PMGCAC Item 20 IMC Section 402 needs revised based upon how ASHRAE 62.1-2022 deals with natural ventilation.

Completed proposal needs to be forwarded to the BCAC for comment.

M??-24 Part I

International Mechanical Code

Revise as follows:

402.1 Natural Ventilation for occupancy groups other than R and I-1 occupancy group. Natural ventilation for occupancy groups other than R and I-1 shall comply with the natural ventilation procedure provisions of ASHRAE 62.1.

402.2 Natural Ventilation for use in R and I-1 occupancy groups. Natural ventilation for R and I-1 occupancy groups shall comply with Sections 402.2.1 through 402.2.4

[BG] ~~402.1~~ **402.2.1 Natural ventilation**. Natural ventilation of an occupied space shall be through windows, doors, louvers, or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

[BG]~~402.2~~ **402.2.2 Ventilation area required.** The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

[BG]~~402.3~~ **402.2.3 Adjoining spaces.** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining rooms shall be unobstructed and shall have an area not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover, provided that the openable area between the sunroom addition or patio cover and the interior room has an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m^2). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

[BG] ~~402.4~~ **402.2.4 Openings below grade.** Where openings below grade provide required natural ventilation, the outdoor horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

M??-24 Part II

International Building Code

Revise as follows:

1202.5 Natural ventilation for all occupancy groups. Natural ventilation for all occupancy groups shall be in accordance with Sections 1202.5.1 through 1202.5.2.4.

1202.5.1 Natural Ventilation for occupancy groups other than R and I-1 occupancy group. Natural ventilation for occupancy groups other than Residential and I-1 shall comply with the natural ventilation procedure provisions of ASHRAE 62.1.

1202.5.2 Natural Ventilation for use in R and I-1 occupancy groups. Natural ventilation for Residential and I-1 occupancy groups shall comply with Sections 1205.5.2.1 through 1205.5.2.4

1202.5.2.1 Natural ventilation. Natural *ventilation* of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

1202.5.~~1~~ 2.2 Ventilation area required.
The openable area of the openings to the outdoors shall be not less than 4 percent of the floor area being ventilated.

1202.5.~~1.1~~ 2.3 Adjoining spaces.
Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for *ventilation* shall be allowed to open into a *sunroom* with *thermal isolation* or a patio cover provided that the openable area between the *sunroom* addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m^2). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

1202.5.~~1.2~~ 2.4 Openings below grade.
Where openings below grade provide required natural *ventilation*, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

Reason: In climate zones with outdoor ambient temperature extremes, where the design professional has elected to employ natural ventilation, although in compliance with existing code language in theory, practical application and utilization of openable doors and windows as the sole source of ventilation air, is not consistently employed in practice, during months when either a heating or cooling system is conditioning an occupied space. Section 6.4.1 *Prescriptive Compliance Path,* requires a mechanical ventilation system in conjunction with the natural ventilation. This mechanical ventilation system must comply with either section *6.2 Ventilation*

Rate Procedure and/or section *6.3 Indoor Air Quality Procedure* of ASHRAE 62.1-2022. Under the exceptions provided to 6.4.1, IF a design professional wanted to delete the redundant mechanical system required, they must provide controls that ensure the openings are either open during times of occupancy OR are fixed as permanently open.

Consequently, 62.1-2022 section 6.4 (Natural Ventilation Procedure) provides both engineered (6.4.2) and prescriptive (6.4.1) options for compliance, which ensures proper natural ventilation despite outdoor ambient temperature and without sole reliance on openable doors and windows, absent extensive design calculations employed in the engineered method.

With the challenges faced in terms of indoor air quality, highlighted during the COVID pandemic, deficiencies in both existing and new HVAC systems became apparent. These challenges created a conflict between HVAC systems and the organic need to ventilate areas, leading to inconsistent temperature control and the decreased energy efficiency of HVAC systems. ASHRAE 62.1-2022 provides clear methods for the utilization of natural ventilation, accounting for the challenges faced during this crisis.

It is intended that IMC new sections 402.1 and 402.2 be [BG] controlled.

For reference:

Group R-1 is multifamily (transient) such as hotels and motels.

Group R-2 is multifamily (nontransient) such as apartment buildings.

Group R-3 is for one- and two-family homes and townhouses outside the scope of the IRC, for example 4-story townhouses.

Group R-4 and I-1 are assisted living facilities, group homes, etc.

From the commentary: Groups I-1 and R-4 are similar facilities that differ only by the number of residents receiving care. Group I-1 has more than 16 residents while Group R-4 has six to 16 residents.

August 10, 2023 Cost impact and Substantiation suggested by Kalakay/Gay

Cost Impact: Will increase the cost of construction.

Substantiation:

This proposal will increase the cost of construction due to additional openings for the conveyance of outdoor air, meant for ventilation, required to comply with ASHRAE 62.1 2022. With due attention to ASHRAE 62.1 2022 section 6.4, in the planning phase, additional cost may be limited. Due to the unlimited variations in building design, placing a predetermined dollar amount on the net cost of this

proposal is impossible. However, when considering the annual financial impact of Sick Building Syndrome, the COVID pandemic, annual influenza infections and other airborne illnesses which directly impacts individuals, municipalities, and corporations alike, though undefinable, the financial savings would exponentially outweigh the initial cost increase for construction.

Example 1: According to the World Economic Forum the COVID pandemic alone cost the world 11 trillion dollars for the pandemic response with an additional 10 trillion in lost earnings.

Example 2: According to the Elsevier publication *Building and Environment Journal Vol. 188* dated 1-15-21 in the US alone, the annual cost attributed to sick building syndrome in commercial workplaces is estimated at between 10 and 70 billion dollars. On average workers spend 90 percent of their time indoors while on the job.

Example 3: According to the Elsevier article dated June 22, 2018, and titled: *Economic Burden of seasonal influenza in the United States;* the total annual cost burden of seasonal influenza in the US stands at 11.2 billion dollars.

BCAC Egress Item 5 Control Vestibule–

June 14, 2023, draft revised Oct. 4, 2023
John Woestman, BHMA

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

The draft text below builds on proposal E55-21, the public comments to E55-21, the debate / discussion during the 2021 Public Comment Hearings, and subsequent discussions. The comments in this doc are based on testimony during the 2021 PCH. The formatting of this draft is revised a bit from E55-21 in an attempt to be more reader-friendly.

Add new definition as follows:

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

Add new text as follows:

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

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

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

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

1010.2.15.2 Where doors in the means of egress are configured as a control vestibule, the control vestibule door interlocking system shall provide for egress. The control vestibule shall comply with all of the following:

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

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

2. Upon activation of the automatic sprinkler system or automatic smoke detection system the interlock function of the doors of the control vestibule shall deactivate.

Commented [JW1]: Groups H-3 and H-4 recommended to be added during joint BCAC / FCAC meeting / discussion in Schiller Park (Chicago), IL, Sept. 20, 2023.

Commented [JW2]: Concern with Group H-5 during 2021 PCH testimony. Should Group H-5 be moved to a new Item 3, and include specific conditions / requirements for egress? Also 2021 PCH concerns with limiting B and M to 10 occupants while permitting / limiting H-5, I-1, and I-2 to 49 occupants.

Commented [JW3]: Per discussion during BCAC Egress Work Group meeting April 19, 2023, this criteria revised and added for consistency with Item 4 of 1010.2.12 (sensor release of electrically locked egress doors).

Commented [JW4]: Concern with this exception as too broad in E55-21 PC4. This text is revised in attempt to address concerns raised during 2021 PCH.

Exception: Where the control vestibule is designed to impede occupant egress for security reasons, automatic sprinkler system sprinkler heads and automatic smoke detection system smoke detectors shall be permitted to be omitted within the control vestibule where the interior finish of the wall, ceiling, and floor of the control vestibule interior is noncombustible.

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 doors of the control vestibule shall be self-closing.
6. The doors of the control vestibule shall swing in the direction of egress travel.

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

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

Commented [JW5]: New exception per discussion during BCAC / FCAC meeting in Schiller Park (Chicago), IL, Sept. 20, 2023.
In the situation addressed by this exception, should the control vestibule be limited in size (i.e. limited square feet)? This exception addresses the potential for a person to deliberately create a fire within the control vestibule which results in the deactivation of the door interlocks allowing the person to egress.

Reason:

Control vestibules are being incorporated in the means of egress in a variety of occupancies. A control vestibule – which may be called an airlock, a mantrap, or a sallyport – has doors in series which are interlocked such that when one door of a control vestibule is open, the other door in series in the control vestibule is temporarily prevented from being opened.

The IBC is currently silent regarding requirements and guidance for control vestibules. This proposal offers requirements (guidance) for control vestibules in the means of egress.

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

This proposal addresses egress related requirements for control vestibules. Control vestibules, such as mantraps, which provide security or access control on the ingress side of doors into a building or into a space within a building are more common than control vestibules on the egress side of doors 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 with egress-side requirements.

Control vestibules must provide for egress – which is a requirement in the charging language (Section 1010.2.15.2).

Together, the definition and proposed requirements provide for 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.

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.

Cost Impact:
The code change proposal will 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.

