Healthcare proposal list

12-21-2020

Number	Subject	Notes	Vote
AB1	Ambulatory care definition		
AB2	separation	Do not proceed	
HC1	Grab bar loading	Group B proposal	
HC2	IMC 505		
HC3B	Cold handwashing		
HC4	Plumbing fixtures in Group I	Co-sponsored with PMGCAC	
HC5	Man traps	Co-sponsored with BCAC	
HC6	Custodial care definition	Incomplete; combined with HC8?	
HC7	Number of residents I-2	Do not proceed	
HC8	Limited assistance definition		
HC9	BCAC OCC Item 17 Labs	Co-sponsored with BCAC and FCAC	
HC10	717.6.2- Fire dampers		
K311	Vertical openings	Incomplete	
K321	Table 1105.4	Incomplete	
K362	Lay in ceilings		
K903	Hazard analysis	Incomplete	
K904	Warning systems	Do not proceed	
K905	Signage		
K912	Electrical systems - receptacles		

Ambulatory care – consistent terms

Proposal AB1

Add definition to codes where the term is used – IPC, IMC. IEBC

[BG] AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered *incapable of self-preservation* by the services provided or staff has accepted responsibility for care recipients already incapable.

IBC & IFC

1026.4.1 Capacity. The capacity of the refuge area shall be computed based on a *net floor area* allowance of 3 square feet (0.2787 m^2) for each occupant to be accommodated therein. Where the *horizontal exit* also forms a *smoke compartment*, the capacity of the refuge area for Group I-1, I-2 and I-3 occupancies and ~~Group B~~ *ambulatory care facilities* shall comply with Sections 407.5.3, 408.6.2, 420.6.1 and 422.3.2 as applicable.

IFC

805.2 Group I-2 and ~~Group B~~ ambulatory care facilities. The requirements in Sections 805.2.1 through 805.2.2 shall apply to Group I-2 occupancies and ~~Group B~~ ambulatory care facilities.

808.1 Wastebaskets and linen containers in Group I-1, I-2 and I-3 occupancies and ~~Group B~~ ambulatory care facilities. Wastebaskets, linen containers and other waste containers, including their lids, located in Group I-1, I-2 and I-3 occupancies and ~~Group B~~ ambulatory care facilities shall be constructed of noncombustible materials or of materials that meet a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation. Metal wastebaskets and other metal waste containers with a capacity of 20 gallons (75.7 L) or more shall be *listed* in accordance with UL 1315 and shall be provided with a noncombustible lid. Portable containers exceeding 32 gallons (121 L) shall be stored in an area classified as a waste and linen collection room and constructed in accordance with Table 509 of the *International Building Code*.

Exception: Recycling containers complying with Section 808.1.2 are not required to be stored in waste and linen collection rooms.

IPC

609.1 Scope. This section shall govern those aspects of health care plumbing systems that differ from plumbing systems in other structures. Health care plumbing systems shall conform to the requirements of this section in addition to the other requirements of this code. The provisions of this section shall apply to the special devices and equipment installed and maintained in the following occupancies: Group I-1, Group I-2, ~~Group B~~ ambulatory care facilities, medical offices, research and testing laboratories, and Group F facilities manufacturing pharmaceutical drugs and medicines.

IEBC

302.2.1 Additional Codes in Healthcare. In existing Group I-2 occupancies, ambulatory ~~health~~care facilities, outpatient clinics and hyperbaric facilities, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall also comply with NFPA 99.

503.15 Refuge areas. Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below the required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the International Building Code. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Group I-1, I-2 and I-3 occupancies and ~~Group B~~ ambulatory care facilities shall not be reduced below that required in Sections 407.5.3, 408.6.2, 420.6.1 and 422.3.2 of the International Building Code as applicable.

805.11 Refuge areas. Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below the required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the International Building Code. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Group I-1, I-2 and I-3 occupancies and ~~Group B~~ ambulatory care facilities shall not be reduced below that required in Sections 407.5.3, 408.6.2, 420.6.1 and 422.3.2 of the International Building Code as applicable.

Reason: The term “ambulatory care facility” is currently defined in the IBC and IFC. It should be defined in the other codes where the term is used. When this item was first introduced to the codes, it was believed that it was needed to add ‘Group B’ in front of the term. This proposal removes it as no longer necessary, and will make this consistent with the numerous other locations throughout the codes where ‘Group B’ in not included. The intent is to not appear to have two different types of ‘ambulatory care facilities’.

Cost impact – none; editorial clarification

HC2
Option 1 – IMC Section 505 Domestic Cooking Equipment

IBC Section 505.3, 507.8(New), 507.8(New)

505.3 Exhaust ducts. Domestic cooking exhaust *equipment* shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, shall be airtight and shall be equipped with a backdraft damper. Installations in Group I-1 and I-2 *occupancies* shall be in accordance with this section and ~~the *International Building Code* and Section 904.13 of the *International Fire Code*.~~ Section 505.7 or 505.8

Exceptions:

1. ~~In other than Groups I-1 and I-2,~~ W~~w~~here installed in accordance with the manufacturer's instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, *listed* and *labeled* ductless range hoods shall not be required to discharge to the outdoors.
2. Ducts for domestic kitchen cooking *appliances* equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:
   2.1. The duct shall be installed under a concrete slab poured on grade.
   2.2. The underfloor trench in which the duct is installed shall be completely backfilled with sand or gravel.
   2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.
   2.4. The PVC duct shall extend not more than 1 inch (25 mm) above grade outside of the building.
   2.5. The PVC ducts shall be solvent cemented.

505.7 Group I-1 Occupancies. In Group I-1 occupancies, hood installations over domestic cooking equipment shall be installed in accordance with one of the following:

1. Domestic hoods over cooktops and ranges installed in accordance with Section 420.9 of the *International Building Code* shall comply with the following:
   1.1. Protection from fire shall be in accordance with Section 904.14 of the *International Fire code*
   1.2. Mechanical ventilation shall be provided to the rooms or spaces containing the cooking facility in accordance with Section 403.3.1
   1.3. Hood systems shall have a minimum air flow of 500 cfm (14,000 L/min)
   1.4. *Listed* and *labeled* ductless range hoods shall have a charcoal filter to reduce smoke and odors.
2. Commercial kitchen hoods complying with Section 507 shall be provided over cooktops and ranges serving greater than 30 care recipients.

505.8 Group I-2 Occupancies. In Group I-2 Occupancies, Hood installations over domestic cooking equipment shall be installed in accordance with one of the following:

1. Domestic hoods over cooktops and ranges installed in accordance with Section 407.2.7 of the *International Building Code* shall comply with the following:
   1.1. Protection from fire shall be in accordance with Section 904.14 of the *International Fire code*
   1.2. Mechanical ventilation shall be provided to the rooms or spaces containing the cooking facility in accordance with Section 407
   1.3. Hood systems shall have a minimum air flow of 500 cfm (14,000 L/min)
   1.4. *Listed* and *labeled* ductless range hoods shall have a charcoal filter to reduce smoke and odors.
2. Commercial kitchen hoods complying with Section 507 shall be provided over cooktops and ranges serving greater than 30 care recipients.

Reason Statement: In I-1 and I-2 Occupancies, Section 407.2.6 and 420.8 set up a number of safeguards that allow for meal preparation for up to 30 care recipients. These cooking operations are on a lower scale than commercial cooking facilities and do not generate the same level of smoke and vapors. The aroma of food cooking is beneficial to the care recipients who live in I-1 and I-2 occupancies as it stimulates appetite and signals them that mealtime is near.

The hoods in question are not your standard domestic range hood. Hoods for I-1 and I-2 Occupancies must comply with Section 904.14 of the *International Fire Code*. This section requires hoods that are listed and labeled per UL 300A, have fire suppression built in, and have an interlock that cuts the fuel or power source upon activation of the extinguishing system. Stovetops must also have a timer that automatically turns off the cooking device after 120 minutes, preventing unattended cooking.

Federal Guidelines that govern I-2 Occupancies permit recirculating hoods with a charcoal filter and also require a higher airflow rate. This added language is being added to allow equivalent facilitation.

For commercial cooking facilities, compliance with NFPA 96 is required. However, NFPA 96 (Chapter 13) allows for the use of re-circulating hoods in commercial cooking operations, there is no justification to prohibit the use in these domestic uses.

The issue at hand is that sometimes, especially in a renovation of a multi-story building, it can be impractical or impossible to run an exhaust duct to the outside. By requiring a vented hood, it would prevent many communities from being able to provide better food quality and a social experience that can be critical to quality of life.

Cost impact: Lower. The cost of a domestic hood is less than a commercial hood and associate duct work.

Proposal HC3-B

Cold Hand Washing

IPC: 609.3 (Modify/Add)

Proponent: John Williams, Chair, representing Healthcare Committee (AHC@iccsafe.org)

2024 International Plumbing Code

Modify text as follows:

609.3 ~~Hot w~~Water. ~~Hot water shall be provided to supply all of the hospital fixture, kitchen and laundry requirements. Special fixtures and equipment shall have hot water supplied at a temperature specified by the manufacturer. The hot water system shall be installed in accordance with Section 607.~~ Water shall be provided in health care facilities in accordance with Section 609.3.1 and 609.3.2.

609.3.1 Hand-washing Water. Hand-washing water shall be provided to all dedicated handwashing stations. Dedicated hand-washing stations ~~shall not require tempered water~~ shall be permitted to be colder than tempered water.

609.3.2 Hot water. *Hot water* shall be provided ~~to supply all of the hospital fixture, kitchen and laundry requirements. Special fixtures and equipment shall have *hot water* supplied at a temperature specified by the manufacturer. The hot water system shall be installed~~ in accordance with Section 607.

