairs, gangways, means of egress, building openings or ventilation openings. A minimum of 35 feet separation shall be provided or approved shielding shown.
  - b. Location, type and volume (in cubic feet) of compressed gas cylinders (if used).
  - c. Location of ventilation equipment (if provided).
  - d. Location of minimum rated 20A 20-B:C fire extinguishers or charged water hose equipped with a nozzle. Must be within 30 feet of operation and accessible without climbing stairs or ladders.
2. Provide a fire watch in accordance with the Clark County Fire Code.
3. Provide a detailed narrative indicating type of work performed at location.
4. Maintain a completed (signed) HOT WORK OPERATIONS/FIRE WATCH PROCEDURES AND SAFETY SIGN-OFF SHEET at the job site.
5. Provide "set-up" and "tear down" dates of event.

#### **PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

## **PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:  
[www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire)

## **INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:**

If approved, an inspection will need to be scheduled. To schedule an inspection, also go to: [www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire). A fire inspector will review your site in accordance with the approved plans and this guideline and, if compliant, will issue the permit.

The Clark County Fire Department's Fire Prevention Bureau (FPB) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

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Technical Assistance, when required by the Fire Chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.



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**Fire Prevention Bureau**  
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**TITLE:** Hot Work Operations/Fire Watch Procedures and Safety Sign-off Sheet

**SCOPE:** Hot work operations shall be in accordance with this guide and the requirements contained in the Clark County Fire Code.

**PURPOSE:** To provide standardized sign-off sheet for the Clark County Fire Department (CCFD) requirements relating to conducting hot work operations.

**SPECIFICATIONS AND REQUIREMENTS**

<p><b>Business Name of Contractor Conducting the Hot Work:</b></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>
<p><b>Business Address of Contractor Conducting the Hot Work:</b></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>

<p><b>Business Name for Hot Works Location</b></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>
<p><b>Business Address for Hot Works Location</b></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/>

<p><b>CCFD Hot Work Permit Number:</b> _____</p>
<p><b>Dates of Hot Work Operation Conducted: Start:</b> _____ <b>End:</b> _____</p>
<p><b>Permit Expiration Date: From:</b> _____ <b>To:</b> _____</p>

Conducting Hot Work Operations - The use of welding, cutting and other hot work equipment shall be in accordance with the Clark County Fire Code.

Fire watch - Shall be provided during hot-work activities and shall continue for a minimum of 30 minutes after the conclusion of the work. The fire watch shall include the entire hot work area. Hot work conducted in areas that include horizontal or vertical

fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watch to ensure that exposed areas are monitored.

Individuals designated to fire watch duty shall have fire-extinguishing equipment readily available and shall be trained in the use of such equipment. Individuals assigned to fire watch duty shall be responsible for extinguishing spot type fires and communicating an alarm. No other duties shall be assigned to personnel performing fire watch duty.

Fire watch is not required when the hot work area has no fire hazards or combustible exposures. However, a final check is required 30 minutes after completion of operation to detect and extinguish smoldering fires.

Restricted areas – Hot work shall not be conducted in the following areas unless approval has been obtained from CCFD:

1. Areas where the sprinkler system is impaired.
2. Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids or vapors are present.
3. Areas with readily ignitable materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust or loose combustible materials.

The Hot work Site - Shall be inspected by the individual responsible for the hot work for compliance.

Pre-hot work check - A pre-hot-work check shall be conducted prior to the hot work operations and shall determine all of the following:

1. Notify facility personnel (owner/owner representative) providing location, type of work to be performed, duration of hot-work operations on a daily basis, AND FOLLOW ALL THE IN-HOUSE INTERNAL HOT WORK PROCEDURES.
2. Hot work equipment to be used shall be inspected by the operator prior to use and equipment shall be in satisfactory operating condition and in good repair.
3. Hot work site is clear of combustibles or combustibles are protected.
4. Exposed construction is of noncombustible materials or that combustible materials within 35 feet are protected.
5. Openings within 35 feet are protected.
6. Floors within 35 feet are kept clean.
7. No exposed combustibles are located on the opposite side of partitions, walls, ceilings or floors.
8. If hot work area is accessible to anyone other than operator of hot work equipment, warning sign(s) stating "CAUTION – HOT WORK IN PROCESS – STAY CLEAR" must be displayed.
9. Fire watches, where required, are assigned.
10. Fire extinguishers and fire hoses (where provided) are operable and available.
11. Approved actions have been taken to prevent accidental activation of suppression and detection equipment in accordance with the Clark County Fire Code. The automatic sprinkler protection shall not be shut off while hot work is being performed unless otherwise approved by the fire code official.

12. If any of these conditions cannot be met, then the hot work operation shall not be performed.

Fire Watch Personnel Qualifications:

1. Be physically capable and willing to walk the building during the duration of the shift. The floor should be walked in a time period not to exceed 5 minutes, with the entire building being toured every 15 minutes.
2. Walk the designated hot work areas and other fire exposures continuously during the entire hot work operations (except for breaks) and continue fire watch 30 minutes after the conclusion of the work. Replacement fire watch personnel must be provided to continue fire watch during personnel breaks.
3. Be equipped with, and able to use a bullhorn (or other loud sounding device), flashlight, remote radio and cellular phone.
4. Be capable of and willing to assist employees vacating the building in an emergency situation while utilizing a flashlight to illuminate the path of egress for evacuating employees.
5. Be trained in the use of a portable fire extinguisher and capable of extinguishing a small incipient fire utilizing a portable fire extinguisher.
6. Be instructed in and be familiar with emergency notification and evacuation procedures and capable of notifying employees of an emergency and then assisting employees to evacuate the building. All fire watch personnel on the property are responsible for responding immediately to any building where a fire condition is discovered. Upon discovery of a fire, fire watch personnel shall contact the Clark County Fire Department immediately (Dial 9-1-1), then advise all other fire watch personnel of the emergency in order to obtain their assistance in notifying and evacuating employees.

\_\_\_\_\_  
(Print Name, Title, Contact Phone Number)

I have read, understood, and agree to follow the fire watch procedures for hot works and will follow all the fire watch safety procedures listed above. This document shall be maintained at the job site and produced upon request.

Signature \_\_\_\_\_ Date \_\_\_\_\_



# Clark County Department of Building & Fire Prevention

4701 West Russell Road, Las Vegas, NV 89118

(702) 455-7316 FAX (702) 455-7347

Ronald L. Lynn Director/Building & Fire Official  
Samuel D. Palmer, PE., Assistant Director · Girard Page, Fire Marshal

**Permit Type:** 105.6.34  
**CCFC Adopted:** 07/04/2014  
**Effective Date:** 09/14/2011  
**Revision Date:** 04/27/2015

**TITLE:** PLACES OF ASSEMBLY – Annual Renewable

**SCOPE:** Clark County Fire Prevention requirements for an annual renewable permit for a place of assembly have an occupant load of 300 persons or more.

### DEFINITIONS:

Assembly: For the purpose of this guideline and permit, a gathering of 300 or more persons in a place of assembly.

Place of Assembly: Location of the assembly that includes, but is not limited to gathering for civil, social or religious functions, entertainment, i.e. cinemas, showrooms, lounges, restaurant seating (food or drink consumption), awaiting transportation etc.

### ANNUAL RENEWABLE PERMIT PROCEDURE:

After issuance of your initial permit(s), your permit(s) will be valid for one year. Approximately 30-60 days prior to the expiration of your permit, a renewal notice will be mailed to you with instructions for the annual permit renewal.

If you do not receive this notice, it is your responsibility to submit the renewal application. Please refer to the website for additional information.

### SUBMITTAL SPECIFICATION AND REQUIREMENTS

An application must be completed for each submittal. A minimum of two/three sets of plans shall be submitted with the permit application. Plans shall show compliance in accordance with Chapter 10 of the Clark County Fire Code, as adopted and amended. All submittals must be clear and legible.

Drawings to a measurable scale are preferred, i.e. 1/8 inch = 1 foot, 1/16 inch = 1 foot, 1 inch = 10 feet, or have sufficient dimensions. It is acceptable to hand draw additional notes on other available drawings so that dimensions and details are provided. All submittals must be legible and readable or the plan shall be rejected for cause.

Prepared By	Concurred By	Approved By
Edward J. Kaminski, P.E. Fire Protection Engineer	Girard W. Page Senior Deputy Chief	Ronald L. Lynn Building Official
Reviewed By	Reviewed By	
Kurt Gottschalk Deputy Fire Marshal	Donna Starkes Deputy Fire Marshal	Julia Staples Deputy Fire Marshal



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Hand-drawn plans and/or plans to an appropriate scale are acceptable provided that dimensions of aisle widths, exit widths, room widths and lengths are clearly and legibly indicated in the locations where they occur. Note: Where a table occurs on at least one side of an aisle, the aisle width is measurable from the edge of the table, irrespective of chair locations(s).

Plans approved by the Clark County Building Department may be used provided they are current and no major changes have been made to the building structure or floor plan. Whether new or existing plans are used, the information in Appendix A must be included.

Hand delivered and U.S. Postal Mail are the standard methods of submittal. FAX submittals are **not** acceptable.

Changes in the configuration of internal elements (i.e., tables, chairs, decorations, etc.) are not considered revisions and are not subject to the requirement for submission and approval, provided that all configurations maintain minimum required aisle widths and exit capacity.

Compliance with code requirements will be based upon the code in place at the time of construction or the last major modification affecting the area in question. Issuance of a Places of Assembly Permit will not be contingent upon any location bringing itself into compliance with new code requirements not previously required.

