



Fire Suppression Services Incorporated  
3802 South 2300 East, Salt Lake City, UT 84109. Ph (801) 277-6464

## Wet Suppression & Non-Combustible spaces

TRAINING

### NFPA-13 and Permissible Sprinkler Omissions

#### Ref:

Various extracts from NFPA-13 and NFPA Discussion Boards. **Commercial.**  
(I have OMMITTED references to RESIDENTIAL 13-R/13-D)

#### Brief: it comes down to **Occupancy & the Material**

Eave or Overhang: Light Ordinary Hazard: No Combustibles within or underneath: No Sprinklers

#### Detail:

##### Per NFPA-13 Installation of Sprinkler Systems

Not every space in a structure is required to be protected by sprinklers

##### Non-Occupied or Concealed spaces

The starting point for all designers, installers, and enforcers who are trying to determine if sprinklers are required in a specific concealed space is that concealed spaces should be sprinkled, unless Section 8.15.1 of the 201x edition of NFPA 13 provides alternate direction.

It discusses:

- Concealed Spaces Requiring Sprinkler Protection
- Concealed Spaces NOT Requiring Sprinkler Protection

#### 8.15 Special Situations.

##### 8.15.1 Concealed Spaces.

##### 8.15.1.1 Concealed Spaces Requiring Sprinkler Protection.

Concealed spaces of exposed combustible construction shall be protected by sprinklers except in concealed spaces where sprinklers are not required to be installed by 8.15.1.2.1 through 8.15.1.2.18 and 8.15.6.

##### 8.15.1.2\* Concealed Spaces Not Requiring Sprinkler Protection.

8.15.1.2.1\* Concealed spaces of noncombustible and limited combustible construction with minimal combustible loading having no access shall not require sprinkler protection.

8.15.1.2.1.1 The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.

8.15.1.2.2 Concealed spaces of noncombustible and limited combustible construction with limited access and not permitting occupancy or storage of combustibles shall not require sprinkler protection.

One of the distinctions this section makes is the type of construction that is used to form the concealed space. Concealed spaces that are constructed of noncombustible or limited combustible material are not required to be protected with automatic sprinklers, provided there is minimal combustible loading and no access to the space.

The presence of combustible loading increases the potential for fire growth within the space and would therefore necessitate sprinkler protection.

Where access is provided to these spaces, it is common for building occupants to use them for storage, creating a fuel load that would otherwise not be present in the noncombustible space.

#### Inside + Outside

Sprinkler omissions are not limited to combustible concealed spaces.



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Stair shafts of noncombustible construction are permitted to have sprinkler protection only at the top of the shaft and underneath the first access landing above the bottom of the shaft.

Other spaces that may remain un-sprinkled include spaces beneath ground floors, exterior decks, and platforms.

Sprinklers can be omitted from these spaces provided they are not accessible for storage, contain no equipment such as conveyors or fuel-fired heating units, the floor above is not used for handling or storing combustible or flammable liquids, and the floor construction is tight.

Sprinklers can be omitted from several exterior spaces as well. Canopies, balconies, decks, roofs, and porte-cocheres that are constructed of noncombustible materials, limited combustible materials, or fire-retardant-treated wood need not have sprinkler protection.

Another outdoor space from which sprinklers can be omitted is an exterior exit corridor where the exterior walls of the corridor are at least 50 percent open and the corridor is entirely constructed of noncombustible material. This is a very common egress system for motels and apartment buildings.

And:

**A.8.15.7.5** Short-term transient storage, such as that for delivered packages, and the presence of planters, newspaper machines, and so forth, should not be considered for storage or handling of combustibles. The presence of combustible furniture on balconies for occupant use should not require sprinkler protection.

I have attached extract

### 8.13.2 Type of In-Rack Sprinklers.

**8.13.2.1** Sprinklers in racks shall be ordinary-temperature standard-response or quick-response classification with a nominal K-factor of K-5.6 (80), K-8.0 (115), or K-11.2 (160), pendent or upright.

**8.13.2.2** Sprinklers with intermediate- and high-temperature ratings shall be used near heat sources as required by 8.3.2.

### 8.13.3 In-Rack Sprinkler Water Shields.

**8.13.3.1 In-Rack Sprinkler Water Shields for Storage of Class I Through Class IV Commodities.** Water shields shall be provided directly above in-rack sprinklers, or listed intermediate level/rack storage sprinklers shall be used where there is more than one level, if not shielded by horizontal barriers. (See Section C.3.)