BCAC Egress Item 22 B-n-B exception

IBC Section 1103.2.11

Date: 9-6-2023 revised

(E114-21 AS; G44-21 Part 1 AS)

1103.2.11 Residential Group R-1 or R-3. Buildings of Group R-1 containing not more than five dwelling units and *sleeping units* in aggregate for rent or hire that are also occupied as the residence of the proprietor are not required to comply with this chapter. Buildings of Group R-3 congregate living facilities (transient) or boarding houses (transient) containing not more than five sleeping units for rent or hire that are also occupied as the residence of the proprietor are not required to comply with this chapter.

Revise as follows:

1103.2.11 Residential Group R-1 or R-3. Buildings of Group R-1 ~~containing not more than five dwelling units and *sleeping units* in aggregate for rent or hire~~ that are ~~also~~ occupied as the residence of the proprietor and that contain not more than five *guestrooms* for rent or hire are not required to comply with this chapter. Buildings of Group R-3 congregate living facilities (transient) or boarding houses (transient) ~~containing not more than five sleeping units for rent or hire~~ that are ~~also~~ occupied as the residence of the proprietor and that contain not more than five *guestrooms* for rent or hire are not required to comply with this chapter.

Reason: G44-21 Part 1 revised this section as part of a generic change that recognized that hotels can have sleeping units or dwelling units. However, this is a very specific exception in Chapter 11 that was consistent with a similar exception in IRC Section R322.1 and the 2010 ADA. This is intended to exempt small bed-n-breakfast facilities where the owner lives (possible dwelling unit) in the same building and there are only 5 guestrooms (sleeping units). By saying 'aggregate' this could be read to add the owner's living quarters to the count. Also, this exception is not intended to extend to small transient apartment buildings that offer units for rent, even if the owner lived in the building. Since the IBC now includes a definition for 'guestroom', it is clearer to just go back to that language for this specific section. That would also be consistent terms used in Section 310.4.

[BG] GUESTROOM. A room used or intended to be used by one or more guests for living or sleeping purposes.

(G 43-21) AM, (G46-21) AM, both; (G45-21) AM

310.4 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

Emergency services living quarters

Fraternities and sororities

Monasteries

Congregate living facilities (*transient*) with 10 or fewer occupants

Boarding houses (*transient*)

Lodging houses ~~(*transient*)~~ with five or fewer *guest rooms* ~~and 10 or fewer occupants~~

Hotels (nontransient) with five or fewer *guest rooms*

Motels (nontransient) with five or fewer *guest rooms*

RB134-22 AM

R322.1 Dwelling units or sleeping units. Where there are four or more *dwelling units* or *sleeping units* in a single structure, the provisions of Chapter 11 of the *International Building Code* for Group R-3 shall apply.

Exception: Owner-occupied *lodging houses* with five or fewer guestrooms are not required to be accessible.

Cost impact: This will be a reduction in cost because it would restore the 5 guestrooms plus the owners apartment instead of only 4 guestrooms with the owners apartment.

BCAC Egress Item 33 ISPSC occupant load

Revise as follows:

TABLE 1004.5

MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Skating rinks~~, swimming pools~~	
Rink ~~and pool~~	50 gross
Rink decks	15 gross
Swimming pools (water areas)	
Swimming pool diving areas and catch pool areas	300 gross
Swimming pool areas with water depth exceeding 5 feet (1.5m)	200 gross
Spas	10 gross
All other swimming pool areas	20 gross
Swimming pool and spa decks	30 net

Reason:

- IBC Table 1004.5 for minimum occupancy load is proposed for modification so the pool area is assigned more people while the deck is assigned fewer. For most pool designs the minimum occupant calculation will be the same, but this reduces a perverse incentive to minimize deck area that exists in the current code.
- All of the categories added to IBC Table 1004.5 are already found in the ISPSC, or Model Aquatic Health Code, or Chapter 11 of the IBC, except the category "Swimming Pool Areas with water depth exceeding 5 feet (1.5 m)." Pool users do not tend to congregate in these areas, and most pools do not have such areas. A requirement to have such areas roped off is under consideration. When not used for diving, such areas are most typically used for lap swimming. A lap lane is often 2.5 meters wide and 25 meters long. The 200 gross factor proposed for such areas computes to three occupants per lane, which is conservative.
- Pools were crossed out on Table 2902.2 of the IBC to allow for the new row for indoor and outdoor Public Pools, Spas and Aquatic Recreation Facilities. Indoor and outdoor pools should have equal restroom requirements.
- With the current urinal substitution allowance there is no need to call out any differences in toilets or urinal. This allows the design professional of record to choose a to substitute a urinal when they decide to.
- Please review the footnote for approval. The exception for Class C pools is reduced to only apply to close-in dwelling units and will not add to construction costs for large amenity centers that are far from dwelling units, however, a few states already enforce similar requirements. This is important from a public health perspective.

- Current sections ISPSC 321-325 will need to be renumbered 322-326. Adding this section in to 321 to follow some other similar requirements only makes the code user friendly. This will put these after wastewater disposal but before lighting.

Coherent Restroom requirements are found in the 2020 Florida Building Code, the 2023 Florida Building Code, the 2021 IBC for indoor pools only, and the 2018 ISPSC for Class D pools only. The graph below compares this new proposal to these existing codes.

[NEED THE GRAPHIC]

- The 2021 IBC for indoor pools requires a high number of fixtures for even a minimal 0.5 deck area, and even more if more deck is provided. These requirements are out-of-range high compared to the others.
- The Florida Building Codes assume that the deck will be up to 3x the pool area and give a high number of fixtures regardless of if less deck is provided.
- The 2018 ISPSC for class D pools requires a very low number of fixtures, and is silent about how to treat the deck area.
- The proposal starts very close to the 2018 ISPSC if very little deck is provided, and then roughly matches the Florida Building Code for 3x deck area.

Cost Impact: Will decrease the cost of construction.

Substantiation: For indoor pools and Class D pools plumbing fixture requirement will be about the same. Indoor pool plumbing fixture requirements will be reduced. Outdoor pool plumbing fixture requirements will be increased. Overall, the number of plumbing fixtures will be slightly decreased.

BCAC Egress Item 37 ISPSC door hardware – 10-31-2023

PMGCAC Item XX

Proposer: Dan Buuck

Change to ISPSC section organization (305.3 et seq.)

Cost: none

Revise as follows:

305.3 Doors, ~~and~~ gates, and windows.

Doors, ~~and~~ gates, and windows in barriers shall comply with the requirements of Section~~s~~ 305.3.1 or 305.3.2~~through 305.3.3~~

305.3.1 Doors and gates in barriers.

Where a door or gate is not in a wall of a dwelling or structure, doors and gates in barriers shall comply with the requirements of Sections 305.3.1.1 through 305.3.1.4 and shall be equipped to accommodate a locking device. Pedestrian access doors and gates shall open outward away from the pool or spa, shall be self-closing and shall have a self-latching device. Doors and gates shall not swing over stairs.

305.3.1.1 Utility or service doors and gates.

Doors and gates not intended for pedestrian use, such as utility or service doors and gates, shall remain locked when not in use.

305.3.1.2 Double or multiple doors and gates.

Double doors and gates or multiple doors and gates shall have not fewer than one leaf secured in place and the adjacent leaf shall be secured with a self-latching device.

305.3.1.3 Latch release.

For doors and gates in barriers, the door and gate latch release mechanisms shall be in accordance with the following:

1. Where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such mechanism shall be located above the finished floor or ground surface in accordance with the following:

    1.1. At public pools and spas, not less than 52 inches (1219 mm) and not greater than 54 inches (1372 mm).

    1.2. At *residential* pools and spas, not less than 54 inches (1372 mm).

2. Where door and gate latch release mechanisms are of the self-locking type such as where the lock is operated by means of a key, an electronic opener or the entry of a combination into an integral combination lock, the lock operation control and the latch release mechanism shall be located above the finished floor or ground surface in accordance with the following:

    2.1. At public pools and spas, not less than 34 inches and not greater than 48 inches (1219 mm).

2.2. At *residential* pools and spas, at not greater than 54 inches (1372 mm).

3. At private pools, where the only latch release mechanism of a self-latching device for a gate is located on the pool and spa side of the barrier, the release mechanism shall be located at a point that is at least 3 inches (76 mm) below the top of the gate.

305.3.1.4 Barriers adjacent to latch release mechanisms.

Where a latch release mechanism is located on the inside of a barrier, openings in the door, gate, and barrier within 18 inches (457 mm) of the latch shall not be greater than $^1/_2$ inch (12.7 mm) in any dimension.

305.43.2 Structure wall as a barrier.

Where a wall of a dwelling or structure serves as part of the barrier and where doors, gates or windows provide direct access to the pool or spa through that wall, each door, gate, or window in such barriers shall comply with the requirements of Section 305.3.2.1 or 305.3.2.2.~~one of the following shall be required:~~

305.3.2.1 Doors and gates.

Where doors or gates provide direct access to the pool or spa, each door or gate shall comply with one of the following:

1. The doors or gate shall comply with the requirements of Sections 305.3.1.

2. The door or gate shall have an alarm that complies with Section 305.3.2.3.

3. A *safety cover* that is *listed* and *labeled* in accordance with ASTM F1346 is installed for the pools and spas.

4. An *approved* means of protection shall be provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1, 2 or 3.

305.3.2.2 Operable windows.

Where one or more operable windows provides direct access to the pool or spa, each operable window with a sill height of less than 48 inches shall comply with one of the following:

1. The window shall have an alarm that complies with Section 305.3.2.3.

2. A *safety cover* that is *listed* and *labeled* in accordance with ASTM F1346 is installed for the pools and spas.

3. An *approved* means of protection shall be provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.

305.3.2.3 Alarms.

~~1.~~ Doors, gates, and operable ~~Operable~~ windows having a sill height of less than 48 inches (1219 mm) above the indoor finished floor~~, doors and gates~~ shall have an alarm that produces an audible warning when the door, gate, window~~, door~~ or ~~their~~its screen~~s are~~ is opened. The alarm shall be *listed* and labeled as a water hazard entrance alarm in accordance with UL 2017.

