AHC #2 Meeting Minutes - Appendix B

FIRE/FIRE SAFETY WORK GROUP (FSWG) REPORT & NOTES FROM AHC #2
(IBC Chapters 7 – 9, 14, 15; IFC; IMC)

This appendix is based on the AHC's review of the noted Work Group Report at AHC Meeting #2. Notes from the meeting are indicated in red.

CURRENT CODE ISSUES

(based on issues identified at AHC #1)

ISSUE 1. DECORATIONS ON WALLS (Gary Lewis)

Discussion: The Work Group considered current language in IBC, IFC, NFPA 101 and NFPA 1 related to decorations on walls. There is general consistency in approach between the various documents. A specific area of concern raised in the discussion is the subjectivity of Section 806.1 of the IBC, which reads as follows:

> **806.1 General requirements.** In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains draperies, hangings and other *decorative materials* suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with section 806.2 or be noncombustible.
> In Groups I-1 and I-2, combustible *decorative materials* shall meet the flame propagation performance criteria of NFPA 701 **unless the *decorative materials*, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present.**
> In Group I-3, combustible decorations are prohibited. (**Emphasis** added for clarity)

The application of this section was noted to vary widely from jurisdiction to jurisdiction. A related issue, and one much easier to address, is the list of decorative materials exempt from the flame propagation performance criteria of NFPA 701. The list is currently narrow in scope, although it does utilize the phrase 'including but not limited to'. A suggestion to the Committee is to consider adding to the laundry list items such as "bulletin boards, artwork and posters". A potential code change to this effect follows:

> **806.1 General requirements.** In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains draperies, hangings and other *decorative materials* suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with section 806.2 or be noncombustible.
> In Groups I-1 and I-2, combustible *decorative materials* shall meet the flame propagation performance criteria of NFPA 701 unless the *decorative materials*, including, but not limited to, bulletin boards, artwork, posters, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorations are prohibited.

Feedback is sought from Committee members on the relative benefits of having a specific threshold for these otherwise unspecified decorative materials that do not meet 701 (that may be less than is currently allowed by a number of jurisdictions), versus continuing to live with a lack of guidance, consistency and objectivity that exists in the current language.

If a threshold is the preferred approach, it was identified that the IFC currently specifies an upper limitation of 20% of a wall in a corridor for things like artwork and teaching materials in Group E and I-4 occupancies. A commenter noted that any 20% threshold ought to be allowable only in fully sprinklered I-2 occupancies, acknowledging that there remain a substantial number of older facilities still in the process of installing automatic sprinkler protection.

If a threshold is desired, a potential code change to this effect follows:

> **806.1 General requirements.** In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains draperies, hangings and other *decorative materials* suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with section 806.2 or be noncombustible. In Groups I-1 and I-2, combustible *decorative materials* shall meet the flame propagation performance criteria of NFPA 701 ~~unless the *decorative materials*, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present~~. In Group I-3, combustible decorations are prohibited.
>
> **Exception:** In Groups I-1 and I-2, decorative materials, including, but not limited to, photographs and paintings, covering less than 20 percent of the wall area.

Conclusion: Submit the above-suggested code changes if the AHC agrees.

Notes:

- Provide justification/substantiation for 20% of wall area based on need –
  - I-2 is not the same as schools.
  - Examples are staff communications.
  - Wall space is very limited in patient care/nursing areas.
  - Or clarify that wall surface includes doors, windows, surface area
  - Information on where fire starts
  - Current 10% limit is in 806.1.2
  - Look at past code change proposals for justification
- The current language is subjective – the proposal is quantitative
- Possibly add 'list' in 2nd option to exception in 3rd option.
- Direction of proposal is expectable. Possibly look at putting exception in 806.1.2.

ISSUE 2. ELEVATOR RECALL PROCEDURES WHEN THERE IS SMOKE IN MACHINE ROOM/ELEVATOR LOBBY (Tim Peglow)

Discussion: There has been no discussion of this issue.

Conclusion: The exact nature of the issue is unclear. AHC guidance is requested.

Notes:

- Elevator lobbies/smoke compartment evacuation is being discussed by the MOE committee
- Should separate machine rooms be required for different banks or elevators, so that different banks can remain active during a fire event?
- Part of defend-in-place and maintaining operations
- Common machine rooms at the roof over several banks of elevations could result in losing all elevators with a fire in the machine room – should there be a separate machine room requirement
- Move to MOE committee

ISSUE 3. INTERCOMMUNICATION BETWEEN FLOOR OPENINGS (Sharon Myers**)**

Discussion:

1. IBC, NFPA 101, CMS-2786 all permit compliant atriums – verify atrium requirements
2. IBC exceptions to vertical opening enclosures is extensive but inclusive of many Use Groups – need to verify if any adversely affect I-2
3. Need to verify IFC text specific to openings
4. IFC requires sprinklers in existing I-2; typically this will happen when renovations occur anyway to take advantage of code benefits – language makes requirement clear

It was noted that these issues need coordination with the on-going CTC project on unenclosed stairs. It was suggested that carbon monoxide migration should be a consideration in these issues. (See Meeting #4 Notes and "New Code Issues" in this report.)

Conclusion: Additional work is needed on this issue. A code comparison matrix is being prepared to facilitate discussions in future teleconferences.