**8.13.3.2 In-Rack Sprinkler Water Shields for Plastic Storage.** Where in-rack sprinklers are not shielded by horizontal barriers, water shields shall be provided above the sprinklers, or listed intermediate level/rack storage sprinklers shall be used.

**8.13.4 Location, Position, and Spacing of In-Rack Sprinklers.** The location, position, and spacing of in-rack sprinklers shall comply with the requirements in Chapters 12 through 20 as applicable.

**8.13.4.1 Minimum Distance Between In-Rack Sprinklers.** In-rack sprinklers shall be permitted to be placed less than 6 ft (1.8 m) on center.

**8.13.5 Obstructions to In-Rack Sprinkler Discharge.** In-rack sprinklers shall not be required to meet the obstruction criteria and clearance from storage requirements of Section 8.5.

### 8.14 Pilot Line Detectors.

**8.14.1** Pilot line detectors and related components including pipe and fittings shall be corrosion resistant when installed in areas exposed to weather or corrosive conditions.

**8.14.2** Where subject to mechanical or physical damage, pilot line detectors and related detection system components shall be protected.

**8.14.3** Where spray sprinklers are used as pilot line detectors, they shall be installed in accordance with Section 8.14 and the spacing and location rules of Section 8.6, except that the obstruction to water distribution rules for automatic sprinklers shall not be required to be followed.

**8.14.3.1** Where located under a ceiling, pilot sprinklers shall be positioned in accordance with the requirements of Section 8.6.

**8.14.4** The temperature rating of spray sprinklers utilized as pilot line detectors shall be selected in accordance with 8.3.2.

**8.14.5** Maximum horizontal spacing for indoor locations shall not exceed 12 ft (3.7 m).

**8.14.6** Pilot line detectors shall be permitted to be spaced more than 22 in. (559 mm) below a ceiling or deck where the maximum spacing between pilot line detectors is 10 ft (3 m) or less.

**8.14.6.1** Other maximum horizontal spacing differing from those required in 8.14.5 shall be permitted where installed in accordance with their listing.

**8.14.7** Pilot line detectors located outdoors, such as in open process structures, shall be spaced such that the elevation of a

single level of pilot line detectors and between additional levels of pilot line detectors shall not exceed 17 ft (5.2 m).

**8.14.8** The maximum distance between pilot line detectors installed outdoors shall not exceed 8 ft (2.5 m).

**8.14.8.1** The horizontal distance between pilot line detectors installed outdoors on a given level shall be permitted to be increased to 10 ft (3 m) when all of the following conditions are met:

- (1) The elevation of the first level does not exceed 15 ft (4.6 m).
- (2) The distance between additional levels does not exceed 12 ft (3.7 m).
- (3) The pilot line actuators are staggered vertically.

**8.14.8.2** Alternate vertical spacing of pilot line detectors differing from those required in 8.14.8.1 shall be permitted where installed in accordance with their listing.

**8.14.9** Pilot line detectors located in open-sided buildings shall follow the indoor spacing rules.

**8.14.9.1** A row of pilot line detectors spaced in accordance with the outdoor pilot line detector spacing rules shall be located along the open sides of open-sided buildings.

**8.14.9.2** Pilot line detectors located under open gratings shall be spaced in accordance with the outdoor rules.

**8.14.9.3** Where two or more adjacent water spray systems in one fire area are controlled by separate pilot line detector systems, the detectors on each system shall be spaced independently as if the dividing line between the systems were a wall or draft curtain.

**8.14.9.4** Where pilot line detectors are installed in water cooling tower applications, they shall be in accordance with Section 22.21.

**8.14.10** Pipe supplying pilot line detectors shall be permitted to be supported from the same points of hanger attachment as the piping system it serves.

**8.14.10.1** Pipe supplying pilot line detectors shall not be required to meet the requirements of 9.3.5.

### 8.15 Special Situations.

#### 8.15.1 Concealed Spaces.

**8.15.1.1 Concealed Spaces Requiring Sprinkler Protection.** Concealed spaces of exposed combustible construction shall be protected by sprinklers except in concealed spaces where sprinklers are not required to be installed by 8.15.1.2.1 through 8.15.1.2.18 and 8.15.6.