~~2.~~1. In dwellings not required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located at not less than 54 inches (1372 mm) above the finished floor.

~~3.~~2. In dwellings that are required to be Accessible units, Type A units or Type B units, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the finished floor.

~~4.~~3. In structures other than dwellings, the operable parts of the alarm deactivation switches shall be located not greater than 54 inches (1372 mm) and not less than 48 inches (1220 mm) above the finished floor.

~~5. A *safety cover* that is *listed* and *labeled* in accordance with ASTM F1346 is installed for the pools and spas.~~

~~6. An *approved* means of protection, such as self-closing doors with self-latching devices, is provided. Such means of protection shall provide a degree of protection that is not less than the protection afforded by Item 1 or 2.~~

IBC (need revision)

(E44-21) AM

1010.2.3 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor.

Exceptions:

1. Locks used only for security purposes and not used for normal operation are permitted at any height.
2. ~~Where the International Swimming Pool and Spa Code requires restricting access to a pool, spa, or hot tub, and where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such mechanism shall be located above the finished floor or ground surface, not less than 52 inches (1219 mm) and not greater than 54 inches (1370 mm) provided that the latch release mechanism is not a self-locking type such as where the lock is operated by means of a key, electronic opener or the entry of a combination into an integral combination lock.~~
3. On doors and gates in barriers required by the International Swimming Pool and Spa Code, the hardware height of the operating devices of latches and locks required by the International Swimming Pool and Spa Code shall comply with Section 305.3 of the International Swimming Pool and Spa Code.

Reason:

Sections 305.3 and 305.4 were modified in the 2021 edition of the ISPSC to address accessibility considerations. (See proposal SP8-18 which was approved as submitted.) The latch release provisions under Section 305.3.3 were expanded, and Items 2, 3 and 4 under Section 305.4 were separated out from Item 1 to differentiate between the requirements for dwellings and other structures.

Some fixes were identified to improve these sections. This change reorganizes Sections 305.3 and 305.4 into one section encompassing all openings in barriers. And it reorganizes the section dealing with openings in a structural used as a barrier (previously 305.4).

Section-by-section substantiation:

Section 305.3: The title was changed to include doors, gates, AND windows to support the reorganization. Each opening must comply with either of the new subsections.

Section 305.3.1: This is the existing 305.3, and no substantive changes to the requirements were made. A scoping statement was added to limit the section to barriers that are not part of a structure. The language was taken from the existing 305.4 and changed to the negative.

Section 305.3.2: This is the existing 305.4, and it was reorganized and updated. The issue that made a simple fix impossible was the fact that the charging paragraph ended with "one of the following shall be required." This meant that only one of the items that followed could be applied to the entire situation. The language was changed in this proposal to allow each opening to be considered individually and comply with any of the provisions that follow.

Section 305.3.2.1: Doors and gates are now treated separately from windows for flexibility of compliance. Each opening should be considered individually to determine compliance.

> Item 1: This requirement was implied, but not stated, in existing Section 305.4, Item 6, which pointed to "self-closing doors with self-latching devices" as an approved means of protection. This was required in existing Section 305.3, and it is logical that doors and gates complying with the requirements for doors and gates <u>in barriers</u> are acceptable for doors and gates <u>in barriers that are part of a structure</u>.
>
> Item 2: This item points to the alarm requirements found in the existing section 305.4. It was repeated for operable windows below.
>
> Items 3 and 4: These were copied from existing section 305.4 Items 5 and 6 (shown deleted) and are repeated for operable windows below.

Section 305.3.2.2: This is the complementary section for windows, similar to the section for doors and gates above. The option of providing operable windows with a sill height of 48 inches or more was not clearly stated in the existing language, but it was implied by requiring an alarm for operable windows with a sill height of less than 48 inches. It is provided in the charging statement for the sake of completeness.

> Item 1: This item points to the alarm requirements found in the existing section 305.4.
>
> Items 2 and 3: These are copied from existing section 305.4 Items 5 and 6 (shown deleted) and are repeated for operable windows below.

Section 305.3.2.3: This was moved to a separate section to be referenced by Section 305.3.2.1 Item 2 as well as Section 305.3.2.2 Item 2 above. The text was modified to editorially move doors and gates before operable windows and its qualifying language. The intent was to make it clear that the sill height limitation only applies to operable windows. The word "each" was added to clarify that each opening is treated individually.

Before the 2018 proposal, existing Items 2, 3 and 4 were part of the same paragraph with the charging language and should have been kept subordinate to it. These items were renumbered as Items 1, 2 and 3 to restore that subordination.

BCAC General – revised 8-4-2023; revised 10-25-2023

Idea 2 – pools and spas

Allison Cook; John Taecker

Reason: Coordinate terminology for swimming pools and spas with ISPSC. Wading pools have 18" of water per ISPSC and hot tub and cold baths are a type of spa.

'Swimming pools' is currently defined in the IBC and IPC only.
'Spa' is defined in ISPSC.
'Hot tub' is not defined.
'Pools (swimming) hot tubs and spas' are defined in IZC.
'public swimming pool' is defined in IPC and ISPSC.
'residential swimming pool' is defined in ISPSC.

Generic definitions for Swimming Pool and Spa based on ISPSC scope and current definitions.

IBC

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Energy Conservation Code*, *International Fuel Gas Code*, *International Fire Code*, *International Mechanical Code*, ~~or~~ *International Plumbing Code,* and *International Swimming Pool and Spa Code*, such terms shall have the meanings ascribed to them as in those codes.

[BG] SWIMMING POOL. Any structure or product intended for swimming, ~~recreational~~ bathing or wading; designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each. ~~that contains water over 24 inches (610 mm) deep. This includes in-ground, above-ground and on-ground pools; hot tubs; spas and fixed-in-place wading pools.~~

SPA. A structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

ADM38-22 Part I AS

[A] 105.2 Work exempt from permit. Exemptions from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction. *Permits* shall not be required for the following:

Building:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided that the floor area is not greater than 120 square feet (11 m^2).
2. Fences, other than *swimming pool* barriers, not over 7 feet (2134 mm) high.
3. Oil derricks.
4. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.

5. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18 925 L) and the ratio of height to diameter or width is not greater than 2:1.
6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any *basement* or *story* below and are not part of an *accessible route*.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated *swimming pools* accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18 925 L) and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family *dwellings*.
12. Window awnings in Group R-3 and U occupancies, supported by an *exterior wall* that do not project more than 54 inches (1372 mm) from the *exterior wall* and do not require additional support.
13. Nonfixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches (1753 mm) in height.

303.4 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 for the conservation and exhibition of plants that provide public access

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

303.5 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

507.6 Group A-3 buildings of Type II construction. The area of a Group A-3 building not more than one *story above grade plane*, used as a *place of religious worship*, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor *swimming pool* or tennis court of Type II construction, shall not be limited provided that the following criteria are met:

1. The building shall not have a *stage* other than a *platform*.
2. The building shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The building shall be surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

507.7 Group A-3 buildings of Type III and IV construction. The area of a Group A-3 building of Type III or IV construction, with not more than one *story above grade plane* and used as a *place of religious worship*, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor *swimming pool* or tennis court, shall not be limited provided that the following criteria are met:

1. The building shall not have a *stage* other than a *platform*.
2. The building shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all *exits* are provided with *ramps* complying with Section 1012 to the street or grade level.
4. The building shall be surrounded and adjoined by *public ways* or *yards* not less than 60 feet (18 288 mm) in width.

TABLE 1004.5
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Skating rinks, swimming pools	
Rink and swimming pool	**50 gross**
Decks	**15 gross**

(E44-21) AM

1010.2.3 Hardware height. Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor.

Exceptions:

1. Locks used only for security purposes and not used for normal operation are permitted at any height.
2. Where the International Swimming Pool and Spa Code requires restricting access to a swimming pool~~,~~ or spa~~, or hot tub,~~ and where door and gate latch release mechanisms are accessed from the outside of the barrier and are not of the self-locking type, such mechanism shall be located above the finished floor or ground surface, not less than 52 inches (1219 mm) and not greater than 54 inches (1370 mm), provided that the latch release mechanism is not a self-locking type such as where the lock is operated by means of a key, electronic opener, or the entry of a combination into an integral combination lock.

1110.18 ~~1110.15~~ Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of *accessible* elements shall be *accessible*.

Exceptions:

1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be *accessible.*
2. Access doors or gates in barrier walls and fences protecting swimming pools~~,~~ and spas ~~and hot tubs~~ shall be permitted to comply with Section 1010.2.3.
3. Operable parts exempted in accordance with ICC A117.1 are not required to be accessible.

1111.4.14 Swimming pools, ~~wading pools, cold baths, hot tubs~~ and spas. *Swimming pools*, ~~wading pools, cold baths, hot tubs~~ and spas shall be *accessible* and be on an accessible route.

