915 CO cleanup (9301)

IFC: SECTION 202 (New), 915.1, 915.1.1, 915.2 (New), 915.2.1 (New), 915.2.2 (New), 915.2.3 (New), 915.2.1, 915.2.3.2 (New), 915.2.2, 915.2.3, 915.2.4, 915.2.5, 915.2.6, 915.3, 915.3.1, 915.4.1, 915.4.2, 915.4.3, 915.4.4, 915.3.2, 915.3.3, 915.3.4, 915.5, 915.5.1, 915.5.2, 915.5.3, 915.5.4, 915.5.5, 915.4, 915.6, 915.6.1, 1103.9

Proponents:

2024 International Fire Code

Revise as follows:

Carbon Monoxide Source.
A combustion process that, under normal or abnormal conditions, has the potential to produce carbon monoxide as a product of combustion and could expose interior rooms or spaces. Carbon monoxide sources include, but are not limited to solid-, liquid-, or gas-fueled appliances, equipment, devices or systems, such as fireplaces, furnaces, heaters, boilers, cooking equipment, and vehicles with internal combustion engines.
~~A piece of commonly used equipment or permanently installed appliance, fireplace or process that produces or emits carbon monoxide gas.~~

Add new definition as follows:

Carbon Monoxide Source, Direct. A *carbon monoxide source* that is located in an interior room or area.

Carbon Monoxide Source, Forced Indirect.
A *carbon monoxide source* connected to an interior room or area by way of a forced air supply duct.

Carbon Monoxide Source, Passive Indirect. A *carbon monoxide source* that is not a *direct* or *forced indirect carbon monoxide source.*

Revise as follows:

915.1 General. New and existing buildings shall be provided with c~~C~~arbon monoxide (CO) detection ~~shall be installed in new buildings~~ in accordance with Section 915.~~1.1~~.
~~Carbon monoxide detection shall be installed in existing buildings in accordance with Section 1103.9.~~

~~**Exception:** Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.~~

Delete without substitution:

~~**915.1.1 Where required.**~~
~~Carbon monoxide detection shall be~~ installed ~~in the locations specified in Section 915.2 where any of the~~ following ~~conditions exist.~~

1. In buildings that contain a *CO source.*
2. In buildings that contain or are supplied by a CO-producing forced-air furnace.
3. In buildings with attached private garages.
4. In buildings that have a CO-producing vehicle that is used within the building.

Revise as follows:

915.2 Where required. Carbon monoxide detection shall be ~~installed in the locations specified in~~
provided for all occupancies, located at the ceiling level, in enclosed rooms or spaces that are exposed to a *direct*, *forced indirect*, or *passive indirect carbon monoxide source*. Except as provided in
Sections 915.2.1 through ~~915.2.3~~ 915.2.5,
carbon monoxide detection shall be provided throughout the building. Carbon monoxide detectors placed in environmental air ducts or plenums shall not be permitted to be used as an alternative method of detection.

Add new text as follows:

915.2.1 Groups F, S, and U Occupancies.
Carbon monoxide detection is not required in Group F, Group S and Group U occupancies that are not normally occupied.

915.2.2 Forced-indirect carbon monoxide sources.
For a *forced-indirect carbon monoxide source*, carbon monoxide detection shall be permitted to be limited to installation of a single detection device located in the first room or space served by the main duct leaving the *forced-indirect carbon monoxide source*. The detection device alarm signal shall be annunciated at a normally occupied location,

915.2.3 Dwelling units and sleeping units.
Carbon monoxide detection for *dwelling units* and *sleeping units* shall comply with Sections 915.2.3.1 and 915.2.3.2.

Revise as follows:

915.2.3.1 ~~915.2.1~~ Direct and passive indirect carbon monoxide sources.~~Dwelling units~~.
Where a *direct or passive indirect carbon monoxide source* is located outside of a bedroom or sleeping room, carbon ~~Carbon~~ monoxide detection shall be installed in *dwelling units and sleeping units either* outside of each separate sleeping area in the immediate vicinity of the bedrooms or within each bedroom. Where a *direct carbon monoxide source*~~*CO source*~~ is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

Add new text as follows:

915.2.3.2 Forced-indirect carbon monoxide sources.
Dwelling units and s*leeping units* exposed to f*orced-indirect carbon monoxide sources* shall be provided with carbon monoxide detection located as required for *direct carbon monoxide source* exposure in accordance with Section 915.2.1.3.1 or as required for *forced-indirect carbon monoxide source* exposure by Section 915.2.2.

Revise as follows:

~~**915.2.2 Sleeping units.** Carbon monoxide detection shall be installed in *sleeping units*.~~

~~**Exception:** Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the *sleeping unit* where the *sleeping unit* or its attached bathroom does not contain a *CO source* and is not served by a CO-producing forced-air furnace.~~

NOTE FOR FURTHER REVIEW. IT APPEARS THAT SLEEPING UNITS WERE NOT ALLOWED TO HAVE THE SAME EXCEPTION FOR FORCED AIR FURNACES IN '24 SECTION 915.2.4.

Delete without substitution:

~~**915.2.3 Group E occupancies.**~~
A carbon ~~monoxide~~ system that uses carbon monoxide ~~detectors shall be installed in Group E occupancies.~~ Alarm signals from carbon ~~monoxide~~ detectors ~~shall be automatically transmitted to an on-site location that is staffed by school personnel.~~

~~**Exception:** Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an *occupant load* of 30 or less.~~

~~**915.2.4 CO-producing forced-air furnace.**~~

Carbon monoxide detection complying with Item 2 of Section 915.1.1 shall be installed in all enclosed rooms and spaces served by a fuel-burning, forced-air furnace.

Exceptions:

1. Where a carbon monoxide detector is provided in the first room or space served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an *approved* location.
2. *Dwelling units* that comply with Section 915.2.1.

Revise as follows:

915.2.4 ~~915.2.5~~ Private garages. ~~Carbon monoxide detection complying with Item 3 of Section 915.1.1 shall be installed within enclosed~~ Enclosed occupiable rooms or spaces that have communicating openings to a passive indirect carbon monoxide source exposure from an ~~are contiguous to the~~ attached *private garage* shall be provided with carbon monoxide detection installed on the ceiling.

Exceptions:

~~1. In buildings without communicating openings between the *private garage* and the building.~~

~~2. In rooms or spaces located more than one story above or below a private garage.~~

1. ~~3.~~ Where the private garage connects to the building through an *open*-ended corridor.

2. ~~4.~~ An open parking garage complying with Section 406.5 of the *International Building Code* or an enclosed parking garage complying with Section 406.6 of the *International Building Code*~~shall not be considered a private garage.~~

3. ~~5.~~ *Dwelling units* and *sleeping units* that comply with Section 915.2.3~~915.2.1~~.

915.2.5 ~~915.2.6~~ Environmental limitations for detection devices. ~~All other occupancies~~.

Where environmental conditions prohibit the installation of carbon monoxide detector in an enclosed room or space, carbon monoxide detectors shall be installed in an *approved* enclosed location contiguous with the room or space that contains a *CO source*.

~~For locations other than those specified in Sections 915.2.1 through 915.2.5, carbon monoxide detectors shall be installed on the ceiling of enclosed rooms or spaces containing CO-producing devices or served by a *CO source* forced-air furnace.~~

~~**Exception:** Where environmental conditions prohibit the installation of carbon monoxide detector in an enclosed room or space, carbon monoxide detectors shall be installed in an *approved* enclosed location contiguous with the room or space that contains a *CO source*.~~

915.3 Detection requirements~~Carbon monoxide detection~~. Carbon monoxide detection ~~required by Sections 915.1 through 915.2.3~~ shall be provided by ~~carbon monoxide alarms complying with Section 915.4,~~ ~~or~~ a carbon monoxide detection system~~s~~ complying with Section~~915.5~~ 915.3.2, unless carbon monoxide alarms are permitted by Sections 915.3.1.

915.3.1 Allowance to use CO Alarms ~~Alarm limitations~~. Carbon monoxide alarms shall ~~only be installed~~ be permitted in lieu of using a carbon monoxide detection system in any of the following:1. In ~~in~~ *dwelling units* and ~~in~~*sleeping units*.

2. Where approved by the fire code official.

~~They shall not be installed in locations where the code requires carbon monoxide detectors to be used.915.2.3 Group E occupancies. A carbon monoxide system that uses carbon monoxide detectors shall be installed in Group E occupancies. Alarm signals from carbon monoxide detectors shall be automatically transmitted to an on-site location that is staffed by school personnel.~~

~~**Exception:** Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an *occupant load* of 30 or less.~~

915.3.1.1 ~~915.4.1~~ Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and shall be provided with a battery backup, ~~and when primary power is interrupted, shall receive power from a battery.~~ Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exception: Carbon monoxide alarms shall be permitted to be battery powered in either of the following conditions:

1. ~~Where installed in b~~ Buildings without a commercial power source
~~, battery-powered carbon monoxide alarms shall be an acceptable alternative~~.
2. Existing buildings being retrofitted with carbon monoxide detection that were constructed at a time when the code governing construction did not require such detection.

915.3.1.2 ~~915.4.2~~ Listings. Carbon monoxide alarms shall be *listed* in accordance with UL 2034.
Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 217 and UL 2034.

Delete without substitution:

~~915.4.3 Combination alarms~~.
~~Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be *listed* in accordance with UL 217 and UL 2034.~~

Revise as follows:

915.3.1.3 ~~915.4.4~~ Interconnection. Where more than one carbon monoxide alarm is required to be installed, carbon monoxide alarms shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

Delete without substitution:

~~915.3.2 Fire alarm system required~~.
New buildings that are required by Section 907.2 to have a *fire alarm system* and by Section 915.2 to have carbon monoxide detectors shall be connected to the *fire alarm system* in accordance with NFPA 72.

Revise as follows:

915.3.2 ~~915.3.3~~ Carbon monoxide detection systems ~~Fire alarm systems not required~~.
~~In new buildings that are not required by Section 907.2 to have a *fire alarm system*, carbon~~
Where a building fire alarm system or combination fire alarm system as defined in NFPA 72 is installed, carbon monoxide detectors shall be connected to the fire alarm system. Where such systems are not installed, carbon
monoxide detection shall be provided by carbon ~~one of the following:~~

1. ~~Carbon~~ monoxide detectors connected to an *approved* carbon monoxide detection system in accordance with NFPA 72.
2. ~~Carbon monoxide detectors connected to an *approved* combination system in accordance with NFPA 72.~~
3. ~~Carbon monoxide detectors connected to an *approved fire alarm system* in accordance with NFPA 72.~~
4. ~~Where *approved* by the *fire code official*, carbon monoxide alarms maintained in accordance with the manufacturer's instructions.~~

915.3.2.1 ~~915.3.4~~ Installation. Carbon monoxide detection systems shall be installed in accordance with NFPA 72 and the manufacturer's instructions.

Delete without substitution:

~~915.5 Carbon monoxide detection systems~~.
~~Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.~~

Revise as follows:

915.3.2.2 ~~915.5.1~~ Listings ~~General~~. Carbon monoxide detectors shall be *listed* in accordance with UL 2075.

Combination carbon monoxide/smoke detectors shall be listed in accordance with UL 268 and UL 2075

Delete without substitution:

~~**915.5.2 Locations.**~~
~~Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 72.~~

~~**915.5.3 Combination detectors.**~~
~~Combination carbon monoxide/smoke detectors shall be an acceptable alternative to carbon monoxide detectors, provided that they are *listed* in accordance with UL 268 and UL 2075.~~

Revise as follows:

915.3.2.3 ~~915.5.4~~ Occupant notification. Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.

Exceptions:

1. Occupant notification is permitted to be limited to the area where the carbon monoxide alarm signal originated and other signaling zones in accordance with the fire safety plan, provided that the alarm signal from an activated carbon monoxide detector is automatically transmitted to an *approved* on-site location or off-premises location.

2. For Group E Occupancies having an occupant load of more than 30, alarm signals from carbon monoxide detectors shall be automatically transmitted to an on-site location that is staffed by school personnel.