Reason:

ASHRAE guideline 12 states “Condi-tions that are favorable for the amplification of legionellae growth include the presence of other bacteria, amoebae and other protozoan hosts, water temperatures of 25--42°C (77--108°F), stagnation, scale, sediment and biofilms.” Tempered water falls within this breeding area that is dangerous for the sensitive populations in health care facilities. Research has shown that “warm or hot” water have not significant impact on levels of bacterial reduction[1]. Common pathogens such as Escherichia coli, Salmonella typhimurium and Klebsiella pnumonae stay alive at temperatures up to 55°C (131°F) for over ten minutes and Staphylococcus aureus would require at least 50 minutes of exposure at a temperature of 60°C (140°F) to be reduced to an immeasureable level. By comparison, just 30 seconds of skin exposure to water heated to 55°C would cause deep second-degree burns, and water heated to 60°C could be tolerated for less than six seconds before causing serious harm.

1. Carrico AR, Spoden M, Wallston KA, Vandenbergh MP. The Environmental Cost of Misinformation: Why the Recommendation to Use Elevated Temperatures for Handwashing is Problematic. Int J Consum Stud. 2013;37(4):433-441. doi:10.1111/ijcs.12012

Cost Impact

The code change proposal will decrease the cost of construction and operation.

Reach out to Amy for residential type facilities.

10-12-2020: See notes on Item HC3A. Revise.

Proposal HC4
Healthcare Committee
Draft for change to IPC Table for plumbing fixtures
Draft: ~~9-14-2020~~ Modified by ATC/DP/MC/AP; 10-25-2020

IPC Table 403.1 (IBC Table 2902.1)
(Portions of the table not shown remain unchanged)

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 403.1.1 and 403.2)

NO.	CLASSIFICATION	DESCRIPTION		WATER CLOSETS (URINALS: SEE SECTION 424.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	Restaurants, banquet halls and food courts[d]		1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
2	Business	Buildings for the transaction of business, non-medical professional services, other services involving merchandise, office buildings, banks, ~~ambulatory care~~ light industrial and similar uses		1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80	—			1 per 100	1 service sink[e]
		Ambulatory care facilities and Outpatient clinics		1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50	1 per 50			1 per 100	1 service sink per floor
5	Institutional	Alcohol and drug centers Congregate care facilities *Group homes* Halfway houses Social rehabilitation facilities Foster care facilities Footnote b		1 per 10 care recipients		1 per 10 care recipients		1 per 8 care recipients		
		Assisted living and residential board and care facilities with care recipients who receive Custodial care ~~facilities~~	Sleeping units for care recipients Footnote c	1 per 2 ~~10~~ sleeping units		1 per 2 ~~8~~ sleeping units		1 per 8 sleeping units	~~1 per 100~~	1 service sink
			Dwelling units for care recipients	1 per dwelling unit		1 per dwelling unit		1 per dwelling unit		1 kitchen sink per dwelling unit
			Employee facilities	1 per 60 care recipient units		1 per 60 care recipient units			1 per 100	1 service sink per floor
			Visitor facilities	1 per 75 care recipient units.		1 per 75 care recipient units				

		Nursing homes	Sleeping units for care recipients Footnote c	1 per 2 care recipient sleeping units		1 per 2 care recipient sleeping unit	1 per 8 care recipient sleeping units		
			Employee facilities	1 per 60 care recipient units		1 per 60 care recipient sleeping units		1 per 100	1 service sink per floor
			Visitor facilities	1 per 75 care recipient units.		1 per 75 care recipient sleeping rooms			
		~~Medical care recipients in~~ hospitals ~~and nursing homes~~ Footnote b	Sleeping units for care recipients	1 per care recipient sleeping unit ~~1 per 15~~		1 per care recipient sleeping unit ~~room~~[e] ~~1 per 15~~	1 per 100 care recipient sleeping unit	~~1 per 100~~	~~1 service sink per floor~~
			Care recipient treatment areas	1 per 25 care recipient treatment rooms		1 per 50 care recipient treatment rooms		1 per 100	
			Employee facilities	1 per 25 care recipient sleeping units or treatment room	1 per 35 care recipient sleeping units or treatment room	1 per 50 care recipient sleeping units or treatment room		1 per 100	1 service sink per floor
			Visitor facilities	1 per 75 care recipient sleeping room or treatment room	1 per 100 care recipient sleeping room or treatment room	1 per 50 care recipient sleeping room or treatment room		1 per 500	—
		Prisons[b]		1 per cell	1 per cell	1 per 15		1 per 100	1 service sink
		Reformitories, detention centers, and correctional centers Footnote b	Cells	1 per 15 cells	1 per 15 cells	1 per 15 cells		1 per 100	1 service sink
			Employees ~~in reformitories, detention centers and correctional centers~~[b]	1 per 25 cells	1 per 35 cells	—		1 per 100	—
		Adult day care and child day care		1 per 15	1 per 15	1		1 per 100	1 service sink
7	Residential	Congregate living facilities with 16 or fewer ~~persons~~ care recipients receiving custodial care		1 per 10 care recipients	1 per 10 care recipients	1 per 8 care recipients		~~1 per 100~~	~~1 service sink~~ 1 kitchen sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.
b. Toilet facilities for employees shall be separate from facilities for inmates or hospital care recipients.
c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent ~~patient~~ care recipient sleeping units shall be permitted provided that each ~~patient~~ care recipient sleeping unit has direct access to the toilet room and provision for privacy for the toilet room user is provided.
d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
e. For business and mercantile classifications with an occupant load of 15 or fewer, service sinks shall not be required.
f. The required number and type of plumbing fixtures for outdoor public swimming pools shall be in accordance with Section 609 of the *International Swimming Pool and Spa Code.*

Reason Statement: This change is being proposed to help clarify fixture counts for Institutional uses. This proposal has two purposes; to clarify the number of bathrooms for care recipient areas, and to clarify the number of toilet rooms required for visitors and staff.

The IPC table for plumbing fixtures is based on the use of the space, not the occupancy classification for the building. This is a suggestion for a more consistent way to provide fixtures for Group I-1, I-2, I-3, I-4 and R-4 facilities as well as ambulatory care facilities and outpatient clinics (Group B). It is assumed that other areas will be addressed with their appropriate use – for example, the billing and administration areas of a hospital will be evaluated using the business classification, etc.

Group I-1 and R-4 include:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

Group I-2 include:

Foster care facilities
Detoxification facilities
Hospitals
Nursing homes
Psychiatric hospitals

Assisted living and nursing homes should be based on number of residents sleeping and dwelling unit resident rooms. Hospitals have both patient sleeping rooms and patient treatment rooms. Footnote c allows for shared bathrooms between sleeping rooms. Other occupancies listed in Section 308 are listed; since this is where people live, the number of fixtures is consistent with residential group homes. Group R-4 facilities are basically treated the same as single family homes, so they should not have a requirement for drinking fountains or service sinks, but they will have a requirement for a kitchen sink.

Previously, the employee and visitor count was specified, but building officials often didn't have any way of knowing what the counts of staff and visitors would be. Similarly, Hospitals have a much greater typical staffing level than assisted living facilities. By tying the fixture count for visitors and employee units, it will provide the best indication of the number of fixtures needed for employees and visitors in those areas. Areas outside of the patient care areas, such as cafeterias or outpatient clinics, are dealt with elsewhere in the fixture tables.

The defined terms relevant to this discussion are:

[BG] CUSTODIAL CARE. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily

living. Custodial care includes persons receiving care who have the ability to respond to emergency situations and evacuate at a slower rate and/or who have mental and psychiatric complications.

[BG] FOSTER CARE FACILITIES. Facilities that provide care to more than five children, 21/2 years of age or less.

[BG] GROUP HOME. A facility for social rehabilitation, substance abuse or mental health problems that contains a group housing arrangement that provides *custodial care* but does not provide medical care.

[BG] HOSPITALS AND PSYCHIATRIC HOSPITALS. Facilities that provide care or treatment for the medical, psychiatric, obstetrical, or surgical treatment of care recipients who are *incapable of self-preservation*.

[BG] NURSING HOMES. Facilities that provide care, including both intermediate care facilities and skilled nursing facilities where any of the persons are *incapable of self-preservation*.

Cost impact: None. This is a clarification of requirements. The industry typically provides a number of fixtures more than specified in this table based on care recipient's needs or licensure regulations.

BCAC Egress Item 32 (Also introduced to Healthcare) Man Traps / Control Vestibule – DRAFT
John Woestman, BHMA
Sept. 29, 2020, revised Dec. 4, 2020 and Dec. 7, 2020; 12-7-2020

IBC

Proposed definition:

Control vestibule. A space with doors in series such that when one door is open the other door is interlocked and cannot be opened.

Insert new section as follows

1010.2.15 Control vestibule. *Control vestibules* shall be permitted for security or environmental control in Groups F, H-5, and S and in Groups B, I-1, I-2, and M where the occupant load is less than 50. Where doors in the means of egress are configured as a *control vestibule*, the *control vestibule* door locking system shall provide for egress. The *control vestibule* shall comply with all of the following:

1. On the egress side of each door of the *control vestibule, an approved* override shall be provided which deactivates the interlock of the door when that door is interlocked. Signage shall be provided with instructions on the use of the override.
2. Where an automatic sprinkler system or automatic fire detection system is provided, upon activation of such system the interlock function of the door locking system 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. The egress path from any point shall not pass through more than one *control vestibule*.
5. The *control vestibule* door interlocking system units shall be listed in accordance with UL 294.

Reason: This proposal includes a definition for “control vestibule” and offers detailed requirements for control vestibules.

Commonly referred to as a “mantrap”, control vestibules – which have doors in series which are interlocked – are being incorporated in the means of egress in a variety of occupancies. The IBC is currently silent regarding requirements and guidance for control vestibules. This proposal offers requirements (guidance) for control vestibules in the means of egress.

The significant difference between typical doors in series in the means of egress (i.e. one after the other) and doors in the means of egress configured as a control vestibule is the doors of a control vestibule are interlocked such that when one door of a control vestibule is open, the other door in series in the control vestibule is temporarily locked; and conversely, in the means of egress when all doors of a control vestibule are closed, any door may be opened.

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 three different clean rooms opening into the control vestibule, and one outer door for leaving the control vestibule in the direction of egress.

It should be noted that control vestibules on the access (ingress) side of doors controlling access into a building or into a space within a building are more common that control vestibules on the egress side of doors controlling egress from a space or from a building. Requirements for access-side control vestibules is 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 addressing egress-side requirements.