1. The following information is required on all plans:

- a) Provide contact person, their telephone & fax numbers, name of property, address of property, name of specific rooms to be used. See the required information block given in Appendix A.
- b) For venues that are not in separate buildings, show the location of these rooms, adjoining rooms and hallways in relation to the building they occupy.
- c) Dimensions shall be drawn for the useable square footage to be occupied. The total square footage of the buildings and rooms shall be tabulated.
- d) Maximum occupant load permitted in the useable area shall be calculated and provided. (The seat count does not determine the occupant load unless all of the seating is permanently fixed.) See Appendix A for a sample calculation.
- e) Total exit capacity. See Appendix A for a sample calculation.
- f) Location of all fire extinguishers and fire hose cabinets shall be marked on plans.
- g) Tables, displays, decorations, displayed vehicles and the like shall not restrict the required exit capacity. Therefore, a typical arrangement of the tables and chairs shall be shown in the submitted plan or sketch. Tables and chairs may be rearranged; however, they shall not restrict exits.

2. No life safety features or components (e.g., EXIT signs, emergency lighting, fire extinguisher cabinets, hose cabinets, strobes, and horns) shall be obstructed by decorations or set up materials. Any proposed relocation of such devices shall be noted on plans. Any proposed relocation of fire alarm devices and fire suppression devices shall require submittal of permits to address the work, as required.

3. Fire extinguishers and fire hose cabinets shall not be obstructed. Fire extinguishers originally placed by the building owner as required and approved by the Fire Department at the time of original certificate of occupancy are acceptable.

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4. The available exit capacity must be greater than or equal to the number of occupants (occupant load). See Appendix A for sample exit capacity calculation.

5. Exits and their capacity shall be in accordance with master egress plans approved by Clark County Development Services – Building Division if available.

6. Master egress plans approved by Clark County Development Services (Building Department) shall supersede all of the above and must be provided.

7. Separate permits are required for other operational permits contained within the assembly. Typical operations that require separate permits that are present in assembly spaces include:

- Candles and Open flames
- Flame effects
- Fireworks/pyrotechnics
- Hot Work Operations
- Liquid or gas-fueled vehicles or equipment for display in assembly occupancies.

**PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved plans are required to be submitted and approved. A copy of the previously approved plan shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by cloud and delta number. When several changes have been made, the Plans Checker may also require a detailed list of changes.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by cloud and delta number.

**PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:

[www.clarkcountynv.gov/building/fire-prevention](http://www.clarkcountynv.gov/building/fire-prevention)

**PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

**INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:**

If approved, an inspection will need to be scheduled. To schedule an inspection, go to:

[www.clarkcountynv.gov/building/fire-prevention](http://www.clarkcountynv.gov/building/fire-prevention)

A fire inspector will review your site in accordance with the approved plans and this guideline.

The Fire Prevention (FP) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Code Official. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Code Official, the Fire Code or opinion of the Fire Code Official prevails.

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## APPENDIX A

### INFORMATION REQUIRED ON PLACES OF ASSEMBLY PLANS

The following block shall be included on a plan.

1. Contact person and their telephone number.
2. Name of the establishment.
3. Type of the establishment.
4. Usable square footage of the building and rooms with the dimensions.
5. Maximum occupant load and calculations and conversion factors used.  
Note: Occupancy is not based on seating but calculation.
6. Required exit capacity (inches or linear feet) and calculations and factors used.
7. Actual exit capacity.
8. Total number of tables, chairs and booths with number of seats per booth.

#### Sample Occupant Load Calculations:

The Occupant Load is based on the area of the assembly space according to the following factors:

Permanently fixed seats:	actual seat count
Concentrated seating / chairs only:	7 sq ft per person
Standing space:	5 sq ft per person
Unconcentrated Seating / tables and chairs:	15 sq ft per person

Example:

Restaurant with tables and chairs in 3,000 sq ft area and 500 sq ft of standing space at the bar :

$$\begin{aligned}\text{Occupant Load} &= (4,800 \text{ sq ft} \div 15 \text{ sq ft / person}) + (700 \text{ sq ft} \div 5 \text{ sq ft / person}) \\ &= 320 + 140 = 460 \text{ persons}\end{aligned}$$

#### Sample Exit Capacity Calculation:

Main exit entrance a set of double doors has 36 inches of clear exit width (each).

Side exit door has 36 inches of clear exit width.

Stairs not used for exiting of this venue.

$$72 \text{ inches} \div 0.20 \text{ inch per person} = 500 \text{ persons}$$

$$36 \text{ inches} \div 0.20 \text{ inch per person} = 180 \text{ persons}$$

**Occupant Load = 460 persons**

**Exit Capacity = 500 + 180 = 680 persons**

**Since exit capacity is greater than the occupant load, the restaurant has adequate exit capacity.**

# Fire Prevention & Life Safety Planning for Special Events



Las Vegas Fire & Rescue  
Division of Fire Prevention  
500 N Casino Center Blvd  
Las Vegas, Nevada 89101  
Office 702-229-0366  
Fax 702-229-0124



The Fire Prevention Division has created this document to assist you to develop a fire & life safety plan for your special event. Attack from fire may be the primary concern, but other non fire type emergencies need to be considered when creating your event plan.

### **Planning your event**

Events such as festivals, parades, runs, holiday celebrations, car shows or displays, and other similar special events shall be reviewed by the Fire Prevention division for general fire safety, emergency access and crowd control. Other reviews or Special Use Permits by other city or state entities may be required.

The following Fire Department items are required to be submitted as part of your submittal package

- A document with the name, dates and times of the event
- Event brief description
- Contact phone numbers
- To ensure a correct review of your event, scaled Computer Aided Drawings (CAD) of your site plan is preferred. If CAD Drawings are not submitted, the site plan shall be produced in a clear legible manner.
- The provision of a minimum twenty foot (20') emergency access lane through the event venue shall be reflected on the submitted drawing
- The location of all stages, tents, portable restroom facilities, booths, displays, cooking areas and other temporary tents, canopies or other structures.
- The locations of any barriers, fencing, or barricades. Reflect any removable barrier sections designed for emergency access.
- Entrance and exit locations for the venue
- Load-in and load-out times and procedures
- Estimated crowd for the event
- Electrical generator locations (if utilized)
- A list of all vendors cooking or serving food or beverages
- Details of each cooking location identifying the method of cooking, locations of flammable gases or barbeque grills and extra storage tanks  
(See *portable exterior cooking requirements Attachment I*)



### **Examples that require a Fire Prevention permit**

- Any tent in excess of 200 square feet or a canopy over 400 square feet.
- Pyrotechnics or special effects using open flames
- A vehicle display
- Carnivals and fairs

### **Examples of that will require a Building & Safety Permit**

- Building & Safety electrical permit for generator use over 50kv.
- Special electrical configurations such as spider boxes, or temporary switchgear.
- Grandstand structures

### **Other examples of items that may require permits, approvals or licenses**

- Road Closures
- Food and beverage sales
- Liquor sales



## *Attachment I*

### **Portable Exterior Cooking**

The following requirements shall be in place when utilizing portable Barbeques, open flame stoves, deep fat fryers, or any other appliance that generates grease laded vapors, etc. Cooking under canopies and in tents is prohibited unless operation meets the requirements of NFPA 1 Chapter 50 Commercial Cooking Operations.

#### Definitions:

**Canopy** – a temporary structure, enclosure or shelter constructed of fabric or pliable material supported by any manner except by air or the contents it protects, and is open without sidewalls or drops, on 75% or more of the perimeter.

**Tent** – a temporary structure, enclosure or shelter constructed of fabric or pliable material supported by any manner except by air or the contents it protects.

#### Heating and warming of prepared foods

- Tents/Canopies or booths shall be a minimum of 20' from any permanent structure.  
*(Spacing requirement can be reduced with prior approved from the Fire Marshal).*
- Tents/Canopies or booths shall be separated from non-warming, heating Tents/Canopies or booths by 10'.
- All tents/canopies or booths shall be of flame - retardant material in accordance with the Fire Code and labeled as such.
- Vehicles shall be a minimum of 20' from the heating or warming operation.
- Heating and warming operations that utilize a solid product or that do not pose an ignition hazard shall be approved for use. *(Sterno, steamers, etc)*



Equipment utilizing LPG shall comply with the following:

- Cooking appliances shall be approved for such use.
- Fuel tanks shall have a shut off valve
- Hoses shall be of an approved type with the equipment.
- Fuel tanks shall be secured from falling and shall be protected from damage.
- Any fuel tanks located outside of booths shall have a pressure regulator if in excess of 5 gallons
- No storage of fuel tanks shall be allowed in the booth
- Prior to use all fuel tank connections shall be tested for leaks using a soap and water mixture.
- A minimum of 16" shall be provided between any frying operation and any open flame cooking appliance

Equipment utilizing charcoal or solid fuel shall comply with the following:

- Barbeque cooking is prohibited inside or under tents/ canopies
- Cooking shall be a minimum of 5' from any booth access
- The use of gasoline or kerosene to start barbeque is prohibited
- Storage of starter fluid in booths shall be prohibited
- Coals and ashes shall be disposed in a metal container approved for such use by the Fire Marshal

Portable fire extinguishers

- Each Tent/Canopies or booth shall be provided with an appropriate fire extinguisher tagged by a State of Nevada approved contractor
- All fire extinguishers shall be mounted, visible and accessible located away from the cooking area





## **Stand By Fire Personnel**

- Your event may require that one or more Fire Prevention or Suppression personnel be on-site during your event. This staff is there to ensure that proper Fire Prevention and safety practices, access and general life safety requirements are maintained during the event.
- The agreed upon amount of personnel or equipment required prior to the event will determine any additional fees in addition to the permit fee.



## **Specific Fremont Street Experience requirements**

- Emergency access shall be no less than 20' along the entire FSE mall area, \*including the North 3<sup>rd</sup> neon sign areas.
- Casino Center Blvd mall access points shall be configured to allow the required turning radius onto the mall
- The FSE emergency access point at the North 1<sup>st</sup> street stage area shall remain clear at all times
- The commercial zone on North 1<sup>st</sup> street shall be available for parking under special permitting approval upon request.
- Vehicles for stage load-in at North 1<sup>st</sup> street shall not park in the emergency access on the West side. Load-in will be via the front of the stage area on the mall. Access will be provided to the front of the stage by FSE.
- At no times shall any kiosks or other items be moved into or located within the 20' emergency access.
- Events shall not block access to any fire hydrants or fire Department Connection located within the FSE area.