Delete without substitution:

~~**915.5.5 Duct detection.**~~
Carbon monoxide detectors placed in environmental air ducts or plenums shall not be used as a substitute for the required protection in Section 915.

~~**915.4 Carbon monoxide alarms.** Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.4.~~

Revise as follows:

915.4 ~~915.6~~ Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72 and the manufacturer's instructions. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

Delete without substitution:

~~**915.6.1 Enclosed parking garages.**~~
~~Carbon monoxide and nitrogen dioxide detectors installed in enclosed parking garages in accordance with Section 404.1 of the International Mechanical Code shall be maintained in accordance with the manufacturer's instructions and their listing. Detectors that become inoperable or begin producing end-of life signals shall be replaced.~~

Revise as follows:

1103.9 Carbon monoxide detection. Carbon monoxide detection shall be installed in existing buildings in accordance with Section 915. ~~where any of the conditions identified in Section 915.1.1 exist. Carbon monoxide alarms shall be installed in the locations specified in Section 915.2 and the installation shall be in accordance with Section 915.4.~~

~~**Exceptions:**~~

1. ~~Carbon monoxide alarms are permitted to be solely battery operated where the code that was in effect at the time of construction did not require carbon monoxide detectors to be provided.~~
2. ~~Carbon monoxide alarms are permitted to be solely battery operated in *dwelling units* that are not served from a commercial power source.~~
3. ~~A carbon monoxide detection system in accordance with Section 915.5 shall be an acceptable alternative to carbon monoxide alarms.~~

Reason: NOTE - THIS ENTIRE PROPOSAL IS A WORK IN PROGRESS. THE CONTENT OF THE WORKING DOCUMENT IS BEING SHARED SO THAT PEOPLE CAN VIEW THE DIRECTION THAT THE DRAFT IS MOVING IN. THE OVERALL INTENT IS TO BE EDITORIAL, BUT SOME OF THE CURRENT PROVISIONS ARE UNCLEAR AND WILL REQUIRE INTERPRETATION IN CRAFTING CODE TEXT THAT IS CLEARLY STATED.

SECTION 709
SMOKE BARRIERS

709.1 General. Vertical and horizontal *smoke barriers* shall comply with this section.

709.2 Materials. *Smoke barriers* shall be of materials permitted by the building type of construction.

709.3 Fire-resistance rating. A 1-hour *fire-resistance rating* is required for *smoke barriers*.

Exception: *Smoke barriers* constructed of minimum 0.10-inch-thick (2.5 mm) steel in Group I-3 buildings.

709.4 Continuity. *Smoke barriers* shall form an effective membrane continuous from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required *fire-resistance rating* of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction. *Smoke-barrier* walls used to separate *smoke compartments* shall comply with Section 709.4.1. *Smoke-barrier* walls used to enclose *areas of refuge* in accordance with Section 1009.6.4 or to enclose elevator lobbies in accordance with Section 405.4.3, 3007.6.2, or 3008.6.2 shall comply with Section 709.4.2.

Exception: *Smoke-barrier* walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings or *exterior walls* that provide resistance to the passage of fire and smoke equivalent to that provided by the *smoke-barrier* walls.

709.4.1 Smoke-barrier assemblies separating smoke compartments. *Smoke-barrier* assemblies used to separate *smoke compartments* shall form an effective membrane enclosure that is continuous from an outside wall or *smoke barrier* wall to an outside wall or another *smoke barrier* wall and to the *horizontal assemblies.*

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709.4.2 Smoke-barrier walls enclosing areas of refuge or elevator lobbies. *Smoke-barrier* walls used to enclose *areas of refuge* in accordance with Section 1009.6.4, or to enclose elevator lobbies in accordance with Section 405.4.3, 3007.6.2, or 3008.6.2, shall form an effective membrane enclosure that terminates at a *fire barrier* wall having a ~~level of~~ *fire* ~~*protection*~~ resistance *rating* not less than 1 hour, another *smoke barrier* wall or an outside wall. A smoke and draft control door assembly as specified in Section 716.2.2.1.1 shall not be required at each elevator hoistway door ~~opening~~ where protected by an elevator lobby, at each exit door opening into a protected lobby or at each exit doorway between an *area of refuge* and the exit enclosure.

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709.5 Openings. Openings in a *smoke barrier* shall be protected in accordance with Section 716.

Exceptions:

1. In Group I-1, Condition 2, Group I-2 and *ambulatory care facilities*, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 709.5.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close fitting within operational tolerances, and shall not have a center mullion or undercuts in excess of $^{3}/_{4}$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops, and astragals or rabbets at meeting edges. ~~Where permitted by the door manufacturer's listing, positive-latching devices are not required.~~ Positive latching devices are not required. Factory-applied or field-applied protective plates are not required to be labeled.
2. In Group I-1, Condition 2, Group I-2 and *ambulatory care facilities*, special purpose horizontal sliding, accordion or folding doors installed in accordance with Section 1010.3.3 and protected in accordance with Section 716.

709.5.1 Group I-2 and ambulatory care facilities. In Group I-2 and *ambulatory care facilities*, where doors protecting openings in *smoke barriers* are installed across a *corridor* and have hold-open devices, the doors shall be automatic-closing in accordance with Section 716.2.6.6. Such doors shall have a vision panel with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested.

709.6 Penetrations. Penetrations of *smoke barriers* shall comply with Section 714.

709.7 Joints. *Joints* made in or between *smoke barriers* shall comply with Section 715.

709.8 Ducts and air transfer openings. Penetrations in a *smoke barrier* by ducts and air transfer openings shall comply with Section 717.

709.10 Separating smoke compartments. Where the *horizontal assembly* is required to be a *smoke barrier*, the assembly shall comply with Section 909.

Reason: The code does not completely address where the floors (horizontal assemblies) are required to also be designed as smoke barriers. Section 711.2.4.4 sends you to Section 709 for smoke barriers that are horizontal assemblies. Smoke compartments are required in ambulatory care, Group I-1 Condition 2, Group I-2 and Group I-3. Pressurized stairways also use horizontal smoke barriers.

As indicated in Section 422.3, smoke barriers shall be provided on any story containing an ambulatory care facility which is greater than 10,000 sq. ft. in area. The creation of smoke compartments is required to allow a protect-in-place environment. These compartments allow staff a safer environment to stabilize the care recipients before evacuation and protection for fire personnel who may have to evacuate both care recipients and staff. The requirement for a smoke barrier is based solely on a story-by-story basis without consideration of fire-resistance ratings for the floor assemblies. As such, a smoke barrier is not required for the floor assemblies.

Since the primary performance of smoke barriers is to achieve protection on the fire floor, the supporting construction is not required to provide the same degree of fire resistance for buildings of Types IIB, IIIB and VB construction as specified in Section 709.4. These three construction types are identified since the floor construction is not otherwise required to have a fire-resistance rating and it is not considered essential to require fire-resistance-rated floor construction due to the floor supporting a smoke barrier. As such, since the building in question is of Type IIB construction, the supporting construction for the smoke barrier is not required to have a fire-resistance rating.

Cost Impact: None. Clarification.

2027 Group A – Flood A4 – Emergency Power

RECOMMENDATION OPTIONS:

A. Modify existing sections in IFC (below) and matching in IBC 2702.1.8 to apply to Flood Design Class 3 and 4 (or just 4) facilities in the FHA.
B. If extending to FDC 3 and 4 (or just 4) is too far-reaching, add occupancies to the existing requirement for emergency power and standby power systems. Look at Use Group I-1, I-3, R-4.

Ian MAT RA2 states "The loss of utility service, and in some cases standby generators, severely impacted the ability of critical facilities to operate as intended." "For critical facilities to continue to operate during the loss of services provided by utilities, measures must be in place to accommodate those losses of service. The measures must have the capacity to provide the necessary services for the duration of the outages." RA2 provides guidance for on-site systems that can temporarily deliver services normally present and enable the critical facilities to function even when utilities are no longer available.

LOOK AT FEMA P-1019: Emergency Power Systems for Critical Facilities: A Best Practices Approach to Improving Reliability (2014)

- Defines "critical facilities" same as I-Code definition for "essential facility"
- Cites mid-west flooding, destroyed "emergency generators for several law enforcement facilities," shows exterior and interior photos from Cedar Rapids
- Cites Sandy situation, "large hospital lost emergency power because the fuel pumps were immersed"

COORDINATION:

1. The provision originated by the ICC Ad Hoc Committee on Health Care. We're on the agenda for December 6
2. Should the Wind team consider comparable proposal. Do we know if wind contributed to what the MAT reported? At a minimum, consider for just Group I-2 in those regions.

There is precedent for high-risk occupancy; see flood-specific provision for Group I-2 and emergency and standby generators; same language in IFC (shown) and IBC [F] 2702.1.8:

SECTION 1203 EMERGENCY AND STANDBY POWER SYSTEMS

1203.1 General. Emergency power systems and standby power systems required by this code or the *International Building Code* shall comply with Sections 1203.1.1 through 1203.1.9.

1203.1.8 Group I-2 occupancies. In Group I-2 occupancies located in flood hazard areas established in Section 1612.3 of the *International Building Code*, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hook up of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

After discussion with Greg: draft for FDC4

New Notes

Commented [RQ1]: 11/27/23: Figuring out when the code requires is something of rabbit hole, look at 2702.2 where some are called out, but it also points to other places.

Let's see what the Ad Hoc committee thinks of adding essential facilities that are in FHA– if they come back with listing other use groups, we'll reconsider

- For new construction and SI/SD, IBC/ASCE 24 already requires that IF a system is installed in a Flood Design Class 4 building in a flood hazard area, THEN it shall be located/installed in accordance with ASCE 24. The code section in question goes beyond that by applying the requirements to all newly installed systems when those are required by the code (which could be installed in existing non-SI/SD construction)
- Instead of leading with Flood Design Class 4 for this requirement, we opted to lead with essential facilities designated Flood Design Class 4. We recall we've had pushback in the past with trying to lead with Flood Design Class in the I-Codes because it is not a common code term (although called out in 1603), and they always want to use Risk Category. We don't want to lead with an unfamiliar term that is not going to alert the user to the relevance. Essential facility is a defined term in the IBC and the definition lends credence to keeping buildings intended to remain operational from becoming inoperable due to loss of power.
    - "ESSENTIAL FACILITIES. *Buildings* and other *structures* that are intended to remain operational in the event of extreme environmental loading from *flood,* wind, snow or earthquakes."
- History on the code change for Section 1203.1.8 indicates the ASCE 24 utility requirements were being overlooked in Group I-2 which is why they pointed it out in this way (see history below)
- Reason statement will focus on the purpose of these systems and essential nature of the facilities and heavily borrow from the MAT.
- Would be great to get Ad Hoc buy-in on this section being a positive for group I-2, to add to the reason statement.
- Ask Ad-hoc committee for any insight on costs.

Previous change History

- F54-13 (Ad Hoc Committee on Healthcare): "There is no way to get to the requirements or limitations regarding generator placement for healthcare facilities that are in the standard if the code text for the specific code section does not take you there. The Ad hoc committee on healthcare identified this coordination oversight as it has been identified in healthcare facilities and that generators are being installed in areas subject to flooding, and although they were designed to meet the structural loads for the flooding, they would operationally fail."
- G35-16 (FEMA): Proposal made the requirement apply to new essential electrical systems AND generators (previous language was only generators). The proposal added a requirement related to hook up of temporary generators. NOTE: original G35-16 had "new or replacement" and was unclear on generators - FEMA removed "or replacement" due to opposition and clarified that the requirement applied to generators. Replacement would still be covered by SI/SD requirements.

