

Commercial Building Roundtable/Code Panel Q&A

{ 2015 Inspector Association Winter Update

Question 1: I have a client who wishes to convert their existing barn into an assembly facility that they could rent out for weddings, class reunions, etc. They would not serve alcoholic beverages, but the renters could provide them. Same with food service, not provided by the owners but could be catered in by renters. There is no indoor plumbing. Portable toilets would be provided for events. There would be no fire suppression system. No HVAC system, just natural ventilation and operated seasonally. Is this permissible? Are there special codes for this type of facility? Thank you in advance for your reply!



Answer 1: Per SPS 366.0101(2)(a) where a building or portion of a building that has not been previously occupied or used as a public building or place of employment is to be changed to an occupancy or use that constitutes a public building or place of employment, the building or portion thereof shall comply with the IBC for new construction.

The building would have to meet all of the current requirements of the IBC, including structural, accessibility, fire suppression, egress, and mechanical to name a few of the large items.

Question 2: Is it possible to connect to adjacent buildings on separate parcels owned by the same owner. The owner would like to create a small building between his two existing buildings that would allow for forklift and walking traffic but would like to maintain separate parcels for business purposes. I know Chapter 6 discusses the distance from property lines, however is something possible using firewalls or party walls?

Answer 2: A building would not be permitted to cross a property line as compliance with table 602 and/or section 706.1.1 would be required. Where two buildings intersect at a property line a party wall constructed without openings would be required to separate the buildings. To obtain what you have described would require a petition. Alternatively, the connector between the buildings could be constructed as a pedestrian access structure meeting the requirements of IBC S. 3104.

Question 3: Recently we have heard that in Wisconsin at least some inspectors have been flagging installations in which valves we would believe are in full compliance have been installed on the basis that the valve handle color, sighting that yellow does not meet WI code. The only feedback we have been able to get are second hand reports that if the gas ball valve does not have a "Red" handle sleeve it will not be allowed for use in a gas installation in spite of having the required CSA approvals. Does Wisconsin have gas codes regulations that are over and beyond the ICC – 2012 International Fuel Gas Code, that would mandate the use of red handles on gas valves?



Answer 3: The State of Wisconsin adopts NFPA 54 in lieu of chapter 4 of the IFGC see SPS 365.0400 for reference. However in NFPA 54 there is no requirement that a gas shut off valve be of a certain color just that the valve be readily identifiable. Local municipalities may have a local code amendment that would require a certain colored valve. You would need to check with the local inspector who is requiring the red handle to see what code is being cited.

Question 4: I can't find the chart that tells what size commercial building requires plan review. Does a storage building (electric only will be going into it) that is 96,000 cubic feet, require state plan review?

Answer 4: Yes a storage building that is 96,000 cubic feet would require plan review. Plan review submittal thresholds are called out in table SPS 361.30-1

Buildings Exempt from Plan Review

Building Type or Occupancy exempt from	Building Description
Assembly Group A-2, A-3	Containing less than 25,000 cubic feet
Business Group	
B Factory Group	
F Mercantile	
Group M	
Storage Group S	
Utility and Miscellaneous	
Group U	

Question 5: How do I determine building volume?



Answer 5: Volume is based on the actual cubic space enclosed within the outer surfaces of the building including attics, basements, crawl spaces, enclosed porches, and garages. Below from the Department website Q&A

⌘ **How is building volume measured for purposes of Signature and Seal requirements for commercial building plan submittal?**

⌘ Answer: Volume (total). The "total volume" (cube or cubage) of a building is the actual cubic space enclosed within the outer surfaces of the outside or enclosing walls and contained between the outer surfaces of the roof and the underside of the lowest floor. The volume of structures without enclosing walls (canopies, roofed shelters and similar structures) will be computed by projecting imaginary vertical planes as the enclosing walls at the outer surface of the exterior supports or columns. For cantilevered structures with interior supports, the imaginary vertical planes will be projected at the farthest roof projection or overhang.

⌘ Note: The definition of total volume requires the cube of dormers, penthouses, vaults, pits, enclosed porches and other enclosed appendages to be included as a part of the cube of the building. It does not include the cube of courts or light shafts, open at the top, or the cube of outside steps, cornices, parapets, or decks. (October 2013)

Question 6: When do bleachers need to be submitted to the Department for plan review and approval?