Exceptions:

1. Catch pools or a designated section of a pool used as a terminus for a water slide flume shall not be required to provide an *accessible* means of entry, provided that a portion of the catch pool edge is on an *accessible route*.
2. Where spas~~, cold baths or hot tubs~~ are provided in a cluster, at least 5 percent, but not less than one of each type of spa~~, cold bath or hot tub~~ in each cluster, shall be accessible and be on an *accessible route*.
3. *Swimming pools*~~,~~ and ~~wading pools,~~ spas, ~~cold baths and hot tubs~~ that are required to be *accessible* by Sections 1111.2.2 and 1111.2.3 are not required to provide *accessible* means of entry into the water.

1111.4.14.1 Raised diving boards and diving platforms. Raised diving boards and diving platforms are not required to be *accessible* or to be on an *accessible route*.

1111.4.14.2 Water slides. Water slides are not required to be *accessible* or to be on an *accessible route*.

1202.3 Unvented attic and unvented enclosed rafter assemblies. Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all of the following conditions are met:

1. to 5. (no change)

Exceptions:

1. Section 1202.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.
2. Section 1202.3 does not apply to enclosures in Climate Zones 5 through 8 that are humidified beyond 35 percent during the three coldest months.

1808.7.3 Swimming Pools. The setback between swimming pools regulated by this code and slopes shall be equal to one-half the building footing setback distance required by this section. That portion of the swimming pool wall within a horizontal distance of 7 feet (2134 mm) from the top of the slope shall be capable of supporting the water in the swimming pool without soil support.

2406.2 Impact test. Where required by other sections of this code, glazing shall be tested in accordance with CPSC 16 CFR Part 1201. Glazing shall comply with the test criteria for Category II, unless otherwise indicated in Table 2406.2(1).

Exception: Glazing not in doors or enclosures for ~~hot tubs, whirlpools,~~ spas, saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A, unless otherwise indicated in Table 2406.2(2).

2406.4.5 Glazing and wet surfaces. Glazing in walls, enclosures or fences containing or facing ~~hot tubs,~~ spas, ~~whirlpools,~~ saunas, steam rooms, bathtubs, showers and indoor or outdoor *swimming pools* where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall be considered to be a hazardous location. This shall apply to single glazing and all panes in multiple glazing.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally and in a straight line, from the water's edge of a bathtub~~, hot tub,~~ spa~~, whirlpool~~ or *swimming pool*.

2609.4 Area limitations. Roof panels shall be limited in area and the aggregate area of panels shall be limited by a percentage of the floor area of the room or space sheltered in accordance with Table 2609.4.

Exceptions:

1. The area limitations of Table 2609.4 shall be permitted to be increased by 100 percent in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

2. Low-hazard occupancy buildings, such as swimming pool shelters, shall be exempt from the area limitations of Table 2609.4, provided that the buildings do not exceed 5,000 square feet (465 m^2) in area and have a minimum *fire separation distance* of 10 feet (3048 mm).
3. *Greenhouses* that are occupied for growing or maintaining plants, without public access, shall be exempt from the area limitations of Table 2609.4 provided that they have a minimum *fire separation distance* of 4 feet (1220 mm).
4. Roof coverings over terraces and patios in occupancies in Group R-3 shall be exempt from the area limitations of Table 2609.4 and shall be permitted with light-transmitting plastics.

[P] TABLE 2902.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a] (See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 424.2 OF THE ***INTERNATIONAL PLUMBING CODE***)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE ***INTERNATIONAL PLUMBING CODE***)	OTHER
			Male	Female	Male	Female			
1	Assembly	Coliseums, arenas, skating rinks, swimming pools and tennis courts for indoor sporting events and activities[f]	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink

f. The required number and type of plumbing fixtures for indoor and outdoor public swimming pools shall be in accordance with Section 609 of the *International Swimming Pool and Spa Code*.

G194-21 AS; CCC16-22

3101.1 Scope. The provisions of this chapter shall govern special building construction including *membrane structures*, temporary structures, *pedestrian walkways* and tunnels, *awnings* and *canopies*, *marquees*, signs, telecommunications and broadcast towers, swimming pools, and spas ~~and hot tubs~~, automatic *vehicular gates*, solar energy systems, greenhouses, relocatable buildings and *intermodal shipping containers*.

3102.8.3 Support provisions. A system capable of supporting the membrane in the event of deflation shall be provided for in *air-supported* and *air-inflated structures* having an *occupant load* of 50 or more or where covering a swimming pool regardless of *occupant load*. The support system shall be capable of maintaining membrane structures used as a roof for Type I construction not less than 20 feet (6096 mm) above floor or seating areas. The support system shall be capable of maintaining other membranes not less than 7 feet (2134 mm) above the floor, seating area or surface of the water.

SECTION 3109
SWIMMING POOLS, and SPAS ~~AND HOT TUBS~~

3109.1 General. The design and construction of swimming pools, and spas ~~and hot tubs~~ shall comply with the *International Swimming Pool and Spa Code*.

G112.5 Swimming pools. Swimming pools shall be designed and constructed in accordance with ASCE 24. Above-ground swimming pools, on-ground swimming pools and in-ground swimming pools that involve placement of fill in *floodways* shall also meet the requirements of Section G104.5.

IRC

SWIMMING POOL. Any structure or product intended for swimming, bathing or wading; designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each.

SPA. A structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

R105.2 Work exempt from permit. Exemption from *permit* requirements of this code shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this *jurisdiction*. *Permits* shall not be required for the following:

Building:

1. Other than *storm shelters*, one-*story* detached *accessory structures,* provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences not over 7 feet (2134 mm) high.
3. Retaining walls that are not over 4 feet (1219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon *grade* if the capacity does not exceed 5,000 gallons (18 927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above *grade* at any point, are not attached to a dwelling or *townhouse* and do not serve the exit door required by Section R311.4.

RB139-22 AS; RB137-22 D/AS

~~R322~~R306.3.2 Elevation requirements.

1. to 5 (no change)

~~5.~~ 6. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, swimming pool decks, patios and walkways.

~~6.~~ 7. Walls and partitions enclosing areas below the elevation required in this section shall meet the requirements of Sections ~~R322~~R306.3.5 and ~~R322~~R306.3.6.

~~R308~~R324.3.1 Impact test. Where required by other sections of the code, glazing shall be tested in accordance with CPSC 16 CFR 1201. Glazing shall comply with the test criteria for Category II unless otherwise indicated in Table **~~R308~~R324**.3.1(1).

Exception: Glazing not in doors or enclosures for ~~hot tubs, whirlpools,~~ spas saunas, steam rooms, bathtubs and showers shall be permitted to be tested in accordance with ANSI Z97.1. Glazing shall comply with the test criteria for Class A unless otherwise indicated in Table ~~R308~~R324.3.1(2).

~~R308~~R324.4.5 **Glazing and wet surfaces.** Glazing in walls, enclosures or fences containing or adjacent to ~~hot tubs,~~ spas, ~~whirlpools,~~ saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface shall be considered to be a hazardous location. This shall apply to single glazing and each pane in multiple glazing.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally, from the water's edge of a bathtub, ~~hot tub,~~ spa, ~~whirlpool~~ or swimming pool or from the edge of a shower, sauna or steam room.

SECTION ~~R327~~R328
SWIMMING POOLS, AND SPAS ~~AND HOT TUBS~~

~~R327~~R328.1 **General.** The design and construction of swimming pools and spas shall comply with the *International Swimming Pool and Spa Code*.

N1103.10 (R403.10) Energy consumption of swimming pools and spas. The energy consumption of swimming pools and permanent spas shall be controlled by the requirements in Sections N1103.10.1 through N1103.10.3.

N1103.10.2 (R403.10.2) Time switches. Time switches or other control methods that can automatically turn heaters and pump motors off and on according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.

Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat recovery swimming pool heating systems.

N1103.10.3 (R403.10.3) Covers. Outdoor heated swimming pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other *approved* vapor-retardant means.

Exception: Where more than 75 percent of the energy for heating, computed over an operation season of not fewer than 3 calendar months, is from a heat pump or an on-site renewable energy system, covers or other vapor-retardant means shall not be required.

N1103.11(R403.11) Portable spas.

The energy consumption of electric-powered portable spas shall be controlled by the requirements of APSP 14.

N1103.12 (R403.12) ~~Residential~~ Swimming pools and permanent ~~residential~~ spas. Where installed, the energy consumption of ~~residential~~ swimming pools and permanent ~~residential~~ spas shall be controlled in accordance with the requirements of ~~APSP~~ PHTA 15.