Proposed changes

Two options:

1. **PREFERRED by Greg:** Add new section for essential facilities in FHAs. Requirements are the same, so some repetition
2. One paragraph addressing both Group I-2 and Essential Facilities – benefits from having flood hazard area requirements in one place, but makes for a long string of words and also this section of code seems to parse things out by occupancy/systems/building type, so having a section with occupancy and essential facilities/FDC4 in the same paragraph may be odd for users

Two sections	**IFC:** **1203.1.8 Group I-2 occupancies.** In Group I-2 occupancies located in flood hazard areas established in Section 1612.3 of the *International Building Code*, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hook up of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24. **1203.1.9 Essential Facilities.** In *essential facilities* designated Flood Design Class 4 in accordance with ASCE 24 and located in *flood hazard areas* established in Section 1612.3 of the *International Building Code*, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24. **IBC:** **[F] 2702.1.8 Group I-2 Occupancies.** In Group I-2 occupancies located in *flood hazard areas* established in Section 1612.3, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24. **[F] 2702.1.9 Essential Facilities.** In *essential facilities* designated Flood Design Class 4 in accordance with ASCE 24 and located in *flood hazard areas* established in Section 1612.3, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

one section paragraph	**IFC:** 1203.1.8 ~~Group I-2 Occupancies~~ Flood Hazard Areas. In Group I-2 occupancies and *essential facilities* designated Flood Design Class 4 in accordance with ASCE 24 located in flood hazard areas established in Section 1612.3 of the *International Building Code*, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hook up of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24. **IBC:** [F] 2702.1.8 ~~Group I-2 Occupancies~~ Flood Hazard Areas. In Group I-2 occupancies and *essential facilities* designated Flood Design Class 4 in accordance with ASCE 24 located in *flood hazard areas* established in Section 1612.3, where new essential electrical systems are installed, and where new essential electrical system generators are installed, the systems and generators shall be located and installed in accordance with ASCE 24. Where connections for hookup of temporary generators are provided, the connections shall be located at or above the elevation required in ASCE 24.

DRAFT Reason Statement

Essential facilities located in flood hazard areas are only as valuable as the functions they can provide to the community after floods occur. By definition in the IBC, essential facility means "*Buildings* and other *structures* that are intended to remain operational in the event of extreme environmental loading from *flood,* wind, snow or earthquakes."

An essential facility cannot remain operational in the event of flooding if its essential electrical systems and/or standby generators are flooded. For example, a hospital that loses all utility and backup power would lose use of onsite potable water and medical equipment and would not be able to provide complete medical services. Similarly, a fire station that loses power may lose communication systems and not be able to adequately provide residents throughout the affected area with fire and rescue services. FEMA's Mitigation Assessment Teams deployed after some flood events have repeatedly observed impacts to essential facility operations due to loss of power, including as a result of flooded generators.

ASCE 24, *Flood-Resistant Design and Construction*, is a referenced standard in the IBC for buildings and structures in flood hazard areas. IBC Sec. 1603.1.7 and ASCE 24 require buildings and structures to be designated a Flood Design Class. ASCE 24 then establishes requirements for buildings in four Flood Design Classes, considering the risk associated with unacceptable performance during design floods. The

Flood Design Class 4 designation applies to "buildings and structures that contain essential facilities and services necessary for emergency response and recovery, or that pose a substantial risk to the community at large in the event of failure, disruption of function, or damage by flooding." A full list of Flood Design Class 4 structures is in ASCE 24, Table 1-1 (see FEMA's "Highlights of ASCE 24-14" at https://www.fema.gov/sites/default/files/2020-07/asce24-14_highlights_jan2015.pdf.

This proposal expands on the current requirement for new essential electrical systems and generators in Group I-2 occupancies to be located and installed in accordance with ASCE 24 and applies the same logic to require the same for essential facilities in flood hazard areas that are also designated Flood Design Class 4.

Cost Impact Notes (will flesh out into full statement)

Immediate cost:

- None if associated with new construction or substantial improvement because these systems and generators are already required to meet ASCE 24 requirements.
- Get input from Ad Hoc committee, but we should estimate per additional foot of elevation (or more likely, locate on a higher floor) for electrical systems and a platform and anchoring for generators.

Life cycle cost:

- Quantify avoided damage/replacement over 30 years or 60 years, given type of structure/occupancy
- Quantify loss of services for a single event and the probability of occurrence? Check Sandy MAT (temporary generators)
- Is there additional or reduced maintenance associated with requirements?

ABHR TG 6.57.1 – Proposal #2
New Section 5705.5.5.2 Storage
Final Draft October 24th TG TEAMs Meeting

2024 International Fire Code

Part 1 – Operational Permit clarification

Add new Operational Permit Requirement:

105.5 Required operational permits. The *fire code official* is authorized to issue operational permits for the operations set forth in Sections 105.5.2 through 105.5.52.

105.5.18 Flammable and combustible liquids. An operational permit is required:

1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the off-site transportation in pipelines regulated by the Department of Transportation (DOT), nor does it apply to piping systems.

2. To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following:

2.1. The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the *fire code official*, would cause an unsafe condition.

2.2. The storage or use of paints, oils, varnishes or similar flammable mixtures where such liquids are stored for maintenance, painting, or similar purposes for a period of not more than 30 days.

2.3. The storage, use or handling of alcohol-based hand rub solutions in dispensers or containers where in compliance with Section 5705.5

Renumber remaining items

3. To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for the following:
   3.1 Fuel oil used in connection with oil burning equipment.
   3.2 The storage, use or handling of alcohol-based hand rub solutions in dispensers or containers where in compliance with Section 5705.5

4. To store, handle or use Class IIIB liquids in tanks or portable tanks for fueling motor vehicles at motor fuel-dispensing facilities or where connected to fuel-burning equipment.
   Exception: Fuel oil and used motor oil used for space heating or water heating.

5. To remove Class I or II liquids from an underground storage tank used for fueling motor vehicles by any means other than the *approved*, stationary on-site pumps normally used for dispensing purposes.

6. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where *flammable* and *combustible liquids* are produced, processed, transported, stored, dispensed or used.

7. To place temporarily out of service (for more than 90 days) an underground, protected above-ground or above-ground *flammable* or *combustible liquid* tank.

8. To change the type of contents stored in a *flammable* or *combustible liquid* tank to a material that poses a greater hazard than that for which the tank was designed and constructed.

9. To manufacture, process, blend or refine *flammable* or *combustible liquids*.

10. To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments in accordance with Section 5706.5.4 or to engage in on-demand mobile fueling operations in accordance with Section 5707.

11. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles, marine craft and other special equipment at commercial, industrial, governmental or manufacturing establishments in accordance with Section 5706.5.4 or, where required by the *fire code official*, to utilize a site for on-demand mobile fueling operations in accordance with Section 5707.

Part 2 – Revisions to Use and Storage requirements; higher MAQs

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

1. In health care facilities, the maximum capacity of each dispenser shall be 41 ounces (1.21 L) in rooms, corridors and areas open to corridors and 68 ounces (2.0 L) in care suites. In all other facilities, the maximum capacity of each wall-mounted dispenser shall be 68 ounces (2 L) and any other dispenser shall be 1 gallon (4 L)
2. The maximum aggregate quantity allowed within a control area, or smoke compartment in health care facilities, shall be 30 gallons (37.85 L) of liquids or 1135 ounces (32.2 kg) of Level 1 aerosols, or a combination of liquids and aerosols not to exceed, in total, the equivalent of 30 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.
   Exception: In a single story building with only one control area, the aggregate quantity limit shall be based on 1 gal per 900 sq. ft. (84 sq. m)
3. ~~2~~. The minimum separation between dispensers shall be 48 inches (1219 mm).
4. ~~3~~. Dispensers shall not be located above, below, or closer than 1 inch (25 mm) to an electrical receptacle, switch, appliance~~,~~ device or other ignition source. The wall space between the dispenser and the floor or intervening countertop shall be free of electrical receptacles, switches, appliances, devices or other ignition sources.

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New Section 5705.5.5.2 Storage
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5~~4~~. Dispensers shall be located so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.

6~~5~~. Dispensers shall not obstruct required means of egress or be placed within 3 feet (914 mm) of an open flame, heating device or other ignition source.

7~~6.~~ 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:

7~~6~~.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.

7~~6~~.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:

7~~6~~.2.1. Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.

7~~6~~.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).

7~~6~~.2.3. An object placed within the activation zone and left in place will cause only one activation.

8~~7~~. Storage ~~and use~~ of alcohol-based hand rub~~s~~ solution not in use shall be in accordance with the ~~applicable~~ provisions of Section~~s 5704 and~~ 5705.5.2.

5001.1 Scope. Prevention, control and mitigation of dangerous conditions related to storage, dispensing, use and handling of hazardous materials shall be in accordance with this chapter.

This chapter shall apply to all hazardous materials, including those materials regulated elsewhere in this code, except that where specific requirements are provided in other chapters, those specific requirements shall apply in accordance with the applicable chapter. Where a material has multiple hazards, all hazards shall be addressed.

Exceptions:
1-10 remain unchanged

11. The installation and use of dispensers containing alcohol-based hand rubs, replacement alcohol-based hand rub solution and dispensers in storage classified as Class I or II liquids where in accordance with Section 5705.5.

5705.5.2 Storage of alcohol-based hand rub solutions classified as Class I or II liquids.
The indoor storage of alcohol-based hand rub solution, classified as Class I or II liquids flammable or combustible, shall be in accordance with all of the following:
Exception: Alcohol-based hand rub dispensers for personal use with an aggregate of not more than 16 oz (474 ml) at a workstation shall not be included in determining the MAQ.

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1. The maximum capacity of individual alcohol-based hand rub solution storage containers shall be 1 gallon (4 L) and the container shall be constructed of a material compatible with the alcohol-based solution.
2. Storage of alcohol-based hand rub solutions in basements or below grade shall be in basements protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The maximum allowable quantity per control area, or smoke compartment in health care facilities, for Storage of alcohol-based hand rub solutions shall be less than or equal to the amounts in Table 5705.5.2.
4. The number of control areas per story shall comply with Section 5003.8.3 of this code.

TABLE 5705.5.2
MAXIUM ALLOWABLE QUANTITY PER CONTROL AREA OF ALCOHOL-BASED HAND RUB SOLUTION IN STORAGE

Storage Location	SPRINKLERED	NONSPRINKLERED
Open storage areas[c]	60 Gal	30 Gal
Non-dedicated storage room[a]	120 Gal	60 Gal
Non-dedicated storage room; 1-HR fire separation[ad]	240 Gal	120 Gal
Non-dedicated storage room; 2-HR fire separation[ad]	360 Gal	240 Gal
Dedicated storage room[b]	360 Gal	240 Gal
Dedicated storage room; 1-HR fire separation[bd]	600 Gal	240 Gal
Dedicated storage room; 2-HR fire separation[bd]	720 Gal	240 Gal

a. Non-dedicated storage room is an enclosed storage room complying with the applicable storage requirements of this code.
b. Dedicated storage room is an enclosed storage room used only for the storage of alcohol-based hand rub solution.
c. The number of open storage areas is limited to 1 per story or fire area with a maximum, of 4 per building
d. Fire separation shall be fire resistance-rated construction separating the dedicated storage room from the remainder of the building.

IFC Table 5003.3.1(5) and IBC Table 307.1.1

Flammable and combustible liquids and gases	Aerosols	Buildings and structures occupied for aerosol product storage, aerosol cooking spray products or plastic aerosol 3 products shall be classified as Group S-1
	Alcoholic beverages	The quantity of alcoholic beverages in liquor stores and distributors without bulk storage is not limited
		The quantity of alcoholic beverages in distilling or brewing of beverages is not limited
		The storage quantity of beer, distilled spirits and wines in barrels and casks is not limited
		The quantity of alcoholic beverages in retail and wholesale sales occupancies is not limited. To qualify for this allowance, beverages shall be packaged in individual containers not exceeding 1.3 gallons
	Cleaning establishments with combustible liquid solvents	The quantity of combustible liquid solvents used in closed systems and having a flash point at or above 140°F (60°C) is not limited. To qualify for this allowance, equipment shall be listed by an approved testing agency and the occupancy shall be separated from all other areas of the building by 1-hour fire barriers or 1-hour horizontal assemblies, or both, constructed in accordance with the International Building Code

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		The quantity of combustible liquid solvents having a flash point at or above 200°F (93°C) is not limited
	Closed piping systems	The quantity of flammable and combustible liquids and gases utilized for the operation of machinery or equipment is not limited
	Fuel	The quantity of liquid or gaseous fuel in fuel tanks on vehicles or motorized equipment is not limited
		The quantity of gaseous fuels in piping systems and fixed appliances regulated by the International Fuel Gas Code is not limited
		The quantity of liquid fuels in piping systems and fixed appliances regulated by the International Mechanical Code is not limited
	Fuel oil	The quantity of fuel oil storage complying with Section 605.4.2 is not limited
	Flammable finishing operations using flammable and combustible liquids	Buildings and structures occupied for the application of flammable finishes. Such buildings and areas shall comply with Chapter 24
	Hand sanitizer	The quantity of alcohol-based hand rubs classified as Class I or II liquids in dispensers installed in accordance with Sections 5705.5 and 5705.5.1 is not limited. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the construction documents
		The quantity of alcohol-based hand rubs classified as Class I or II liquids in storage shall be in accordance with Section 5705.5.2.
	Retail and wholesale sales occupancies with flammable and combustible liquids	The quantity of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable, is not limited To qualify for this allowance, such materials shall be packaged in individual containers not exceeding 1.3 gallons.