*\* Special accommodations can be determined on a case by case basis and may require the use of standby operations personnel.*



# SPECIAL EVENTS

— PERMIT PACKET —

CLARK COUNTY PARKS & RECREATION



Las Vegas hasn't become known as the Entertainment Capital of the World for their lack of events. With more than 37 million visitors annually and over a 2-million plus local population, Las Vegas continues to lead the way as the world's most desirable location for leisure and entertainment. Clark County is no different and is proud to serve as host for a variety of major events annually.

The following pages include all the necessary documents (with accompanying instructions) to help applicants navigate their way through the Special Event Permit process developed to consolidate the requirements of local municipalities and agencies into one convenient packet.

After completing the Permit Application, please return all the applicable pages along with any necessary payments to Parks & Recreation for processing. Parks & Recreation will then distribute copies of the application to all the departments and public agencies impacted by the event. Applicants will be contacted individually by these departments only if there are specific questions or concerns relating to this event. While many public agencies have joined together to make this application process simple and complete, please be aware that in some cases applicants may have to contact federal or state agencies in addition to working with Clark County.

On behalf of Clark County Parks & Recreation, we thank you for considering any of our community locations to host your event.

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## **INSTRUCTIONS FOR COMPLETING THE SPECIAL EVENT PERMIT APPLICATION**

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It is Clark County's goal to assist event organizers in planning safe and successful events that will have a minimal impact on the communities surrounding the event locations. We hope these instructions are helpful in completing a Special Event Permit Application.

Permit applications must be received by Clark County no later than (60) days prior to the actual date of any event. In general, any organized activity involving the use of, or having impact upon, public property, public facilities, parks, sidewalks, street right-of-way, or the temporary use of private property in a manner that varies from its current land use, requires a permit.

Careful completion of the form will help avoid delays in processing. It is important that applicants follow the instructions and provide clear and accurate information, including submittal of all supporting documentation with the application. Please consult your Parks & Recreation event coordinator representative for more detailed information.

When filling out the application:

- Do not use white-out on the application or attachments
- Type or use a pen with BLACK or BLUE INK and print clearly
- Do not write in the shaded areas

The following sections MUST be completed by the applicant for ALL events:

- Reservation Request Form
- General Event Information
- Special Event Permit Application
- Security/Safety Plan
- Public Works Street Closure / Usage Permit
- Fire Department/ Plan Review Permit Application
- Site Plan
- Event Coordinator Application
- Temporary Food Establishment Application
- Special Recreation Application and Permit
- Business License Requirements
- Bureau of Land Management Permit Application
- Department of Business License Alcohol Application/Permit Special Event
- Alcohol Request Form
- Disclosure of Ownership Form
- Terms and Conditions Form

In addition to the sections listed above that must be completed for ALL events; applicants must also complete any additional sections that apply to their event needs.

The permit application process begins when Clark County receives a completed Special Event Permit Application. Keep in mind that acceptance of an application should in no way be construed as final approval or confirmation of your request. Upon receipt of an application, Clark County assigns staff to assist applicants through the permit process. Copies of the application are forwarded to and reviewed by all applicable County departments. Throughout the review process, applicants will be allotted sufficient time to provide all pending documents (e.g. certificate of insurance, secondary permits, etc.). Clark County must receive these documents before issuing a Special Event Permit. Failure to provide these items in a timely manner often suspends the County review process and can delay the subsequent application approval.

**THEREFORE, YOU ARE ENCOURAGED NOT TO MAKE ANY OTHER ARRANGEMENTS FOR YOUR EVENT UNTIL APPROVAL FROM THE COUNTY HAS BEEN RECEIVED**

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## **APPLICATION CHECK LIST**

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Before you submit your special event application, please make sure that the following steps have been completed

### **GENERAL APPLICATION**

#### **HAVE YOU?**

- Completed all the necessary general information?
- Signed and dated your application?
- Attached a site plan?
- Attached insurance?
- Attached copies of your business licenses?
  
- For Film Permits have you submitted your Film Permit Application to Business License?

### **MERCHANT APPLICATION**

#### **HAVE YOU?**

- Listed the vendor information or attached a spreadsheet with detailed information?
- Entered a count of the total number of vendors?
- Filled in your (the event organizer) business license information or if you do not have a promoter's license, attach a completed business information sheet?

### **LIQUOR APPLICATION**

#### **HAS THE VENDOR?**

- Completely filled out the County and State applications? (not for profits only need to fill out the state application)
- Attached a copy of applicants insurance?
- Attached a detailed security plan?
- Received approval from Liquor & Gaming, Metro Police and Parks & Recreation (if applicable)

\*All for profit and non-profit liquor applicants must be in good standing with the Clark County,  
The license status can be looked up at: <http://sandgate.co.clark.nv.us/businessLicense/businessSearch/blindex.asp>

**GENERAL EVENT INFORMATION**

Application date: \_\_\_\_\_  
Name of Event: \_\_\_\_\_ First time event? Yes \_\_\_ No \_\_\_  
Exact Street Address of Event: \_\_\_\_\_  
Date(s) of Event: \_\_\_\_\_ Hours of Event: \_\_\_\_\_  
Phone number/website for publication: \_\_\_\_\_  
Estimated attendance: \_\_\_\_\_ Last years actual attendance: \_\_\_\_\_  
Describe the events community and/or cultural benefit: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name of Sponsoring Organization: \_\_\_\_\_  
Contact person from Sponsoring Organization: \_\_\_\_\_  
Sponsoring Organization Address: \_\_\_\_\_  
Federal Employee ID Number or Social Security Number if not a corporation: \_\_\_\_\_

Name of Producing Agent (if applicable) Federal ID Number: \_\_\_\_\_  
Producing Agent (if applicable) Address: \_\_\_\_\_  
Name of Organizer/Coordinator: \_\_\_\_\_ Email: \_\_\_\_\_  
Organizer/Coordinator Address: \_\_\_\_\_  
Contact Phone: \_\_\_\_\_ Cell: \_\_\_\_\_ Fax: \_\_\_\_\_  
Emergency Contact: \_\_\_\_\_ Email: \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Phone: \_\_\_\_\_ Cell: \_\_\_\_\_ Fax: \_\_\_\_\_

**THIS FORM MUST BE COMPLETED IN FULL & SUBMITTED 30 CALENDAR DAYS PRIOR TO THE EVENT**

- Are you serving food at your Event? NO  YES  If yes, you must submit the Event Coordinator Permit twenty (20) working days prior to your event. You must obtain a temporary Food Vendor License from the Southern Nevada Health District.
- Are you serving beer and wine at your Event? NO  YES  If yes, you must submit the Special Event Liquor License Application twenty (20) working days prior to your event. You must obtain a liquor license for each booth that will be serving liquor.
- Are you selling retail merchandise at your Event?: NO  YES  If yes, you must submit a completed list of all merchants to Parks & Recreation at least twenty (20) working days prior to your event to fall under the temporary multi vendor license or you can obtain your own Multi Vendor Merchant License from Business License Department.
- Are you erecting a tent over 400 sq. ft.? NO  YES  If yes, you must submit a Temporary Membrane/Building Structure/Tent - Outdoor - Fire Department Permit Application.
- Are you closing the street for your festival? NO  YES  (Type III barricades and detour signs are required for all Event Street Closure)
- Will the street closure be on a CAT bus route? NO  YES  If yes, include a map/plan for the routing of buses.
- Have you determined how area residents and businesses will be notified of street closures, parking restrictions? NO  YES  If yes, include a description of community outreach plan.
- Has the event already been publicized? NO  YES  If yes, include a copy of flyer/ mailing or description of efforts.





# Department of Public Works

500 S Grand Central Pky | Box 554000 | Las Vegas NV 89155-4000  
(702) 455-6000 | Fax (702) 380-7262  
www.ClarkCountyNV.gov/PubWorks

## Special Event Permit Application

Permits are required pursuant to Clark County Code Title 16.06

Application Date: \_\_\_\_\_ **PERMIT #** \_\_\_\_\_

Event Title: \_\_\_\_\_ **Event Date(s)** \_\_\_\_\_ **thru** \_\_\_\_\_

Name of Group/Person Requesting: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_ - \_\_\_\_

Event Representative: \_\_\_\_\_ Email: \_\_\_\_\_

Address: \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Event Location: (attach detailed map of proposed area) \_\_\_\_\_

Description of Event/Request: \_\_\_\_\_

Set-up Date/Time: \_\_\_\_\_ Closure Date/Time: \_\_\_\_\_ Re-open Date/Time: \_\_\_\_\_

Event Start Date/Time: \_\_\_\_\_ Event End Date/Time: \_\_\_\_\_

Estimated Number of Spectators \_\_\_\_\_ Estimated Number of Participants \_\_\_\_\_ Estimated Number of Vehicles \_\_\_\_\_

**Authorized Applicant:** \_\_\_\_\_

Print Name

Signature

Applicant is responsible for all costs incurred by Clark County and the Las Vegas Metropolitan Police Department as a consequence of the event.

Submit Permit Application, Hold Harmless Agreement, Insurance Certificate and Traffic Control Plan (if needed) via EMAIL to [InTheWorks@ClarkCountyNV.gov](mailto:InTheWorks@ClarkCountyNV.gov) or in person to Clark County Public Works.

### METRO/COUNTY Use Only - Approvals and Requirements

		Yes	No			Yes	No
COUNTY	State Roadways Effected?	<input type="checkbox"/>	<input type="checkbox"/>	Traffic Control Barricading Provided By: _____	<input type="checkbox"/>	<input type="checkbox"/>	Litter Collection Required and Is Provided By: _____
	NDOT Permit Attached?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
	Traffic Control Plan Required?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
	Approved TCP Attached?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
METRO	Police Presence Required?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	County staffing required
	Insurance Provided?	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

**PERMIT NOT VALID UNLESS APPROVED BY BOTH METRO AND PUBLIC WORKS**

**APPROVALS**

METRO Police: \_\_\_\_\_ Date: \_\_\_\_\_

Public Works: \_\_\_\_\_ Date: \_\_\_\_\_

Special Requirements \_\_\_\_\_

See attachment for additional requirements.