TABLE N1105.2 (R405.2)
REQUIREMENTS FOR TOTAL BUILDING PERFORMANCE

Section	Title
N1103.10	Energy consumption of swimming pools and spas
N1103.11	Portable spas
N1103.12	~~Residential~~ pools and permanent ~~residential~~ spas

RM18-21 (AS), RM19-21 (AMPC1), RB20-21 (AMPC1)

M1602.2 Return air openings. Return air openings for heating, *ventilation* and air-conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another *appliance* located in the same room or space.
2. The amount of return air taken from any room or space except mechanical rooms, boiler rooms or furnace rooms shall be not greater than the flow rate of supply air delivered to such room or space. Return air taken from mechanical rooms, boiler rooms or furnace rooms shall serve only the mechanical room and shall be permitted to be taken from mechanical rooms that have no dedicated supply duct.
3. Return and transfer openings shall be sized in accordance with the *appliance* or *equipment* manufacturer's installation instructions, Manual D or the design of the *registered design professional*.
4. Where return air is taken from a mechanical room, boiler room or furnace room with combustion appliances only sealed combustion appliances shall be permitted within the mechanical room.
5. Where return air is taken from a mechanical room, boiler room or furnace room the pressure differential across the mechanical room, boiler room or furnace room door shall be limited to 0.01 inch WC (2.5 pascals) or less by undercutting the door, or installing a louvered door or transfer grille, or by some other means.
6. Where return air is taken from a closet the return air shall be no more than 30 cfm (15 l/s), shall serve only the closet, shall not require a dedicated supply duct and the closet door shall be undercut a minimum of 1.5 inches (38 mm) or the closet shall include a louvered door or transfer grille with a minimum net free area of 30 inch2 (194 cm2).
4 7. Return air shall not be taken from a closet, ~~bathroom,~~ toilet room, kitchen, garage, ~~mechanical room, boiler room, furnace room~~ or unconditioned attic.

   Exceptions:

   1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet (3048 mm) from the cooking *appliances*.
   2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.
   3. Return air taken from closets shall serve only the closet and shall be permitted to be taken from closets that have no dedicated supply duct.

5 8. For other than dedicated HVAC systems, return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where the air in such spaces is dehumidified,
6 9. Taking return air from an unconditioned *crawl space* shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the *crawl space* enclosure shall not be prohibited.
7 10. Return air from one *dwelling unit* shall not be discharged into another *dwelling unit*.

SECTION M2006
SWIMMING POOL HEATERS

RM4-21 (AS)

M2006.1 General. Swimming Pool and spa heaters shall be installed in accordance with the manufacturer's installation instructions. Oil-fired swimming pool heaters shall ~~comply~~ be *listed* and *labeled* in accordance with UL 726. Electric swimming pool and spa heaters shall ~~comply~~ be *listed* and *labeled* in accordance with UL 1261. Swimming Pool and spa heat pump water heaters shall ~~comply~~ be *listed* and *labeled* in accordance with UL 1995, or UL/CSA ~~/ANCE~~ 60335-2-40 ~~or CSA C22.2 No. 236~~.

Exception: Portable residential spas and portable residential exercise spas shall ~~comply~~ be *listed* and *labeled* in accordance with UL 1563 or CSA C22.2 No. 218.1.

M2006.2 Clearances. The clearances shall not interfere with *combustion air*, draft hood or flue terminal relief, or accessibility for servicing.

M2006.3 Bypass valves. Where an integral bypass system is not provided as a part of the swimming pool heater, a bypass line and valve shall be installed between the inlet and outlet piping for use in adjusting the flow of water through the heater.

SECTION M2301
SOLAR THERMAL ENERGY SYSTEMS

M2301.1 General. This section provides for the design, construction, installation, *alteration* and *repair* of equipment and systems using solar thermal energy to provide space heating or cooling, hot water heating and swimming pool heating.

M2301.2.5 Piping insulation. Piping shall be insulated in accordance with the requirements of Chapter 11. Exterior insulation shall be protected from ultraviolet degradation. The entire solar loop shall be insulated. Where split-style insulation is used, the seam shall be sealed. Fittings shall be fully insulated.

Exceptions:

1. Those portions of the piping that are used to help prevent the system from overheating shall not be required to be insulated.
2. Those portions of piping that are exposed to solar radiation, made of the same material as the solar collector absorber plate and are covered in the same manner as the solar collector absorber, or that are used to collect additional solar energy, shall not be required to be insulated.
3. Piping in thermal solar systems using unglazed solar collectors to heat a swimming pool shall not be required to be insulated.

SECTION G2441 (IFGC 617)
SWIMMING POOL AND SPA HEATERS

G2441.1 (617.1) General. Swimming Pool and spa heaters shall be *listed* in accordance with ANSI Z21.56/CSA 4.7 and shall be installed in accordance with the manufacturer's instructions.

P2911.2 Sources. On-site nonpotable water reuse systems shall collect waste discharge only from the following sources: bathtubs, showers, lavatories, clothes washers and laundry trays. Water from other *approved* nonpotable sources including swimming pool backwash operations, air conditioner condensate, rainwater, foundation drain water, fluid cooler discharge water and fire pump test water shall be permitted to be collected for reuse by on-site nonpotable water reuse systems, as *approved* by the *building official* and as appropriate for the intended application.

E3608.7 Swimming Pool~~,~~ and spa ~~and hot tub~~ structures and structural reinforcing steel. The structures and structural reinforcing steel described in Section E4204.2, Items 1 and 2, shall not be used as a grounding electrode. [250.52 (B)(3)]

TABLE E3803.1 (Table 300.5)
MINIMUM COVER REQUIREMENTS, BURIAL IN INCHES[a, b, c, d, e]

g. A depth of 6 inches shall be permitted for swimming pool, spa, and fountain lighting that is installed in a nonmetallic raceway, limited to not more than 30 volts and part of a listed low-voltage lighting system.

CHAPTER 42
SWIMMING POOLS
-Controlled by another process-

[BG] SWIMMING POOL. Any structure or product intended for swimming, bathing or wading; designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each.

SPA. A structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

~~**POOLS (SWIMMING), HOT TUBS AND SPAS.**~~

~~**Above-ground/on-ground pool.** See "*Private swimming pool*."~~

~~**Barrier.** A fence, a wall, a building wall, the wall of an above-ground swimming pool or a combination thereof, which completely surrounds the swimming pool and obstructs access to the swimming pool.~~

~~**Hot tub.** See "*Private swimming pool*."~~

~~**In-ground pool.** See "*Private swimming pool*."~~

~~**Power safety cover.** A pool cover that is placed over the water area, and is opened and closed with a motorized mechanism activated by a control switch.~~

~~**Private swimming pool, indoor.** Any private *swimming pool* that is totally contained within a private structure and surrounded on all four sides by walls of said structure.~~

~~**Private swimming pool, outdoor.** Any private swimming pool that is not an indoor pool.~~

~~**Private swimming pool.** Any structure that contains water over 24 inches (610 mm) in depth and that is used, or intended to be used, for swimming or recreational bathing in connection with an occupancy in Use Group R-3 and that is available only to the family and guests of the householder. This includes in-ground, above-ground, and on-ground swimming pools, hot tubs and spas.~~

~~**Public swimming pool.** Any swimming pool other than a private swimming pool.~~

~~**Spa.** See "*Private swimming pool*."~~

SECTION 501
RESIDENTIAL ZONES DEFINED

501.1 Residential zone. Allowable residential (R) zone uses shall be:

Division 1. The following uses are permitted in an R, Division 1 zone:

Single-family dwellings, publicly owned and operated parks, recreation centers, swimming pools and playgrounds, police and fire department stations, public and governmental services, public libraries, schools and colleges (excluding colleges or trade schools operated for profit), public parking lots, *private garages*, buildings accessory to the above permitted uses (including private garages, *accessory dwelling units* and *accessory living quarters*), and temporary buildings.

Division 2. The following uses are permitted in an R, Division 2 zone:

Any use permitted in R, Division 1 zones and two-family dwellings.

Division 3. The following uses are permitted in an R, Division 3 zone:

All uses permitted in R, Division 2 zones, multiple-unit dwellings, such as apartment houses, boarding houses, condominiums and *congregate residences*.

SECTION 601
COMMERCIAL AND COMMERCIAL/RESIDENTIAL ZONES DEFINED

601.1 Commercial and commercial/residential zones. Allowable commercial (C) zone and commercial/residential (CR) zone uses shall be:

C Zone

Division 1. The following uses are permitted in a C, Division 1 zone:

Minor automotive repair, automotive motor fuel dispensing facilities, automotive self-service motor fuel dispensing facilities, business or financial services, convenience and *neighborhood commercial centers* (excluding wholesale sales), family and *group day care* facilities, libraries, mortuary and funeral homes, public and governmental services, police and fire department stations, places of religious worship, public utility stations, and restaurants.

Division 2. The following uses are permitted in a C, Division 2 zone:

Any uses permitted in C, Division 1 zones, and *light commercial* (excluding wholesale sales), *group care facilities*, physical fitness centers, religious, cultural and fraternal activities, rehabilitation centers, and schools and colleges operated for profit (including commercial, vocational and trade schools).

Division 3. The following uses are permitted in a C, Division 3 zone:

Any uses permitted in C, Division 2 zones, and amusement centers (including swimming pools, bowling alleys, golf driving ranges, miniature golf courses, ice rinks, pool and billiard halls, and similar recreational uses), automotive sales, building material supply sales (wholesale and retail), cultural institutions (such as museums and art galleries), *community commercial centers* (including wholesale and retail sales), health and medical institutions (such as hospitals), hotels and motels (excluding other residential occupancies), commercial printing and publishing, taverns and cocktail lounges, indoor theaters, and self-storage warehouses.

Division 4. The following uses are permitted in a C, Division 4 zone:

Any uses permitted in C, Division 3 zones, and *major automotive repair*, commercial bakeries, *regional commercial centers* (including wholesale and retail sales), plastic products design, molding and assembly, small metal products design, casting, fabricating, and processing, manufacture and finishing, storage yards, and wood products manufacture and finishing.