Also, it should be noted that control vestibules may be “stacked” or combined with any of the other “shall be permitted” electrical locking arrangements of the IBC (2021 IBC sections 1010.2.11 through 1010.2.14).
For example, assume both doors in the (air lock) control vestibule from an electronics manufacturing clean room are equipped with sensor release of electrically locked egress doors (IBC Section 1010.2.12) to allow no-touch exiting from the clean room through the (air-lock) control vestibule. The electrical locks on the two doors of the (air lock) control vestibule would be interlocked such that only one door is able to be open at a time. In the event of fire in the clean room, Item 2 requires the interlock function of the control vestibule to be deactivated, facilitating egress through the control vestibule with both doors open at the same time.

The proposed requirements for control vestibules are for these reasons:
Control vestibules are recommended to be permitted in the listed occupancy groups: Group B for banks and laboratories. Group F for factories. Group H for operations where contamination or atmospheric control is vital. Groups I-1 and I-2 to facilitate patient care and patient security. Group M for sales rooms for jewelry, gems, drugs, and similar highly valuable items. Group S for storage of valuables.
This proposal has no limits on occupant loads for a factory – access to factories is limited to employees, or visitors escorted by employees. Similar situation for H-5. And for storage, especially large storage areas, the calculated occupant load may be significant although the actual quantity of occupants is typically limited (i.e. employees). The other Groups – the proposed less than 50 occupant load is to be consistent with requirements for panic hardware on doors in the means of egress (occupant loads of 50 or more require panic hardware).

Control vestibules must provide for egress – which is a requirement in the charging language.

The last sentence in the charging language provides needed flexibility. For example, where casinos count money, accepted industry practices may not incorporate all of the requirements of Items 1 through 5 but may incorporate significant other security and safety provisions.

Item 1: A requirement to address the potential situation where one of the doors on the control vestibule is held open (example: a person holds the outer doorway open and other occupants need to be able to egress through the control vestibule in an emergency situation). This item requires, on the egress side of each door of the control vestibule, installation of an approved override which deactivates the interlock on that door. It is common the activation of an override would set off an alarm, and / or the activation of an override without a valid reason results in disciplinary action (i.e. employee gets fired). This item also requires signage with instruction on how to use the override.

Items 2 and 3: Requires the interlock function to be disabled in the event of fire, actuation of the fire detection system, or power loss to the interlock system renders the control vestibule equivalent to two doors in the means of egress allowing unobstructed egress.

Item 4: Requires that egressing through the control vestibule involves no more than two doors. While not common, there are situations where more than one control vestibule may be needed in the means of egress.

Item 5: Requires the units of the control vestibule locking system to be listed in accordance with UL 294, the same standard required for units for other electrical locking system units.

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

Note: a control vestibule is different than a sallyport, which is 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.

Cost Impact: May increase the cost of construction.

Control vestibules are currently not addressed in the code. Where control vestibules are constructed, these requirements may include some locking requirements and interconnectedness currently not incorporated into some control vestibules.

Proposal HC6

General/MOE Work Group

IBC Chapter 2 Definitions

[BG] CUSTODIAL CARE. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care includes persons receiving care who have the ability to respond to emergency situations independently or evacuate with limited assistance. ~~and~~ Care recipients may evacuate at a slower rate and/or ~~who~~may have mental and psychiatric complications.

Reason statement: This language is needed to help clarify that care recipients in Group I-1, condition 2 occupancies, while still needing custodial care (not medical care), sometimes need limited assistance with evacuation. This language correlates to the language in the conditions.

Cost: no change in cost

Notes 9-28-2020:
Custodial care is in Group I-1, R-4 and I-4.
Would there be an option to define 'capable or self-preservation' or 'limited assistance'?
Original proposal compared this to NFPA Board and Care facilities.
Since this text is already in the descriptions of Group 2, this is not really adding any additional information.
Keep the definition to those receiving care.
Maybe add information to IFC staff training for the plan for limited assistance
Wayne, Maggie, Dan and Amy will revise.

is interest, but no sure about the number of care recipients.

HC proposal 8
Definitions, IBC 308.2

Add New Definition:

LIMITED VERBAL OR PHYSICAL ASSISTANCE. Persons who, because of age, physical limitations, cognitive limitations, treatment or chemical dependency, and may not independently recognize, respond or evacuate without limited verbal or physical assistance during an emergency situation. Verbal assistance includes prompting, giving and repeating instructions. Physical assistance includes assistance with transfers to walking aids or mobility devices and assistance with egress.

Modify the following existing definitions:

[BG] CUSTODIAL CARE. Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living. Custodial care includes persons receiving care who have the ability to respond to emergency situations and may receive *limited verbal or physical assistance*. These care recipients may evacuate at a slower rate and/or have mental and psychiatric complications.

[BG] INCAPABLE OF SELF-PRESERVATION. Persons who, because of age, physical limitations, mental limitations, chemical dependency or medical treatment, cannot respond independently, or with *limited verbal or physical assistance*, as an individual to an emergency situation**.**

Modify:

308.2 Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions specified in Section 308.2.1 or 308.2.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

308.2.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

308.2.2 Condition 2. This occupancy condition shall include buildings in which there are any persons receiving custodial care who require *limited verbal or physical assistance* while responding to an emergency situation to complete building evacuation.

And modify:

310.5 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive custodial care. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.5.1 or 310.5.2. This group shall include, but not be limited to, the following:

Alcohol and drug centers

Assisted living facilities

Congregate care facilities

Group homes

Halfway houses

Residential board and care facilities

Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.

310.5.1 Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care, without any assistance, are capable of responding to an emergency situation to complete building evacuation.

310.5.2 Condition 2. This occupancy condition shall include buildings in which there are any persons receiving custodial care who require *limited verbal or physical assistance* while responding to an emergency situation to complete building evacuation.

Reason statement:

The intent of this code change is to provide a new definition for Limited Verbal or Physical Assistance to correlate with the text of the existing document (Section 308.2.2 and 310.5.2) and provide needed clarity. This new definition describes a middle ground between able to evacuate independently and incapable of self-preservation. The I-1/R-4, Condition 2 occupancy group classification was added into the code, providing safeguards for care-recipients who, because of frailness, cognitive impairment or other conditions, need limited verbal or physical assistance with exiting the building. The intent, which was described in more detail in the Commentary, was to allow staff to assist care-recipients, who may use mobility devices (walker or cane) or can self-propel in a wheelchair, with transferring out of bed, assist with balance while walking down stairs, or allow staff to direct care-recipients to hold hands and "follow the leader" out of the building. It also recognizes that people with dementia may need extra prompting or repeated instructions to complete the evacuation process. This definition is being added in response to some requests for clarity on what limited assistance means.

The *Custodial Care* definition is being modified to better clarify and link that I-1/R-4 Occupancies, who receive Custodial Care, are able to receive *Limited Verbal and Physical Assistance*. The Definition for *Incapable of Self-Preservation* is being modified to clarify that this definition applies to occupants who cannot evacuate either independently OR with *Limited Verbal or Physical Assistance*. We felt that both of these definitions needed to be modified to provide the needed clarity.

Lastly, the modifications to Section 308.2.2 and 310.5.2 is simply changing the text to italicized to reflect an official definition. We believe this is an editorial change, but wanted to highlight it.

Cost implication:

This will not increase or decrease construction cost.

BCAC Occupancy Item 17 Labs (6362)

IBC: [F], [F] 307.1.1, [F] 414.2, SECTION 428, [F] 428.1; IFC: , CHAPTER 38, 3801.1, 3802.1, 3804.1.1.6, 5003.8.3

Proponents: Mike Nugent, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2021 International Building Code

Delete and substitute as follows:

~~**[F] HIGHER EDUCATION LABORATORY.** Laboratories in Group B occupancies used for educational purposes above the 12th grade. Storage, use and handling of chemicals in such laboratories shall be limited to purposes related to testing, analysis, teaching, research or developmental activities on a nonproduction basis.~~

NON-PRODUCTION LABORATORY. A room, space or building that provides controlled conditions in which testing, analysis, teaching (above the 12th grade), research or developmental activities occur that are not part of a production process, nor in any way simulate a production process, including diagnostic, clinical, hospital, and higher education research or laboratories.

Revise as follows:

[F] LABORATORY SUITE. A fire-rated, enclosed laboratory area providing one or more laboratory spaces within a non-production laboratory ~~Group B educational occupancy~~ that includes ancillary uses such as offices, bathrooms and corridors that are contiguous with the laboratory area, and are constructed in accordance with Section 428.

[F] 307.1.1 Uses other than Group H.
An occupancy that stores, uses or handles *hazardous materials* as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *International Fire Code*.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *International Fire Code*.
3. Closed piping system containing *flammable or combustible liquids* or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize *combustible liquid* solvents having a *flash point* of 140°F (60°C) or higher in closed systems employing equipment *listed* by an *approved* testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour *fire barriers* constructed in accordance with Section 707 or 1-hour *horizontal assemblies* constructed in accordance with Section 711, or both.
5. Cleaning establishments that utilize a liquid solvent having a *flash point* at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary storage battery systems installed in accordance with the *International Fire Code*.
10. *Corrosive* personal or household products in their original packaging used in retail display.
11. Commonly used *corrosive* building materials.
12. Buildings and structures occupied for *aerosol product* storage, aerosol cooking spray products or plastic aerosol 3 products shall be classified as Group S-1, provided that such buildings conform to the requirements of the *International Fire Code*.
13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid *hazardous materials* in quantities not exceeding the maximum allowable quantity per *control area* in Group M or S occupancies complying with Section 414.2.5.
14. The storage of black powder, smokeless propellant and small arms primers in Groups M and R-3 and special industrial *explosive* devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *International Fire Code*.
15. Stationary fuel cell power systems installed in accordance with the *International Fire Code*.

16. Capacitor energy storage systems in accordance with the *International Fire Code*.
17. ~~Group B *higher education*~~ Non-production *laboratory* occupancies complying with Section 428 and Chapter 38 of the International Fire Code.
18. Distilling or brewing of beverages conforming to the requirements of the *International Fire Code.*
19. The storage of beer, distilled spirits and wines in barrels and casks conforming to the requirements of the *International Fire Code.*

[F] 414.2 Control areas.
Control areas shall comply with Sections 414.2.1 through 414.2.5 and the *International Fire Code*.