County Insurance Provided  
Yes  No  Exempt

Hold Harmless Form  
Yes  No

**SECURITY/SAFETY PLAN**

Name of Event: \_\_\_\_\_ Date of Event: \_\_\_\_\_

Name and Date of your event in previous year: \_\_\_\_\_

Name of Private Security Company (If applicable): \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Number of Private Security Personnel hired per shift: \_\_\_\_\_

Describe procedure for carding minors (if applicable): \_\_\_\_\_

Describe procedure for preventing over-consumption of alcohol (if applicable): \_\_\_\_\_

Please describe a Disaster Plan that addresses emergencies specific to your event (must include a plan for weather related emergencies and cancellations): \_\_\_\_\_

EMT/Ambulance Provider: \_\_\_\_\_

Contact Name: \_\_\_\_\_ Contact Number: \_\_\_\_\_

Comments or Special Instructions: \_\_\_\_\_

**Clark County Fire Department  
Fire Prevention Bureau  
Application for Permit/Plan Review or Other Services**

575 E Flamingo Rd • Las Vegas NV 89119 • Phone (702) 455-7100 • Fax (702) 735-0775  
Website: [www.co.clark.nv.us/fire/firedept.htm](http://www.co.clark.nv.us/fire/firedept.htm) •••• Email Address: [permits@co.clark.nv.us](mailto:permits@co.clark.nv.us)

**\$75.00 minimum Application Fee with the exception of "Other Services" / \$85.00 additional minimum Expedite Fee no exceptions.**

♦ All fees must be submitted with application/plan – Payable in US Currency, Check or Money Order only - Drawn from US Bank ♦

♥ ♥ For questions or concerns – Please email us at "[permits@co.clark.nv.us](mailto:permits@co.clark.nv.us)" ♥ ♥

Check appropriate box

Name of Inspector requiring permit (if known)

**SYSTEMS:**

- Automatic Fire Extinguishing System (Kitchen)
- Fire Alarm System
- Fire Protection Report
  - Alternate Means & Methods
  - Tenant Improvements
- Monitoring System
- Other Fire Extinguishing System
- Smoke Control System
- Sprinkler System
  - Fire pump
  - Riser
  - Standard Review (see attached C-\_\_\_\_\_ )
- Standpipe System
- Underground Fire Service Mains
  - Plan Review
  - Installation

- Battery System\*
- Candles/Open Flame
- Carnivals/Fairs
- Christmas Tree Lots
- Combustible Material Storage\*
- Compressed/Medical Gas\*
- Cryogenics\*
- Double Decker Booth
- Dry Cleaning Plant\*
- Dust Producing Operations\*
- Exhibit/Trade/Special Event \_\_\_\_\_ Sq Ft
- Explosive/Blasting Agents Storage and Use\*
- Filming
- Fire Sprinkler Design Flow Test
- Fireworks Booth
- Fireworks/Pyrotechnics:
  - Indoor \_\_\_\_\_ devices
  - Outdoor \_\_\_\_\_ devices
- Flame Effects\*
- Flammable/Combustible Liquids\*
- Fruit Ripening\*

- Fumigation\*
- Gates, Access
- Hazardous Materials\*
- High Piled Combustible Storage\*
- Hot-work Operations\*
- Liquid- or Gas-fueled Vehicles or Equipment in Assembly Buildings
- L.P.G. Storage/ Use
  - Commercial\*
  - Single Family
- Lumber Yards\*
- Malls:
  - Assembly
  - Display fueled vehicles
  - Kiosks
  - Open Flame
- Motor Vehicle Fuel-Dispensing Stations\*
- Open Burning
- Organic Coatings\*
- Ovens – Industrial
- Places of Assembly\* \_\_\_\_\_ Sq Ft

- Radioactive Materials\*
- Refrigeration Equipment\*
- Repair Garages\*
- Spray Booths/ Spraying/Dipping\*
- Temporary Membrane Structures, Tents and Canopies \_\_\_\_\_ Sq Ft
- Tire Rebuilding Plants\*
- Tire Storage/ Scrap/Byproducts Storage\*
- Wood Pallet Storage\*
- Wood Products\*
- Other (Please specify) \_\_\_\_\_

**OTHER PERMITS:**

- Aerosol Products\*
- Aircraft Repair Hangars\*
- Aircraft Refueling Vehicles\*
- Amusement Buildings – Temporary
- Asbestos Removal
- Automobile Wrecking Yard

**"OTHER SERVICES"**

- Copies
- Engine Company Standby
- Fire Code
- Search of Fire Prevention Records

\* Indicates Renewable Permit

Application Date: \_\_\_\_\_ Prepaid Account #: \_\_\_\_\_  
(If established)

OTC: Y or N      Expedite: Y or N      Plans: New Revised Resubmittal C - \_\_\_\_\_  
(Circle one)      (Circle one) If Y – total fee \$160.00      (Circle one) If revised or Resubmittal - then original permit number must be provided.

Submitting Contractor/Company Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ Suite/Bldg #: \_\_\_\_\_

City, State, Country, Zip Code: \_\_\_\_\_

Company E-mail Address: \_\_\_\_\_

Phone #: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Fax #: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

Major Project Name: \_\_\_\_\_  
(If Exhibit/Trade/Special Event – indicate Hotel/Casino, Public/Private Facility, etc.)

Sub Project Name: \_\_\_\_\_  
(If Exhibit/Trade/Special Event – indicate where inside Major Project)

Event Name: (if applicable) \_\_\_\_\_

Address: (for project/event) \_\_\_\_\_

Event Move-In Date: \_\_\_\_\_ Event Move-out Date: \_\_\_\_\_

**\*\* If applying for a Renewable Permit you must provide the following information regarding the business to be permitted \*\***

Business Contact/Safety Engineer: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_ Suite/Bldg #: \_\_\_\_\_  
City, State, Zip: \_\_\_\_\_  
Phone #: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Fax #: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

**All Fees are Payable to Clark County Fire Department**

Applicant Signature \_\_\_\_\_

Please Print Name and Title \_\_\_\_\_



# Clark County Fire Prevention

Mission Statement: "To provide the highest level of fire protection and related services"

**TITLE:** Tent and Canopy Permit Requirements

**SCOPE:** Tent(s) in excess of 200 square feet, or canopy(s) in excess of 400 square feet shall be permitted and installed in accordance with this guideline and the requirements contained in the 2005 Clark County Fire Code. Temporary membrane structures, tents and canopies shall be used for a period of not more than 180 days within a 12-month period on a single premise.

**PURPOSE:** This guideline was written to provide an outline of the Clark County Fire Code requirements for permitting tent(s) and canopy(s).

## SPECIFICATIONS AND REQUIREMENTS

At the time of permit application, three (3) sets of plans, drawn to an indicated scale, must be submitted for review and approval. Minimum permit and expedite fees (if required) must be paid at this time. The minimum permit fee for this submittal is \$75. However, permit fees for this type of submittal vary. Please see the **Clark County Fire Department Permit and Service Fee Schedule** for specific information. In addition, expedite fees (minimum fee of \$85) are also variable based on the complexity of the submittal. Again, please see the Clark County Fire Department Permit and Service Fee Schedule for exact details. When plans have been reviewed, you will be notified by this office. If approved, an inspection will need to be scheduled. To schedule an inspection, go to <http://www.accessclarkcounty.com/fire/firedept.htm>. Click on "Services" in the teal strip on the top. On the left side under **Inspection** click on "Fire Inspection" and follow the instructions to schedule a fire inspection.

After the review, two sets of the plans and the permit must be picked up prior to erection of the tent or canopy. One Fire Department stamped plan set must be onsite and available for review at all times. Permits must be conspicuously posted in public view. Plans for tents and canopies shall be drawn to architectural scale (min. 1/8") on uniform sheets no larger than 30" by 36", meet all requirements of the 2005 Clark County Fire Code Article 32, and contain the following:

- 1) Fire access, location and parking: Show minimum 20 foot set-back from property lines, buildings, other tents/canopies, parked vehicles, and internal combustion engines.
- 2) Fire extinguishers: Show fire extinguishers (2A10BC rated) located in the path of egress, and so that no portion of the structure is more than 75 feet from a fire extinguisher.
- 3) Means of Egress: Show the location and width of all exits and indicate locations of exit signs. Indicate if doors are to be installed (direction of swing) or if curtains will be used (only free sliding, contrasting curtains on rod mounted 8 feet above floor).
- 4) Emergency lighting: Indicate type and locations of emergency lighting.
- 5) Heating and/or Cooling: indicate type and location of equipment, including ducting.
- 6) Fire Hydrants: Show location of fire hydrants.
- 7) Event Contact: provide event contact name and phone number.
- 8) Provide a copy of Title 30 (Zoning) approval from the Comprehensive Planning Division of C.C. Development Services. Temporary uses of this type require Comprehensive Planning Division approval. Contact the Zoning Division at 455-4314 for further information.

Provide evidence that the sidewalls, drops, and tops of temporary membrane structures, tents, and canopies are constructed of flame resistant material or treated with flame retardant in an approved manner. Certificates for all flame treated materials must accompany the submittal.

**Insurance-**Provide a copy of a valid bond or current certificate of insurance showing the Clark County Fire Department as additional insured, with a minimum coverage for bodily injury or property damage in the amount of 1 million dollars.

**Inspection-**Prior to occupancy for any purpose and in order to finalize the permit, you must schedule an inspection by calling the Fire Department scheduling hotline at (702) 226-8991 before 2 P.M. the day prior to your desired inspection date.



**CLARK COUNTY FIRE DEPARTMENT**  
**Fire Prevention Bureau**

575 E. Flamingo Road, Las Vegas, NV 89119  
(702) 455-7316 FAX (702) 455-7347



**Permit Type: 105.7.7**  
**Control Number: E.0**  
**Effective Date:**

**TITLE: FLAMMABLE/COMBUSTIBLE LIQUIDS – MOTOR FUEL DISPENSING STATIONS**

**SCOPE:** Clark County Fire Department requirements for the submittal and approval to build/install a Motor Fuel Dispensing Station.