Notes:

- Sharon is working on comparison matrix
- Allowance of 2 story opening (i.e., not an atrium) should also be investigated
- Look at current options in CMS or convenience openings, mezzanines, atriums, stairs, etc.
- Concern is fumes, exhaust and smoke, not just carbon monoxide migration
- Continue with current direction

ISSUE 4. MECHANICAL SYSTEMS/SMOKE CONTROL (Brooks Baker/Mark Goska, Alternate)

4A.SMOKE DAMPER EFFECTIVENESS

4B.SHUTDOWN PARAMETERS

4C.SMOKE CONTROL IN OPERATING ROOMS
4D.NFPA 99

4A Smoke Damper Effectiveness discussion: Because of the reports of the fires that occurred at the MGM Grand Hotel in Las Vegas, NV, and the World Trade Center in NY City, NY, there has been a discussion regarding the effectiveness of smoke dampers and whether a combination fire/smoke damper should be used instead in healthcare occupancies.

4 A Conclusion: Section 18.3.7.3 and 19.3.7.3 of NFPA 101 Life Safety Code are adequate. Suggest that further studies of the current IBC be undertaken to change and to possibly to expand the exception for smoke dampers in I-2 Occupancies. Note that this is a direction that the General Group is moving to and will be reviewed in greater detail in Chicago.

Notes:
- Also being discussed by General work group
- Look at catastrophic events

4B Shutdown Parameters discussion: Often times there is a misinterpretation between a smoke control system and a smoke evacuation system especially at it pertains to operating rooms within hospitals. This misinterpretation is requiring the use of a smoke evacuation system that when activated shuts down the supply air side of an HVAC system thus causing OR's to go negative pressure to the corridor instead of allowing ventilation air to remain flowing in OR's and allowing a separate room exhaust system to evacuate smoke from the room. This scenario is putting patients at a greater risk for infection.

4B Conclusion: Recently the NFPA 99 Committee adopted the elimination of the requirement for a smoke exhaust within healthcare occupancies. A preliminary consideration is suggested that we include the following exceptions which can be discussed further in Chicago:

Exception: Smoke Control Systems are not required in Group I-2 occupancies where the following conditions are met:
1. The building is equipped throughout with an automatic sprinkler using quick response automatic sprinklers.
2. The building has a closed, fully ducted HVAC system in all patient areas.

Notes:
- Confusion between smoke control and smoke evacuation systems
- May jeopardize infection control in operating wards
- Suggest limited exceptions in Group I-2 – 717.5.5 (2009) – see also General report
- Look at IMC for where smoke control and smoke exhaust systems are required
- Look at specifics to Group I-2 occupancies – smoke removal for individual operating rooms (look at NFPA 99 for ventilation)
- Smoke removal systems are not required in IBC for Group I-2 – interface with other codes

4C Smoke Control in Operating Rooms discussion: Should a smoke control system be required in OR's? Currently there are no requirements to provide smoke control systems within operating rooms or suites of operating rooms within IBC, NFPA 101 or NFPA 99.
4C Conclusion: The requirement to provide smoke control in OR's appear to be rooted in the misperception of some that life safety systems are to comply w/ NFPA 92A or IBC 909. With the changes made in the type of anesthetics being administered in OR's to a non-flammable type, and the fact that healthcare personnel are trained in the movement of patients to other compartments and how to close doors to contain byproducts of a fire within the room of origin, smoke control for life safety purposes would generally not be necessary. However, a means to remove any remaining smoke would be beneficial for a number of reasons. Currently, NFPA 99 requires that the HVAC system be arranged to automatically shift into an exhaust mode. Based on this, we are recommending further study which will consider alternatives to the automatic activation of the HVAC shutdown.

Notes:
- This is really an misinterpretation of the types of system required
- Number of staff in the room & type of fires results in very low hazard
- Smoke control systems may be outdated and no longer needed – should not be added to IBC/IFC
- A HVAC ventilation control system is not a smoke control system
- Identify what ventilation systems utilized in Group I-2 for specific areas are and what it should comply with.

- 901.2 exception is an example of where installed systems must comply with the code, even if not required

4D NFPA 99 discussion: It is not clear what the issues with NFPA 99 are. We are open to comments.
4D Conclusion: Further understanding of the issues with NFPA is required in order understand the issues.

Notes:
- See new business

ISSUE 5. CORRIDOR WALLS/SMOKE PARTITIONS (Sharon Myers**)**
5A.CEILING SMOKE RESISTANT MEMBRANE

Discussion: A discussion of smoke-resistant ceilings took place. It was pointed out that a single layer of drywall taken to the deck above coupled with the proposed ceiling could alleviate concern about ceiling tiles being displaced during a fire condition.

Penetration protection was discussed and it was pointed out that since the partition has no formal FR rating that no listed penetration protection is required. The type of penetration protection used would depend on the size of the annular space needing protection. It was emphasized that these continuity criteria are only intended to *limit* the transfer of smoke, not to *prevent* it.

It was suggested that the issue of ceiling tile uplift under fire conditions should be studied before final submittal a code change proposal. Some research has been done with both standard response and QR sprinklers with no significant problems noted. This is an item that should be submitted for additional ASHE research work.

Conclusion: The following code change proposal to the IBC is recommended:

Revise IBC as follows:

710.4 Continuity. Smoke partitions shall extend from the top of the foundation or floor below to the underside of the floor or roof sheathing, deck or slab above or to the underside of the ceiling above where the ceiling membrane is constructed to limit the transfer of smoke.