Exception: ~~*Higher education*~~ Non-production *laboratories* in accordance with Section 428 and Chapter 38 of the International Fire Code.

SECTION 428 ~~HIGHER EDUCATION~~ NON-PRODUCTION LABORATORIES

[F] 428.1 Scope. ~~*Higher education*~~ Non-production *laboratories* complying with the requirements of Sections 428.1 through 428.4 shall be permitted to exceed the maximum allowable quantities of *hazardous materials* in *control areas* set forth in Tables 307.1(1) and 307.1(2) without requiring classification as a Group H occupancy. Except as specified in Section 428, such laboratories shall comply with all applicable provisions of this code and the *International Fire Code*.

2021 International Fire Code

OCCUPANCY CLASSIFICATION. For the purposes of this code, certain occupancies are defined as follows:
[BG] Group A, Assembly. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation.
[BG] Accessory with places of religious worship. Accessory religious educational rooms and religious auditoriums with *occupant loads* of less than 100 per room or space are not considered separate occupancies.
[BG] Assembly Group A-1. Group A occupancy includes assembly uses, usually with fixed seating, intended for the production and viewing of performing arts or motion pictures including, but not limited to:

Motion picture theaters
Symphony and concert halls
Television and radio studios admitting an audience
Theaters

[BG] Assembly Group A-2. Group A-2 occupancy includes assembly uses intended for food and/or drink consumption including, but not limited to:

Banquet halls
Casinos (gaming areas)
Night clubs
Restaurants, cafeterias and similar dining facilities (including associated commercial kitchens)
Taverns and bars

[BG] Assembly Group A-3. Group A-3 occupancy includes assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, including, but not limited to:

Amusement arcades
Art galleries
Bowling alleys
Community halls
Courtrooms
Dance halls (not including food or drink consumption)
Exhibition halls
Funeral parlors
Greenhouses with public access for the conservation and exhibition of plants
Gymnasiums (without spectator seating)
Indoor swimming pools (without spectator seating)
Indoor tennis courts (without spectator seating)
Lecture halls
Libraries
Museums
Places of religious worship
Pool and billiard parlors

Waiting areas in transportation terminals

[BG] Assembly Group A-4. Group A-4 occupancy includes assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

Arenas
Skating rinks
Swimming pools
Tennis courts

[BG] Assembly Group A-5. Group A-5 occupancy includes assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures
Bleachers
Grandstands
Stadiums

[BG] Associated with Group E occupancies. A room or space used for assembly purposes that is associated with a Group E occupancy is not considered a separate occupancy.

[BG] Small assembly spaces. The following rooms and spaces shall not be classified as assembly occupancies:

1. A room or space used for assembly purposes with an *occupant load* of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
2. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.

[BG] Small buildings and tenant spaces. A building or tenant space used for assembly purposes with an *occupant load* of less than 50 persons shall be classified as a Group B occupancy.

[BG] Special amusement areas. Special amusement areas shall comply with Section 411 of the *International Building Code*.

[BG] Group B, Business. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers
Ambulatory care facilities
Animal hospitals, kennels and pounds
Banks
Barber and beauty shops
Car wash
Civic administration
Clinic-outpatient
Dry cleaning and laundries: pick-up and delivery stations and self-service
Educational occupancies for students above the 12th grade, including higher education laboratries
Electronic data processing
Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m^2) in area.
Laboratories: testing and research
Motor vehicle showrooms
Post offices
Print shops
Professional services (architects, attorneys, dentists,physicians, engineers, etc.)
Radio and television stations
Telephone exchanges
Training and skill development not in a school oracademic program (This shall include, but not belimited to, tutoring centers, martial arts studios,gymnastics and similar uses regardless of the agesserved, and where not classified as a Group A occupancy).

[BG] Airport traffic control towers. Airport traffic control towers shall comply with Section 412.2 of the *International Building Code*.

[BG] Ambulatory care facilities. Ambulatory care facilities shall comply with Section 422 of the *International Building Code*.

[BG] Higher education laboratories. Higher education laboratories shall comply with Section 428 of the *International Building Code*.

[BG] Group E, Educational. Educational Group E occupancy includes, among others, the use of a building or structure, or

a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade.

[BG] Accessory to places of religious worship. Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 303.1.4 of the International Building Code and have *occupant loads* of less than 100 per room or space shall be classified as Group A-3 occupancies.

[BG] Group E, day care facilities. This group includes buildings and structures or portions thereof occupied by more than five children older than $2^1/_2$ years of age who receive educational, supervision or *personal care services* for less than 24 hours per day.

[BG] Five or fewer children. A facility having five or fewer children receiving such care shall be classified as part of the primary occupancy.

[BG] Five or fewer children in a dwelling unit. A facility such as the above within a *dwelling unit* and having five or fewer children receiving such care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.

[BG] Within places of worship. Rooms and spaces within places of worship providing such care during religious functions shall be classified as part of the primary occupancy.

[BG] Storm shelters in Group E occupancies. Storm shelters shall be provided for Group E occupancies where required by Section 423.4 of the *International Building Code*.

[BG] Group F, Factory Industrial. Factory Industrial Group F occupancy includes, among others, the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H high-hazard or Group S storage occupancy.

[BG] Factory Industrial F-1 Moderate-hazard occupancy. Factory industrial uses that are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Aircraft (manufacturing, not to include repair)
Appliances
Athletic equipment
Automobiles and other motor vehicles
Bakeries
Beverages; over 16-percent alcohol content
Bicycles
Boats
Brooms or brushes
Business machines
Cameras and photo equipment
Canvas or similar fabric
Carpets and rugs (includes cleaning)
Clothing
Construction and agricultural machinery
Disinfectants
Dry cleaning and dyeing
Electric generation plants
Electronics
Energy storage systems (ESS) in dedicated-use buildings
Engines (including rebuilding)
Food processing and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232 m^2) in area.
Furniture
Hemp products
Jute products
Laundries
Leather products
Machinery
Metals
Millwork (sash and door)
Motion pictures and television filming (without spectators)
Musical instruments
Optical goods
Paper mills or products
Photographic film
Plastic products
Printing or publishing
Refuse incineration
Shoes
Soaps and detergents

Textiles
Tobacco
Trailers
Upholstering
Water/sewer treatment facilities
Wood; distillation
Woodworking (cabinet)

[BG] Aircraft manufacturing facilities. Aircraft manufacturing facilities shall comply with Section 412.6 of the *International Building Code*.

[BG] Factory Industrial F-2 Low-hazard Occupancy. Factory industrial uses involving the fabrication or manufacturing of noncombustible materials that, during finishing, packaging or processing do not involve a significant fire hazard, shall be classified as Group F-2 occupancies and shall include, but not be limited to, the following:

Beverages; up to and including 16-percent alcohol content
Brick and masonry
Ceramic products
Foundries
Glass products
Gypsum
Ice
Metal products (fabrication and assembly)

Group H, High-hazard. High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or *health hazard* in quantities in excess of those allowed in *control areas* complying with Section 5003.8.3, based on the maximum allowable quantity limits for *control areas* set forth in Tables 5003.1.1(1) and 5003.1.1(2). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this code and the requirements of Section 415 of the International Building Code. Hazardous materials stored or used on top of roofs or canopies shall be classified as outdoor storage or use and shall comply with this code.

High-hazard Group H-1. Buildings and structures containing materials that pose a *detonation* hazard shall be classified as Group H-1. Such materials shall include, but not be limited to, the following:

Detonable pyrophoric materials
Explosives:

- Division 1.1
- Division 1.2
- Division 1.3
- Division 1.4
- Division 1.5
- Division 1.6

Organic peroxides, unclassified detonable
Oxidizers, Class 4
Unstable (reactive) materials, Class 3 detonable, and Class 4

High-hazard Group H-2. Buildings and structures containing materials that pose a *deflagration* hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or *combustible liquids* that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch gauge (103.4 kPa)
Combustible dusts where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3 of the International Building Code
Cryogenic fluids, flammable
Flammable gases
Organic peroxides, Class I
Oxidizers, Class 3, that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch gauge (103.4 kPa)
Pyrophoric liquids, solids and gases, nondetonable

- Unstable (reactive) materials, Class 3, nondetonable

Water-reactive materials, Class 3

High-hazard Group H-3. Buildings and structures containing materials that readily support combustion or that pose a *physical hazard* shall be classified as Group H-3. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or *combustible liquids* that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103.4 kPa) or less
Combustible fibers, other than densely packed baled cotton, where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with Section 414.1.3 of the International Building Code
Consumer fireworks, 1.4G (Class C, Common)
Cryogenic fluids, oxidizing
Flammable solids
Organic peroxides, Class II and III
Oxidizers, Class 2
Oxidizers, Class 3, that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103 kPa) or less
Oxidizing gases
Unstable (reactive) materials, Class 2
Water-reactive materials, Class 2

High-hazard Group H-4. Buildings and structures containing materials that are *health hazards* shall be classified as Group H-4. Such materials shall include, but not be limited to, the following:

Corrosives
Highly toxic materials
Toxic materials

High-hazard Group H-5. Semiconductor fabrication facilities and comparable research and development areas in which hazardous production materials (HPM) are used and the aggregate quantity of materials is in excess of those listed in Tables 5003.1.1(1) and 5003.1.1(2) shall be classified as Group H-5. Such facilities and areas shall be designed and constructed in accordance with Section 415.11 of the International Building Code.
Multiple hazards. Buildings and structures containing a material or materials representing hazards that are classified in one or more of Groups H-1, H-2, H-3 and H-4 shall conform to the code requirements for each of the occupancies so classified.
Occupancies containing explosives not classified as H-1. The following occupancies containing *explosive materials* shall be classified as follows:

1. Division 1.3 *explosive materials* that are used and maintained in a form where either confinement or configuration will not elevate the hazard from a mass fire hazard to mass explosion hazard shall be allowed in Group H-2 occupancies.
2. Articles, including articles packaged for shipment, that are not regulated as a Division 1.4 explosive under Bureau of Alcohol, Tobacco, Firearms and Explosives regulations, or unpackaged articles used in process operations that do not propagate a *detonation* or deflagration between articles shall be allowed in H-3 occupancies.