**PURPOSE:** To standardize plan/permit requirements of the Fire Department in accordance with the Clark County Fire Code. Permits are valid through the duration of construction. Work must commence within 180 days, and remain active with no period of inactivity exceeding 180 days, or the permit becomes invalid. It is the desire of the Fire Department to attempt to have just one permit of each type for each location. Insofar as possible, it is preferable to revise an existing permit of the same type rather than open another permit of the same type for the same address.

*Note: This guideline is a companion to either the aboveground or underground tank guideline when those tanks are to be used for motor fuel dispensing.*

**DEFINITIONS:**

**Assessor's Parcel Number (APN):** A unique number assigned to each property by the Clark County Assessor's office.

**Aboveground Storage Tank (AST):** Vessel 60 gallons or larger that is designed to contain F/C liquids above grade.

**Buoyancy Calculations:** Calculations which show that even under severe wet conditions, the tank will not "float" out of ground due to positive buoyancy.

**Combustible Liquid:** Liquid having a flash point above 100<sup>0</sup> Fahrenheit. These are divided into Class II, Class III-A and Class III-B.

**Flammable Liquid:** Liquid having a flash point less than 100<sup>0</sup> Fahrenheit. These are divided into Class 1-A, 1-B and 1-C.

**F/C Liquids:** Flammable/Combustible Liquids.

**Secondary Container:** An integral or separate vessel or leak proof container designed to hold the contents of the largest primary container, located within the bounds of the secondary container, includes the outer shell of double-wall tanks.

**Tank:** A vessel containing more than 60 gallons

**Underground Storage Tank (UST):** Vessel, 60 gallons or larger that is designed to contain F/C liquids below grade.

#### **PERMIT FEES:**

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

#### **ANNUAL RENEWABLE PERMIT PROCEDURE:**

After approval of your initial permit(s), your permit(s) will automatically set-up a renewal reminder. Approximately 30-60 days prior to the expiration of your permit, a renewal notice will be mailed to you with instructions for the annual permit renewal.

If you do not receive this notice, it is your responsibility to submit the renewal application. Please refer to the website for additional information.

#### **SPECIFICATIONS AND SUBMITTAL REQUIREMENTS:**

An application must be completed for each submittal. A minimum of three copies of plans shall be submitted with the permit application. The plans shall be drawn to an indicated scale. Plans shall show compliance in accordance with Chapter 34 of the Clark County Fire Code, as adopted and amended. Plans must show distance relationship between storage tanks, and other storage tanks, nearest habitable structure, property line, and public ways. On the plans, indicate the project name, address, and APN (Assessor's Parcel Number). All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

A permit is required to operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel dispensing stations, refineries, distilleries, and similar facilities where flammable/combustible liquids are produced, processed, transported, stored, dispensed, or used.

#### **Plan Checklist**

- List quantities and types of F/C liquids to be stored/used.
- List/show processes or vessels that will store or use F/C liquids.
- List vessels, piping, valves and equipment that will use, store or transport F/C liquids.

- Show that tank, piping, valves and equipment is UL listed for its intended use, especially when using petroleum fuels with alcohol additives.
  - Note which engineering design criteria has been used for vessels, piping, valves or equipment design (i.e. UL 143, API 650, ASME B31.3, etc.).
  - Note method of secondary containment if MAQ is exceeded.
  - Note method of leak detection.
  - Include rebar design for concrete cap.
  - For Underground tanks, show buoyancy calculations with a 20% safety factor (show that weight of concrete cap, overburden, weight of tank and weight of deadmen, if used, exceed the buoyancy of tank calculated by multiplying the displaced volume of outer shell of tank by the density of water).
  - Show location, size and height above grade, of tank vents (must be at least 12' above grade).
  - Show height of dispenser island (must be at least 6").
  - Show location of emergency shut-off switch. Must be no closer than 30' and no further than 100' from any dispenser. Some locations require more than one switch.
  - Show type and location of fire extinguisher. Must be *rated* 40-B:C and must be within 30' of any dispenser. Some locations will require more than one fire extinguisher.
  - Identify make and model of dispenser, hose, nozzle, and break-away valves. *Important:* hose must be conductive. There must be a conductive path from the hose nozzle to ground to bleed off any accumulated static electricity charge.
  - Systems that transfer fuel must be bonded and grounded. Indicate on plans how this is achieved.
- All leak testing of tank and piping must be observed by CCFD inspectors prior to tank and piping being covered.
  - Initial and annual leak detection certification is required by the Clark County Health District.
  - When flammable/combustible liquids are being dispensed into a vehicle tank as a motor fuel, an additional Motor Fuel Dispensing Permit must be obtained. *That permit is a renewable permit that only covers the actual dispenser.*

#### **PERMIT REVISIONS AND RESUBMITTALS:**

Revisions to approved plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number to signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

#### **PLANS CHECK STATUS INSTRUCTIONS:**

The status of the review can be checked by logging on to:  
[www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire)

#### **INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:**

If approved, an inspection will need to be scheduled. To schedule an inspection, go to: [www.clarkcountynv.gov/depts/fire](http://www.clarkcountynv.gov/depts/fire). A fire inspector will review your site in accordance with the approved plans and this guideline; if the plans are compliant, the inspector will issue a permit.

The Clark County Fire Department's Fire Prevention Bureau (FPB) may perform testing, acceptance, and maintenance of fire & life safety systems as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Chief, the Fire Code or opinion of the Fire Chief prevails.

Technical Assistance, when required by the Fire Chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.



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## **SITE PLAN**

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Please use this Site Plan to illustrate the layout of your event. If you need additional space, please attach a separate sheet.

If applicable the following must be included:

- Location of food vendors (FV)
- Location of beverage vendors both non-alcoholic (NAB) and alcoholic beverages (AB) along with number of serving stations at each location
- Location of toilets (T)
- Location of hand washing sinks (HWS)
- Location of retail merchants (RM)
- Location of First Aid (+)
- Location of garbage receptacles (G) and recycling receptacles (R)
- Show walk, run and bike routes if athletic event
- Location and number of Type III Barricades (III)
- Location of fire lane (FL)
- Location of fire extinguishers (FE)
- Public entrances and exits
- Location of sound stages and amplified sound
- Location of residential streets surrounding event
- Location of "FREE ADMISSION - DONATIONS ACCEPTED" sign

## Event Coordinator Quick Reference Checklist



**Event Coordinator Responsibilities:** The Event Coordinator (EC) or designated responsible person shall be available on site at all times during the special event. This individual is responsible for sanitation **support services** and **coordination of food operations** as specified in Chapter 15 and Appendix I of the 2010 SNHD *Regulations Governing the Sanitation of Food Establishments*. The following checklist will help the EC prepare for a successful event.

**Support services responsibilities** include, but are not limited to:

\_\_\_ **Water Supply:**

1. Notify all food vendors in advance if and where potable water will be available at the event.
2. Hoses connected to potable water sources must be food grade and have proper backflow prevention devices.

\_\_\_ **Waste Water:** Instruct vendors that all waste water must be discharged to a sanitary sewer or designated collection device. The dumping of waste water into a storm drain, or directly onto the ground, is strictly prohibited.

\_\_\_ **Solid Waste:** Provide for the removal of trash during event activities and at the conclusion of the event.

1. Provide an adequate number of leak-proof trash receptacles in the common areas.
2. Empty as often as necessary to prevent excessive accumulation of solid waste.
3. Promote Recycling. A resource recovery plan is required for events where attendance exceeds 5,000 people per day.

\_\_\_ **Restroom Facilities:** Provide an adequate number of toilet facilities, stocked with toilet tissue at all times, and properly maintain for the duration of the special event.

\_\_\_ **Hand Washing Sinks:** Provide at all restroom areas utilized by food handlers, including all non-sewered toilet areas. Must have at least one handwashing sink for each group of toilet facilities.

1. Provide portable hand washing sinks with potable running water that drains to an enclosed waste water tank.
2. Provide liquid hand soap in a pump dispenser and single-use paper towels dispensed in a sanitary manner at each hand washing area.
3. Hand sanitizer dispensers may be utilized at non-sewered toilet areas used by the public, but ARE NOT A SUBSTITUTE for proper hand washing or hand washing facilities at restrooms used by food handlers.
4. If there is an animal attraction, a hand washing station shall be set up at the access point to the venue, equipped with soap and paper towels as noted above.

\_\_\_ **Lighting:** Provide at least 20 foot-candles of light after dusk in all common areas.

\_\_\_ **Other Support Services:** Depending upon the type of special event, support services provided to food vendors may include:

1. Power supply to establishments that use electrical or mechanical means to hold food at safe temperatures.
2. Central refrigeration services available for vendor use. If provided, refrigeration equipment shall maintain food at proper temperature.
3. Common ware washing facilities: A three-compartment sink is required at an event exceeding 3 days duration. Such ware washing areas shall have hot (minimum of 110°F±2°) and cold running potable water, and shall drain to an approved method of waste disposal.

**If there is an animal attraction, it must not create nuisances, odors, or fly problems that impact foodservice operations and must be located at least 50 feet away from food booths.**

### **Coordination of Food Operations:**

The EC is responsible for listing **all** food vendors, including temporary food establishments, annual itinerants, and mobile vendors (now included in the EC vendor count) on the application and providing updates to the health authority as needed, including a map for larger events. At **tasting events and trade shows**, the EC is responsible for ensuring all booths are properly set up/ready for inspection by the set-up time specified on the application, including assuring all open food/beverage operations have proper hand washing and sanitizing capability. (See the Temporary Food Establishment Checklist for proper booth set-up)

**Contact the assigned SNHD representative in advance of the event if you have any questions.**



## Event Coordinator Checklist for Tasting Events

In addition to event coordinator (EC) responsibilities at special events, an EC for a tasting event must ensure the tasting booths are properly equipped and set up before workers handle open food/beverage samples. Failure to set up properly may result in denial of the health permit to operate, closure of a booth that is not properly equipped or limiting the types of foods that may be served.