Answer 6: All assembly seating facilities located within a public building or place of employment and all exterior assembly seating facilities with more than five rows in height of seating are required to be submitted for review. 361.30 (2)

Question 7: For a building between 25,000 and 50,000 cubic feet in volume: Is such a building still exempt from plan review if supervised by a licensed Engineer or Architect? Where in the code is this found?

Answer 7: No, table 61.30-2 in the previous code which had allowed registration of buildings was removed September 1st 2011.

Question 8: When are construction documents for a new building or addition that are submitted for review required to be signed and sealed by a licensed individual?

Answer 8: When the total volume of a building exceeds 50,000 cubic feet construction documents that are submitted for review to the department or its authorized representative shall be prepared, signed and sealed in accordance with State Statute Ch. 443, Stats., and S A-E 2.02.

Question 9: When are construction documents for an alteration that are submitted for review required to be signed and sealed by a licensed individual?

Answer 9: When the total volume of the building exceeds 50,000 cubic feet and the alteration is a structural alteration or affects the health or safety of the building the construction documents that are submitted for review to the department or its authorized representative shall be prepared, signed and sealed in accordance with State Statute Ch. 443, Stats., and S. A-E 2.02.

Question 10: We have several CBRF's coming in shortly. They vary from 5-8 beds. The contractor believes that this would fall under UDC, but I don't see the exception in 361.02. I believe it would be under IBC. Can you let me know if there is an exception for CBRF's with 8 persons or less or what the cutoff would be to be under UDC requirements? I'm just checking if I missed something or what. I would rather get it correct now than fix something later.

Answer 10: Please review SPS 362.0400 (4) which would clarify that CBRF's with 5-8 occupants would be under the UDC.

COMMUNITY-BASED RESIDENTIAL FACILITIES. A newly constructed building or portion thereof that is a community-based residential facility serving 5 to 8 unrelated adults shall comply with chs. SPS 320 to 325 instead of all other requirements of this code.

Question 11: I am designing an unoccupied mini-warehouse building with roll up doors only. Is it required that I make some of the units accessible and where would I find this in the code?



Answer 11: Please refer to IBC 1108.3. If more than one type of unit is offered, per IBC 1108.3.1 units shall be dispersed throughout the various classes of units provided. For requirements as to what constitutes accessibility, note ICC/ANSI A117.1 Section 303 Changes in Level; Section 404 Doors and Doorways; and Chapter 5 General Site and Building Elements.

Question 12: We have a 1,608 SF tenant build out that is going into a strip mall. According to IBC 29. 2902.1, a drinking fountain is required. Our occupancy type is Business. Can we provide a bottled water dispenser in lieu of the drinking fountain? If so, please cite what code section this pertains to.

Answer 12: SPS 362.2902(1)(a)2. States, "Where water is served in restaurants or where other acceptable arrangements are made to provide drinking water, drinking fountains are not required."