Uses other than Group H. The storage, use or handling of hazardous materials as described in one or more of the following items shall not cause the occupancy to be classified as Group H, but it shall be classified as the occupancy that it most nearly resembles:

~~education~~

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~~education~~ Non-production laboratory occupancies complying with Section 428 of the International Building Code and Chap

18.

19.

[BG] Group I, Institutional. Institutional Group I occupancy includes, among others, the use of a building or structure, or a portion thereof, in which care or supervision is provided to persons who are or are not capable of self-preservation without physical assistance or in which persons are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4.

[BG] Institutional Group I-1. Institutional Group I-1 occupancy shall include buildings, structures or portions thereof for more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised environment and receive custodial care. Buildings of Group I-1 shall be classified as one of the occupancy conditions indicated below and shall comply with Section 420 of the *International Building Code*. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Residential board and custodial care facilities
Social rehabilitation facilities

[BG] Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care who, without any assistance, are capable of responding to an emergency situation to complete building evacuation.
[BG] Condition 2. This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.
[BG] Five or fewer persons receiving custodial care. A facility with five or fewer persons receiving custodial care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided that an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the International Residential Code.
[BG] Six to 16 persons receiving custodial care. A facility housing not fewer than six and not more than 16 persons receiving custodial care shall be classified as Group R-4.
[BG] Institutional Group I-2. Institutional Group I-2 occupancy shall include buildings and structures used for medical care on a 24-hour basis for more than five persons who are not capable of self-preservation. This group shall include, but not be limited to, the following:

Foster care facilities
Detoxification facilities
Hospitals
Nursing homes
Psychiatric hospitals

[BG] Occupancy Conditions. Buildings of Group I-2 shall be classified as one of the following occupancy conditions and shall comply with Section 407 of the *International Building Code :*
[BG] Condition 1. This occupancy condition shall include facilities that provide nursing and medical care but do not provide emergency care, surgery, obstetrics, or in-patient stabilization units for psychiatric or detoxification, including, but not limited to, nursing homes and foster care facilities.
[BG] Condition 2. This occupancy condition shall include facilities that provide nursing and medical care and could provide emergency care, surgery, obstetrics, or inpatient stabilization units for psychiatric or detoxification, including, but not limited to, hospitals.
[BG] Five or fewer persons receiving medical care. A facility with five or fewer persons receiving medical care shall be classified as Group R-3 or shall comply with the *International Residential Code* provided that an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or with Section P2904 of the International Residential Code.
[BG] Institutional Group I-3. Institutional Group I-3 occupancy shall include buildings and structures which are inhabited by more than five persons who are under restraint or security. A Group I-3 facility is occupied by persons who are generally incapable of self-preservation due to security measures not under the occupants' control. This group shall include, but not be limited to, the following:

Correctional centers
Detention centers
Jails
Prerelease centers
Prisons
Reformatories

Buildings of Group I-3 shall be classified as one of the following occupancy conditions and shall comply with Section 408 of the *International Building Code*:
[BG] Condition 1. This occupancy condition shall include buildings in which free movement is allowed from sleeping areas and other spaces where access or occupancy is permitted to the exterior via *means of egress* without restraint. A Condition 1 facility is permitted to be constructed as Group R.
[BG] Condition 2. This occupancy condition shall include buildings in which free movement is allowed from sleeping areas and any other occupied *smoke compartment* to one or more other *smoke compartments*. Egress to the exterior is impeded by locked *exits*.
[BG] Condition 3. This occupancy condition shall include buildings in which free movement is allowed within individual *smoke compartments*, such as within a residential unit comprised of individual *sleeping units* and group activity spaces, where egress is impeded by remote-controlled release of *means of egress* from such *smoke compartment* to another *smoke compartment*.

[BG] Condition 4. This occupancy condition shall include buildings in which free movement is restricted from an occupied space. Remote-controlled release is provided to permit movement from *sleeping units*, activity spaces and other occupied areas within the *smoke compartment* to other *smoke compartments*.
[BG] Condition 5. This occupancy condition shall include buildings in which free movement is restricted from an occupied space. Staff-controlled manual release is provided to permit movement from *sleeping units*, activity spaces and other occupied areas within the *smoke compartment* to other *smoke compartments*.
[BG] Institutional Group I-4, day care facilities. Institutional Group I-4 shall include buildings and structures occupied by more than five persons of any age who receive custodial care for less than 24 hours by persons other than parents or guardians; relatives by blood, marriage, or adoption; and in a place other than the home of the person cared for. This group shall include, but not be limited to, the following:

Adult day care
Child day care

[BG] Classification as Group E. A child day care facility that provides care for more than five but not more than 100 children $2^1/_2$ years or less of age, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.
[BG] Five or fewer occupants receiving care in a dwelling unit. A facility such as the above within a *dwelling unit* and having five or fewer persons receiving custodial care shall be classified as a Group R-3 occupancy or shall comply with the *International Residential Code*.
[BG] Five or fewer occupants receiving care. A facility having five or fewer persons receiving custodial care shall be classified as part of the primary occupancy.
[BG] Within a place of religious worship. Rooms and spaces within places of religious worship providing such care during religious functions shall be classified as part of the primary occupancy.
[BG] Group M, Mercantile. Mercantile Group M occupancy includes, among others, the use of a building or structure or a portion thereof, for the display and sale of merchandise, and involves stocks of goods, wares or merchandise incidental to such purposes and accessible to the public. Mercantile occupancies shall include, but not be limited to, the following:

Department stores
Drug stores
Greenhouses with public access that maintain plants for display and sale
Markets
Motor fuel-dispensing facilities
Retail or wholesale stores
Sales rooms

[BG] Motor fuel-dispensing facilities. Motor fuel-dispensing facilities shall comply with Section 406.7 of the *International Building Code*.
[BG] Quantity of hazardous materials. The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored or displayed in a single control area of a Group M occupancy shall not exceed the quantities in Table 5704.3.4.1.
[BG] Group R, Residential. Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the *International Residential Code* in accordance with Section 101.2 of the International Building Code. Group R occupancies not constructed in accordance with the *International Residential Code* as permitted by Sections 310.4.1 and 310.4.2 of the *International Building Code* shall comply with Section 420 of the *International Building Code*.
[BG] Residential Group R-1. Residential Group R-1 occupancies containing *sleeping units* where the occupants are primarily transient in nature, including:

Boarding houses (transient) with more than 10 occupants
Congregate living facilities (transient) with more than 10 occupants
Hotels (transient)
Motels (transient)

[BG] Residential Group R-2. Residential Group R-2 occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses
Congregate living facilities (nontransient) with more than 16 occupants

Boarding houses (nontransient)
Convents
Dormitories
Fraternities and sororities
Monasteries

Hotels (nontransient)
Live/work units
Motels (nontransient)
Vacation timeshare properties

[BG] Residential Group R-3. Residential Group R-3 occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

Buildings that do not contain more than two *dwelling units*
Care facilities that provide accommodations for five or fewer persons receiving care
Congregate living facilities (nontransient) with 16 or fewer occupants

Boarding houses (nontransient)
Convents
Dormitories
Fraternities and sororities
Monasteries

Congregate living facilities (transient) with 10 or fewer occupants

Boarding houses (transient)
Lodging houses (transient) with five or fewer *guestrooms* and 10 or fewer occupants

[BG] Care facilities within a dwelling. Care facilities for five or fewer persons receiving care that are within a single-family dwelling are permitted to comply with the *International Residential Code* provided an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the International Residential Code.
[BG] Lodging houses. Owner-occupied *lodging houses* with five or fewer guestrooms and 10 or fewer total occupants shall be permitted to be constructed in accordance with the *International Residential Code* provided that an *automatic sprinkler system* is installed in accordance with Section 903.3.1.3 or Section P2904 of the *International Residential Code*.
[BG] Residential Group R-4. Residential Group R-4 shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive custodial care. Buildings of Group R-4 shall be classified as one of the occupancy conditions indicated below. This group shall include, but not be limited to, the following:

Alcohol and drug centers
Assisted living facilities
Congregate care facilities
Group homes
Halfway houses
Residential board and care facilities
Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in the *International Building Code*.
[BG] Condition 1. This occupancy condition shall include buildings in which all persons receiving custodial care, without any assistance, are capable of responding to an emergency situation to complete building evacuation.
[BG] Condition 2. This occupancy condition shall include buildings in which there are any persons receiving custodial care who require limited verbal or physical assistance while responding to an emergency situation to complete building evacuation.
[BG] Group S, Storage. Storage Group S occupancy includes, among others, the use of a building or structure, or a portion thereof, for storage that is not classified as a hazardous occupancy.
[BG] Group S-1 moderate-hazard storage. Storage Group S-1 occupancies are buildings occupied for storage uses that are not classified as Group S-2, including, but not limited to, storage of the following:

Aerosols, Levels 2 and 3
Aircraft hangar (storage and repair)
Bags: cloth, burlap and paper
Bamboos and rattan
Baskets
Belting: canvas and leather
Beverages over 16-percent alcohol content
Books and paper in rolls or packs
Boots and shoes
Buttons, including cloth covered, pearl or bone
Cardboard and cardboard boxes
Clothing, woolen wearing apparel

Cordage
Dry boat storage (indoor)
Furniture
Furs
Glues, mucilage, pastes and size
Grains
Horns and combs, other than celluloid
Leather
Linoleum
Lumber
Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 5003.1.1(1) (see Section 406.8 of the International Building Code)
Photo engravings
Resilient flooring
Self-service storage facility (mini-storage)
Silks
Soaps
Sugar
Tires, bulk storage of Tobacco, cigars, cigarettes and snuff
Upholstery and mattresses
Wax candles

[BG] Aircraft hangars. Aircraft hangars used for storage or repair shall comply with Section 412.3 of the *International Building Code.*

[BG] Motor vehicle repair garages. Motor vehicle repair garages shall comply with Section 406.8 of the *International Building Code*.