To plan for adequate facility set up the EC needs to know the following information:

### Tasting Booth Preparation:

- What food will be served at each booth?
- Will the food be prepared onsite at the event or offsite at a permitted kitchen?
- If prepared offsite, from where and how will the food be transported to the host site so it is protected from contamination and temperature abuse?
- Will 'Time as a Control' be used for any food products?
  - If yes, the booth operator must have a written procedure onsite and have foods properly date/time stamped.
- What will the electrical needs be for each of the sampling booths to accommodate hot and cold holding, portable hand washing sink and lighting needs?
  - This needs to be evaluated and ready before the food arrives.
  - Adequate power supply must be provided to ensure no overloaded circuits.
- Will the booth operator or the host site provide hand washing stations (with 90-110°F water, soap, paper towels, catch bucket, garbage can)?
  - The hand washing sink must be set up before any open food handling, located within 10 feet of and readily accessible to all open food service areas.
- Will sanitizer be provided by the operator or by the host site?
  - This also must be set up before any open food handling.
  - Who will provide test strips to ensure proper sanitizer concentration?
- Will the booth operator or the host site provide hot/cold holding equipment to hold food during the event?
  - These units must be maintaining proper temperature before use, e.g. hot holding equipment maintaining a temperature of 135°F or above and cold holding equipment maintaining a temperature of 41°F or below before placing food into the units.
- Will reheating for hot holding of foods be available during the show?
  - Will the host site or booth operator provide facilities/equipment for this?
- Will the operator have an adequate amount of clean utensils to replace dirty utensils at least every four hours, or will there be ware washing facilities (three-compartment sink) available for cleaning and sanitizing utensils?



## Event Coordinator Checklist for Tasting Events

- How will no bare hand contact with ready-to-eat food be assured (e.g., gloves/utensils)?
- How will sample foods be protected from contamination by the public (e.g., sneeze guards, individual portions, servers/attendants)?
- What consumer notices (e.g. raw or undercooked foods advisory, alcohol pregnancy warning signs, etc.) are needed at the sampling booth?
- Do booth operators know where a potable supply of water can be obtained, or if they are to provide their own potable water (if potable water will not be provided)?
- Do operators know where to dispose waste water?
- Is ice going to be used at the show?
  - Will the host site provide ice?
  - Where and how will ice be stored to prevent contamination?

### Event Support:

- Are there enough restrooms (hard plumbed or port-a-potties) properly stocked with toilet tissue?
- Is there at least one handwashing sink for each group of toilets?
  - Hand sanitizer can be used in conjunction with hand washing, but hand sanitizer cannot be used as a substitute for hand washing for food handlers.
- Will animal attractions be held at the event?
  - See 2010 Regulations sections 2-403.11, 6-501.21, 15-205.15(G), 15-205.19, and 15-304.20(F) regarding animals.

**Note:** For food handlers, hand washing occurs twice after using the restroom: hand washing must first take place at the restroom and second when food handler returns to the booth.

Effective communication and planning before the event between the EC and the booth operators, as well as between the EC and the health district inspector will ensure safe food for the patrons attending the tasting event.



## Appendix I Event Coordinator Guidelines

### Special Events

A Special Event is any licensed transitory public gathering that takes place at a given location for a specific purpose that is self-limited in connection with a fair, carnival, circus, public exhibition, celebration, tasting event or trade show that includes food service. The Special Event has a defined start and stop date, with the given event not exceeding 14 consecutive calendar days.

**An Event Coordinator Permit is Required** where there is more than one Temporary Food Establishment, Annual Itinerant, or other Food Booth, and:

- The Special Event is being operated on the Event Coordinator's own property with outside food or beverage vendors participating, or
- The Special Event is being conducted on property NOT owned or operated by the Event Coordinator, with outside vendors providing food or beverage. If the Special Event occurs on private property, a permission letter from the property owner shall be obtained and submitted to the Health Authority as part of the application process.
- Annual Itinerant health permits and mobile vendors are included in the total vendor count. If additional food facilities are set up, the vendor must apply for a Temporary Food Establishment Health Permit ***before operating*** and be included in the overall vendor count.

**An Event Coordinator Permit is NOT Required** when:

- The event takes place on the Event Coordinator's own property, all Food Booths are operated directly by the Event Coordinator, and there is no outside food vendors associated with the Special Event. Temporary food establishment permits may apply.
- Non-profit organizations occasionally sell food on their own property for fundraising purposes and are the sole providers of the food. For these activities, NO Event Coordinator Permit, nor a Temporary Food Establishment Permit, is required. If the non-profit organization allows an unaffiliated group or business to set up a food operation with their Special Event, the hosting non-profit organization shall notify the Health Authority to ensure the FOR-PROFIT and unaffiliated NON-PROFIT food vendors obtain appropriate Health Permits prior to the Special Event, but NO EVENT COORDINATOR permit is necessary.

**The Permit Application:** The *EVENT COORDINATOR APPLICATION FOR SPECIAL EVENTS and TRADE SHOWS* shall be completed and submitted with the required permit fee at any Health District location. Late fees apply if the application is submitted less than 7 days before the start of the Special Event. The application is available on Southern Nevada Health District's (SNHD) Website.

- A map of the Special Event layout shall accompany the application or be provided prior to the event.
- Once application is made, the Event Coordinator shall contact the Health Authority with any changes or additions.

**Event Coordinator Responsibilities:** The Event Coordinator or designated responsible person shall be available on site at all times during the Special Event. This individual is responsible for all health-related support services as specified on the Event Coordinator application. Support services include, but are not limited to, potable water supply, disposal of waste water and solid waste, restroom facilities and associated hand washing sinks, power supply, and central refrigeration services.

(A) **Water Supply:** The Event Coordinator shall notify all food vendors in advance of the availability and location of potable water sources or if potable water will not be provided by the Event Coordinator.

- Non-potable water supplies such as, but not limited to, water trucks for dust control shall not be used at a Special Event where spray or flow may contaminate food. All non-potable water connections and service containers shall be clearly labeled.
- Hoses connected to potable water sources shall be food grade quality and have proper backflow prevention devices.

(B) **Waste Water:** All waste water generated at an event must be discharged to a sanitary sewer. The dumping of waste water into a storm drain, or directly onto the ground, is strictly prohibited. Improper disposal may be subject to citations and/or penalties.

- (C) **Solid Waste:** The Event Coordinator shall provide for the removal of any solid waste on the premises during event activities and at the conclusion of the event. This includes grease and waste cooking oil.
- An adequate number of leak-proof trash receptacles must be provided in the common area and emptied as often as necessary to prevent excessive accumulation of solid waste.
  - **Recycling is Encouraged**
  - Improper disposal of solid waste may be subject to citations and/or penalties as per NRS 444.630.
- (D) **Restroom Facilities:** An adequate number of toilet facilities shall be provided for patron and participant use. The restroom area shall not create a nuisance or public health hazard. The restrooms shall have toilet tissue at all times and be properly maintained for the duration of the Special Event.
- (E) **Hand Washing Sinks:** There shall be hand washing sinks located at all restroom areas utilized by food handlers, including all non-sewered toilet areas, with at least one hand washing sink for each group of toilet facilities.
- Portable hand washing sinks shall be provided with potable running water that drains to an enclosed waste water tank.
  - Supplies for each hand washing area shall include liquid hand soap in a pump dispenser and single-use paper towels dispensed in a sanitary manner.
  - Hand sanitizer dispensers may be utilized at non-sewered toilet areas used by the public, but ARE NOT A SUBSTITUTE for proper hand washing at restrooms used by food handlers.
  - If there is an animal attraction at the event, a hand washing station shall be set up at the access point to the venue, equipped with soap and paper towels as noted above.
- (F) **Lighting:** At least 20 foot-candles of artificial light shall be provided after dusk in all common areas.
- (G) **Other Support Services:** Depending upon the type of Special Event, support services provided to temporary food establishments or annual itinerants may include the following items:
- Power supply to establishments that use electrical or mechanical means to hold food at safe temperatures.
  - Central refrigeration services available for vendor use. If provided, refrigeration equipment shall maintain food at proper temperature.
  - Common ware washing facilities (three-compartment sink). Such ware washing areas shall have hot (minimum of 110°F±2°) and cold running potable water, and shall drain to an approved method of waste disposal.

**★If the Special Event includes an animal attraction such as a petting zoo, it must not create nuisances, odors, or fly problems that impact food service operations★**

**Coordination with Food Vendors:** The Event Coordinator shall:

- List all the food vendors planning to attend the Special Event, with their contact information, on the Event Coordinator application. The Event Coordinator is required to contact the Health Authority with changes and additions.
- Notify all Temporary Food Establishments associated with the event that they are required to make advance application for a permit to operate. Website links to the temporary food establishment application for a permit to operate and requirements checklist are listed on SNHD's Website.
- Provide the criteria for proper set up and operation to all operators of booths serving open food or beverage at tasting events and similar venues where there are no points of sale at the booths. The criteria list shall be comparable to the checklist found at the SNHD. The results of inspections of these booths shall be documented on the Event Coordinator Permit *Report and Notice of Inspection*.
- A Spanish checklist is also available on SNHD's Website.

**Permit Approval to Operate:** On the first day of the Special Event, the Health Authority's representative shall conduct an inspection. If all the requirements noted above are met and in operating condition, the Health Permit for the Special Event shall be approved.

**NRS 446.870 Prohibited acts: Operation of food establishment without valid permit issued by health authority; sale, offer or display for consideration of food prepared in private home without valid permit issued by health authority; exemptions.**

1. Except as otherwise provided in this section, it is unlawful for any person to operate a food establishment unless the person possesses a valid permit issued to him or her by the health authority.

2. The health authority may exempt a food establishment from the provisions of this chapter if the health authority determines that the food which is sold, offered or displayed for sale, or served at the establishment does not constitute a potential or actual hazard to the public health.

3. Food that is prepared in a private home and given away free of charge or consideration of any kind is exempt from the provisions of this chapter, unless it is given to a food establishment.