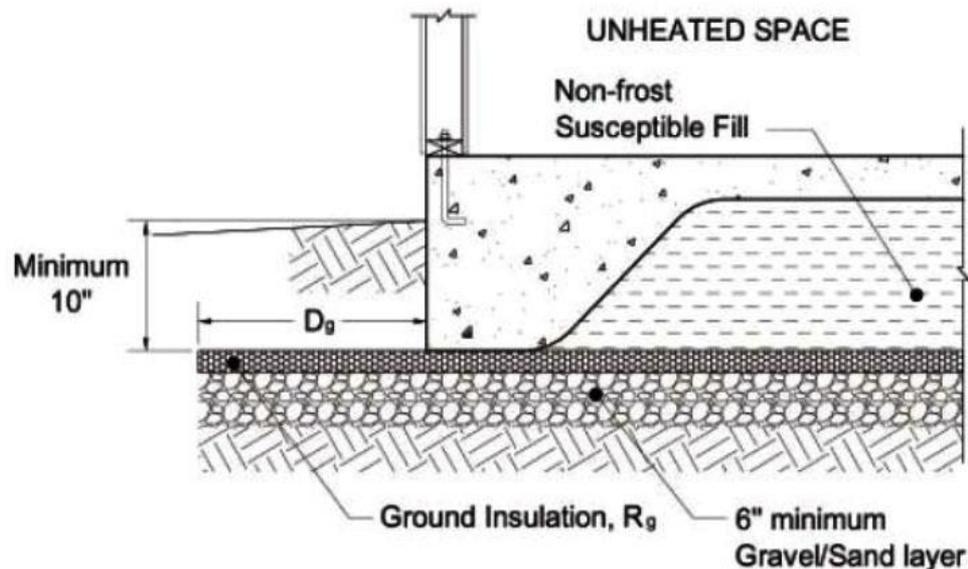


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The Dept. has recognized the use of bottled water, as well as break room sinks assuming that there is water always available, means of access to the water can be shown to meet accessibility requirements for lavatories and sinks as well as reach ranges addressed in ANSI A117.1-2003 sections 606 & 308 respectively, AND the owner retains a constant supply of accessible clean/sanitary cups available where the water is to be obtained, with an appropriate waste receptacle for cup disposal after each cup use.

Question 13: Speaking with Architects that participated in the code refresher in February of 2013. I was told that if we put 12" of clean stone under a proposed unheated building foundation we do not need to follow ASCE 32 and insulate under the entire foundation. Is this correct?

- Unheated Buildings (unconditioned $<41^{\circ}\text{F}$)



Answer 13: No, using ASCE 32 Section 4.1 method 1 of providing a non-frost susceptible soil layer the required depth of the layer of clean stone must be calculated and included in meeting the design frost depth defined in Section 3.2. The design frost depth is the minimum depth at which the soil temperature remains above freezing for an extreme winter event based on analysis, local regulations, or experience.

Question 14: Is compliance with ASCE 32 the ONLY acceptable way of providing frost protection for grade beam foundations (other than the exceptions listed in the IBC) in Wisconsin?

Answer 14: IBC 1809.5 states ...Except where otherwise protected from frost, foundations of buildings shall be protected from frost by one or more of the following methods:

Extending below the frost line of the locality
Constructing in accordance with ASCE 32; or
Erecting on solid rock

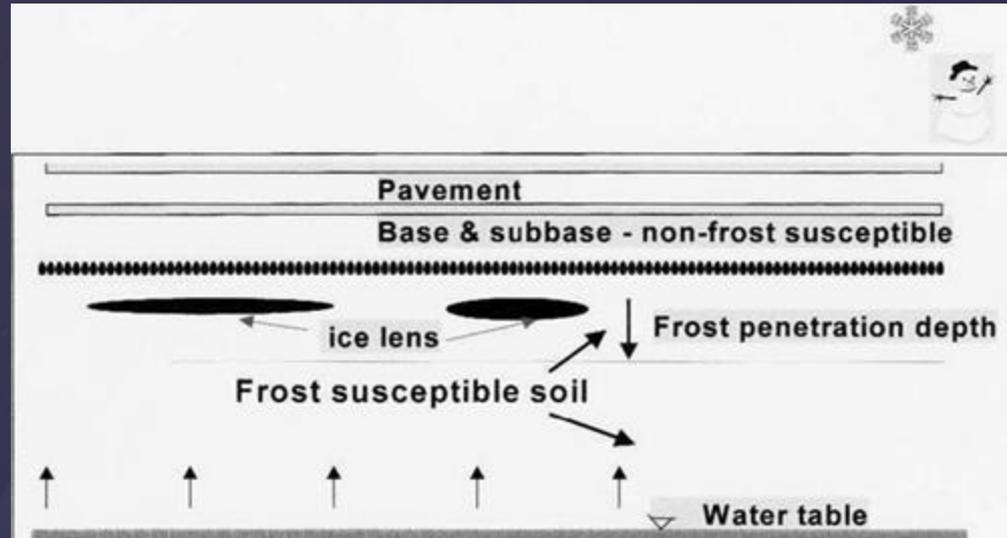
Methods 1 and 3 will not typically be viable in WI for a grade beam foundation thus ASCE 32 is the common method of providing frost protection. 3 things must be present in order for frost heave to occur: freezing temperatures, moisture, and frost susceptible soil. Removing one or more of these will mitigate the potential for frost heave. In most instances removing moisture from the soil or site is not practical.