CR Zone

Permitted (commercial/residential) (CR) zone uses shall be:

Division 1. The following uses are permitted in a CR, Division 1 zone:

Any use permitted in a C, Division 1 zone, and residential use permitted, except in the *story* or *basement* abutting street *grade*.

Division 2. The following uses are permitted in a CR, Division 2 zone:

Any use permitted in a C, Division 2 zone, and residential use permitted, except in the *story* or *basement* abutting street *grade*.

IECC Commercial

C404.8 Energy consumption of pools and permanent spas. The energy consumption of swimming pools and permanent spas shall be controlled by the requirements in Sections C404.8.1 through C404.8.3.

C404.8.1 Heaters. The electric power to all heaters shall be controlled by an on-off switch that is an integral part of the heater, mounted on the exterior of the heater, or external to and within 3 feet (914 mm) of the heater in a location with *ready access*. Operation of such switch shall not change the setting of the heater thermostat. Such switches shall be in addition to a circuit breaker for the power to the heater. Gas-fired heaters shall not be equipped with continuously burning ignition pilots.

C404.8.2 Time switches. Time switches or other control methods that can automatically turn off and on heaters and pump motors according to a preset schedule shall be installed for heaters and pump motors. Heaters and pump motors that have built-in time switches shall be in compliance with this section.
Exceptions:

1. Where public health standards require 24-hour pump operation.
2. Pumps that operate solar- and waste-heat recovery swimming pool heating systems.

C404.8.3 Covers. Outdoor heated swimming pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other *approved* vapor-retardant means.
Exception: Where more than 75 percent of the energy for heating, computed over an operating season of not fewer than 3 calendar months, is from a heat pump or an on-site renewable energy system, covers or other vapor-retardant means shall not be required.

C404.9 Portable spas. The energy consumption of electric powered portable spas shall be controlled by the requirements of APSP 14.

IPC

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *International Building Code*, *International Fire Code, International Fuel Gas Code, International Swimming Pool and Spa Code,* or the *International Mechanical Code*, such terms shall have the meanings ascribed to them as in those codes.

SWIMMING POOL. Any structure or product intended for swimming, bathing or wading; designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each.

SPA. A structure or product intended for the immersion of persons in temperature-controlled water for the purpose of relaxing, exercise, therapy or treatment; designed and manufactured to be connected to a circulation system; and not intended to be drained and filled with each use.

[BG]SWIMMING POOL. Any ~~A permanent or temporary~~ structure or product ~~that is~~ intended ~~to be used~~ for swimming, bathing or wading; ~~and that is~~ designed and manufactured to be connected to a circulation system; installed aboveground, inground, onground, or partially aboveground; and not intended to be drained and filled with each use. ~~A swimming pool can be open to the public regardless of whether a fee is charged for its use or can be accessory to a residential setting where the pool is available only to the household and guests of the household.~~ . Swimming pools shall be further classified and defined as follows:

> **PUBLIC SWIMMING POOL.** A swimming pool, other than a residential swimming pool, ~~that is intended to be used for swimming or bathing and~~ that is operated by an owner, lessee, operator, licensee or concessionaire, regardless of whether a fee is charged for use.

TABLE 403.1—continued

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

SECTION 423
SPECIALTY PLUMBING FIXTURES
423.1 Water connections. Baptisteries, ornamental and lily pools, aquariums, ornamental fountain basins, swimming pools, and similar constructions, where provided with water supplies, shall be protected against backflow in accordance with Section 608.

SECTION 612
SOLAR SYSTEMS

612.1 Solar systems. The construction, installation, alterations and repair of systems, equipment and appliances intended to utilize solar energy for space heating or cooling, domestic hot water heating, swimming pool heating or process heating shall be in accordance with the *International Mechanical Code*.

CHAPTER 8
INDIRECT/SPECIAL WASTE

801.1 Scope. This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, humidifiers, clear-water waste, swimming pools, methods of providing *air breaks* or *air gaps*, and neutralizing devices for corrosive wastes.

SECTION 802
INDIRECT WASTES

801.1 Scope. This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, humidifiers, clear-water waste, swimming pools, methods of providing *air breaks* or *air gaps*, and neutralizing devices for corrosive wastes.

802.1.4 Swimming pools. Where wastewater from swimming pools, backwash from filters and water from pool deck drains discharge to the building drainage system, the discharge shall be through an indirect waste pipe by means of an *air gap*.

IBC

[BG] STORM SHELTER. A building, structure or portions thereof, constructed in accordance with ICC 500 for protection from ~~and designated for use during~~ tornadoes, hurricanes, ~~tornadoes or~~ and other severe windstorms.

Community storm shelter. A storm shelter not defined as a "Residential storm shelter." This includes *storm shelters* intended for use by the general public, by building occupants or a combination of both.

Residential storm shelter. A storm shelter serving occupants of *dwelling units* and having an *occupant load* not exceeding 16 persons.

423.3 Occupancy classification. The occupancy classification for a *storm shelter* shall be determined in accordance with this section.

423.3.1 Dedicated storm shelters. A facility designed to be occupied solely as a *storm shelter* shall be classified as Group A-3 for the determination of requirements other than those covered in ICC 500.

Exceptions:

1. The occupancy category for dedicated storm shelters with a design occupant capacity of less than 50 persons as determined in accordance with ICC 500 shall be in accordance with Section 303.
2. The occupancy category for a dedicated residential storm shelter shall be the Group R occupancy served.

423.3.2 Storm shelters occupied for other purposes ~~within host buildings~~. ~~Where designated *storm shelters* are constructed as a room or space within a host building~~ *Storm shelters* that will normally be occupied for other purposes shall comply with~~,~~ the requirements of this code for the occupancy of the building, or the individual rooms or spaces thereof, ~~shall apply~~ unless otherwise required by ICC 500.

Reason: Proposed changes to the next edition of ICC 500 include revising the language of ICC 500 Section 104.1 related to rooms or spaces within a building that are constructed as an ICC 500-compliant hurricane or tornado shelter but are otherwise normally used for other reasons, such as a gymnasium or multi-purpose room in a school. Confusion over the term "host building" led the ICC 500 committee to clarify and simplify the provision.

Cost impact: None. This is an editorial clarification with no change to code requirements.

CORRELATING CHANGE FOR THE IRC

[RB] STORM SHELTER. A building, structure or portions thereof, constructed in accordance with ICC 500 for protection from ~~and designated for use during~~ tornadoes, hurricanes, ~~tornadoes or~~ and other severe windstorms.

Community storm shelter. A storm shelter not defined as a "Residential storm shelter." This includes *storm shelters* intended for use by the general public, by building occupants or a combination of both.

Residential storm shelter. A storm shelter serving occupants of *dwelling units* and having an *occupant load* not exceeding 16 persons.

Reason: Proposed changes to the next edition of ICC 500 include revising the definition to clarify the use of storm shelters. "Designating" a storm shelter is tied to classifying it for use after an event, which is makes what makes it an emergency shelter that needs to be classified as Risk Category IV. This change focuses on the primary purpose of an ICC 500-compliant storm shelter, which is protection from severe winds during an event.

Cost impact: None. This is an editorial clarification with no change to code requirements.

CORRELATING CHANGE FOR THE IEBC

STORM SHELTER. A building, structure or portions thereof, constructed in accordance with ICC 500 for protection from ~~and designated for use during~~ tornadoes, hurricanes, ~~tornadoes or~~ and other severe windstorms.

Community storm shelter. A storm shelter not defined as a "Residential storm shelter." This includes *storm shelters* intended for use by the general public, by building occupants or a combination of both.

Residential storm shelter. A storm shelter serving occupants of *dwelling units* and having an *occupant load* not exceeding 16 persons.

Reason: Proposed changes to the next edition of ICC 500 include revising the definition to clarify the use of storm shelters. "Designating" a storm shelter is tied to classifying it for use after an event, which is makes what makes it an emergency shelter that needs to be classified as Risk Category IV. This change focuses on the primary purpose of an ICC 500-compliant storm shelter, which is protection from severe winds during an event.

Cost impact: None. This is an editorial clarification with no change to code requirements.

CORRELATING CHANGE FOR THE IPMC

STORM SHELTER. A building, structure or portion thereof, constructed in accordance with ICC 500 for protection from~~, designated for use during~~ tornadoes, hurricanes, ~~tornadoes or~~ and other severe windstorms.

SECTION 310 STORM SHELTERS.

310.1 General. Community storm shelters shall be evaluated, maintained and repaired in accordance with this section and ICC 500.

310.2 Evaluation. Community storm shelters shall be evaluated annually, and when requested by the authority having jurisdiction, in accordance with ICC 500.

310.3 Maintenance and Repairs. Community storm shelters shall be maintained in an operational ~~operable~~ condition. All structural ~~and operational~~ elements, impact-protective systems and critical support systems shall be repaired or replaced in accordance with ICC 500 where damaged or found to be inoperable.

Reason: Proposed changes to the next edition of ICC 500 include expanding evaluation, maintenance, and repair requirements to impact-protective systems (e.g., shutters over windows in hurricane and tornado shelters) and critical support systems (e.g., mechanical ventilation or emergency power systems). The ICC 500 committee modified the definition of a storm shelter to focus on the primary purpose of an ICC 500-compliant storm shelter, which is protection from severe winds during an event.

Cost impact: Increase. (Kim to get additional clarification on cost impact if this is a correlation item with ICC 500).