4. Except as otherwise provided in subsection 5, food that is prepared in a private home must not be sold, or offered or displayed for sale or for compensation or contractual consideration of any kind, unless the person preparing the food possesses a valid permit issued to him or her by the health authority for that purpose.

5. A religious, charitable or other nonprofit organization may, without possessing a permit from the health authority, sell food occasionally to raise money, whether or not the food was prepared in a private home, if the sale occurs on the premises of the organization. If the sale is to occur off the premises of the organization, a permit from the health authority is required unless an exemption is granted pursuant to subsection 2.



**Mailing address for non-local applicants only:**

Southern Nevada Health District, Environmental Health, PO Box 3902, Las Vegas, NV 89127

**FedEx, UPS only:** Southern Nevada Health District, Environmental Health, 700 Desert Lane, Las Vegas, NV 89106

**All local applicants must apply in person at:**

Southern Nevada Health District, 330 S. Valley View Blvd. , Las Vegas, NV 89107 (702) 759-1110

Laughlin Public Health Center, 3650 S. Point Circle, Bldg. C, Ste. 113, Laughlin, NV 89029, (702) 759-1643

Mesquite Public Health Center, 830 Hafen Lane, Mesquite, NV 89027 – (702) 759-1682

**EVENT COORDINATOR APPLICATION FOR CONVENTIONS, SPECIAL EVENTS and TRADE SHOWS**

*Type or print clearly - Incomplete applications shall be denied*

**I. Event Information**

Name of Event: \_\_\_\_\_

Location/Address of event: \_\_\_\_\_

Event to be held: \_\_\_\_\_ Enclosed building \_\_\_\_\_ Outdoor \_\_\_\_\_ Both

Date(s) of event: \_\_\_\_\_

Hours of event (Specify for each date if different): \_\_\_\_\_

Vendor set-up time: \_\_\_\_\_

Anticipated number of patrons for the event: \_\_\_\_\_ Map Provided @ application Yes:\_\_\_ No:\_\_\_  
(Maximum per day) \_\_\_\_\_ Must provide at least two business days before the event

**II. Contact Information**

Name of Event Coordinator: \_\_\_\_\_

Name of Event Sponsor: \_\_\_\_\_

Event Coordinator phone (during business hours) and EMAIL Address: \_\_\_\_\_

Event Coordinator mailing address: \_\_\_\_\_

Contact Name and phone number during event: \_\_\_\_\_

**III. Support Services Information**

Toilet facilities: Number of Plumbed \_\_\_\_\_ Number of Portable \_\_\_\_\_

Handwash facilities: Number of Plumbed \_\_\_\_\_ Number of Portable \_\_\_\_\_

Responsible party for maintaining toilet/handwash facilities during event: \_\_\_\_\_

Will potable water be available? Yes / No If yes, where? \_\_\_\_\_

How will wastewater be disposed of? \_\_\_\_\_

Describe how electricity will be provided: \_\_\_\_\_

How will garbage be disposed of? \_\_\_\_\_

Person(s) responsible for cleaning up: \_\_\_\_\_

Other services if provided (i.e.: cold storage, commissary, ice truck, dish wash area): \_\_\_\_\_





**Fee Assessment – The Event Coordinator is responsible for payment of fees at the time of application and late fees as applicable. ALL PERMIT FEES ARE NONREFUNDABLE – NO EXCEPTIONS. Please make Cashier’s checks or money orders payable to: SOUTHERN NEVADA HEALTH DISTRICT. No personal or business checks accepted.**

	Permit Fee	Late Permit Fee (Less than SEVEN BUSINESS DAYS NOTICE)	Late Permit Fee (Less than ONE BUSINESS DAY NOTICE)
Event Coordinator (No tasting booths)	\$290	\$145	\$290
Tasting Event Coordinator, Beverage only 1 – 10 booths 11-20 booths Each additional 10 booths	\$290 Included additional \$120 additional \$120	\$145	\$290
Tasting Event Coordinator, Food or Mixed Food/Beverage 1-5 booths Each additional 5 booths	\$290 base fee  additional \$120 additional \$120	\$ 145	\$290

**V. Event Coordinator Responsibilities**

The event coordinator is responsible for the following:

1. Meeting the requirements as set forth in the applicable sections of the *Southern Nevada Health District Regulations Governing the Sanitation of Food Establishments*. **Initial** \_\_\_\_\_
2. Ensuring that food vendors apply for a Temporary Food Establishment Permit as required and shall not allow vendors without required permits to set up at the event. **Initial** \_\_\_\_\_
3. Providing a map indicating the location of support services and food/beverage venues **at least two business days** prior to the start of the event. **Initial** \_\_\_\_\_
4. Contacting the Southern Nevada Health District **prior to the event** to provide updates if any changes or additions to this application are made. **Initial** \_\_\_\_\_
5. Obtaining and submitting a permission letter from the property owner, if the event occurs on private property. **Initial** \_\_\_\_\_

Print name and job title: \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

SNHD Use Only

	Applied For	At Event
# TFE		
# MV		
# AI		
# Sampling		

# Chapter 15

## Special Events and Temporary Food Establishments

### Parts

- 15-1 Definitions
- 15-2 Special Event Requirements
- 15-3 Temporary Food Establishment Requirements
- 15-4 Compliance and Enforcement

### 15-1 Definitions

#### Subparts

- 15-101 Applicability and Listing of Terms
- 15-102 Definitions

#### 15-101 Applicability and Listing of Terms

##### 15-101.11 Interpretation and Listing of Terms

The following definitions shall apply in the interpretation and application of this Chapter.

#### 15-102 Definitions

**EVENT COORDINATOR** means a designated PERSON, or PERSON assigned by the SPECIAL EVENT SPONSOR, responsible for the coordination of TEMPORARY FOOD ESTABLISHMENTS, FOOD BOOTHS, and health related services at a SPECIAL EVENT.

**EVENT COORDINATOR PERMIT** means a PERMIT as issued by SNHD for a SPECIAL EVENT that will include 2 or more TEMPORARY FOOD ESTABLISHMENTS or FOOD BOOTHS at a given location, other than a single operator with multiple FOOD ESTABLISHMENTS located on their own property.

**FOOD BOOTH** means any place, structure, or premise associated with a SPECIAL EVENT in which any POTENTIALLY HAZARDOUS or open FOOD intended for ultimate human consumption is offered or served. Multiple operators shall not share a FOOD BOOTH. All operators shall be individually PERMITTED as required by the HEALTH AUTHORITY.

**LICENSED** means formal permission or having a PERMIT from the appropriate federal, state, or local AGENCY OF JURISDICTION to carry out a function or event at a specified location.

**SPECIAL EVENT** means any LICENSED transitory public gathering that takes place at a given location for a specific purpose that is associated with a fair, carnival, circus, public exhibition, celebration, or trade show. The event has a defined start and stop date, with the given event not exceeding 14 consecutive days. This includes TASTING EVENTS.

**SPECIAL EVENT SPONSOR** means the PERSON, group, association, organization, corporation, or governmental agency sponsoring or promoting a SPECIAL EVENT.

**TASTING EVENT** means a SPECIAL EVENT, including but not limited to wine tastings and chili cook-offs, in which an entrance fee entitles the CONSUMER to FOOD service in conjunction with the event and where there is no point of sales directly at the booths.

### 15-2 Special Event Requirements

#### Subparts

- 15-201 Requirements for an Event Coordinator and Event Coordinator Permit
- 15-202 Event Coordinator Permit
- 15-203 Responsibilities of the Event Coordinator
- 15-204 Event Coordinator Permission to Operate
- 15-205 General Requirements for Special Events
- 15-206 Trade Shows, Conventions, Chili Cook-Offs, and Food and Beverage Tasting Events
- 15-207 Special Events Operated Within Pool Enclosures
- 15-208 Special Event Permit to Operate

#### 15-201 Requirements for an EVENT COORDINATOR and EVENT COORDINATOR PERMIT

##### 15-201.11 PERMIT Requirements

An EVENT COORDINATOR PERMIT for a SPECIAL EVENT or a trade show shall not exceed 14 days, and is not transferable from PERSON to PERSON or from location to location, and shall be required where there is more than one TEMPORARY FOOD ESTABLISHMENT, or more than one FOOD BOOTH, and:

- (A) The EVENT COORDINATOR is operating the SPECIAL EVENT, including TASTING EVENTS, on their own property with outside FOOD or BEVERAGE vendors participating.

- (B) The EVENT COORDINATOR is conducting the SPECIAL EVENT on property other than their own, with outside vendors providing FOOD or BEVERAGE services. If the event takes place on private property, a permission letter from the property owner shall be obtained and submitted to the HEALTH AUTHORITY as part of the application process.
- (C) Annual Itinerants and mobile vendors are included in the total vendor count. If mobile vendors set up additional facilities outside of their unit, the vendor shall apply for a TEMPORARY FOOD ESTABLISHMENT PERMIT.

An EVENT COORDINATOR PERMIT will not be required if the following requirements are met:

- (A) The EVENT COORDINATOR is the sole vendor associated with the SPECIAL EVENT. If the event is not operating on its own property, a permission letter from the property owner shall be obtained and submitted to the HEALTH AUTHORITY as part of the application process.
- (B) A non-profit organization operating on their own property, as stated in *NRS 446.870*, is exempt from these Regulations. If the event is to be held off the PREMISES of the non-profit organization, an EVENT COORDINATOR PERMIT will be required.

#### **15-201.12 EVENT COORDINATOR**

The SPECIAL EVENT SPONSOR shall designate an EVENT COORDINATOR.

#### **15-202 EVENT COORDINATOR PERMIT**

##### **15-202.11 Application**

The EVENT COORDINATOR shall make written application for an EVENT COORDINATOR PERMIT on forms provided by the HEALTH AUTHORITY to include a description of support services, and a list of FOOD vendors with contact information.