Exception:

A monolithic or suspended ceiling is permitted where allof the following conditions exist:

1. The ceiling system forms a continuous membrane, including around ceiling fixtures.
2. A smoke-tight joint is provided between the smoke partition and the suspended ceiling.
3. The space above the ceiling is not used as a plenum.
4. The room is not classified as a hazardous use.

Reason:
The purpose of this proposal is to differentiate between smoke barriers and smoke partitions. Smoke barriers are intended to *prevent* the passage of smoke and are also fire-rated assemblies, in which case an unrated suspended ceiling is not sufficient to maintain continuity. Smoke partitions are intended to *limit* the transfer of smoke and are not required to be fire-rated assemblies. While the code language in Sections 709.4 and 710.4 are fairly clear regarding this distinction, common enforcement and the current Commentary language for the two are nearly the same.

This language will clarify the intent and provide industry with cost savings and maintain the life safety features intended by the Code. It also helps clarify the difference and intent for designers, ultimately making design intent clear for enforcers. This proposed change does not affect the language in related IBC Sections 407.2 and 407.3. The proposed change more closely aligns the IBC with the Fire Safety Survey Report.

Additional substantiation is available and intended to be presented at the hearing, including tests conducted to demonstrate lay-in tile reaction and smoke movement given standard response and quick response sprinkler

protection. In both cases, the lay-in ceiling was sufficient to limit smoke transfer until sprinkler activation and beyond.

Notes:

- Proposed language could result in same misinterpretation problem
- Lay in ceiling grid without clips or caulk should be an alternative
- Define 'smoke tight ceiling' to limit the transfer of smoke
- Data needed to substantiate allowance
- What is permitted in the ceiling (i.e., light fixtures, sprinkler heads, ventilation system openings)
- Relate this horizontal system to vertical systems (i.e., smoke barrier walls) as far as percentage of openings
- Needs to be health care specific – maybe exceptions in 407.3 where smoke partitions are required for corridor walls in Group I-2.
- No requirement in smoke partitions for how much smoke is permitted to pass – limit the transmission of smoke vs. prevent the passage or smoke
- Further investigation/modeling could be done to determine smoke hazard for corridor ceiling

ISSUE 6. VENTILATON RATES (Brooks Baker/Mark Goska, Alternate)
Discussion: Currently ventilation rates are outlined in Table 403.3 of the IMC, Table 2.1-2 of the Guidelines for the Design and Construction of Health Care Facilities, and ASHRAE 170. These tables are used to calculate the minimum requirements for outside air ventilation and exhaust rates for the specified occupancy groups under normal operating conditions.

Conclusion: It is not clear that the I-codes need to address this issue. More studies are necessary to determine what level of detail if any should be included in the I-codes.

Notes:

- Reference ASHRAE 170 for health care specific ventilation rates for Group I-2
- IMC Table 403.3 does not include enough options
- Need to identify specific scope of reference to ASHRAE 170

ISSUE 7. COOKING FACILITIES IN BREAK ROOMS – APPLICATION OF COMMERCIAL EXHAUST PROVISIONS
(Tom Baldwin)
Discussion: The text of the IMC was reviewed for purposes of determining the adequacy and clarity of the code language. The concern appears to center on what triggers the need for commercial hood installation, with several committee members citing AHJ demands for providing Type I or Type II hoods over microwaves and light duty appliances within break rooms.

The code is very explicit in determining the type of hood within commercial kitchens dependent on the appliance hazard served. Sections 506 through 507 of the IMC detail the criteria for the hoods and exhaust requirements.

The confusion among the AHJ's appears to begin in definitions of Chapter 2 wherein Commercial Cooking Appliances are defined as follows: *"Appliances used in acommercial food service establishment for heating or cooking food and which produce grease vapors, steam, fumes, smoke or odors that are required to be removed through a local exhaust ventilation system. Such appliances include deep fat fryers; upright broilers; griddles; broilers; steam-jacketed kettles; hot-top ranges; under fired broilers (charbroilers); ovens; barbecues; rotisseries; and similar appliances. For the purpose of this definition, a food service establishment shall include any building or a portion thereof used for the preparation and serving of food."* Continuing from definition, *"**Section 507.2.3 Domestic cooking appliances used for commercial purposes**. Domestic Cooking appliances utilized for commercial purposes shall be provided with Type I or Type II hoods as required for the type of appliances and processes in accordance with Sections 507.2, 507.2.1 and 507.2.2."*

The last sentence of the definition *"…a food service establishment shall include any building or a portion thereof used for the preparation and serving of food*", causes a platform of an AHJ to be set, requiring commercial hoods in all facilities other than dwelling units. The IMC Commentary provides a realistic approach to determining the need for commercial hoods, however, the code text does not. However, exempting all break rooms **in any facility** from the hood/exhaust provisions of the Code will be unrealistic.

Conclusion: Whether to submit a code change to attempt to resolve the confusion on this issue will need further study going forward.