#### 8.15.1.2\* Concealed Spaces Not Requiring Sprinkler Protection.

**8.15.1.2.1\*** Concealed spaces of noncombustible and limited-combustible construction with minimal combustible loading having no access shall not require sprinkler protection.

**8.15.1.2.1.1** The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.

**8.15.1.2.2** Concealed spaces of noncombustible and limited-combustible construction with limited access and not permitting occupancy or storage of combustibles shall not require sprinkler protection.



**8.15.1.2.2.1** The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.

**8.15.1.2.3** Concealed spaces formed by studs or joists with less than 6 in. (152 mm) between the inside or near edges of the studs or joists shall not require sprinkler protection. (See Figure 8.6.4.1.5.1.)

**8.15.1.2.4** Concealed spaces formed by bar joists with less than 6 in. (152 mm) between the roof or floor deck and ceiling shall not require sprinkler protection.

**8.15.1.2.5\*** Concealed spaces formed by ceilings attached directly to or within 6 in. (152 mm) of wood joist or similar solid member construction shall not require sprinkler protection.

**8.15.1.2.6\*** Concealed spaces formed by ceilings attached to composite wood joist construction either directly or onto metal channels not exceeding 1 in. (25.4 mm) in depth, provided the joist channels are firestopped into volumes each not exceeding 160 ft<sup>3</sup> (4.53 m<sup>3</sup>) using materials equivalent to the web construction and at least 3½ in. (90 mm) of batt insulation is installed at the bottom of the joist channels when the ceiling is attached utilizing metal channels, shall not require sprinkler protection.

**8.15.1.2.7** Concealed spaces filled with noncombustible insulation shall not require sprinkler protection.

**8.15.1.2.7.1** A maximum 2 in. (50 mm) air gap at the top of the space shall be permitted.

**8.15.1.2.8** Concealed spaces within wood joist construction and composite wood joist construction having noncombustible insulation filling the space from the ceiling up to the bottom edge of the joist of the roof or floor deck, provided that in composite wood joist construction the joist channels are firestopped into volumes each not exceeding 160 ft<sup>3</sup> (4.53 m<sup>3</sup>) to the full depth of the joist with material equivalent to the web construction, shall not require sprinkler protection.

**8.15.1.2.9** Concealed spaces over isolated small rooms not exceeding 55 ft<sup>2</sup> (5.1 m<sup>2</sup>) in area shall not require sprinkler protection.

**8.15.1.2.10** Concealed spaces where rigid materials are used and the exposed surfaces have a flame spread index of 25 or less, and the materials have been demonstrated not to propagate fire more than 10.5 ft (3.2 m) when tested in accordance with ASTM E 84, *Standard Test Method of Surface Burning Characteristics of Building Materials*, or ANSI/UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, extended for an additional 20 minutes in the form in which they are installed, shall not require sprinkler protection.

**8.15.1.2.11\*** Concealed spaces in which the exposed materials are constructed entirely of fire retardant-treated wood as defined by NFPA 703 shall not require sprinkler protection.

**8.15.1.2.12** Noncombustible concealed spaces having exposed combustible insulation where the heat content of the facing and substrate of the insulation material does not exceed 1000 Btu/ft<sup>2</sup> (11,356 kJ/m<sup>2</sup>) shall not require sprinkler protection.

**8.15.1.2.13** Concealed spaces below insulation that is laid directly on top of or within wood joists or composite wood joists used as ceiling joists in an otherwise sprinklered concealed space, with the ceiling attached directly to the bottom of the joists, shall not require sprinkler protection.

**8.15.1.2.14** Vertical pipe chases under 10 ft<sup>2</sup> (0.93 m<sup>2</sup>), where provided in multifloor buildings where the chases are firestopped at each floor using materials equivalent to the floor construction, and where such pipe chases shall contain no sources of ignition, piping shall be water-filled or noncombustible and pipe penetrations at each floor shall be properly sealed and shall not require sprinkler protection.

**8.15.1.2.15** Exterior columns under 10 ft<sup>2</sup> (0.93 m<sup>2</sup>) in area, formed by studs or wood joist supporting exterior canopies that are fully protected with a sprinkler system, shall not require sprinkler protection.