- (A) The application for the EVENT COORDINATOR PERMIT shall be accompanied by payment of a fee as established by the DISTRICT BOARD OF HEALTH.
- (B) A late fee will be assessed if the PERMIT application and fee is not submitted to the HEALTH AUTHORITY a minimum of seven days prior to the start date of the event. Additional fees will be incurred if the PERMIT application is submitted less than 24 hours prior to the event.
- (C) A map of the event shall accompany the application, or be provided no less than 48 hours prior to the start of the event.
- (D) Once submitted the application shall be updated as required in Section 15-203.11(B) of these Regulations.
- (E) Failure to submit an EVENT COORDINATOR application as required by this Section may result in a CEASE AND DESIST ORDER being issued prohibiting the preparation, display, service, and sale of any FOOD items at the SPECIAL EVENT.

##### **15-202.12 Application Review**

The EVENT COORDINATOR PERMIT application shall be reviewed by the HEALTH AUTHORITY and the proposed plan shall be APPROVED or denied. If denied, the applicant shall be notified of the reason(s) for the denial. Incomplete applications shall be denied.

#### **15-203 Responsibilities of the EVENT COORDINATOR**

##### **15-203.11 Responsibilities**

The EVENT COORDINATOR shall:

- (A) Ensure compliance as specified in Section 15-205 of this Chapter.
- (B) Inform the HEALTH AUTHORITY of any changes or additions made after the original application was reviewed.
- (C) Coordinate all services required as specified in Section 15-205 of this Chapter.
- (D) Notify all TEMPORARY FOOD ESTABLISHMENTS that will be associated with the SPECIAL EVENT that:
  - (1) They are required to make advance application for a PERMIT to operate as specified in Section 15-301 of this Chapter.
  - (2) Failure to make application for a PERMIT and pay any applicable fees may result in a CEASE AND DESIST ORDER being issued.
- (E) Have a designated representative available to the HEALTH AUTHORITY during the event.

#### **15-204 EVENT COORDINATOR Permission to Operate**

##### **15-204.11 Issuance of PERMIT**

An EVENT COORDINATOR PERMIT shall be issued once it has been determined by the HEALTH AUTHORITY that applicable requirements have been met.

##### **15-204.12 Time Limit for PERMIT**

An EVENT COORDINATOR PERMIT to operate shall not exceed 14 consecutive days.

The EVENT COORDINATOR shall be responsible for all as specified on the EVENT COORDINATOR PERMIT application which may include, but is not limited to, potable water supply, disposal of waste water, disposal of solid waste, restroom facilities including associated HAND WASHING SINKS, power supply, and central refrigeration services.

#### **15-205 General Requirements for SPECIAL EVENTS**

##### **15-205.11 Compliance with Requirements**

SPECIAL EVENTS shall comply with the requirements specified in this Section and may be subject to other applicable chapters of these Regulations. As provided in *NRS 439.410 and NRS 446.865*, the HEALTH AUTHORITY may impose additional requirements to prevent potential health HAZARDS related to the operation of such events. A guidance documents is provided in Appendix I.

##### **15-205.12 Support Services Responsibilities**

The EVENT COORDINATOR shall be responsible for all items as specified on the EVENT COORDINATOR PERMIT application which may include, but is not limited to, potable water supply, disposal of waste water, disposal of solid waste, restroom facilities including associated HAND WASHING SINKS, power supply, and central refrigeration services. Depending upon the type of event, support services provided to TEMPORARY FOOD ESTABLISHMENTS may include the following:

- (A) Adequate power shall be supplied by the EVENT COORDINATOR to those TEMPORARY FOOD ESTABLISHMENTS that require electrical or mechanical means to hold FOOD products at required temperatures. When mechanical refrigeration is used, power shall be provided in advance to bring units down to adequate temperatures.
- (B) When central refrigeration services for FOOD vendors are provided, the EVENT COORDINATOR shall ensure that EQUIPMENT is capable of maintaining FOOD at required temperature. When EQUIPMENT is not maintaining FOOD at required temperature, it shall be taken out of service and any temperature abused FOOD shall be discarded.
- (C) Common WARE WASHING facilities, if provided, shall be maintained as specified in Chapter 4 of these Regulations. At SPECIAL EVENTS exceeding three days in duration, a three-compartment sink shall be provided on-site by the EVENT COORDINATOR for TEMPORARY FOOD ESTABLISHMENT operators. The sink shall have hot water at a minimum temperature of  $110^{\circ}\text{F}\pm 2^{\circ}$ , and cold running water which drains to an APPROVED method of waste water disposal.

##### **15-205.13 Lighting**

A minimum of 20 foot-candles of artificial light shall be provided after dusk in all common areas.

##### **15-205.14 Toilet Facilities**

The EVENT COORDINATOR shall ensure that an adequate number of toilet facilities are provided for patron and participant use so as not to create a nuisance or public health HAZARD

- (A) When the number of seweried toilets is insufficient, non-seweried toilets shall be provided. The operator of a SPECIAL EVENT shall provide toilet facilities as set forth in *NAC 444.825* unless the HEALTH AUTHORITY reduces the number of toilet facilities otherwise required pursuant to *NAC 444.825* by the number of public toilet facilities available.
- (B) All toilets shall be adequately serviced, stocked with dispenser-held toilet tissue, and maintained during the event

##### **15-205.15 HAND WASHING SINKS**

- (A) HAND WASHING SINKS shall be located at all toileting areas utilized by FOOD HANDLERS, including all non-seweried toilet areas.
- (B) The operator of a SPECIAL EVENT shall provide at least one facility for hand washing for each group of toilet facilities.
- (C) The portable HAND WASHING SINK shall be provided with running water that drains to an enclosed waste water tank.
- (D) HAND WASHING SINKS shall be adequately serviced, stocked, and maintained during the event. Liquid hand soap in a pump dispenser, and single-use paper towels dispensed in a sanitary manner, shall be available at the HAND WASHING SINK.
- (E) The use of a hand sanitizer is not a substitute for HAND WASHING SINKS for FOOD HANDLERS.
- (F) Hand sanitizer dispensers may be utilized at non-seweried toilet areas used by the public.
- (G) The EVENT COORDINATOR shall ensure that HAND WASHING SINKS for customer use are placed at the entrance to any animal attraction associated with the event. Liquid hand soap in a pump dispenser, and single-use paper towels dispensed in a sanitary manner, shall be available at the HAND WASHING SINK.

##### **15-205.16 Water Supply**

- (A) The EVENT COORDINATOR shall notify all TEMPORARY FOOD ESTABLISHMENT operators, in advance, of the availability and location of potable water sources or that potable water will not be provided.
- (B) Water haulers for SPECIAL EVENTS shall comply with *NAC 445A.67275* through *NAC 445A.6731*.
- (C) Non-potable water supplies including but not limited to water trucks for dust control shall not be used at SPECIAL EVENTS where spray or flow may contaminate FOOD. All non-potable water connections and service containers shall be clearly labeled.
- (D) Hoses connected to potable water sources shall meet the requirements as specified in Chapter 5-302.16 of these Regulations.

**15-205.17 Waste Water**

The EVENT COORDINATOR shall ensure that all waste water generated at an event is discharged to a sanitary sewer. The dumping of waste water into a storm drain or directly onto the ground is strictly prohibited. Improper disposal may be subject to citations and/or penalties.

**15-205.18 Solid Waste**

- (A) The EVENT COORDINATOR shall ensure proper disposal of garbage as specified on the EVENT COORDINATOR PERMIT application.
- (B) The EVENT COORDINATOR shall ensure the presence of an adequate number of leak-proof trash receptacles in common areas for public use.
- (C) Trash receptacles shall be emptied as often as necessary to prevent excessive accumulation of solid waste so as not to create a public health nuisance.
- (D) The EVENT COORDINATOR shall provide for the removal of any solid waste scattered on the event PREMISES as a result of event activities, including the removal of such waste during and at the conclusion of the event.
- (E) Grease and waste cooking oil shall be disposed of in a manner APPROVED by the HEALTH AUTHORITY. Disposal of grease or waste cooking oil to the sanitary sewer system in a storm drain or on the ground is prohibited and may be subject to citations and/or penalties.
- (F) Improper disposal of solid waste may be subject to citations and/or penalties as specified in *NRS 444.630*.
- (G) The SPECIAL EVENT COORDINATOR is responsible for developing and implementing a resource recovery plan at any event where attendance is expected to exceed 5,000 PERSONS per day. Cardboard, glass, plastic bottles, and aluminum generated at an event of this size shall be collected and recycled.

**15-205.19 Animal Attractions**

Animal attractions shall not create nuisances, odors, or fly problems that impact FOOD service operations. The HEALTH AUTHORITY may impose additional RESTRICTIONS and requirements to ensure the health of the public.

**15-206 Trade Shows, Conventions, Chili Cook-Offs, and FOOD and BEVERAGE Tasting Events**

**15-206.11 PERMIT Application**

The EVENT COORDINATOR shall apply for an EVENT COORDINATOR PERMIT as specified in Sections 15-201 and 15-202 of this Chapter.

**15-206.12 Responsibilities of the EVENT COORDINATOR**

In addition to the responsibilities specified in Section 15-203 of this Chapter, the EVENT COORDINATOR of a trade show, convention, chili cook-off, or TASTING EVENT shall:

- (A) Inform "for profit" and "non-profit" booth vendors, with point of sale or similar direct compensation for FOOD or BEVERAGE, that they must make advance application for a PERMIT to operate a TEMPORARY FOOD ESTABLISHMENT and that failure to do so may result in a CEASE AND DESIST ORDER being issued.
- (B) Provide the criteria for proper set-up to vendors who do not accept monetary compensation as described in Section 15-303 of this Chapter and ensure that they are ready to operate at the time specified in the EVENT COORDINATOR application. Inspection of these booths shall be documented on the EVENT COORDINATOR PERMIT inspection report.
- (C) Ensure that the general requirements for SPECIAL EVENTS, as specified in Section 15-205 of this Chapter, are in place prior to the opening time of the event as indicated on the EVENT COORDINATOR PERMIT application.

**15-207 SPECIAL EVENTS Operated Within Pool Enclosures**