Cost Impact Statement:
This code change will not increase the cost of construction.

Reason Statement
Insert standard F-CAC and CHC description

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and the Committee on Health Care (CHC).

The main purpose of this proposal is to add a new Section (5705.5.2) for storage requirements and quantity limitations. This new section adds reasonable storage quantity limits and requirements based on experience over the past 4 years of the pandemic.

Two key points to consider.:

- Alcohol-based hand-sanitizer solutions at the 60 - 95% level recommended by CDC are classified as Class IB based on flashpoint. However, alcohol type polar solvents have other characteristics that differentiate them from the more volatile petroleum-based flammable (ignitable) liquids: quick evaporation, water-soluble, others ?
- The proposed storage quantity allowances are for ABHR replacement solution stored in their factory containers intended for replacement qualities of one dispenser can be compared to MAQs permitted for Class IB flammable liquids in Group M Occupancies for wholesale and retail sales uses (Table5704.3.4.1) need to explain this comparison; the values don't match.

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The proposal addresses storage of alcohol-based rub solutions in a maximum individual container size of 1 gallon; provides maximum storage quantities for sprinklered and nonsprinklered buildings and incorporates allowances for higher storage quantities based on whether the storage room is for only alcohol-based sanitizer solutions and whether the storage room has 1 or 2 hour fire resistance rated construction for compartmentation of the hazard.

The current MAQs for Class IB flammable liquids (typical classification for an alcohol-based hand rub solutions) is 120 gallons with 100% increase for sprinklers and approved storage cabinets). The quantities in Table 5705.5.2 are modeled after these MAQ allowances recognizing: the storage challenges created during the pandemic and the experience of storage in these amounts without unreasonable fire risk or notable fire incidents; the benefit of fire sprinkler protection and fire separations for hazard mitigation for ABHR solution in storage.

Other substantiation for specific changes:

1. The addition of “storage” in Exception 11 of Section 5001.1 (Scope) simply ensures that the intention of the exception is for both the alcohol-based hand rub dispensers and the storage of alcohol-based sanitizer solutions awaiting use.
2. This proposal adds an exception from IFC requirements for personal use hand sanitizer in quantities of 16 oz or less. It is not the intention of this section to impose any requirements on individual use hand sanitizers carried or at a workspace for personal sanitizing.
3. The higher quantity of allowable alcohol-based hand rub solution in dispensers is increased from 10 Gallons to 30 Gallons per control area. This is a reasonable increase in MAQ and is supported by the increased quantities that have been safely utilized in all public buildings during the pandemic.
4. Provides a clarification of requirements to differentiate permanent wall-mounted dispenser requirements which have been in the IFC for many cycles from other types of dispensers such as floor-supported, desktop or counter located that are currently being used.
5. Eliminating the additional quantity restrictions for dispensers used in corridors as unnecessary and overly restrictive.

BCAC Egress Item 5 Control Vestibule

Draft revised Nov. 30, 2023
John Woestman, BHMA

E55-21 AMPC/D in vote Item 5 E55-21 w PC.pdf
Spring hearings – https://www.cdpaccess.com/videos/4348/
Fall Hearings - https://www.cdpaccess.com/videos/4751/

Add new definition as follows:

CONTROL VESTIBULE. A space with doors in series that are interlocked such that when one door is open other doors are restricted from opening.

Insert new text as follows:

1010.2.15 Control vestibule. Control vestibules shall be permitted in the means of egress for security, environmental control, or clinical needs in:

1. Groups F, H-3, H-4, H-5, I-1, I-2, and S where the occupant load of the room or space served by the control vestibule is less than 50.
2. Groups B and M where the occupant load of the room or space served by the control vestibule is 10 or less.

1010.2.15.1 Protection. Control vestibules shall be permitted where the building complies with either of the following:

1. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. An approved automatic smoke detection system in accordance with Section 907 is installed in the room or space served by the control vestibule.

1010.2.15.2 Egress path. The egress path from any point shall not pass through more than one control vestibule.

1010.2.15.3 Interlocking door operation. Where doors in the means of egress are configured as a control vestibule, the control vestibule door interlocking system shall provide for egress. The control vestibule shall comply with all of the following:

1. An approved override switch shall be provided on the egress side of each door of the control vestibule which unlocks the interlocked electric lock of that door.
    a. Each override switch shall be located within 48 inches (1219 mm) of the door and 40 inches minimum to 48 inches maximum (1016 mm to 1219 mm) above the floor.
    b. Signage shall be provided with instructions on the use of the interlock override switch.
    c. When operated, the override switch shall result in direct interruption of power to the interlocked electric lock — independent of other electronics — and the interlocked electric lock shall remain unlocked for not less than 30 seconds.

    Exception: Where the control vestibule is designed to impede occupant egress for security reasons, the override switches for the door interlocks shall be permitted to be moved to approved alternate locations.

2. Upon activation of the automatic sprinkler system or automatic smoke detection system the interlock function of the doors of the control vestibule shall deactivate.
3. Upon loss of power to the interlock function of the doors, the interlock function of the door locking system of the control vestibule shall deactivate.

4. Where a control vestibule serves a room or space equipped with an *emergency alarm system* for *hazardous materials*, the interlock function of the doors shall deactivate when such *emergency alarm system* is activated.
5. The doors of the control vestibule shall be self-closing.
6. The doors of the control vestibule shall swing in the direction of egress travel.

   Exception: Power-operated doors in accordance with Section 1010.3.2.

7. The electro-mechanical or electromagnetic locking devices shall be listed in accordance with either UL 294 or UL 1034.

Reason:

Control vestibules are being incorporated in the means of egress in a variety of occupancies. A control vestibule has doors in series which are interlocked such that when one door of a control vestibule is open, the other door in series in the control vestibule is temporarily prevented from being opened.

The IBC is currently silent regarding requirements and guidance for control vestibules. This proposal does not require installation of control vestibules, but offers requirements (guidance) for where control vestibules are incorporated in the means of egress.

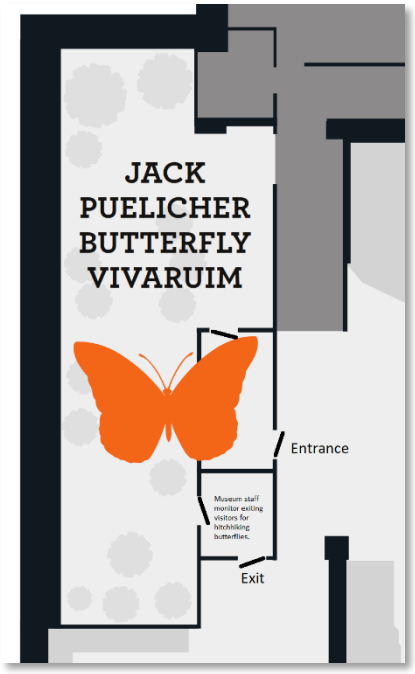
This proposal addresses egress related requirements for control vestibules. Control vestibules which provide security or access control on the ingress side of doors into a building or into a space within a building are more common than control vestibules on the egress side of doors in the means of egress from a space or from a building. Requirements for the access-side of control vestibules is typically outside the scope of the IBC. Thus access-side control vestibules are not regulated or prohibited by the IBC provided all requirements for egress are complied with. This proposal addresses control vestibules in the means of egress with egress-side requirements.

Control vestibules must provide for egress. Together, the definition and proposed requirements provide for egress where control vestibules are installed.

The occupancy groups and maximum occupant loads in this proposal (in 1010.2.15) are the result of discussions and votes during the Committee Action Hearing and Public Comment Hearing of the 2021 ICC code development cycle. And the result of subsequent suggestions and recommendations by stakeholders.

Control vestibules are most commonly configured as a space with two doors in series. But, some control vestibules are configured with more than one inner door and / or more than one outer door. For example, where a control vestibule is required to help keep clean rooms clean, there may be inner doors from more than one clean room opening into the control vestibule, and one outer door for leaving the control vestibule in the direction of egress.

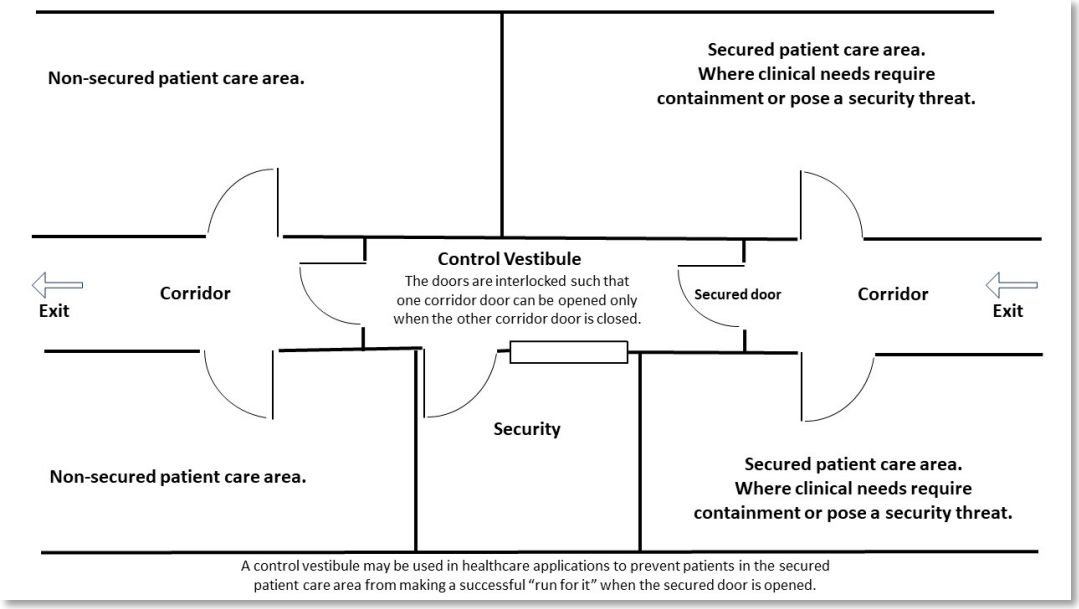
Control vestibules are different than sallyports, which are defined in the IBC and permitted in Group I-3 occupancies. Group I-3 includes correction centers, detention centers, jails, prisons, and similar uses. A sallyport is a security vestibule which prevents unobstructed passage. A control vestibule is intended to allow unobstructed passage but prevents more than one door of doors in series to be open at the same time.