Therefore, ASCE 32 s. 4.1 provides 3 design methods for a frost protected shallow foundation:

1. use of non-frost susceptible layers of undisturbed ground or fill materials (s. 4.2)
2. insulation of foundations to mitigate frost penetration (s. 4.3)
3. approved design and details supported by engineering analysis

For method 1 ASCE 32 defines non-frost susceptible soil: A soil that does not display significant detrimental ice segregation during freezing. Generally, granular soils with less than 6% by mass passing a #200 sieve have a low frost susceptibility, whereas silts and clays or sands and gravels with high fines content generally have medium to high frost susceptibility. Using the Unified Soil Classification system the following soil types are generally recognized as being non-frost susceptible: GW, GP, SW, and SP which are well or poorly graded CLEAN gravels, sands, and gravel sand mixtures. The non-frost susceptible undisturbed granular soil or fill material must have the thickness of such layer included in meeting the design frost depth defined in Section 3.2 which in WI may require the soil layer to be in the range of 2 ½ - 7' thick.

Source: Federal Highway Administration -
www.fhwa.dot.gov/engineering/geotech/pubs/05037/07c.cfm



The conditions associated with a high frost hazard potential include:

1. A water table within 3 m (10 ft) of the pavement surface (depth of influence depends on the type of soil and frost depth).
2. Observed frost heaves in the area.
3. Inorganic soils containing more than 3% (by weight) or more grains finer than 0.02 mm (0.8 mils) in diameter according to the U.S. Army Corps of Engineers.
4. A potential for the ponding of surface water and the occurrence of soils between the frost zone beneath the pavement and the surface water with permeabilities high enough to enable seepage to saturate soils within the frost zone during the term of ponding.

The conditions associated with a low frost hazard potential include:

1. A water table greater than 6 m (20 ft) below the pavement surface (again, could be much shallower depending on the type of soil and frost depth).
2. Natural moisture content in the frost zone low versus the saturation level.
3. Seepage barriers between the water supply and the frost zone.
4. Existing pavements or sidewalks in the vicinity with similar soil and water supply conditions and without constructed frost protection measures that have not experienced frost damage.
5. Pavements on embankments with surfaces more than 1 - 2 m (3 - 6 ft) above the adjacent grades (provides some insulation and a weighting action to resist heave).

Question 15: I am attempting to design a two story six unit residential townhome that is provided with two hour separation walls between units and not provided with a sprinkler system. I recently heard that the requirements on townhomes have changed could you verify what has changed?

Answer 15: Yes the townhome requirements have changed effective 7-1-14, the current requirements include a one hour separation between units and the units must be protected with a NFPA 13-D sprinkler system. See code section 362.0903 (5)

Question 16: We are altering a VB unsprinkled B occupancy and the new corridors will need to be rated per 1018.1. Can we build the corridor walls on top of the existing unprotected wood floor/basement ceiling system without modification to the floor system below? Do we need to provide fire-resistance rated supports below the corridor walls?

Answer 16: Yes you may construct those rated corridor walls on top of the unrated floor in that Type VB commercial building as noted IBC section 709.4. The supporting construction of the floor would also not have to be rated.

Question 17: Are there any regulations for baseball field “dugouts”?



Answer 17: A dug out would be considered a public building and be subject to the Commercial Building Code. Typically they are small enough that they would not need to be submitted for review. One item to keep in mind would be the requirements of IBC section 1108.2.2.4 which would require an accessible route to the team or player seating area.

Question 18: I am working on a project where we would like to include a single-use unisex restroom for employee convenience (Business or Mercantile Occupancy). The restroom would be for the use of less than 10 employees in a “back-of-house” area, and it is not a required restroom (other Mens and Womens, multi-fixture restrooms would exist for public use, as well as employee use). Does the non-required restroom need to be ADA accessible?

Answer 18: Yes. IBC 1109.2 Toilet and bathing facilities states each toilet room and bathing room shall be accessible. IBC 1109.2 exception 3 allows exception for toilet rooms that are clustered at a single location, but since the toilet room is in a “back-of-house” area, this exception doesn’t apply.

Question 19: I have a question regarding the use of a platform lift or limited use/limited application elevator. If required to add an elevator per the disproportionality of a project in an existing facility, would the addition of a platform lift or limited use/limited application elevator meet the accessibility requirements?

Answer 19: IEBC 605.1.3 would allow the use of a platform lift as a component of an accessible route as long as it is located in the existing facility.

A limited use/limited application elevator is allowed by the IBC for new construction or existing construction; however, a stretcher sized elevator is required between 2 stories for R2, institutional and outpatient clinic and ambulatory health care facility per SPS 362.3002(1)

What is a LULA Elevator?