[BG] Group S-2 low-hazard storage. Storage Group S-2 occupancies include, among others, buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions; or in paper wrappings. Such products are permitted to have a negligible amount of plastic trim, such as knobs, handles or film wrapping. Storage uses shall include, but not be limited to, storage of the following:

Asbestos
Beverages up to and including 16-percent alcohol
Cement in bags
Chalk and crayons
Dairy products in nonwaxed coated paper containers
Dry cell batteries
Electrical coils
Electrical motors
Empty cans
Food products
Foods in noncombustible containers
Fresh fruits and vegetables in nonplastic trays or containers
Frozen foods
Glass
Glass bottles, empty or filled with noncombustible liquids
Gypsum board
Inert pigments
Ivory
Meats
Metal cabinets
Metal desks with plastic tops and trim
Metal parts
Metals
Mirrors
Oil-filled and other types of distribution transformers
Porcelain and pottery
Public parking garages, open or enclosed
Stoves
Talc and soapstones
Washers and dryers

[BG] Public parking garages. Public parking garages shall comply with Section 406.4 of the *International Building Code*

and the additinal requirements of Section 406.5 of the *International Building Code* for open parking garages or Section 406.6 of the *International Building Code* for enclosed parking garages.

[BG] Combustible storage. High-piled stock or rack storage, or attic, under-floor and concealed spaces used for storage of combustible materials, shall be in accordance with Section 413 of the *International Building Code*.

[BG] Accessory storage spaces. A room or space used for storage purposes that is accessory to another occupancy shall be classified as part of that occupancy.

[BG] Group U, Miscellaneous. Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:

Agricultural buildings
Aircraft hangar, accessory to a one- or two-family residence (see Section 412.4 of the International Building Code)
Barns
Carports
Communication equipment structures with a gross floor area of less than 1,500 square feet (139 m^2)
Fences more than 7 feet (2134 mm) in height
Grain silos, accessory to a residential occupancy
Livestock shelters
Private garages
Retaining walls
Sheds
Stables
Tanks
Towers

[BG] Private garages and carports. Private garages and carports shall comply with Section 406.3 of the *International Building Code*.

[BG] Residential aircraft hangars. Aircraft hangars accessory to a one- or two-family residence shall comply with Section 412.4 of the *International Building Code*.

[BG] Greenhouses. Greenhouses not classified as another occupancy shall be classified as Use Group U.

CHAPTER 38
~~HIGHER EDUCATION~~ NON-PRODUCTION LABORATORIES

3801.1 Scope. ~~Higher education~~ Non-production laboratories complying with the requirements of this chapter shall be permitted to exceed the maximum allowable quantities of hazardous materials in *control areas* set forth in Chapter 50 without requiring classification as a Group H occupancy. Except as specified in this chapter, such laboratories shall comply with all applicable provisions of this code and the *International Building Code*.

3802.1 Definitions. The following terms are defined in Chapter 2:

CHEMICAL FUME HOOD.

GLOVE BOX.

~~HIGHER EDUCATION~~ NON-PRODUCTION **LABORATORY.**

LABORATORY SUITE.

SPECIAL EXPERT.

3804.1.1.6 Standby or emergency power. ~~Higher education~~ Non-production *laboratory suites* shall be provided with emergency or standby power in accordance with Section 1203.2.14.

5003.8.3 Control areas.
Control areas shall comply with Sections 5003.8.3.1 through 5003.8.3.5.3.

Exception: ~~Higher education~~ Non-production laboratories in accordance with Chapter 38 of this code and Section 428 of the International Building Code.

Reason: First, we wish to acknowledge the efforts put forth by the Fire Code Action Committee (FCAC) and the people who worked to put together the original code change that introduced “higher education laboratories” in F340-16. That effect successfully put in place much needed regulations to address the use of hazardous materials in what are highly

monitored conditions without production – laboratories in higher education institutions, by providing enhanced safety requirements.
But as was the situation prior to the approval of F340-16 and the introduction of regulations for higher education laboratories in what is now Chapter 38 in the IFC and Section 428 in the IBC, the I-Codes still do not do not specifically provide or address how to regulate those laboratories that by all accounts operate the same as a "higher education laboratory" but cannot be classified as a "higher education laboratories" because they are not used for educational purposes above the 12th grade." Because of this, users must try to apply general hazardous materials provisions, which oftentimes are not appropriate for clinical, diagnostic or research laboratory settings.

After being in the 2018 and 2021 codes, users have had a chance to really review and come to understand the provisions that are found in Chapter 38 of the IFC and Section 428 in the IBC. And although we do not disagree with any of the logic that the FCAC gave in the Reason statement for F340-16 for the key parameters that must be present, we do not see any technical reasons for why those provisions are should be limited to only higher education laboratories. This code change seeks to expand the application of the provisions in Chapter 38 of the IFC and Section 428 in the IBC to not just higher education laboratories but to any laboratory that meets the criteria contained in those sections – what we are proposing be categorized as "non-production laboratories

As was stated in the Reason statement to F340-16 "The advance of technologies, science, medicine and our knowledge of the world often relies on having vibrant and successful academic institutions." But the laboratory settings in which those advances occur are NOT limited to only those that come out of an academic institutions (high-learning institution) – they come out of laboratories found in the private sector and the nationally-funded sectors also. The perfect example is the research that is happening right now with the race to solve the COVID-19 crisis. Most of the work involved is coming out of laboratories in that are not in a higher education sector.

In their Reason statement for F340-15 the FCAC put forth what they saw as the "conditions typically present in academic laboratories that make them unique," but which when looked at on their own merits are conditions or characteristics also found in non-academic, non-production laboratories in other occupancies including hospitals, clinical, research and diagnostic areas. The FCAC included:

1. Lower chemical density in individual research laboratories.

"...there are often many small laboratories within a building that are using small quantities of hazardous materials in each location. Individually, they do not store or use a large quantity of hazardous materials, but together, they may often exceed the maximum allowable quantities for the control area. This lower chemical density often mitigates the overall risk, but the IFC currently has no provisions to recognize this condition."

1. Ongoing staff oversight from "Special Experts" in laboratory safety.

"..."have a full cadre of faculty and staff with chemical expertise. These "Special Experts" often include, but are not limited to: Fire Marshals, Industrial Hygienists, Radiation Safety Officers, Biological Safety Officers, Chemical Hygiene Officers and Environmental Health and Safety Officers. These individuals are an integral part of the preparation/review of laboratory safety documentations, as well as regularly scheduled safety audits."

1. Mixed-use occupancies.

"...building will house laboratories, office space, storerooms, classrooms and lecture halls. The current limits on hazardous materials are so restrictive on upper floors that many universities are forced to locate classrooms and lecture halls on the upper floors so that they can take full advantage of the hazardous materials quantities allowed on the lower floors. This results in moving large numbers of students through hallways, past laboratories to get to the upper floors. They will also have to exit back down the same routes in the event of an emergency."

All of these are valid conditions and important principles to use when deciding which the types of laboratories should be allowed to use the provisions in IFC Chapter 38 and IBC Section 428. But these conditions and logic are not limited to only those laboratories found in higher education institutions – rather a laboratory found in an institution of higher learner is only one of many types of laboratories that meets the conditions and principles. When each of the "conditions" is reviewed it really becomes obvious that they are not unique to academic (higher education) laboratories.

This proposal is based on the fundamental concept that it should not be the laboratory "setting" which drives the scope of IFC Chapter 38 (IBC Section 428), i.e., higher education vs private clinical, but rather it should be the characteristics and design of the laboratory. The same philosophy the I-Codes uses to engage the requirements for the hazardous materials provisions in general should be used to engage the requirements for use of IFC Chapter 38. The distribution and density of materials, the physical constraints and the qualification of on-site personal are all "conditions" that are also found in

non-academic laboratories which do not support production or processing.

Many non-academic laboratories (think diagnostic and clinical) are designed in the same way higher learning laboratories are, and are made up of [to quote F340-16] "...many small laboratories within a building that are using small quantities of hazardous materials in each location. Individually, they do not store or use a large quantity of hazardous materials, but together, they may often exceed the maximum allowable quantities for the control area." If so, then it is logical that they should be able to use the provisions in IFC Chapter 38?

Regarding the topic of "oversight" from special experts, the logic FCAC present is not unique to higher education laboratories. It is also very true for most non-academic laboratories (such as hospitals and testing organizations) because they are mandated through state and federal agencies.

Regarding the topic of "mixed occupancy," while most post-secondary academic laboratory do occur in what are deemed to be "mixed occupancy," so are most non-academic laboratories. A perfect example is that of a hospital – while the primary occupancy is Group I-2, almost every hospital also contains other occupancies such as storage/utility areas, kitchens, dining facilities, office space, and clinical laboratories.

The one condition FCAC included in their Reason statement that when closely examined was a double-edged sword was:

1. Limited, or "directed", funding streams. Also unique to academic institutions are the funding sources for research. In a "non-profit" teaching and research environment, the majority of research is funded through grants and endowments. Unfortunately, many grants only support the costs of research personnel and equipment, not structural upgrades to accommodate newer research processes.

While a limited funding stream is portrayed as a justification for implementing new regulations for laboratories associated with academic institutions, a good funding stream is actually a benefit because it allows a non-academic laboratory to be equipped with the newest equipment – both for laboratory experiments and for the protection of the occupants. Logic says that because of good funding non-academic laboratories may operate in a safer environment.

We also assert that there is a fifth condition that was present in the development of the code language in F340-16, and should be acknowledged, one that is fundamental:

1. The activities in a laboratory are not part of a production process, nor in any way simulate a production process.

Without the code change contained herein, jurisdictions will still have to do the same thing for non-academic laboratories as they have been – making state or local amendments to allow for greater numbers of control areas and larger percentages of MAQs in non-production laboratories. Code Change F340-16 bought higher education laboratories into the codes and provides the AHJ with rules but there still are no unique rules for non-academic laboratories. This proposal seeks to build on the work the FCAC did in F340-16 and provide standardized model code language to address this topic for both academic (higher education) and non-academic laboratories.