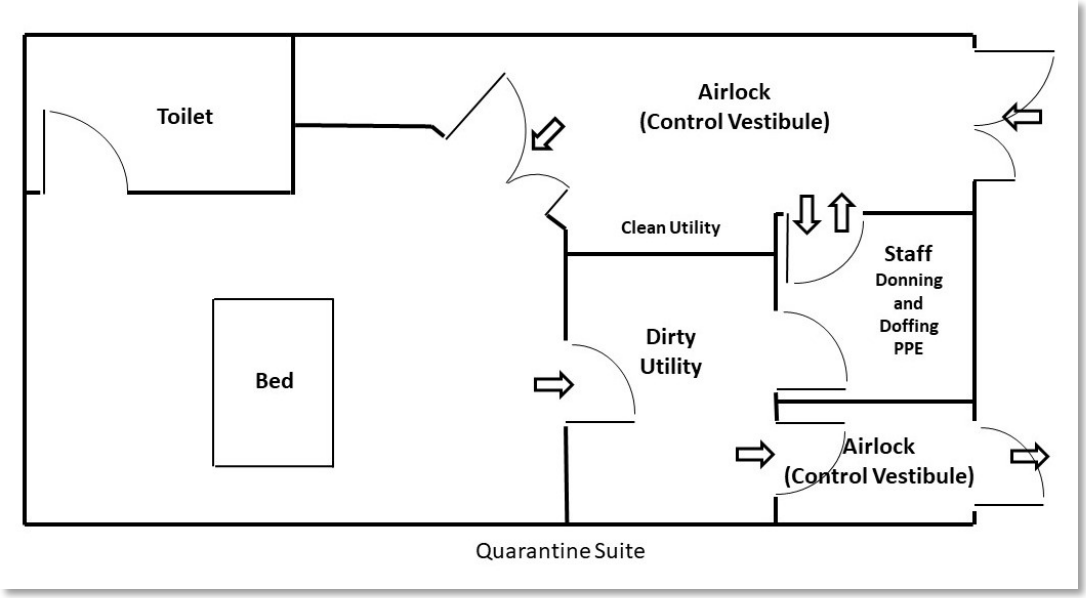
Milwaukee Public Museum Butterfly Vivarium

This picture and floor layout of the butterfly vivarium at the Milwaukee (Wisc.) Public Museum illustrate a potential application of a control vestibule. The vestibule and doors for one-way passage into the butterfly vivarium are currently configured as an “on your honor” control vestibule. The sign on the inner door advises visitors to the vivarium to wait for the outer door to close before opening the second door to enter. With electrical locks on the two doors, and with related controls, this space could be configured as a control vestibule. This proposal addresses requirements of control vestibules from an egress perspective, but not from an ingress perspective. In this butterfly vivarium example, the code’s requirements affect how the control vestibule would be configured to ensure egress.

The one-way out vestibule on the exit side of this vivarium (see the floor plan) is also an ”on your honor” control vestibule. A museum staff person is stationed inside the exit vestibule tasked with ensuring butterflies do not escape with visitors, and with ensuring in each of these two vestibules that both doors in the vestibule are not open at the same time. Installing electrical interlocks and controls on the doors of these vestibules to create control vestibules would relieve the staff person from carefully watching the doors and enable the staff person to interact more with the visitors.



This is an example of an application of a control vestibule in the corridor between secured and non-secured patient care areas in a healthcare setting. The secured patient care area is for patients with clinical needs that require containment or pose a security threat.



In healthcare, where it's critical to manage airflow into and out of the patient treatment space, quarantine suites may be configured with airlocks with interlocked doors (i.e. control vestibules). The airlock doors in the sketch would be configured such that only one door (or one pair of doors) in the airlock could be open at a time.

Cost Impact:

The code change proposal will not increase or decrease the cost of construction.

The IBC is currently silent regarding control vestibules, and control vestibules are not proposed to be required.
Today, where control vestibules are optionally constructed, alternative means and methods are typically used for code compliance.

2024 IBC Section 1010.2.12 Delayed Egress Locking Systems Revisions for 2027 IBC
John Woestman, BHMA
Revised Oct. 10, 2023

1010.2.12 Delayed egress. Delayed egress electrical locking systems shall be permitted on doors in the means of egress serving the following occupancies in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke* or *heat detection system* installed in accordance with Section 907.

1. Group B, F, I, M, R, S and U occupancies.
2. Group E classrooms with an *occupant load* of less than 50.
3. In courtrooms in Group A-3 and B occupancies, delayed egress electrical locking systems shall be permitted to be installed on exit or *exit access* doors, other than the main exit or *exit access* door, in buildings that are equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

1010.2.12.1 Delayed egress locking system. The delayed egress electrical locking system shall be installed and operated in accordance with all of the following:

1. The delay of the delayed egress electrical locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate free egress.
2. The delay of the delayed egress electrical locking system shall deactivate upon loss of power to the electrical locking system or electric lock, allowing immediate free egress.
3. The delay of the delayed egress electrical locking system shall have the capability of being deactivated at the *fire command center* and other *approved* locations.
4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay has been deactivated, rearming the delay electronics shall be by manual means only. The irreversible process that allows egress is permitted to be interrupted and reset by authorized personnel by manual means only.

   Exception: Where *approved*, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall not pass through more than one delayed egress locking system.

   Exceptions:

   1. In Group I-1, Condition 2, Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds.
   2. In Group I-1, Condition 1 or Group I-4 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
   3. The egress path from any point in the building shall not pass through more than two delayed egress locking systems where the irreversible process of the second delayed egress locking system is initiated concurrently with the irreversible process required by Item 4 of the first delayed egress locking system.

Commented [JW1]: To reduce the negative effects of nuisance tripping of delayed egress locking systems, this proposed revision is intended to permit staff in health care facilities to interrupt and reset the delay of the delayed egress locking system.

Commented [JW2]: This new exception is intended to permit a 2nd delayed egress locking system where the delay of the 2nd system occurs simultaneously with the delay of the 1st system. The effect is there is no delay at the 2nd delayed egress door for the occupant that goes through the 1st delayed egress locked door.

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:

   Exception: Where *approved*, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

   6.1. For doors that swing in the direction of egress, the sign shall read, "PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."

   6.2. For doors that swing in the opposite direction of egress, the sign shall read, "PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."

   6.3. The sign shall comply with the visual character requirements in ICC A117.1.

7. Emergency lighting shall be provided on the egress side of the door.
8. The electro-mechanical or electromagnetic locking device shall be *listed* in accordance with either UL 294 or UL 1034.

Reason

2024 IBC Section 1010.2.13 Controlled Egress Locking Systems Revisions for 2027 IBC
John Woestman, BHMA
Revised Oct. 26, 2023

1010.2.13 Controlled egress doors in Groups I-1 and I-2. Controlled egress electrical locking systems where egress is controlled by authorized personnel shall be permitted on doors in the *means of egress* in Group I-1 or I-2 occupancies where the clinical needs of persons receiving care require their containment. Controlled egress doors shall be permitted in such occupancies where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or an *approved automatic smoke detection system* installed in accordance with Section 907, provided that the doors are installed and operate in accordance with all of the following:

1. The door's electric locks shall unlock on actuation of the *automatic sprinkler system* or *automatic smoke detection system* allowing immediate free egress.
2. The door's electric locks shall unlock on loss of power to the electrical locking system or to the electric lock mechanism allowing immediate free egress.
3. The electrical locking system shall be installed to have the capability of unlocking the electric locks by a switch located at the *fire command center*, a nursing station or other *approved* location. The switch shall directly break power to the electric lock.
4. A building occupant shall not be required to pass through more than one door equipped with a controlled egress locking system before entering an *exit*.
5. The procedures for unlocking the doors shall be described and *approved* as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.
6. All clinical staff shall have the keys, codes or other means necessary to operate the controlled egress electrical locking systems.
7. Emergency lighting shall be provided at the door.
8. The electro-mechanical or electromagnetic locking device shall be *listed* in accordance with either UL 294 or UL 1034.

Exceptions:

1. Items 1 through 4 shall not apply to doors to areas occupied by persons who, because of clinical needs, require restraint or containment as part of the function of a psychiatric or cognitive treatment area.
2. Items 1 through 4 shall not apply to doors to areas where a *listed* egress control system is utilized to reduce the risk of child abduction from nursery and obstetric areas of a Group I-2 *hospital*.
3. Items 1 through 4 shall not apply to doors to areas where an *approved* wander management system is utilized to reduce the risk of care recipients wandering from designated areas of Groups I-1 and I-2.

Reason

Patient wander management systems are employed in health care settings, especially in memory care facilities, to help prevent wandering by ambulatory patients who may be a threat to their own safety. The ambulatory patient typically wears a wrist band that has its location monitored electronically. When the person wearing the wrist band approaches designated doors such as doors at the perimeter of a memory care unit, for example, the wander management system may be configured to provide notifications to staff and to lock the perimeter door inhibiting egress. The locking of doors in the means of egress by wander management systems are not currently addressed in the IBC.

HC Item 29 – definition for clinical needs

IBC/IFC/IEBC
Clinical need. A known care or welfare risk to care recipients that necessitates a higher level of safety or security.

REASON STATEMENT: The purpose of this change is to establish the basis for what is known as clinical need. This is a relatively short definition, but speaks to the component of how a patient in a hospital, or resident in a post-acute care setting moves through their journey of care. 'Clinical Need' is listed in three sections – IEBC 804.14.2, 1011.5.1, and 1011.5.2, IFC 310.2 and IBC/IFC 1010.2.13 and 1010.2.4.

The word "known" is purposefully used related to care, and can take many forms. Court orders are a primary example of the need to put a behavioral health patient in a locked unit, and become known on admission. Doctor's orders are also commonly issued, particularly for individuals suffering from cognitive issues that reside in nursing homes, and need to be placed into specialty units with extra staff care. These factors become known at the time of placement.

"Welfare risk" is also purposefully used phrasing. A primary example of a welfare risk to a care recipient would be an Alzheimer unit, where wandering throughout or outside of the building could put that individual in grave risk because of not being fully aware if their surroundings. A closed, locked unit represents the safest environment for their condition.

"Necessitates" is a term used to set up the scope of the individual technical requirements of the code chapters. By formulating this wording, the working group from the Committee for Healthcare (CHC) took particular care not to bury code requirements in the definition, to avoid creating more confusion. The locations where "clinical need" is already used in the code were reviewed and discussed, and it was determined that the technical requirements around clinical need for the specific section (such as, door locking) was covered in a better way. It did not do the definition well to try and cover each and every technical requirement.

Due to patient privacy laws, specific orders relating to patient or resident care cannot be released as part of justification for the construction of an environment appropriate for care. However, the level of care needed can be provided by the design professional representing the owner/care provider specific to the known care or welfare risk to care recipients. ~~it~~.

This definition is being developed to help the reviewing code official establish a baseline on where the design decisions were made, and to make clear that safety and security are of primary importance to the recipient of care. I1 and I2 occupancies are unique because those receiving care are there for a wide range of conditions that require them to utilize the facility. The "clinical need" definition is an attempt to level-set those needs.

IBC

(E46-21 AS; E43-21 D/AMPC1; E45-21 D/AMPC1)

1010.2.4 Locks and latches. Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In Group I-1, Condition 2 and Group I-2 occupancies where the clinical needs of persons receiving care require containment or where persons receiving care pose a security threat, provided that all clinical staff can readily unlock doors at all times, and all such locks are keyed to keys carried by all clinical staff at all times or all clinical staff have the codes or other means necessary to operate the locks at all times.
3. In buildings in occupancy Group A having an *occupant load* of 300 or less, Groups B, F, M and S, and in *places of religious worship*, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided that:
    3.1. The doors are the main exterior doors to the building, or the doors are the main doors to the tenant space.
    3.2. The locking device is readily distinguishable as locked.
    3.3. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background.
    3.4. The use of the key-operated locking device is revocable by the *building official* for due cause.
4. *Manual bolts*, *automatic flush bolts,* and *constant latching bolts* on the inactive leaf of a pair of doors in accordance with Table 1010.2.4, provided that the inactive leaf does not have a doorknob, panic hardware, or similar operating hardware.
5. Single exit doors complying with Section 1006.2.1 or 1006.3.4 from individual *dwelling* or *sleeping units* of Group R occupancies and equipped with a night latch, dead bolt or security chain, that require a second releasing motion, provided such devices are openable from the inside without the use of a key or tool.
6. *Fire doors* after the minimum elevated temperature has disabled the unlatching mechanism in accordance with *listed fire door* test procedures.
7. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.
8. Other than egress *courts*, where occupants must egress from an exterior space through the building for *means of egress*, exit access doors shall be permitted to be equipped with an approved locking device where installed and operated in accordance with all of the following:
    8.1. The maximum *occupant load* shall be posted where required by Section 1004.9. Such signage shall be permanently affixed inside the building and shall be posted in a conspicuous space near all the exit access doorways.
    8.2. A weatherproof telephone or two-way communication system installed in accordance with Sections 1009.8.1 and 1009.8.2 shall be located adjacent to not less than one required exit access door on the exterior side.
    8.3. The egress door locking device is readily distinguishable as locked and shall be a key-operated locking device.
    8.4. A clear window or glazed door opening, not less than 5 square feet (0.46 m^2) in area, shall be provided at each exit access door to determine if there are occupants using the outdoor area.
    8.5. A readily visible, durable sign shall be posted on the interior side on or adjacent to each locked required exit access door serving the exterior area stating, "THIS DOOR TO REMAIN UNLOCKED WHEN THE OUTDOOR AREA IS OCCUPIED." The letters on the sign shall be not less than 1 inch (25.4 mm) high on a contrasting background.
    8.6. The *occupant load* of the occupied exterior area shall not exceed 300 occupants in accordance with Section 1004.
9. Locking devices are permitted on doors to balconies, decks or other exterior spaces serving individual dwelling or sleeping units.