Notes:

- Current text is clear
- Clarify that this does not include mircrowaves, toaster, crockpots, popcorn popper and coffee pots. Use PMC 403.3 text.
    - "Devices such as coffee pots and microwave ovens shall not be considered cooking appliances."
- Investigate reason for code change to IMC 507.2.3
- Should possibly include cooktops
- Investigate specific hospital uses – nutrition rooms, training areas, family visitation areas

ISSUE 8. IMPACT OF AUTOMATIC GUIDED VEHICLES (Enrique Unanue)

8A.CHARGING LOCATIONS
8B.PLACEMENT OF HAZARDOUS MATERIALS IN CORRIDOR
8C.IMPACT ON CORRIDOR WIDTH

Discussion: At meeting #3, a discussion of some of the issues of concern with these systems took place and included:

- They can create hazardous conditions in corridors if battery charging stations are located there.
- Staging of items for robotic delivery in non-patient room corridors can encroach on the means of egress and create unacceptable fire loads in the means of egress access space.
- Multiple paths of robot travel in corridors can encroach on the means of egress.
- Queuing stations for multiple robots in the corridors can encroach on the means of egress.
- The robot turning radius can encroach on the means of egress.
- The presence of robots could hamper response to hospital "codes" (e.g., code blue, code red, etc)
- Robotic systems must be coordinated with fire and smoke doors so that they do not prevent or obstruct door operation.
- Robotic systems must be coordinated with fire alarm and sprinkler systems (i.e., shut-down on alarm but return to a neutral position) and arranged so as not to capture elevators.
- There are currently no known performance standards that include fire and life safety issues.

Issue 8C was also referred to the MOE Work Group as a cross-over issue.

Conclusion: None. Further study needed.

Notes:

- Incorporation needs to be part of building plan – not just added after
- Break down elements of the system and address issues
- Charging areas open to corridors and corridor width has been referenced to the MOE work group
    - Viewed as part of a broader picture of equipment stored/kept in corridors

ISSUE 9. FIRE ALARMS - AUDIBLE AND VISIBLE (Tom Baldwin)

Discussion: The text of the IBC, IFC and NFPA 72 have been reviewed for purposes of determining whether the various documents cited are uniform in scope.

The common concern appears to center in notification within operating rooms and similar uses where distraction of the occupants by visible and/or audible alarms presents a practical issue during medical procedures.

In all cases of Group B, Ambulatory Care and Group I-2, Hospitals, alarms are required. Notification, once an alarm activates is granted a range of options, including: notification at a constantly attended location with general notification broadcast over the overhead page; pre-signal feature allowing notification to that constantly attended location; visual alarms provided in lieu of audible alarm appliances in critical care units of I-2 occupancies (907.5.2.1)

The concerns of the Committee, cited above, may in fact be a nuisance issue for the attending staff/personnel within operating rooms, however, notification during an emergency event is critical in assuring the safety of both the health care

professionals as well as the life safety of the patient. The jeopardy placed on those individuals by not requiring responsible notification in those spaces far outweighs the factor of nuisance.

Conclusion: The following code change is suggested:

Section 907.5.2.1 Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

Exception: Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care and surgical areas of Group I-2 occupancies and within surgical and recovery areas of Group B, Ambulatory Care facilities.

Notes:

- Staff must be notified of emergency event
- Defend in place scenario is unique for Groups I-2 and I-3 and ambulatory care facilities –
  - If you don't want people to evacuate, what is the purpose of the evacuation alarms
- Coordination with Fire and Safety evacuation plans to allow for private mode alarm (NFPA 72)
- Should be expanded to patient care areas with sufficient staff supervision?
- Possible limitation of audible and visible alarms in other patient care areas in Group I-2
- Define the terms 'critical care' and 'patient care' areas for purposes of providing notification alarms (see NEC)
- Staff vs. patient/visitor notification is the key element for implementation of evacuation plan

ISSUE 10. NEW AND EXISTING FACILITIES TO BE FULLY SPRINKLERED
10A.TESTING PARAMETERS (Gary Lewis)

Discussion: In issue #10, the current IBC and IFC Section 903.2.6 requires new I-2's to be sprinklered and current IFC Section 4603.4.2 requires existing I-2's to be retroactively sprinklered. It is unclear what else this item may have had in mind.

In issue #10A, a major issue was identified as the frequency of fire pump and sprinkler system testing. It was pointed out that the IFC/2012 does not contain specific fire pump or sprinkler system testing requirements but, rather, in Section 901.6.1, refers users to NFPA 25-2011. It was noted that the current requirement of The Joint Commission for quarterly testing of sprinkler systems is based on the 2000 Life Safety Code referencing the 1998 Edition of NFPA 25. More recent editions of NFPA 25, including 2011, have requirements for semi-annual testing of water flow switches, although mechanical devices must still be tested quarterly.
Conclusion: There does not appear to be an IBC/IFC action issue with #10. For #10A, review of, and proposed changes to, NFPA 25 should be placed in the "Parking Lot".

Notes:

- Time constraints not indicated – needs to be worked out with jurisdiction regarding phasing in of the building being fully sprinklered
- Original reaction for requiring sprinklers may have been nursing homes, not hospitals
- Can sprinkler trade-offs be permitted in sprinklered fire areas and/or smoke compartments as the building is phased in to being fully sprinklered?
- Look at exceptions for sprinklers – building vs. fire area/smoke compartment
- Agree that testing is the purview of NFPA25

2012 IFC
1103.5.2 Group I-2. An *automatic sprinkler system* shall be provided throughout existing Group I-2 *fire areas.* The sprinkler system shall be provided throughout the floor where the Group I-2 occupancy is located, and in all floors between the Group I-2 occupancy and the *level of exit discharge*

ISSUE 11. HAZARDOUS MATERIAL LOCATIONS (Jack Chamblee)

Discussion: Hospital and Ambulatory Care occupancies have a specific listing of areas that are considered hazardous. These areas all elate to the operation of the facility, and include placement of medical gases such as tanked oxygen or medical air (piped systems or individual use), storage of small quantities of medical waste from patient care areas, and laboratories with material of both severe and less than severe hazard.