BCAC Egress Item 5 Control Vestibule–

June 14, 2023, draft revised Oct. 4, and Oct. 31, 2023
John Woestman, BHMA

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

The draft text below builds on proposal E55-21, the public comments to E55-21, the debate / discussion during the 2021 Public Comment Hearings, and subsequent discussions. The comments in this doc are based on testimony during the 2021 PCH. The formatting of this draft is revised a bit from E55-21 in an attempt to be more reader-friendly.

Add new definition as follows:

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

Add new text as follows:

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

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

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

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

1010.2.15.2 Where doors in the means of egress are configured as a control vestibule, the control vestibule door interlocking system shall provide for egress. The control vestibule shall comply with all of the following:

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

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

2. Upon activation of the automatic sprinkler system or automatic smoke detection system the interlock function of the doors of the control vestibule shall deactivate.

Commented [JW1]: Groups H-3 and H-4 recommended to be added during joint BCAC / FCAC meeting / discussion in Schiller Park (Chicago), IL, Sept. 20, 2023.

Commented [JW2]: Concern with Group H-5 during 2021 PCH testimony. Should Group H-5 be moved to a new Item 3, and include specific conditions / requirements for egress? Also 2021 PCH concerns with limiting B and M to 10 occupants while permitting / limiting H-5, I-1, and I-2 to 49 occupants.

Commented [JW3]: Per discussion during BCAC Egress Work Group meeting April 19, 2023, this criteria revised and added for consistency with Item 4 of 1010.2.12 (sensor release of electrically locked egress doors).

Commented [JW4]: Concern with this exception as too broad in E55-21 PC4. This text is revised in attempt to address concerns raised during 2021 PCH.

Exception: Where the control vestibule is designed to impede occupant egress for security reasons, automatic sprinkler system sprinkler heads and automatic smoke detection system smoke detectors shall be permitted to be omitted within the control vestibule where the interior finish of the wall, ceiling, and floor of the control vestibule interior is noncombustible.

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 doors of the control vestibule shall be self-closing.
6. The doors of the control vestibule shall swing in the direction of egress travel.

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

7. Where a control vestibule serves a room or space with HPM, the interlock function of the doors of the control vestibule shall deactivate when the *emergency alarm system* for the HPM is activated.
~~7.~~8. The electro-mechanical or electromagnetic locking devices shall be listed in accordance with either UL 294 or UL 1034.

Commented [JW5]: New exception per discussion during BCAC / FCAC meeting in Schiller Park (Chicago), IL, Sept. 20, 2023.
In the situation addressed by this exception, should the control vestibule be limited in size (i.e. limited square feet)? This exception addresses the potential for a person to deliberately create a fire within the control vestibule which results in the deactivation of the door interlocks allowing the person to egress.

Commented [JW6]: A suggestion received: There perhaps needs to be some sort of interlock so that if a room monitor (Oxygen sensor, CO sensor, toxic gas monitor, LFL monitor, etc.) activates, that the override automatically activates to facilitate egress? We likely don't want people trying to remember to press a button when they are trying to escape from a gas release.
Draft new requirement (new Item 7) leverages IBC's definition of HPM, and IBC's requirements for rooms or spaces with HPM, specifically 415.11 (for H-5) and referenced and related IBC sections in 415.10 (for H-3 and H-4), 916 (Gas Detection Systems), and other sections.

Reason:

Control vestibules are being incorporated in the means of egress in a variety of occupancies. A control vestibule – which may be called an airlock, a mantrap, or a sallyport – has doors in series which are interlocked such that when one door of a control vestibule is open, the other door in series in the control vestibule is temporarily prevented from being opened.

The IBC is currently silent regarding requirements and guidance for control vestibules. This proposal offers requirements (guidance) for control vestibules in the means of egress.

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

This proposal addresses egress related requirements for control vestibules. Control vestibules, such as mantraps, which provide security or access control on the ingress side of doors into a building or into a space within a building are more common than control vestibules on the egress side of doors 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 with egress-side requirements.

Control vestibules must provide for egress – which is a requirement in the charging language (Section 1010.2.15.2).

Together, the definition and proposed requirements provide for 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.

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.

Cost Impact:
The code change proposal will 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.

PMGCAC Item 20 IMC Section 402 needs revised based upon how ASHRAE 62.1-2022 deals with natural ventilation.

Completed proposal needs to be forwarded to the BCAC for comment.

M??-24 Part I

International Mechanical Code

Notes from BCAC 10-31-2023:
ASHRAE 62.1 does not have Group H – what would they do
What is the reason that ASHRAE 62.1 would not need to be applied to Group R and I-1 (62.2 address this?)
We need someone from PMGCAC for input during a call

Revise as follows:

402.1 Natural Ventilation for occupancy groups other than R and I-1 occupancy group. Natural ventilation for occupancy groups other than R and I-1 shall comply with the natural ventilation procedure provisions of ASHRAE 62.1.

402.2 Natural Ventilation for use in R and I-1 occupancy groups. Natural ventilation for R and I-1 occupancy groups shall comply with Sections 402.2.1 through 402.2.4

[BG] ~~402.1~~ **402.2.1 Natural ventilation**. Natural ventilation of an occupied space shall be through windows, doors, louvers, or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

[BG]~~402.2~~ **402.2.2 Ventilation area required.** The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

[BG]~~402.3~~ **402.2.3 Adjoining spaces.** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining rooms shall be unobstructed and shall have an area not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for ventilation shall be permitted to open into a thermally isolated sunroom addition or patio cover, provided that the openable area between the sunroom addition or patio cover and the interior room has an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m^2). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

[BG] ~~402.4~~ 402.2.4 **Openings below grade.** Where openings below grade provide required natural ventilation, the outdoor horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

M??-24 Part II

International Building Code

Revise as follows:

1202.5 Natural ventilation for all occupancy groups. Natural ventilation for all occupancy groups shall be in accordance with Sections 1202.5.1 through 1202.5.2.4.

1202.5.1 Natural Ventilation for occupancy groups other than R and I-1 occupancy group. Natural ventilation for occupancy groups other than Residential and I-1 shall comply with the natural ventilation procedure provisions of ASHRAE 62.1.

1202.5.2 Natural Ventilation for use in R and I-1 occupancy groups. Natural ventilation for Residential and I-1 occupancy groups shall comply with Sections 1205.5.2.1 through 1205.5.2.4

1202.5.2.1 Natural ventilation. Natural *ventilation* of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

1202.5.~~1~~ 2.2 Ventilation area required.
The openable area of the openings to the outdoors shall be not less than 4 percent of the floor area being ventilated.

1202.5.~~1.1~~ 2.3 Adjoining spaces.
Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m^2). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

Exception: Exterior openings required for *ventilation* shall be allowed to open into a *sunroom* with *thermal isolation* or a patio cover provided that the openable area between the *sunroom* addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m^2). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

1202.5.~~1.2~~ 2.4 Openings below grade.
Where openings below grade provide required natural *ventilation*, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

Reason: In climate zones with outdoor ambient temperature extremes, where the design professional has elected to employ natural ventilation, although in compliance with existing code language in theory, practical application and utilization of openable doors and windows as the sole source of ventilation air, is not consistently employed in practice, during months when either a heating or cooling system is conditioning an occupied space. Section 6.4.1 *Prescriptive Compliance Path,* requires a mechanical ventilation system in conjunction with the natural ventilation. This mechanical ventilation system must comply with either section *6.2 Ventilation*

Rate Procedure and/or section *6.3 Indoor Air Quality Procedure* of ASHRAE 62.1-2022. Under the exceptions provided to 6.4.1, IF a design professional wanted to delete the redundant mechanical system required, they must provide controls that ensure the openings are either open during times of occupancy OR are fixed as permanently open.

Consequently, 62.1-2022 section 6.4 (Natural Ventilation Procedure) provides both engineered (6.4.2) and prescriptive (6.4.1) options for compliance, which ensures proper natural ventilation despite outdoor ambient temperature and without sole reliance on openable doors and windows, absent extensive design calculations employed in the engineered method.

With the challenges faced in terms of indoor air quality, highlighted during the COVID pandemic, deficiencies in both existing and new HVAC systems became apparent. These challenges created a conflict between HVAC systems and the organic need to ventilate areas, leading to inconsistent temperature control and the decreased energy efficiency of HVAC systems. ASHRAE 62.1-2022 provides clear methods for the utilization of natural ventilation, accounting for the challenges faced during this crisis.

It is intended that IMC new sections 402.1 and 402.2 be [BG] controlled.

For reference:

Group R-1 is multifamily (transient) such as hotels and motels.

Group R-2 is multifamily (nontransient) such as apartment buildings.

Group R-3 is for one- and two-family homes and townhouses outside the scope of the IRC, for example 4-story townhouses.

Group R-4 and I-1 are assisted living facilities, group homes, etc.

From the commentary: Groups I-1 and R-4 are similar facilities that differ only by the number of residents receiving care. Group I-1 has more than 16 residents while Group R-4 has six to 16 residents.

August 10, 2023 Cost impact and Substantiation suggested by Kalakay/Gay

Cost Impact: Will increase the cost of construction.