10. Locking devices are permitted on doors to balconies, decks or other exterior spaces of 250 square feet (23.23 m^2) or less serving a private office space.

(E43-21 D/AMPC1)

TABLE 1010.2.4
MANUAL BOLTS, AUTOMATIC FLUSH BOLTS AND CONSTANT LATCHING BOLTS ON THE INACTIVE LEAF OF A PAIR OF DOORS

APPLICATION WITH A PAIR OF DOORS WITH AN ACTIVE LEAF AND INACTIVE LEAF	THE PAIR OF DOORS ARE REQUIRED TO COMPLY WITH SECTION 716	PERMITTED USES OF MANUAL BOLTS, AUTOMATIC FLUSH BOLTS, AND CONSTANT LATCHING BOLTS ON THE INACTIVE LEAF OF A PAIR OF DOORS.		
		Surface or flush mounted manual bolts	Automatic flush bolts	Constant latching bolts
Group B, F, or S occupancies with occupant load less than 50.	No	P	P	P
	Yes	NP	NP[b]	P
Group B,F, or S occupancies where the building is equipped with automatic sprinkler system in accordance with Section 903.3.1.1 and the inactive leaf is not needed to meet egress capacity requirements.	No	P	P	P
	Yes	NP	NP[b]	P
Group I-2 patient care and sleeping rooms where inactive leaf is not needed to meet egress capacity requirements.	No	NP	NP[b]	P
	Yes	NP	NP[b]	P
Any occupancy where panic hardware is not required, egress doors are used in pairs, and where both leaves are required to meet egress capacity requirements.	No	NP	P	NP
	Yes	NP	NP[b]	NP
Storage or equipment rooms where the inactive leaf is not needed to meet egress capacity requirements.	No	P[a]	P	P
	Yes	P[a]	P	P

P - Permitted; NP - Not permitted.
a. Not permitted on corridor doors in Group I-2 occupancies where corridor doors are required to be positive latching.
b. Permitted where both doors are self-closing or automatic-closing, and are provided with a coordinator that causes the inactive leaf to be closed prior to the active leaf.

(E51-21) AS; (E52-21) AS

1010.2.12.1 Delayed egress locking system. The delayed egress electrical locking system shall be installed and operated in accordance with all of the following:

1. The delay of the delayed egress electrical locking system shall deactivate upon actuation of the *automatic sprinkler system* or *automatic fire detection system*, allowing immediate free egress.
2. The delay of the delayed egress electrical locking system shall deactivate upon loss of power to the electrical locking system or electric lock, allowing immediate free egress.
3. The delay of the delayed egress electrical locking system shall have the capability of being deactivated at the *fire command center* and other *approved* locations.

4. An attempt to egress shall initiate an irreversible process that shall allow such egress in not more than 15 seconds when a physical effort to exit is applied to the egress side door hardware for not more than 3 seconds. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the delay has been deactivated, rearming the delay electronics shall be by manual means only.

   Exception: Where *approved*, a delay of not more than 30 seconds is permitted on a delayed egress door.

5. The egress path from any point shall not pass through more than one delayed egress locking system.

   Exceptions:

   1. In Group I-1, Condition 2, Group I-2 or I-3 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided that the combined delay does not exceed 30 seconds.
   2. In Group I-1, Condition 1 or Group I-4 occupancies, the egress path from any point in the building shall pass through not more than two delayed egress locking systems provided the combined delay does not exceed 30 seconds and the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

6. A sign shall be provided on the door and shall be located above and within 12 inches (305 mm) of the door exit hardware:

   Exception: Where *approved*, in Group I occupancies, the installation of a sign is not required where care recipients who because of clinical needs require restraint or containment as part of the function of the treatment area.

   6.1. For doors that swing in the direction of egress, the sign shall read, "PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."

   6.2. For doors that swing in the opposite direction of egress, the sign shall read, "PULL UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS."

   6.3. The sign shall comply with the visual character requirements in ICC A117.1.

7. Emergency lighting shall be provided on the egress side of the door.

8. The electro-mechanical or electromagnetic locking device shall be *listed* in accordance with either UL 294 or UL 1034.

IFC

SECTION 310
SMOKING

310.1 General. The smoking or carrying of a lighted pipe, cigar, cigarette or any other type of smoking paraphernalia or material is prohibited in the areas indicated in Sections 310.2 through 310.8.

310.2 Prohibited areas. Smoking shall be prohibited where conditions are such as to make smoking a hazard, and in spaces where flammable or combustible materials are stored or handled.

Exception: In Group I-2 occupancies, patients shall be permitted to smoke in designated patient care areas based on the clinical needs of the patient.

310.2.1 Group I-2. In Group I-2 occupancies, smoking shall be prohibited in patient care areas or where oxygen is used, stored or handled.

Healthcare Item 38 roof guard height

IBC

503.1.4.1 Enclosures over occupied roof areas. Elements or structures enclosing the occupied roof areas shall not extend more than 48 inches (1220 mm) above the surface of the occupied roof.

Exceptions:

1. *Penthouses* constructed in accordance with Section 1511.2 and towers, domes, spires and cupolas constructed in accordance with Section 1511.5.
2. In Group I-1 and I-2 facilities, required guards enclosing the occupiable roof areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the occupiable roof where the occupants, because of clinical needs, require restraint or containment as part of the function of a psychiatric or cognitive treatment area.

Reason: This would be consistent with IEBC 1011.5.1 and 1011.5.2 (Code Change EB98-22 AS).

The intent of this proposal is to allow higher guards for patient safety around outdoor patient garden/exercise areas on the roof.

The Healthcare committee understands the guard height limitation for low rise buildings was to allow for fire department access to the roof. However, we feel that the limitations proposed are reasonable.

Access to fresh air and getting outside is incredibly important for older adults who live in Group I-1&I-2 care facilities. These care recipients spend up to 90% of their time indoors and if the only choice of outdoor space requires staff or volunteers to take them downstairs, via an elevator, to get outside, some care recipients never get the opportunity to be outside. If a garden space or other outdoor area can be created on a roof adjacent to sleeping areas, this can make getting outside much easier.

Unfortunately, while we want care recipients to get outside, we also need to keep them safe. We know that exit seeking behavior is prevalent and a 48” barrier is not enough to protect from elopement or self harm.

Outdoor areas are important for patient mental health and wellness. Hospitals and nursing homes in a urban environment often don't have property that would allow for outdoor patient areas. The 'clinical needs' language is an attempt to balance care recipient wellness with safety. These types of facilities have extensive fire and safety evacuation plans and staff that is trained in assisting care recipients and guest for evacuation/defend-in-place during an emergency. Fire departments perform regular inspections of these buildings, to they would be very familiar with the layouts. In addition, these facilities have exceptionally good records for a small number of fire events.

There was a similar change in Group A, G105-21 that had an original intention of allowing for guards to exceed the height limitation required by IBC Section 503.1.4.1. The modification to broaden this allowance for “walls, parapets, rooftop structures (some of which are exempted in Exception 1), and wind screens” on roofs above the reach of fire departments (>75’) was appropriate. However, there is still the issue with existing buildings that want to expand or add an occupied roof with the result being:

- If any structure or guard is above 48” high, this is now being considered an additional story so they could violate height limitations for the type of construction.
- If the building is less than 75’ in height, you cannot have guards high enough to discourage people from jumping off the roof.

There is a suggestion for Sections 804.12.2, 1011.5.1 and 1011.5.2 for Group I-1 and I-2 where high guards are needed for patient safety. The language for the limitation of 'clinical needs' is the same as IBC Section 101.2.14 for Controlled Egress Doors.

Below are two pictures of a roof garden on a memory care facility. There are glass between the columns.

This proposal is submitted by the Committee on Healthcare (CHC). The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2020 and

2021 of the committees as well as any interested parties, to discuss and debate the proposed changes. Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/icc-committee-on-healthcare/.

915 CO cleanup (9301)

IFC: SECTION 202 (New), 915.1, 915.1.1, 915.2, 915.2.1 (New), 915.2.1, 915.2.2, 915.2.3, 915.2.4, 915.2.5, 915.2.6, 915.3, 915.3.1, 915.3.2, 915.3.3, 915.3.4, 915.4, 915.4.1, 915.4.2, 915.4.3, 915.4.4, 915.5, 915.5.1, 915.5.2, 915.5.3, 915.5.4, 915.5.5, 915.6, 915.6.1, 1103.9

Proponents:

2024 International Fire Code

Add new definition as follows:

Carbon Monoxide Source.
NOTE - THIS ENTIRE PROPOSAL IS A WORK IN PROGRESS. THE CONTENT OF THE WORKING DOCUMENT IS BEING SHARED SO THAT PEOPLE CAN VIEW THE DIRECTION THAT THE DRAFT IS MOVING IN. THE OVERALL INTENT IS TO BE EDITORIAL, BUT SOME OF THE CURRENT PROVISIONS ARE UNCLEAR AND WILL REQUIRE INTERPRETATION IN CRAFTING CODE TEXT THAT IS CLEARLY STATED.
A combustion process that under normal or abnormal conditions has the potential to produce carbon monoxide as a product of combustion. Carbon monoxide sources include, but are not limited to solid-, liquid-, or gas-fueled appliances, equipment, devices or systems, such as fireplaces, furnaces, heaters, boilers, cooking equipment, and vehicles with internal combustion engines.

Carbon Monoxide Source, Direct. A *carbon monoxide source* that is located in an interior room or area.

Carbon Monoxide Source, Forced Indirect.
A remotely located *carbon monoxide source* that is connected to an interior room or area through ducting from a forced air HVAC system.

Carbon Monoxide Source, Passive Indirect.
A remotely located *carbon monoxide source* that is in an adjacent, contiguous room or space.

Revise as follows:

915.1 General. New buildings shall be provided with c~~C~~arbon monoxide (CO) detection ~~shall be installed in new buildings~~ in accordance with Section 915.~~1.1~~. Existing buildings shall be provided with c~~C~~arbon monoxide detection ~~shall be installed in existing buildings~~in accordance with Section 1103.9.

~~Exception:~~ ~~Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.~~

Delete without substitution:

~~915.1.1 Where required.~~
~~Carbon monoxide detection shall be~~ installed ~~in the locations specified in Section 915.2 where any of the~~ following ~~conditions exist.~~

1. In buildings that contain a *CO source*.
2. In buildings that contain or are supplied by a CO-producing forced-air furnace.
3. In buildings with attached private garages.
4. In buildings that have a CO-producing vehicle that is used within the building.

Revise as follows:

915.2 Where required ~~Locations~~. Carbon monoxide detection shall be installed in ~~the locations specified in~~ accordance with Sections 915.2.1 through 915.2.6~~3~~.

Exception: Carbon monoxide detection is not required in Group S, Group F and Group U occupancies that are not normally occupied.