The listing we are regulated on include the following, with recommended barrier ratings around each. This list is based on the LSC and the JCAHO assessment form, and is summarized below:

- Boiler / Fuel Fired Heater Rooms – 1 hour (non-rated smoke tight partition with sprinkler system)
- Central / bulk laundries of greater than 100 sf – 1 hour (non-rated smoke tight partition with sprinkler system)
- Flammable gas storage rooms (i.e., manifold rooms, bulk tank storage) – 2 hour
- Flammable liquid storage rooms – 2 hour
- Laboratories: less than severe hazard (1 hour) and severe hazard (2 hour)
- Maintenance and repair shops – 1 hour (non-rated smoke tight partition with sprinkler system)
- Piped oxygen tank supply rooms – 1 hour (regardless of sprinkler coverage)
- Paint Shops (low quantities, in proper storage cabinets) – 1 hour (non-rated smoke tight partition with sprinkler system)
- Soiled linen rooms – 1 hour (non-rated smoke tight partition with sprinkler system)
- Storage rooms for combustibles, greater that 50 sf – 1 hour (non-rated smoke tight partition with sprinkler system)
- Trash collection rooms – 1 hour (non-rated smoke tight partition with sprinkler system)

The purpose of raising this issue is to clarify these hazardous areas in the IBC and IFC, to help define which areas are being considered in terms of fire rating of barriers within a healthcare occupancy.
Specific requirements for systems and handling of materials can best be refered out to other codes. NFPA 99 describes detail of set-up of piped systems, and NFPA 30 covers allowances for maximum allowable quantites (MAQ's) of liquid hazards and their distribution in control areas. If there are I-code equivalents, then they can certainly be reviewed.

Another aspect to review is the consideration of the additive quantities within the control area. Examples include whether patients personal oxygen tank, or ABHR for liquids. This is a source of confusion for those enforcing and for the facility. If there is clarity on this in the I-codes, it would be important to spell it out as part of this task.

In the conference call on 6/23/2011, it was noted that currently CMS has different requirements for new incidental use areas and existing incidental use areas. This concept potentially could be reproduced in the I-codes by modifying the current incidental use area Table 508 (2012 edition 509) and creating something similar in IFC chapter 11 as construction requirements for existing buildings. The MAQ table is already in both IBC and IFC, but should be reviewed in detail to ensure that the MAQs restrictions for oxidizing gases are appropriate, given the use of O_2 in high rise Group I-2.

See also under Cross-Over Issues, Item 2.

Conclusion: This issue requires a more detailed code text review and comparison going forward and will likely result in code change proposals to the IBC (probably Chapters 3, 4 and 5) and the IFC (probably Chapters 11 and 50 at a minimum)

Notes:

- Crossover with General work group with incidental use table
  - Move item 6 from General to Fire/Fire Safety
- Are these spaces covered in the incidental use table and the hazardous materials information?
  - Are these requirements too restrictive for hospital operation?
- Are there other areas that need to be addressed?
  - Containment/control areas in upper floors of highrise buildings (General work group #5)
  - Table 307.1(1) and 307.1(2) and Table 414.2.2 for limitations – are these adequate?
  - Oxygen tanks dispersed throughout care areas
  - Define the need specific to Group I-2 to justify increases in specific areas of the tables
- Given the protection in Group I, would a Group H classification add many requirements/limitations?

11A.MEDICAL GASES (Jack Chamblee)

Discussion: The principle issue with #11A is that some states require medical gas outlets to be installed in out-patient care facilities on the same basis as in-patient care facilities. It was pointed out that the IAPMO Uniform Plumbing Code (UPC) does require medical gas outlets and could be interpreted to require them in both in- and out-patient facilities. It was also noted that the IPC does not contain medical gas outlet requirements but, rather, refers the user to NFPA 99C. It was concluded that this item is not an IBC or IFC issue but, rather, an item that could be added to licensing guidelines and may need to be addressed in the UPC code development process.

Conclusion: Moved to the “parking lot”.

Notes:

- Issue is resolved

ISSUE 12. ALCOHOL DISPENSERS IN PATIENT ROOMS (Jack Chamblee)

Discussion:

1. Alcohol-based hand rubs IFC 5705.5, 5001.1, 5702.1, 202

Appropriately placed alcohol- based hand rub locations have been interpreted to be compliant to the referenced codes in different ways.

a. Installed in Corridors must comply with code. Other locations outside of the corridors as appropriate are installed/placed as determined by the Owner.
b. Installed anywhere within the Hospital/Facility (corridors, rooms, etc.) has to comply with the code.
c. Installation height of the dispenser above the floor in a corridor is established, however when the dispenser is placed within a room (not the Corridor) over a countertop or shelf, various Code interpretations have been made ranging from approved as installed to not approved as the clear dimension to the floor is interrupted even though the code reference is noted as applying only to a corridor installation.

Section 3405.5 of the IFC referencing the Alcohol-based hand rubs needs to be clarified. The specific clarification shall address:

a. Specification as to the exact requirements for the installation of the Alcohol-based hand rub dispensers in a corridor versus rooms off of the corridor.
b. Countertops and shelves can be installed under dispensers if these items are not in a corridor, but located in a room separated from the corridor by a wall.