To allow non-academic laboratories to use these regulations the following revisions are proposed:

- Replace the definition of "higher learning laboratories" with "non-production laboratories;"
- Revise IFC Chapter 38 to use the new designation of "non-production laboratories"
- Revise IBC Section 428 to use the new designation of "non-production laboratories"
- Coordinate the various sections in the IFC and IBC to use the new designation of "non-production laboratories"

For those interested in the history of this topic and Code change F340-16, please visit the ICC Code Development Archives at https://www.iccsafe.org/products-and-services/i-codes/code-development/2015-2017-code-development-cycle/

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In2020 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as BCAC website at BCAC .

Cost Impact: The code change proposal will decrease the cost of construction

By complying with the provisions in IFC Chapter 39 small non-academic, non-production laboratories will be classified as a Group B occupancies rather than a Group H occupancy. However, many of the non-production labs that this change would cover would seek variances to be in B-occupancies, thus avoiding the impacts of being classified as H-occupancies. Therefore, savings are in reality very slight for those areas (ie: hospital labs, commercial diagnostic labs such as Qwest

or LabCorp).

HC10
Fire/Smoke Damper at Single Floor Penetration

IBC Section 717.6.2 (New)

Revise as follows:

717.6 Horizontal assemblies. Penetrations by ducts and air transfer openings of a floor, floor/ceiling assembly or the ceiling membrane of a roof/ceiling assembly shall be protected by a shaft enclosure that complies with Section 713 or shall comply with Sections 717.6.1 through 717.6.3.

717.6.1 Through penetrations. In occupancies other than Groups I-2 and I-3, a duct constructed of *approved* materials in accordance with the *International Mechanical Code* that penetrates a fire-resistance-rated floor/ceiling assembly that connects not more than two *stories* is permitted without shaft enclosure protection, provided that a *listed fire damper* is installed at the floor line or the duct is protected in accordance with Section 714.5. For air transfer openings, see Section 712.1.9.

Exception: A duct is permitted to penetrate three floors or less without a *fire damper* at each floor, provided that such duct meets all of the following requirements:

1. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel having a minimum wall thickness of 0.0187 inches (0.4712 mm) (No. 26 gage).
2. The duct shall open into only one *dwelling or sleeping unit* and the duct system shall be continuous from the unit to the exterior of the building.
3. The duct shall not exceed 4-inch (102 mm) nominal diameter and the total area of such ducts shall not exceed 100 square inches (0.065 m^2) in any 100 square feet (9.3 m^2) of floor area.
4. The *annular space* around the duct is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E119 or UL 263 time-temperature conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the *fire-resistance rating* of the construction penetrated.
5. Grille openings located in a ceiling of a fire-resistance-rated floor/ceiling or roof/ceiling assembly shall be protected with a *listed ceiling radiation damper* installed in accordance with Section 717.6.2.1.

717.6.2 Through penetration for Group I-2 and I-3. In I-2 and I-3 occupancies a duct constructed of approved materials in accordance with the *International Mechanical Code* that penetrates a fire-resistance-rated floor of floor/ceiling assembly that connects not more than two stories is permitted without shaft enclosure protection, provided that a listed combination fire-smoke damper is installed at the floor line.

Reason: It does not make any sense to provide a shaft with a damper into the shaft and a damper out of the shaft when it only penetrates one floor. To maintain the smoke compartments (floor to floor), the

damper should be a combination fire/smoke damper in lieu if the fire damper only that is permitted in other occupancies. This is more restrictive than NFPA 90A.

Cost Impact: The code change proposal will slightly decrease the cost of construction, because it eliminates a second damper and minimal shaft construction.

K311 Vertical Openings -
Date 12-20-2020

Sections: 404.6

Revise as follows:

404.6 Enclosure of atriums. *Atrium* spaces shall be separated from adjacent spaces by a 1-hour *fire barrier* constructed in accordance with Section 707 or a *horizontal assembly* constructed in accordance with Section 711, or both.

Exceptions:

1. A *fire barrier* is not required where a glass wall forming a *smoke partition* is provided. The glass wall shall comply with all of the following:

    1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not a walkway on the *atrium* side. The sprinklers shall be located between 4 inches and 12 inches (102 mm and 305 mm) away from the glass and at intervals along the glass not greater than 6 feet (1829 mm). The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system without obstruction;

    1.2. The glass wall shall be installed in a gasketed frame in a manner that the framing system deflects without breaking (loading) the glass before the sprinkler system operates; and

    1.3. Where glass doors are provided in the glass wall, they shall be either *self-closing* or automatic-closing.

2. A *fire barrier* is not required where a glass-block wall assembly complying with Section 2110 and having a 3/4-hour *fire protection rating* is provided.

3. A *fire barrier* is not required between the *atrium* and the adjoining spaces of up to three floors of the *atrium* provided that such spaces are accounted for in the design of the smoke control system.

4. In other than Group I-2, and Group I-1, Condition 2, a fire barrier is not required between the atrium and the adjoining spaces where the atrium is not required to be provided with a smoke control system.

5. In Group I-2 and Group I-1, Condition 2, a *fire barrier* is not required between the *atrium* and the adjoining spaces, other than *care recipient* sleeping or treatment rooms, for up to three stories of the *atrium* provided that such spaces are accounted for in the design of the smoke control system and are not providing access to *care recipient* sleeping or treatment rooms.

~~5.~~ 6. A horizontal assembly is not required between the atrium and openings for escalators complying with Section 712.1.3.

~~6.~~7. A horizontal assembly is not required between the atrium and openings for exit access stairways and ramps complying with Item 4 of Section 1019.3.

Reason: Wayne

Cost Impact: Wayne

K321
IEBC

TABLE 1105.4
INCIDENTAL USES IN EXISTING GROUP I-2 OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input (K321 does not specify equipment size)	1 hour or provide automatic sprinkler system[a]
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower (K321 does not specify equipment size)	1 hour or provide automatic sprinkler system[a]
Refrigerant machinery room	1 hour or provide automatic sprinkler system[a]
Hydrogen fuel gas rooms, not classified as Group H	2 hours
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops not classified as Group H	~~2 hours; or 1 hour and provide automatic sprinkler system~~ 1 hour or provide automatic sprinkler system
Laboratories and vocational shops, not classified as Group H	1 hour or provide automatic sprinkler system[a]
Laundry rooms over 100 square feet	1 hour or provide automatic sprinkler system[a]
Patient rooms equipped with padded surfaces	1 hour or provide automatic sprinkler system[a]
Physical plant maintenance shops	1 hour or provide automatic sprinkler system[a]
Waste and linen collection rooms with containers with total volume of ~~10~~ 8 . 6 7 cubic feet or greater	1 hour or provide automatic sprinkler system[a]
Storage rooms greater than ~~100~~50 square feet	1 hour or provide automatic sprinkler system[a]
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies	2 hours

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L.

a. If approved automatic fire extinguisher system option is used, the areas shall be separated from other spaces by smoke resisting partitions and doors in accordance with 8.4. Doors shall be self-closing or automatic-closing and permitted to have nonrated or field-applied protective plates that do not exceed 48 inches from the bottom of the door.

K321Hazardous Areas – Enclosure 2012 EXISTING
Hazardous areas are protected by a fire barrier having 1-hour fire resistance rating (with 3/4-hour fire rated doors) or an automatic fire extinguishing system in accordance with 8.7.1. When the approved automatic fire extinguishing system option is used, the areas shall be separated from other spaces by smoke resisting partitions and doors in accordance with 8.4. Doors shall be self-closing or automatic-closing and permitted to have nonrated or field-applied protective plates that do not exceed 48 inches from the bottom of the door.
Describe the floor and zone locations of hazardous areas that are deficient in REMARKS. 19.3.2.1
Area Automatic Sprinkler Separation N/A
a. Boiler and Fuel-Fired Heater Rooms
b. Laundries (larger than 100 square feet)
c. Repair, Maintenance, and Paint Shops
d. Soiled Linen Rooms (exceeding 64 gallons)
e. Trash Collection Rooms (exceeding 64 gallons)
f. Combustible Storage Rooms/Spaces (over 50 square feet)
g. Laboratories (if classified as Severe Hazard - see K322)

IBC

[F] TABLE 509
INCIDENTAL USES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input (K321 does not specify equipment size)	1 hour ~~or~~ and provide automatic sprinkler system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower (K321 does not specify equipment size)	1 hour ~~or~~ and provide automatic sprinkler system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen fuel gas rooms, not classified as Group H	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and provide automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	~~2 hours; or~~ 1 hour and provide automatic sprinkler system
In Group E occupancies, laboratories and vocational shops not classified as Group H	1 hour or provide automatic sprinkler system
In Group I-2 occupancies, laboratories not classified as Group H	1 hour and provide automatic sprinkler system
In ambulatory care facilities, laboratories not classified as Group H	1 hour or provide automatic sprinkler system
Laundry rooms over 100 square feet	1 hour ~~or~~ and provide automatic sprinkler system
In Group I-2, laundry rooms over 100 square feet	1 hour and provide automatic sprinkler system
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces	1 hour
In Group I-2, physical plant maintenance shops	1 hour and provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of ~~10~~8.67 cubic feet or greater	1 hour and provide automatic sprinkler system
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over ~~100~~50 square feet	1 hour or provide automatic sprinkler system
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet BUT SEE NOTE HIGHLIGHTED BELOW	1 hour and provide automatic sprinkler system
Stationary storage battery systems having an energy capacity greater than the threshold quantity specified in Table 1206.2 of the *International Fire Code*	1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.
Electrical installations and transformers	See Sections 110.26 through 110.34 and Sections 450.8 through 450.48 of NFPA 70 for protection and separation requirements.

For SI: 1 square foot = 0.0929 m^2, 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m^3.