915.2.1 All occupancies. In all occupancies, carbon monoxide detection shall be provided ~~installed in~~ on the ceiling of enclosed rooms or spaces having a *direct-* or *forced-indirect carbon monoxide source*. T~~t~~he location~~s specified in~~

of such detection shall be in accordance with Sections 915.2.1 through 915.2.3.

Exception: Where carbon monoxide detection is provided in the first room or space served by a main duct leaving a *forced-indirect carbon monoxide source*, and the alarm signal is annunciated at an approved location, carbon monoxide detection that would otherwise be required based on the *forced-indirect carbon monoxide source* is not required in any other room or space served by such duct.

915.2.1.1 Dwelling units and sleeping units.

~~Carbon monoxide detection shall be installed in *dwelling units* outside of each separate sleeping area in the immediate vicinity of the bedrooms.~~

Where a *CO source* is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

Where a *CO source* is located outside of a bedroom c~~C~~arbon monoxide detection shall be installed in the *dwelling unit*~~s~~ outside of each separate sleeping area in the immediate vicinity of the bedrooms.

~~915.2.2 Sleeping units.~~

~~Carbon monoxide detection shall be installed in *sleeping units*.~~

~~**Exception:** Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the *sleeping unit* where the *sleeping unit* or its attached bathroom does not contain a *CO source* and is not served by a CO-producing forced-air furnace.~~

Delete without substitution:

~~**915.2.2 Sleeping units.**~~

~~Carbon monoxide detection shall be installed in *sleeping units*.~~

~~**Exception:** Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the *sleeping unit* where the *sleeping unit* or its attached bathroom does not contain a~~ *CO source* ~~and is not served by a~~ CO-producing ~~forced-air furnace.~~

~~**915.2.3 Group E occupancies.**~~

A carbon ~~monoxide~~ system that uses carbon monoxide ~~detectors shall be installed in Group E occupancies.~~ Alarm signals from carbon ~~monoxide~~ detectors ~~shall be automatically transmitted to an on-site location that is staffed by school personnel.~~

~~**Exception:** Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an *occupant load* of 30 or less.~~

~~**915.2.4 CO-producing forced-air furnace.**~~

Carbon monoxide detection complying with Item 2 of Section 915.1.1 shall be installed in all enclosed rooms and spaces served by a fuel-burning, forced-air furnace.

Exceptions:

1. Where a carbon monoxide detector is provided in the first room or space served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an *approved* location.
2. *Dwelling units* that comply with Section 915.2.1.

Revise as follows:

915.2.5 Private garages. Carbon monoxide detection complying with Item 3 of Section 915.1.1 shall be installed within enclosed occupiable rooms or spaces that are contiguous to the attached private garage.

Exceptions:

1. In buildings without communicating openings between the private garage and the building.

2. In rooms or spaces located more than one story above or below a private garage.
3. Where the private garage connects to the building through an *open*-ended corridor.
4. An open parking garage complying with Section 406.5 of the *International Building Code* or an enclosed parking garage complying with Section 406.6 of the *International Building Code* shall not be considered a private garage.
5. *Dwelling units* that comply with Section 915.2.1.

915.2.6 All other occupancies.
~~For locations other than those specified in Sections 915.2.1 through 915.2.5, carbon monoxide detectors shall be installed on the ceiling of enclosed rooms or spaces containing CO-producing devices or served by a *CO source* forced-air furnace.~~

Exception: Where environmental conditions prohibit the installation of carbon monoxide detector in an enclosed room or space, carbon monoxide detectors shall be installed in an *approved* enclosed location contiguous with the room or space that contains a *CO source*.

915.3 Type of detection~~Carbon monoxide detection.~~ Carbon monoxide detection ~~required by Sections 915.1 through 915.2.3~~ shall be provided by ~~carbon monoxide alarms complying with Section 915.4,~~ or a carbon monoxide detection system~~s~~ complying with Section 915.5 unless carbon monoxide alarms are permitted by Sections 915.3.1 or 915.3.2..

915.3.1 Allowance to use CO Alarms ~~Alarm limitations~~. Carbon monoxide alarms shall ~~only~~be i~~nstalled~~ permitted in lieu of using a carbon monoxide detection system in *dwelling units* and ~~in~~*sleeping units*.
~~They shall not be installed in locations where the code requires carbon monoxide detectors to be used.~~**MAKE BASELINE USING ALARMS AND THEN ONLY SYSTEM WHEN SYSTEM IS REQUIRED. ALLOW REMOTELY ANNUNCIATING A CO ALARM AND NOT MANDATING A DETECTION SYSTEM UNLESS THERE IS A FIRE ALARM SYSTEM AND IT'S A NEW INSTALLATION**
~~915.2.3 Group E occupancies.~~
~~A carbon monoxide system that uses carbon monoxide detectors shall be installed in Group E occupancies. Alarm signals from carbon monoxide detectors shall be automatically transmitted to an on-site location that is staffed by school personnel.~~

~~**Exception:** Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an *occupant load* of 30 or less.~~

915.3.2 Fire alarm system required. New buildings that are required by Section 907.2 to have a *fire alarm system* and by Section 915.2 to have carbon monoxide detectors shall be connected to the *fire alarm system* in accordance with NFPA 72.

915.3.3 Fire alarm systems not required. In new buildings that are not required by Section 907.2 to have a *fire alarm system*, carbon monoxide detection shall be provided by one of the following:
1. Carbon monoxide detectors connected to an *approved* carbon monoxide detection system in accordance with NFPA 72.
2. Carbon monoxide detectors connected to an *approved* combination system in accordance with NFPA 72.
3. Carbon monoxide detectors connected to an *approved fire alarm system* in accordance with NFPA 72.
4. Where *approved* by the *fire code official*, carbon monoxide alarms maintained in accordance with the manufacturer's instructions.

915.3.4 Installation. Carbon monoxide detection shall be installed in accordance with NFPA 72 and the manufacturer's instructions.

915.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.4.

915.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.

Exception: Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.

915.4.2 Listings. Carbon monoxide alarms shall be *listed* in accordance with UL 2034.

915.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be *listed* in accordance with UL 217 and UL 2034.

Revise as follows:

915.4.4 Interconnection. Where more than one carbon monoxide alarm is required to be installed, carbon monoxide alarms shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms. Physical interconnection of carbon monoxide alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

915.5 Carbon monoxide detection systems. Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.

915.5.1 General. Carbon monoxide detectors shall be *listed* in accordance with UL 2075.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 72.

915.5.3 Combination detectors. Combination carbon monoxide/smoke detectors shall be an acceptable alternative to carbon monoxide detectors, provided that they are *listed* in accordance with UL 268 and UL 2075.

Revise as follows:

915.5.4 Occupant notification. Activation of a carbon monoxide detector shall annunciate at the control unit and shall initiate audible and visible alarm notification throughout the building.

Exception: Occupant notification is permitted to be limited to the area where the carbon monoxide alarm signal originated and other signaling zones in accordance with the fire safety plan, provided that the alarm signal from an activated carbon monoxide detector is automatically transmitted to an *approved* on-site location or off-premises location.

915.5.5 Duct detection. Carbon monoxide detectors placed in environmental air ducts or plenums shall not be used as a substitute for the required protection in Section 915.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 72. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

915.6.1 Enclosed parking garages. Carbon monoxide and nitrogen dioxide detectors installed in enclosed parking garages in accordance with Section 404.1 of the International Mechanical Code shall be maintained in accordance with the manufacturer's instructions and their listing. Detectors that become inoperable or begin producing end-of-life signals shall be replaced.

Revise as follows:

1103.9 Carbon monoxide detection. Carbon monoxide detection shall be installed in existing buildings where any of the conditions identified in Section 915.1.1 exist. Carbon monoxide alarms shall be installed in the locations specified in Section 915.2 and the installation shall be in accordance with Section 915.4.

Exceptions:

1. Carbon monoxide alarms are permitted to be solely battery operated where the code that was in effect at the time of construction did not require carbon monoxide detectors to be provided.
2. Carbon monoxide alarms are permitted to be solely battery operated in *dwelling units* that are not served from a commercial power source.

3. A carbon monoxide detection system in accordance with Section 915.5 shall be an acceptable alternative to carbon monoxide alarms.

ABHR TG 6.57.1– Proposal #1

Section clean-up

Ready for Consideration by F-CAC WG 6 (July 19th)

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

4. Wall-mounted dispensers and dispensers on stands shall be located so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.

NOTE: Other numbered items remain unchanged

5705.5.1 Corridor installations. In addition to the provisions of Section 5705.5, where dispensers containing alcohol-based hand rubs are located in *corridors* or rooms and areas open to the *corridor*, they shall be in accordance with all of the following:

1. Where located in a *corridor*, dispensers shall be wall mounted.
2~~1~~. Level 2 and 3 aerosol ~~containers~~ dispensers shall not be permitted ~~allowed~~ in *corridors*.
3~~2~~. The maximum capacity of each ~~Class I or II liquid~~ dispenser shall be 41 ounces (1.21 L) and the maximum capacity of each Level 1 aerosol dispenser shall be 18 ounces (0.51 kg).
4~~3~~. The maximum quantity of alcohol-based hand rub solution in dispensers 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.
5. Projections into a *corridor* shall be in accordance with Section 1003.3.3.

Reason statement:

This is a simple clean-up for the changes made last cycle.

1. ABHR dispensers are often located on countertops or desktops in area other than corridors that would not comply with the height minimum and maximum requirement. Provides correlation for the allowance for these types of free-standing dispensers permitted by this section.

2. Clarifies that ABHR dispensers in corridors must be wall mounted to reduce the risk of a movable dispensers and dispensers on stands being tipped-over creating an obstruction to the required corridor width. Dispensers in “rooms or areas open to the corridor” can be free-standing or placed on a countertop or desktop as these would not create corridor obstructions.

3. Minor editorial changes for consistency in terminology usage with other sections of section 5705.5.

Just for easy reference: [BE] CORRIDOR. An enclosed exit access component that defines and provides a path of egress travel.

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Proposal 6.57.1.2

Part 1 – Operational Permit clarification

Add new Operational Permit Requirement:

105.5 Required operational permits. The *fire code official* is authorized to issue operational permits for the operations set forth in Sections 105.5.2 through 105.5.52.

105.5.18 Flammable and combustible liquids. An operational permit is required:

1. To use or operate a pipeline for the transportation within facilities of flammable or combustible liquids. This requirement shall not apply to the off-site transportation in pipelines regulated by the Department of Transportation (DOT), nor does it apply to piping systems.

2. To store, handle or use Class I liquids in excess of 5 gallons (19 L) in a building or in excess of 10 gallons (37.9 L) outside of a building, except that a permit is not required for the following:

2.1. The storage or use of Class I liquids in the fuel tank of a motor vehicle, aircraft, motorboat, mobile power plant or mobile heating plant, unless such storage, in the opinion of the *fire code official*, would cause an unsafe condition.

2.2. The storage or use of paints, oils, varnishes or similar flammable mixtures where such liquids are stored for maintenance, painting, or similar purposes for a period of not more than 30 days.

2.3. The storage, use or handling of alcohol-based hand rub solutions in dispensers or containers where in compliance with Section 5705.5

Renumber remaining items

3. To store, handle or use Class II or Class IIIA liquids in excess of 25 gallons (95 L) in a building or in excess of 60 gallons (227 L) outside a building, except for the following:
   3.1 Fuel oil used in connection with oil burning equipment.
   3.2 The storage, use or handling of alcohol-based hand rub solutions in dispensers or containers where in compliance with Section 5705.5

4. To store, handle or use Class IIIB liquids in tanks or portable tanks for fueling motor vehicles at motor fuel-dispensing facilities or where connected to fuel-burning equipment.
   Exception: Fuel oil and used motor oil used for space heating or water heating.

5. To remove Class I or II liquids from an underground storage tank used for fueling motor vehicles by any means other than the *approved*, stationary on-site pumps normally used for dispensing purposes.

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6. To operate tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where *flammable* and *combustible liquids* are produced, processed, transported, stored, dispensed or used.

7. To place temporarily out of service (for more than 90 days) an underground, protected above-ground or above-ground *flammable* or *combustible liquid* tank.