Conclusion:
The following code change proposal to the 2012 IFC is recommended:

5705.5 Alcohol-based hand rubs classified as Class I or II liquids. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids shall be in accordance with all of the following:

1. The maximum capacity of each dispenser shall be 68 ounces (2 L).

2. The minimum separation between dispensers shall be 48 inches (1219 mm).

3. The dispensers shall not be installed directly adjacent to, directly above or below an electrical receptacle, switch, appliance, device or other ignition source. The wall space between the dispenser and the floor or intervening counter top shall remain clear and unobstructed.

4. Dispensers shall be mounted so that the bottom of the dispenser is a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1219 mm) above the finished floor.

5. Dispensers shall not release their contents except when the dispenser is manually activated. Facilities shall be permitted to install and use automatically activated “touch free” alcohol-based hand-rub dispensing devices with the following requirements:

5.1. The facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer’s care and use instructions.

5.2. Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing device are minimized. At a minimum, all devices subject to or used in accordance with this section shall have the following safety features:

5.2.1. Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.

5.2.2. The dispenser shall not dispense more than the amount required for hand hygiene consistent with label instructions as regulated by the United States Food and Drug Administration (USFDA).

5.2.3. An object placed within the activation zone and left in place will cause only one activation.

6. Storage and use of alcohol-based hand rubs shall be in accordance with the applicable provisions of Sections 5704 and 5705.

7. Dispensers installed in occupancies with carpeted floors shall only be allowed in smoke compartments or fire areas equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

5705.5.1 Corridor installations. Where wall-mounted dispensers containing alcohol-based hand rubs are installed in corridors, they shall be in accordance with all of the following in addition to the requirements of Section 5705.5:

1. Level 2 and 3 aerosol containers shall not be allowed in corridors.

2. The maximum capacity of each Class I or II liquid dispenser shall be reduced to 41 ounces (1.21 L) and the maximum capacity of each Level 1 aerosol dispenser shall be 18 ounces (0.51 kg).

3. The maximum quantity allowed in a corridor within a control area shall be 10 gallons (37.85 L) of Class I or II liquids or 1135 ounces (32.2 kg) of Level 1 aerosols, or a combination of Class I or II liquids and Level 1 aerosols not to exceed, in total, the equivalent of 10 gallons (37.85 L) or 1,135 ounces (32.2 kg) such that the sum of the ratios of the liquid and aerosol quantities divided by the allowable quantity of liquids and aerosols, respectively, shall not exceed one.

4. The minimum corridor width shall be 72 inches (1829 mm).

5. Projections into a corridor shall be in accordance with Section 1003.3.3.

Reason: The proposed change at Section 5705.5, Item 3 addresses the issue with installations over counter tops which is common in many types of occupancies in addition to health care.
The proposed change to Section 5705.5.1 makes it clear that the general safety items above are still applicable with the exception of Section 5705.5.1, Item 2 where the individual container size is reduced when it is located in a corridor. Section 5705.5, Items 2 thru 7 are just as important for corridor installations as room or space installations.

Notes:
- 'directly adjacent' could be measurable as one inch separation – look for technical justification
- Address alcohol dispensers/amounts within a suite or smoke compartments
- Review latest edition because it will allow for one dispensers per room and that amount will not count towards the 10 gallon limit within a smoke compartment

ISSUE 13. CLINICAL LABS/HAZARDOUS EXHAUST (Jack Chamblee)

Discussion: It was reported that there had been no input from WG members or interested parties on item #13 and that it was unclear if there is a true code problem or simply an interpretation problem to be resolved. ASHE was supposed to provide additional clarity on this issue.

Conclusion: It was suggested that perhaps the code needs to reference NFPA 45 and also NFPA 99 for labs and that IMC Section 510 does not provide the level of specificity needed for labs.

Notes:
- Need NFPA 99 for laboratory fume hoods criteria – Group I-2 laboratories and pharmacies
- IMC 510 should include cross-contamination or clinical need
- Look at NFPA 45
- Might be able to address in the future through ASHE 170

Issue 14. Fire Safety and Evacuation Plans: (Sharon Myers)
14A. IFC fire safety and evacuation plans issues need to be more clearly understood vis-à-vis health care occupancies.

14B. Should fire safety and evacuation plans be prepared and submitted during the plan review stage of a project?

14C. Section 408 of the IFC should be reviewed with an eye toward possible expansion to include Group B ambulatory care facilities.

14D.Should the IFC require the posting of evacuation plans and should it establish a minimum size for them since they seem to get overlooked?

Discussion: Most of the elements of these plans are accomplished by facility management policy but they need to be an on-going "policing" function. They should also be in the IBC for building commissioning and in the IFC for maintenance. Industry support is needed on this topic.

Questions to address:
What are the current CMS requirements? It was noted that CMS requirements seem to be vague on this issue. Input from the hospital interests was requested. How detailed should such a document be?

Are there widely accepted models for how to do this (RACE, etc) and do these models NEED to be codified? It was noted that NFPA 101, Section 18.7.2.1 uses RACE. Any plan should be performance-based so as not to conflict with NFPA 101. It was also suggested that the need for flexibility in the plan should outweigh the tendency to be very specific.