- ⊙ Limited Use, Limited Application
- ⊙ 25 feet (7.6 m) maximum travel*
- ⊙ 18 square feet (1.67 m²) maximum car size
- ⊙ 30 feet per minute maximum speed*
- ⊙ 1400 lbs. (635 Kg) maximum load capacity

Applications: Residential, commercial, indoors, outdoors

Standard Capacity: 750 lb (340 kg)

Maximum Travel Distance: 23' (7 m), subject to local code, in some areas the maximum is 12' (3.65 m)

Nominal Speed: 20 ft/min (0.1 m/s)

Drive/Motor: 2:1 chain hydraulic, 3 hp, gear-type motor

Minimum Pit: 3" (76.2 mm)

Power Supply: 110 volts, 20 amp, single phase, 60 Hz



Question 20: I have an entrance to a new building where the grade is such that I need to make a concrete stoop that is 4 1/2" above the grade. This is one of my two required exits. Does this entrance need to be accessible?

Answer 20: Yes 1105.1 would require the entrance to be accessible unless the entrance met one of the exceptions to 1105.1.

1105.1 In addition to accessible entrances required by Sections 1105.1.1 through 1105.1.6, at least 60 percent of all public entrances shall be accessible.

Exceptions:

1. An accessible entrance is not required to areas not required to be accessible.
2. Loading and service entrances that are not the only entrance to a tenant space.

Question 21: Question: I am remodeling a large portion of a building; does the whole building have to meet the requirements of the International Energy Conservation Code?

Answer 21: The entire building would not need to meet the requirements of the IECC however all altered elements unless meeting an exception shall comply with the requirements of the IECC. See DSPS 366.0607

Question 22: I have a F-1 occupancy with a large footprint but most of the building has equipment in it, when I do my plumbing fixture count based on square footage my occupant load is way higher than my actual occupant load. Is there anything I can do to lessen my occupant load number and therefore fixture count?

Answer 22: DSPS allows a letter from the Owner on Owner letterhead explaining the actual maximum occupant load of the building both employees and visitors/clients along with overlapping shifts and your plumbing fixture count is based on that maximum occupant load if it is determined by the plan reviewer to be reasonable.

Question 23: I am installing a new break room in my building and was told that it may have to meet some accessibility standards is that true and what should I design for?



Answer 23: Yes, break rooms are required to be accessible. IBC section 1109.4 requires that kitchen and kitchenettes provided in accessible rooms or spaces shall comply with the ANSI A117.1 accessibility standard. ANSI A117.1 section 804 details the accessibility requirements of kitchens.

Question 24: When providing a shower that is not inside of a Type B dwelling unit, can the shower be larger than 36" wide by 36" deep inside finished dimension and still be considered a Transfer-Type shower compartment?

Answer 24: A shower that is not located within a Type B dwelling unit is subject to more stringent criteria than a shower within a Type B dwelling unit because of the intended flexibility of the fair housing laws. Accordingly, to be recognized as a Transfer-Type shower compartment, the shower must meet all of the provisions specified in section 608.2.1 of the ICC/ANSI standard. The compact size specified provides a configuration that when coupled with all the other requirements associated with such things as grab bars, seat and shower controls, is routinely recognized and accepted as being usable. A larger compartment can be recognized as a Transfer-type provided the controls, grab bars and seat are situated and configured such that it provides the same characteristics as would exist in the specified shower compartment. Important characteristics are the seat back and seat location that must be situated to provide support for the person that has transferred to the seat while also meeting the reach provisions associated with the grab bars and shower controls. Due to the complexity associated with such designs, when a larger shower compartment is being proposed as a Transfer-Type shower compartment, the design must be approved by the code official and documented as such. If not approved as a Transfer-Type shower compartment, the larger compartment is considered a Roll-In-Type shower compartment and subject to the requirements of ICC/ANSI A117.1 section 608.2.2 or section 608.2.3.

Question 25: Scenario: Existing building constructed before the adoption of the IBC. The building has existing corridors that are not rated, however if the building was constructed today the occupant load of the corridors would dictate that they be constructed of one hour construction per IBC table 1018.1.

Question: When remodeling the building if new doors or openings are added to the corridor would they be required to be rated?

Answer 25: No, as long as a new corridor is not being constructed the new doors would not have to be rated. IEBC section 701.3 would require new construction elements to comply with the current IBC requirements. In this example the corridor is not a new element the door is. Therefore a rating would not be required for the door. The door would need to comply with IBC section 1008.