Hazardous Areas – Enclosure 2012 NEW
Hazardous areas are protected in accordance with 18.3.2.1. The areas shall be enclosed with a 1-hour fire-rated barrier, with a 3/4- hour fire-rated door without windows (in accordance with 8.7.1.1). Doors shall be self-closing or automatic-closing in accordance with 7.2.1.8. Hazardous areas are protected by a sprinkler system in accordance with 9.7, 18.3.2.1, and 8.4.
Describe the floor and zone locations of hazardous areas that are deficient in REMARKS.
18.3.2.1, 7.2.1.8, 8.4, 8.7, 9.7

Area	Automatic Sprinkler	Separation	N/A

a. Boiler and Fuel-Fired Heater Rooms
b. Laundries (larger than 100 square feet)
c. Repair, Maintenance, and Paint Shops
d. Soiled Linen Rooms (exceeding 64 gallons)
e. Trash Collection Rooms (exceeding 64 gallons)
f. Combustible Storage Rooms/Spaces (over 50 and less than 100 sq ft)
g. Combustible Storage Rooms/Spaces (over 50 square feet) I DON'T UNDERSTAND THE DIFFERENCE BETWEEN F AND G)
h. Laboratories (if classified as Severe Hazard - see K322)

O'NEILL – K362-B
Continuity of Corridor Barriers

IBC Section 710.4
Revise as follows:

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

> **Exception:** In Group I-2, a lay-in ceiling system shall be considered capable of limiting the transfer of smoke where the ceiling tiles weigh at least one pound per square foot of tile and where the HVAC system is fully ducted in accordance with Section 603 of the *International Mechanical Code*.

Reason: Current interpretation of an allowable ceiling system is to be "monolithic." This type of ceiling is not feasible in a hospital setting, because main utility and ductwork lines run in the corridor to keep them out of patient care areas. This would facilitate the need for many access panels which compromise the smoke tight nature of the monolithic ceiling. The construction of the lay-in system would basically mean no open portions or gaps in the ceiling, either as an architectural feature or between items such as louvers. Normal ceiling fixtures such as lights, sprinkler heads, and diffusers and grills (as part of a fully ducted air system) can be considered part of the smoke tight system, as there is no opportunity for smoke to travel straight through them. A tight fitting lay-in grid is defined as one with no gaps in them, which is easily enforced via visual inspection and is therefore simply maintained.

Group I-2 is being specified, to make clear that this allowance applies to nursing homes (Condition 1) and hospitals (Condition 2), which is consistent with federal standards.

Lay in ceiling assemblies meeting this requirement would be consistent with listed fire resistance rated floor and roof ceiling assemblies using lay-in ceilings as a component of the assembly. Enforcement of this provision including fire code maintenance inspections would be far less challenging than currently exists for the fire-resistance rated floor- and roof-ceiling assemblies which require a specific manufacture's product for each of the assemblies that are listed by an approved testing facility. This proposal would allow any manufacturer's product to be used as long as it met the 1 pound per square foot criteria and other code requirements related to combustibility or flame spread. This is also supported by UL's BXUV Guide Information - Fire Resistance Ratings - ANSI/UL 263, Section III - FLOOR-CEILINGS AND ROOF-CEILINGS, Paragraph 10 which states "Hold down clips are required for assemblies incorporating ceiling panels weighing less that 1 lb per square foot."

As noted in past studies, the ceiling tile weight is also consistent with the findings of NBSIR 81-2444 Smoke Movement Through A Suspended Ceiling System (by John H Klote, 1982, NBS/VA), as noted on page 4 which states "[t]he ceiling tiles weighed 49.6 N/m2 (1.00 lb/ft2). During plan review, a cut sheet of the desired ceiling tile (readily available from any manufacturer) can be included in the review package or the one pound per square foot criteria can be listed in the specifications. The NBSIR 81-2444 report also notes in its abstract and conclusions that "smoldering fires of the type examined in this test series are not significant problems in hospitals." This is even more true today because of the expanded

use of non combustible materials in construction as well as bedding and other typically used items in the hospital.

In terms of enforcement, hospitals have maintenance teams that are tasked with performing preventative maintenance and timely repairs as not to compromise the environment of care. Also, each hospital has personnel resources that deal specifically with regulatory issues. This regulatory staff has many regulations that deal with direct patient care, but they also help monitor the environment of care. There is also Infection Prevention professionals that Multidisciplinary teams regularly round in the hospital, reviewing delivery of care and the condition of the built environment. The multidisciplinary rounding team typically consists of representatives from Facilities, Regulatory, Infection Prevention, and leadership from the nursing care team. The status of a ceiling system is a key element that is observed to maintain its integrity.

A ceiling's role is a component of the life safety system of the hospital, by way of the relationship to activation of sprinkler heads and control of smoke. With the exception of mechanical rooms, all spaces in a patient care area have ceilings as part of the life safety system of the hospital, in particular the corridor. it is also a key component of the infection prevention elements of the hospital. These are some elements that Infection Prevention professionals focus on for the integrity of the ceiling:

- Minimize dust and particulates to enter patient care environments, including corridors, patient rooms, procedure rooms, storage rooms of medical supply, clean utility rooms, among others.
- Contribute to the air pressure relationships provided for each room. For example, negative pressure patient bed rooms to treat patients with infectious diseases.

When monitoring the integrity of the ceiling, missing or cracked tiles are a main area of focus, and are easily seen by all staff. The replacement of a ceiling tile is a top priority of a hospital maintenance department. This information is also tracked by the agencies that regulate hospitals, including Centers for Medicare and Medicaid Services (CMS), and deemed authorities including The Joint Commission (TJC). According to TJC, in 2009, citations in the Life Safety portion of surveys that involved ceilings ranked #2 in 2009. In 2019, this citation rank fell to #6. This demonstrates the focus on the issue, even when the criteria for a citation can be the smallest scratch, or stain from a water leak, much less the more obvious missing or tile with a corner out or other damage.

This code change proposal is a key element of compliance with the federal standards that are enforced for I-2 occupancies, and are important to be aligned with those standards.

Also limiting the HVAC system to ducted systems will preclude the possibility of an open plenum return system. Plenum systems are generally not used in hospitals due to the required pressure relationships foe infection prevention considerations and to maintain more accurate control of the temperature and humidity control.

Corridor walls are built to structure in most cases based on FGI (acoustic requirements), however, having to access the above ceiling space for inspection and maintenance causes issues with infection control, whereas maintaining a suspended acoustic ceiling to limit the transfer of smoke is visible and easily maintained and as noted above, is being done as part of infection control procedures with the interdisciplinary team..

Cost Impact: The code change proposal will not increase or decrease the cost of construction, because it represents current common practice in Group I-2 facilities.

K903 Add Hazard vulnerability analysis

K903-20

IPC: 1201.1 (Modify)

Proponent: John Williams, Chair, representing Healthcare Committee (AHC@iccsafe.org)

2021 International Plumbing Code

Modify text as follows:

1202.1 Nonflammable medical gases. Nonflammable medical gas systems, inhalation anesthetic systems and vacuum piping systems shall be designed and installed based upon a risk assessment conducted in accordance with NFPA 99.

Exceptions:

1. This section shall not apply to portable systems or cylinder storage.
2. Vacuum system exhaust terminations shall comply with the *International Mechanical Code*.

Reason:

Provide addition clarity in medical gas installations to include a risk assessment analysis as required by NFPA 99. In order to meet federal conditions of participation health care facilities must comply with system and equipment according to the requirements listed in NFPA 99, Health Care Facilities Code (K901, K902, K903, K904, K905, K911, K906, K912, K914, K915 ~~and~~ K916 and K931). Systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

Cost Impact

The code change proposal will not increase or decrease the cost of construction.
This change aligns with existing federal requirements for the healthcare industry.

K905 Add wording for signs and labels on med gas piping and rooms

K905-20

IFC: 5306.5 (Modify)
Proponent: John Williams, Chair, representing Healthcare Committee (AHC@iccsafe.org)

2021 International Fire Code
Modify text as follows:

5306.5 Medical gas systems. Medical gas systems including, but not limited to, distribution piping, supply manifolds, connections, pressure regulators and relief devices, labeling of rooms and piping, warning systems and valves, shall be installed in accordance with NFPA 99 and the general provisions of this chapter. Existing medical gas systems shall be maintained in accordance with the maintenance, inspection and testing provisions of NFPA 99 for medical gas systems.

5306.5.1 Operation and Management of Medical Gas Cylinders shall be in accordance with NFPA 99.

Reason:

Provide additional clarity in medical gas installations to include signs for rooms and labeling of pipes and shut off valves and managing cylinders as required by NFPA 99. In order to meet federal conditions of participation health care facilities must comply with system and equipment according to the requirements listed in NFPA 99, Health Care Facilities Code (K901, K902, K903, K904, K905, K911, K906, K907, K, K909 and K931). Systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

Cost Impact
The code change proposal will not increase or decrease the cost of construction.
This change aligns with existing federal requirements for the healthcare industry.

K912 NFPA 99

K912
IBC 2701.1.1; IFC: 1105.12 (Add) IEBC: 406.1.4 (Modify)
Proponent: John Williams, Chair, representing Healthcare Committee (AHC@iccsafe.org)

2024 International Building Code
Add text as follows:

2701.1.1 Group I-2 Electrical Systems
Electrical systems shall be installed per NFPA 99 and article 517 of NFPA 70.

2024 International Fire Code
Add text as follows:

1105.12 Group I-2 Electrical Systems.
Electrical systems shall be installed per IBC 2701.1.1.

IEBC
406.1.4 Group I-2 receptacles. Receptacles in patient bed locations of Group I-2 that are not "hospital grade" shall be replaced with "hospital grade" receptacles, as required by NFPA 99 and Article 517 of NFPA 70.

Reason:
In order to meet federal conditions of participation health care facilities must comply with system and equipment according to the requirements listed in NFPA 99, Health Care Facilities Code (K912). NFPA 99 is a risk based approach to system design and maintenance of key building systems. It is based upon risk to patients, visitor or staff in the healthcare facility regardless of occupancy classification. It does cover items such as routine testing of both normal and emergency power, testing of electrical systems, defining surgery operating rooms as wet locations unless approved risk assessment determines otherwise. Cover plates on life safety and critical branch receptacles are a distinct color. Requiring tamperproof receptacles in designated pediatric locations. These items are required in both new and existing healthcare facilities depending upon services and risk. Systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

These practices improve safety and reliability of electrical systems in locations at risk.

Cost Impact
The code change proposal will not increase or decrease the cost of construction.
This change aligns with existing federal requirements for the healthcare industry.