How much should we address special egress condition (infant abduction, dementia wandering control, etc.)? A discussion took place regarding the need for a clear explanation on submitted drawings for plans review of how the building will operate with respect to precautions against infant abductions, Alzheimer unit wandering prevention, etc. or, alternatively, a clear explanation on the fire safety plan that could be submitted along with drawings. Additional discussion took place regarding egress control by occupants versus egress control by staff. It was noted that special locking arrangements such as delayed egress locks under the IBC Section 1008.1.9.7 are occupant-controlled but require a higher level of staff supervision because of the hardware not re-locking after a person passes through the door, creating a security issue. Ed Hite will work on a code change proposal to address the security issues with delayed egress locking arrangements and after review, it was determined that, since the current text proposed for revision exists in Chapter 10 of the IBC and IFC, the topic was transferred to the MOE Work Group as a cross-over item.

How much discussion should there be regarding egress issues during a non-fire event (earthquake, tornado, flood, etc.) in the FIRE code? It was generally felt that non-fire events could be mentioned only generally in the fire safety plan and that the plan should not go into great detail. More detail could be provided in a CMS Guide on the IFC. Too much specificity could be viewed as "scope-creep" in that the IFC does not now cover external events that are outside of its stated scope.

Current code required that the fire safety and evacuation plans be "approved" by the fire official. If we are asking the plans to be submitted during plan review – is this going to cause any conflicts between building/fire code officials? Should this be clarified? It was pointed out that IBC/2012 Section 1001.4 was added to ensure that fire safety plans get reviewed before it's time to issue the C of O and to correlate the IBC and IFC. It was felt that the text should be more explicit in mandating that FS plans be submitted with the plan review. The issue of the FS plans being approved by the fire code official and it was noted that IFC Section 401.2 requires it.

Notes/concepts to address:

1. The General work group suggests that the Fire Safety workgroup consider the following items when drafting the fire evacuation plan requirements:

- Occupant condition

- Maximum number of people incapable of self preservation at any one time
- "Defend in place" or evacuation plan
- Assessment of existing building means of egress as it relates to the above.

The purpose of this is to provide enough information for the plan reviewer to accurately assess the building's occupancy and construction requirements.

2. Consider adding clarity in maintenance of fire safety systems and MOE systems so that could be translated into a lease. This probably is most related to the requirements for Group B. Note that this could be addressed in an ICC guide or other explanatory material that may be out of the scope of this committee.

3. Add requirements for Group B - Ambulatory Healthcare Facilities. Limited scope, i.e tenant space and MOE to exit discharge?

4. Review placarding of fire evacuation maps.

5. Note need to address the option of occupant evacuation elevators. Clarify the use of regular elevators in disaster conditions.

6. Evacuation plan should clarify that immediate evacuation outside of building is not necessarily required, it is the final "stage" of evacuation.

7. We've discussed the concept that code officials need to be aware of both the construction and the evacuation methods of the space when reviewing a new application.

8. This will require coordination with the GEN WG Topic #2 "Defend in place" definition.

Conclusions:
Subitem 14A: Needs further work.

Subitem 14B: Need to formulate IFC proposed code change.

Subitem 14C: Submit the following code change proposal:

SECTION 404
FIRE SAFETY AND EVACUATION PLANS

404.1 General. Fire safety, evacuation and lockdown plans and associated drills shall comply with the requirements of Sections 404.2 through 404.5.1.

404.2 Where required. An *approved* fire safety and evacuation plan shall be prepared and maintained for the following occupancies and buildings:

1. Group A, other than Group A occupancies used exclusively for purposes of religious worship that have an *occupant load* less than 2,000.
2. Group B.
   2.1 . Buildings having an ambulatory health care facility use or tenant space regardless of occupant load.
   2.2. Buildings having an *occupant load* of 500 or more *persons* or more than 100 *persons* above or below the lowest *level of exit discharge*.
3. through 15. (No change to current text.)

Reason: The justification for placing the ambulatory healthcare facility use or tenant space first is that the "fire evacuation plan" is always required when this use is within a Group B building. Therefore, it should be listed first – and all other B-buildings with or without a 'healthcare use' would be required to have an egress plan. The "tenant" notification and provisions of the fire evacuation plans would be provided /modified for the existing tenants of the building that did not previously have an ambulatory healthcare facilities within them.

Subitem 14D: Need to formulate IFC proposed code change.

Notes:

- Deal with non-fire events (i.e., exterior disasters such as tornado, hurricane, flood) in the fire code only when they will affect the fire safety plan and the defend in place approach to protection
- Interior disaster (i.e., biological hazard, power outage) may result in different evacuation plan
- Disaster evacuation plans (other than fire) should be an operational issue, not a fire code issue
- Define in the IFC how the defend-in-place scenario would be utilized in the fire and safety evacuation plans
- Look at ambulatory care facilities and documentation needed to clarify allowance for defend-in-place
- Look at what is already required by the Joint Commission for guidance

NEW CODE ISSUES

(Issues that have arisen beyond the issues raised by the AHC at AHC #1. Identify the issue and note which WG should be charged with review and resolution. Again, needs to be comprehensive enough to have the AHC act on it.)

1. Add to Issue #1 for Fire/Fire Safety WG going forward: It was suggested that natural cut trees should be prohibited in Group B Ambulatory Care Facilities in IFC Section 806 as they are in Group I-2.