Substantiation:

This proposal will increase the cost of construction due to additional openings for the conveyance of outdoor air, meant for ventilation, required to comply with ASHRAE 62.1 2022. With due attention to ASHRAE 62.1 2022 section 6.4, in the planning phase, additional cost may be limited. Due to the unlimited variations in building design, placing a predetermined dollar amount on the net cost of this

proposal is impossible. However, when considering the annual financial impact of Sick Building Syndrome, the COVID pandemic, annual influenza infections and other airborne illnesses which directly impacts individuals, municipalities, and corporations alike, though undefinable, the financial savings would exponentially outweigh the initial cost increase for construction.

Example 1: According to the World Economic Forum the COVID pandemic alone cost the world 11 trillion dollars for the pandemic response with an additional 10 trillion in lost earnings.

Example 2: According to the Elsevier publication *Building and Environment Journal Vol. 188* dated 1-15-21 in the US alone, the annual cost attributed to sick building syndrome in commercial workplaces is estimated at between 10 and 70 billion dollars. On average workers spend 90 percent of their time indoors while on the job.

Example 3: According to the Elsevier article dated June 22, 2018, and titled: *Economic Burden of seasonal influenza in the United States;* the total annual cost burden of seasonal influenza in the US stands at 11.2 billion dollars.

2024 IFC/IBC
Proposal to match 2024 IRC
Approved by F-CAC WG 2 Oct 17th

BCAC Notes 10-31-23 –
Grammer is difficult in Item 4 –
Suggested rewrite - 4. In the sleeping loft, or in the immediate vicinity of the sleeping loft but in the room to which the sleeping loft is open.

907.2.11 Single- and multiple-station smoke alarms.
Listed *and labeled* single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.7 and NFPA 72 and the manufacturer's instructions.

907.2.11.1 Group R-1. Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:
1. In each room used for sleeping purposes ~~areas~~.
2. In every room in the path of the *means of egress* from the sleeping area to the door leading from the *sleeping unit*.
3. In each story within the *sleeping unit*, including *basements*. For *sleeping units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. In the sleeping loft or within the room to which a sleeping loft is open, in the immediate vicinity of the sleeping loft.

907.2.11.2 Groups R-2, R-3, R-4 and I-1. Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and I-1 regardless of *occupant load* at all of the following locations:
1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of the bedrooms.
2. In each room used for sleeping purposes.
3. In each story within a *dwelling unit*, including *basements* but not including crawl spaces and uninhabitable attics. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.
4. In the sleeping loft or within the room to which a sleeping loft is open, in the immediate vicinity of the sleeping loft.

Reason Statement
Occupants utilizing a sleeping loft should be protected with a smoke alarm. Smoke alarms are required to be installed within in the sleeping loft or in the “immediate vicinity” of the sleeping loft as a compliance option.

This language correlates with requirements in the 2024 IRC as revised by RB153-22 (AM/AMPC 1, 2 & 3).

The loft requirement is not applicable to R-Occupancies or I-2 Occupancies regulated by the IBC/IFC, as that requirement in the IRC (Section R314.3 Location) is specific to design features for lofts in IRC regulated buildings.

Cost impact:

2024 IFC/IBC
Proposal to match 2024 IRC
Approved by F-CAC WG 2 Oct 17th

The cost may be increased by the requirement to add one or more smoke alarms where sleeping lofts are provided. Cost estimate would not exceed $100 for the purchase of the smoke alarm and installation.

(G112-21 Part 1 D/AMPC2) editorial changes

APPENDIX P
SLEEPING LOFTS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User note:

About this appendix: *Appendix P proposal provides allowances for, and limitations on, spaces intended to be used as sleeping lofts, while differentiating these spaces from mezzanines and other habitable spaces.*

Code development reminder: *Code change proposals to sections in this appendix will be considered by the IBC-General Code Development Committee during the 2025 (Group B) Code Development Cycle.*

SECTION P101
GENERAL

P101.1 General. Where provided in Group R occupancies, sleeping lofts shall comply with the provisions of this code, except as modified by this appendix. Sleeping lofts constructed in compliance with this appendix shall be considered a portion of the story below. Such sleeping lofts shall not contribute to either the building area or number of stories as regulated by Section 503.1. The sleeping loft floor area shall be included in determining the fire area.

The following sleeping lofts are exempt from compliance with this appendix:

1. Sleeping lofts with a maximum depth of less than 3 feet (914 mm).
2. Sleeping lofts with a floor area of less than 35 square feet (3.3 m2).
3. Sleeping lofts not provided with a permanent means of egress.

P101.2 Sleeping loft limitations. Sleeping lofts shall comply with the following:

1. The sleeping loft floor area shall be less than 70 square feet (6.5 m^2).
2. The sleeping loft ceiling height shall not exceed 7 feet (2134 mm) for more than one half of the sleeping loft floor area.

The provisions of this appendix shall not apply to sleeping lofts that do not comply with Items 1 and 2.

P101.3 Sleeping loft ceiling height. The clear height below the sleeping loft floor construction shall be not ~~be~~ less than 7 feet (2134 mm). The ceiling height above the finished floor of the sleeping loft shall be not ~~be~~ less than 3 feet (914 mm). Portions of the sleeping loft with a sloped ceiling measuring less than 3 feet (914 mm) from the finished floor to the finished ceiling shall not contribute to the sleeping loft floor area.

P101.4 Sleeping loft area. The aggregate area of all sleeping lofts and mezzanines within a room shall comply with Section 505.2.1.

Exception: The area of a single sleeping loft shall not be greater than two-thirds of the area of the room in which it is located, provided that no other sleeping lofts or mezzanines are open to the room in which the sleeping loft is located.

SECTION P102
DEFINITIONS

P102.1 General. The following ~~words and~~ term~~s~~ shall, for the purposes of this appendix, have the meaning~~s~~ shown herein. Refer to Chapter 2 ~~of this code~~ for general definitions.

SLEEPING LOFT. A space on an intermediate level or levels between the floor and ceiling of a Group R occupancy dwelling or sleeping unit, open on one or more sides to the room in which the sleeping loft is located.

SECTION P103
MEANS OF EGRESS

P103.1 General. Where a permanent means of egress is provided for sleeping lofts, the means of egress shall comply with Chapter 10 of this code, as modified by Sections P103.2 through P103.6.

P103.2 Ceiling height at sleeping loft means of egress. A minimum ceiling height of 3 feet (914 mm) shall be provided for the entire width of the means of egress from the sleeping loft.

P103.3 Stairways. Stairways providing egress from sleeping lofts shall be permitted to comply with Sections P103.3.1 through P103.3.3.

P103.3.1 Width. Stairways providing egress from a sleeping loft shall not be less than 17 inches (432 mm) in clear width at or above the handrail. The width below the handrail shall be not less than 20 inches (508 mm).

P103.3.2 Treads and risers. Risers for stairs providing egress from a sleeping loft shall be not less than 7 inches (178 mm) and not more than 12 inches (305 mm) in height. Tread depth and riser height shall be calculated in accordance with one of the following formulas:

1. The tread depth shall be 20 inches (508 mm) minus four-thirds of the riser height.
2. The riser height shall be 15 inches (381 mm) minus three-fourths of the tread depth.

P103.3.3 Landings. Landings at stairways providing egress from sleeping lofts shall comply with Section 1011.6, except that the depth of landings in the direction of travel shall be not less than 24 inches (508 mm).

P103.4 Alternating tread devices. Alternating tread devices shall be permitted as a means of egress from sleeping lofts, where the sleeping loft floor is no more than 10 feet (3048 mm) above the floor of the room to which it is open. Handrails and treads of such alternating tread devices shall comply with Section 1011.14.

P103.5 Ship's ladders. Ship's ladders shall be permitted as a means of egress from sleeping lofts where the sleeping loft floor is no more than 10 feet (3048 mm) above the floor of the room to which it is open. Handrails and treads of such ship's ladders shall comply with Section 1011.15.

P103.6 Ladders. Ladders shall be permitted as a means of egress from sleeping lofts where the sleeping loft floor is no more than 10 feet (3048 mm) above the floor of the room to which it is open. Such ladders shall comply with Sections P103.6.1 and P103.6.2.

P103.6.1 Size and capacity. Ladders providing egress from sleeping lofts shall have a rung width of not less than 12 inches (305 mm), and 10-inch (254 mm) to 14-inch (356 mm) spacing between rungs. Ladders shall be capable of supporting a 300-pound (136 kg) load on any rung. Rung spacing shall be uniform within 3/8 inch (9.5 mm).

P103.6.2 Incline. Ladders shall be inclined at 70 to 80 degrees from horizontal.

SECTION P104
GUARDS

P104.1 General. Guards complying with Section 1015 ~~of this code~~ shall be provided at the open sides of sleeping lofts.

Exception: The guard height at sleeping lofts shall be permitted to be 36 inches (914 mm) where the ceiling height of the sleeping loft is 42 inches (1067 mm) or less.

SECTION P105
SMOKE ALARMS

P105.1 General. ~~Listed~~ single- or multiple-station smoke alarms ~~complying~~ listed and labeled in accordance with UL 217 shall be installed in all sleeping lofts ~~.~~ or in the room to which the sleeping loft is open, in the immediate vicinity of the sleeping loft.

Added section for referenced standard in Section 105.1

SECTION P106
REFERENCED STANDARDS

P106.1 General. See Table P106.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title~~,~~ and the section or sections of this appendix ~~referenced in~~ referencing the standard.

TABLE P106.1
REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTION HEREIN REFERENCED
UL 217 - 2015	*Single and Multiple Station Smoke Alarms – with Revisions through April 2021*	P105.1