8. To change the type of contents stored in a *flammable* or *combustible liquid* tank to a material that poses a greater hazard than that for which the tank was designed and constructed.

9. To manufacture, process, blend or refine *flammable* or *combustible liquids*.

10. To engage in the dispensing of liquid fuels into the fuel tanks of motor vehicles at commercial, industrial, governmental or manufacturing establishments in accordance with Section 5706.5.4 or to engage in on-demand mobile fueling operations in accordance with Section 5707.

11. To utilize a site for the dispensing of liquid fuels from tank vehicles into the fuel tanks of motor vehicles, marine craft and other special equipment at commercial, industrial, governmental or manufacturing establishments in accordance with Section 5706.5.4 or, where required by the *fire code official*, to utilize a site for on-demand mobile fueling operations in accordance with Section 5707.

5001.1 Scope. Prevention, control and mitigation of dangerous conditions related to storage, dispensing, use and handling of hazardous materials shall be in accordance with this chapter.

This chapter shall apply to all hazardous materials, including those materials regulated elsewhere in this code, except that where specific requirements are provided in other chapters, those specific requirements shall apply in accordance with the applicable chapter. Where a material has multiple hazards, all hazards shall be addressed.

Exceptions:
1-10 remain unchanged

11. The <u>installation and</u> use of dispensers containing alcohol-based hand rubs<u>, replacement alcohol-based hand rub solution and dispensers in storage</u> classified as Class I or II liquids where in accordance with Section 5705.5.

<u>Proposal 6.57.1.3 - Use</u>

Part 2 – Revisions to Use ~~and Storage requirements; higher MAQs~~

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

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1. In health care facilities, the maximum capacity of each dispenser shall be ~~68 ounces (2 L)~~ 41 ounces (1.21 L) in rooms, corridors and areas open to corridors and 68 ounces (2.0 L) in care suites. In all other facilities, the maximum capacity of each wall-mounted dispenser shall be 68 ounces (2 L) and any other dispenser shall be 1 gallon (4 L)
2. The maximum aggregate quantity ~~allowed~~ within a control area, or smoke compartment in health care facilities, shall be 30 gallons (37.85 L) of liquids or 1135 ounces (32.2 kg) of Level 1 aerosols, or a combination of liquids and aerosols not to exceed, in total, the equivalent of 30 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.

   Exception: In a single story building with only one control area, the aggregate quantity limit shall be based on 1 gal per 900 sq. ft. (84 sq. m)

3~~2~~. The minimum separation between dispensers shall be 48 inches (1219 mm).
4~~3~~. Dispensers shall not be located above, below, or closer than 1 inch (25 mm) to an electrical receptacle, switch, appliance~~,~~ device or other ignition source. The wall space between the dispenser and the floor or intervening countertop shall be free of electrical receptacles, switches, appliances, devices or other ignition sources.
5~~4~~. Dispensers shall be located so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.
~~65~~. Dispensers shall not obstruct required means of egress or be placed within 3 feet (914 mm) of an open flame, heating device or other ignition source.
7~~6.~~ 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:
   7~~6~~.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.
   7~~6~~.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:
      7~~6~~.2.1. Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.
      7~~6~~.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).
      7~~6~~.2.3. An object placed within the activation zone and left in place will cause only one activation.
8~~7~~. Storage and use of alcohol-based hand rubs ~~solution not in use~~ shall be in accordance with the applicable provisions of Sections 5704 and 5705~~.5.2.~~.

Proposal 6.57.1.4 - Storage

5705.5 Alcohol-based hand rubs classified as Class I or II liquids. The use of 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. Dispensers shall not be located above, below, or closer than 1 inch (25 mm) to an electrical receptacle, switch, appliance~~,~~ device or other ignition source. The wall space between the dispenser and the floor or intervening countertop shall be free of electrical receptacles, switches, appliances, devices or other ignition sources.
4. Dispensers shall be located so that the bottom of the dispenser is not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) above the finished floor.
5. Dispensers shall not obstruct required means of egress or be placed within 3 feet (914 mm) of an open flame, heating device or other ignition source.
6. 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:
   6.1. 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.
   6.2. 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:
      6.2.1. Any activations of the dispenser shall only occur when an object is placed within 4 inches (98 mm) of the sensing device.
      6.2.2. The dispenser shall not dispense more than the amount required for hand hygiene consistent with label instructions as regulated by the United States Food activation.
7. Storage ~~and use~~ of alcohol-based hand rub~~s~~ solution not in use shall be in accordance with ~~the applicable provisions of~~ Section~~s 5704 and~~ 5705.5.2.

5705.5.2 Storage of alcohol-based hand rub solutions classified as Class I or II liquids.
The indoor storage of alcohol-based hand rub solution, classified as Class I or II liquids flammable or combustible, shall be in accordance with all of the following:
Exception: Alcohol-based hand rub dispensers for personal use with an aggregate of not more than 16 oz (474 ml) at a workstation shall not be included in determining the MAQ.

1. The maximum capacity of individual alcohol-based hand rub solution storage containers shall be 1 gallon (4 L) and the container shall be constructed of a material compatible with the alcohol-based solution.
2. Storage of alcohol-based hand rub solutions in basements or below grade shall be in basements protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The maximum allowable quantity per control area, or smoke compartment in health care facilities, for Storage of alcohol-based hand rub solutions shall be less than or equal to the amounts in Table 5705.5.2.
4. The number of control areas per story shall comply with Section 5003.8.3 of this code.

TABLE 5705.5.2
MAXIUM ALLOWABLE QUANTITY PER CONTROL AREA OF ALCOHOL-BASED HAND RUB SOLUTION IN STORAGE

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Storage Location	SPRINKLERED	NONSPRINKLERED
Open storage areas[c]	60 Gal	30 Gal
Non-dedicated storage room[a]	120 Gal	60 Gal
Non-dedicated storage room; 1-HR fire separation[ad]	240 Gal	120 Gal
Non-dedicated storage room; 2-HR fire separation[ad]	360 Gal	240 Gal
Dedicated storage room[b]	360 Gal	240 Gal
Dedicated storage room; 1-HR fire separation[bd]	600 Gal	240 Gal
Dedicated storage room; 2-HR fire separation[bd]	720 Gal	240 Gal

a. Non-dedicated storage room is an enclosed storage room complying with the applicable storage requirements of this code.
b. Dedicated storage room is an enclosed storage room used only for the storage of alcohol-based hand rub solution.
c. The number of open storage areas is limited to 1 per story or fire area with a maximum, of 4 per building
d. Fire separation shall be fire resistance-rated construction separating the dedicated storage room from the remainder of the building.

IFC Table 5003.3.1(5) and IBC Table 307.1.1

Flammable and combustible liquids and gases	Aerosols	Buildings and structures occupied for aerosol product storage, aerosol cooking spray products or plastic aerosol 3 products shall be classified as Group S-1
	Alcoholic beverages	The quantity of alcoholic beverages in liquor stores and distributors without bulk storage is not limited
		The quantity of alcoholic beverages in distilling or brewing of beverages is not limited
		The storage quantity of beer, distilled spirits and wines in barrels and casks is not limited
		The quantity of alcoholic beverages in retail and wholesale sales occupancies is not limited. To qualify for this allowance, beverages shall be packaged in individual containers not exceeding 1.3 gallons
	Cleaning establishments with combustible liquid solvents	The quantity of combustible liquid solvents used in closed systems and having a flash point at or above 140°F (60°C) is not limited. To qualify for this allowance, equipment shall be listed by an approved testing agency and the occupancy shall be separated from all other areas of the building by 1-hour fire barriers or 1-hour horizontal assemblies, or both, constructed in accordance with the International Building Code
		The quantity of combustible liquid solvents having a flash point at or above 200°F (93°C) is not limited
	Closed piping systems	The quantity of flammable and combustible liquids and gases utilized for the operation of machinery or equipment is not limited
	Fuel	The quantity of liquid or gaseous fuel in fuel tanks on vehicles or motorized equipment is not limited
		The quantity of gaseous fuels in piping systems and fixed appliances regulated by the International Fuel Gas Code is not limited
		The quantity of liquid fuels in piping systems and fixed appliances regulated by the International Mechanical Code is not limited
	Fuel oil	The quantity of fuel oil storage complying with Section 605.4.2 is not limited
	Flammable finishing operations using flammable and combustible liquids	Buildings and structures occupied for the application of flammable finishes. Such buildings and areas shall comply with Chapter 24

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	Hand sanitizer	The quantity of alcohol-based hand rubs classified as Class I or II liquids in dispensers installed in accordance with Sections 5705.5 and 5705.5.1 is not limited. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the construction documents
		The quantity of alcohol-based hand rubs classified as Class I or II liquids in storage shall be in accordance with Section 5705.5.2.
	Retail and wholesale sales occupancies with flammable and combustible liquids	The quantity of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable, is not limited To qualify for this allowance, such materials shall be packaged in individual containers not exceeding 1.3 gallons.

Cost Impact Statement:
This code change will not increase the cost of construction. Storage of ABHR solution is not mandated by this code requirement, but the storage of large quantities of ABHR may necessitate the construction of separated storage room (fire resistance-rated construction) or the installation of an automatic fire sprinkler system.

Life Cycle Costs: This proposal may impose additional cost if the building owner chooses to provide for storage of ABHR solutions in compliance with the MAQs specified in Table 5705.5.2

Reason Statement
Insert standard F-CAC and CHC description

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and the Committee on Health Care (CHC).

The main purpose of this proposal is to add a new Section (5705.5.2) for storage requirements and quantity limitations. This new section adds reasonable storage quantity limits and requirements based on experience over the past 4 years of the pandemic.

Two key points to consider.:

- Alcohol-based hand-sanitizer solutions at the 60 - 95% level recommended by CDC are classified as Class IB based on flashpoint. However, alcohol type polar solvents have other characteristics that differentiate them from the more volatile petroleum-based flammable (ignitable) liquids: quick evaporation, water-soluble, respond well to water based automatic fire sprinklers.
- The proposed storage quantity allowances are for ABHR replacement solution stored in their factory containers intended for replacement qualities of one dispenser can be compared to MAQs permitted for Class IB flammable liquids in Group M Occupancies for wholesale and retail sales uses (Table5704.3.4.1) need to explain this comparison; the values don't match.

The proposal addresses storage of alcohol-based rub solutions in a maximum individual container size of 1 gallon; provides maximum storage quantities for sprinklered and nonsprinklered buildings and incorporates allowances for higher storage quantities based on whether the storage room is for only alcohol-based sanitizer solutions and whether the storage room has 1 or 2 hour fire resistance rated construction for compartmentation of the hazard.

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The current MAQs for Class IB flammable liquids (typical classification for an alcohol-based hand rub solutions) is 120 gallons with 100% increase for sprinklers and approved storage cabinets). The quantities in Table 5705.5.2 are modeled after these MAQ allowances recognizing: the storage challenges created during the pandemic and the experience of storage in these amounts without unreasonable fire risk or notable fire incidents; the benefit of fire sprinkler protection and fire separations for hazard mitigation for ABHR solution in storage.

Other substantiation for specific changes:

1. The addition of "storage" in Exception 11 of Section 5001.1 (Scope) simply ensures that the intention of the exception is for both the alcohol-based hand rub dispensers and the storage of alcohol-based sanitizer solutions awaiting use.
2. This proposal adds an exception from IFC requirements for personal use hand sanitizer in quantities of 16 oz or less. It is not the intention of this section to impose any requirements on individual use hand sanitizers carried or at a workspace for personal sanitizing.
3. The higher quantity of allowable alcohol-based hand rub solution in dispensers is increased from 10 Gallons to 30 Gallons per control area. This is a reasonable increase in MAQ and is supported by the increased quantities that have been safely utilized in all public buildings during the pandemic.
4. Provides a clarification of requirements to differentiate permanent wall-mounted dispenser requirements which have been in the IFC for many cycles from other types of dispensers such as floor-supported, desktop or counter located that are currently being used.
5. Eliminating the additional quantity restrictions for dispensers used in corridors as unnecessary and overly restrictive.