Note: Add to items for Fire Safety work group

2. Add to Issue #3 for Fire/Fire Safety WG going forward: It was suggested that carbon monoxide migration should be a consideration in the issue of floor openings. (See Meeting #4 Notes.)

Note: Addressed as part of Item #3

3. In conjunction with Issue #4, the question was raised as a point of discussion whether humidity levels in operating rooms should be regulated. It was noted that humidity is not regulated in the IMC but that it could be considered as long as conflicts were not created. It was suggested to consider the input that the AHC could have to other codes and to decide whether to create I-codes text or simply reference other codes/standards. The WG seeks AHC guidance on this item.

Note: Mechanical requirement that is included in ASHE 170 tables. Not to be included for the work group at this time.

4. Relative to the discussion on hazardous material use areas (Issue #11), it was suggested that the issue be expanded to examine new technology batteries (e.g., as lithium-ion) and their charging stations as incidental use areas needing protection. These widely used, rechargeable batteries can be found in computers, health care instrumentation and maintenance equipment to name a few applications. This concern was based on the fire incident history of such batteries and their potential impact on health care facilities.

Note: Is this type of battery considered a hazard? No. IFC allows such a substantial amount it never would occur in a hospital setting.

WG CROSS OVER ISSUES

(Issues that need to be coordinated or transferred from one WG to another)

1. The issue of the impact of automated/robotic vehicles in corridors upon egress width (Item 8C) was referred to the MOE Work Group.

2. Issue #11 on hazardous materials locations is also being reviewed as Items 5 and 6 on the GEN WG agenda.

3. A cross over issue referred from the General WG regarding fire safety and evacuation plans (see Meeting #3 Agenda, Item 6.0 and Meeting #3 Notes, Item 4.0) was reviewed and a new task list item was created and assigned in the FS/WG as Issue #14, shown above in this report.

4. A cross over issue referred from the MOE WG is to consider adding clarity in maintenance of fire safety systems and MOE systems so that could be translated into a lease. Note that this could be addressed in an ICC guide or other explanatory material that may be outside of the scope of this committee. [*Staff note: Two sections on this are already in Chapter 10. Section 1001.4 is new for 2012. Fire code calls for review of the fire and safety evacuation plan on an annual basis or sooner if needed (i.e., major tenant switch).* No activity on this issue at this time.

Note: Other committees have been notified of issues.

FURTHER RESEARCH ISSUES

(At AHC #1, ASHE noted that resources could be made available to the AHC for purposes of detailed studies. Identify such issues, with enough detail and clarity, in order for the AHC to make a reasoned assessment as to whether such an issue warrants an ASHE review component)

ISSUE 5A: It was suggested that the issue of ceiling tile uplift under fire conditions should be studied before final submittal of a code change proposal. Some research has been done with both standard response and QR sprinklers with no significant problems noted. This is an item that should be referred for additional ASHE research work.

ISSUE #13: It was reported that there had been no input from WG members or interested parties on item #13 and that it was unclear if there is a true code problem or simply an interpretation problem to be resolved. ASHE was supposed to provide additional clarity on this issue.

Add: No additional items to add at this time.

OUT-OF-SCOPE ISSUES/"PARKING LOT"

Issue #10: The major issue was identified as the frequency of fire pump and sprinkler system testing. It was pointed out that the IFC/2012 does not contain specific fire pump or sprinkler system testing requirements but, rather, in Section 901.6.1, refers users to NFPA 25-2011. Review of, and proposed changes to, NFPA 25 should be placed in the "Parking Lot" for future action in the NFPA code development process.
Issue #11A: It was concluded that this item is not an IBC or IFC issue but, rather, an item that could be added to licensing guidelines and may need to be addressed in the UPC code development process.

Note: Addressed in discussion of items above.

ADDITONAL ISSUES TO BE BROUGHT TO AHC ATTENTION

(Identify issues not covered in previous comments that require AHC input and direction.)

See "New Code Issues" above

WG PROGRESS ASSESSMENT

(Identify progress to date. How many calls/total duration of calls? Identify logistics issues/concerns such as inadequate participation on the calls. Spinning your wheels with no resolution of issues? Note progress in terms of issues resolved; issues to resolve; time frame for resolution coordinated with remainder of AHC meetings.)

The Fire/Fire Safety Work Group has had 7 teleconference calls --- every Thursday at 10:00 AM EDT, from May 12 through June 23, 2011. Typically there have been 3 – 4 assigned members of the AHC on the calls and the interested parties range from 5 to 10. The call durations last from 1 hour to a little over 2 hours.

The FSWG progress has shown fairly steady improvement over the 7 teleconferences to date. The often- vague nature of some of the issues assigned to the WG caused a somewhat slow start but once some assumptions were made and topics assigned and volunteered for, things started moving along and the WG appears to have found its pace.

WG member and interested party participation has been constructive. John Williams, the AHC chair, has participated in many of the teleconferences of this and the other WG's which has assisted in keeping the work group on track by providing some "big picture" insights and background information on what the AHC discussed at its first meeting and what the issues are.

As seen in the report, several issues have come to a tentative conclusion and many more still need deeper investigation going forward. If the pace continues, the FSWG should be able to complete all assigned tasks as planned and needed.

A common thread that seems to run through several of the discussions that have taken place is that some of the issues may not be code problems at all but, rather, code misinterpretation or misapplication. The WG will have to carefully consider whether a code change on a given issue will truly result in an improved situation for health care facilities.