**8.15.1.2.16\*** Concealed spaces formed by noncombustible or limited-combustible ceilings suspended from the bottom of wood joists, composite wood joists, wood bar joists, or wood trusses that have insulation filling all of the gaps between the bottom of the trusses or joists, and where sprinklers are present in the space above the insulation within the trusses or joists, shall not require sprinkler protection.

**8.15.1.2.16.1** The heat content of the facing, substrate, and support of the insulation material shall not exceed 1000 Btu/ft<sup>2</sup> (11,356 kJ/m<sup>2</sup>).

**8.15.1.2.17\*** Concealed spaces formed by noncombustible or limited-combustible ceilings suspended from the bottom of wood joists and composite wood joists with a maximum nominal chord width of 2 in. (50.8 mm), where joist spaces are full of noncombustible batt insulation with a maximum 2 in. (50.8 mm) air space between the roof decking material and the top of the batt insulation shall not require sprinklers.

**8.15.1.2.17.1** Facing that meets the requirements for noncombustible or limited-combustible material covering the surface of the bottom chord of each joist and secured in place per the manufacturer's recommendations shall not require sprinklers.

**8.15.1.2.18 Soffits, Eaves, Overhangs, and Decorative Frame Elements.**

**8.15.1.2.18.1** Combustible soffits, eaves, overhangs, and decorative frame elements shall not exceed 4 ft 0 in. (1.2 m) in width.

**8.15.1.2.18.2** Combustible soffits, eaves, overhangs, and decorative frame elements shall be draftstopped, with a material equivalent to that of the soffit, into volumes not exceeding 160 ft<sup>3</sup> (4.5 m<sup>3</sup>).

**8.15.1.2.18.3** Combustible soffits, eaves, overhangs, and decorative frame elements shall be separated from the interior of the building by walls or roofs of noncombustible or limited-combustible construction.

**8.15.1.2.18.4** Combustible soffits, eaves, overhangs, and decorative frame elements shall have no openings or unprotected penetrations directly into the building.

**8.15.1.3 Concealed Space Design Requirements.** Sprinklers in concealed spaces having no access for storage or other use shall be installed in accordance with the requirements for light hazard occupancy.

**8.15.1.4 Heat-Producing Devices with Composite Wood Joist Construction.** Where heat-producing devices such as furnaces or process equipment are located in the joist channels above a ceiling attached directly to the underside of composite wood joist construction that would not otherwise require sprinkler protection of the spaces, the joist channel containing the heat-producing devices shall be sprinklered by installing sprinklers in each joist channel, on each side, adjacent to the heat-producing device.

**8.15.1.5 Localized Protection of Exposed Combustible Construction or Exposed Combustibles.** When otherwise noncombustible or limited-combustible concealed spaces that would not require sprinkler protection have localized exposed combustible construction, or contain localized areas of exposed combustibles, the combustibles shall be permitted to be protected as follows:

- (1) If the exposed combustibles are in the vertical partitions or walls around all or a portion of the enclosure, a single row of sprinklers spaced not over 12 ft (3.7 m) apart nor more than 6 ft (1.8 m) from the inside of the partition shall be permitted to protect the surface. The first and last sprinklers in such a row shall not be over 5 ft (1.5 m) from the ends of the partitions.
- (2) If the exposed combustibles are in the horizontal plane, the area of the combustibles shall be permitted to be protected with sprinklers on a light hazard spacing. Additional sprinklers shall be installed no more than 6 ft (1.8 m) outside the outline of the area and not more than 12 ft (3.7 m) on center along the outline. When the outline returns to a wall or other obstruction, the last sprinkler shall not be more than 6 ft (1.8 m) from the wall or obstruction.

**8.15.1.6** Sprinklers used in horizontal combustible concealed spaces (with a slope not exceeding 2 in 12) with combustible wood truss, wood joist construction, or bar joist construction having a combustible upper surface and where the depth of the space is less than 36 in. (914 mm) from deck to deck or with double wood joist construction with a maximum of 36 in. (914 mm) between the top of the bottom joist and the bottom of the upper joist shall be listed for such use.

**8.15.1.6.1** Sprinklers specifically listed to provide protection of combustible concealed spaces described in 8.15.1.6 shall be permitted to be used in accordance with 8.3.1.2 where the space is less than 12 in. (305 mm) from deck to deck.

**8.15.1.7** Sprinklers specifically listed to provide protection of combustible concealed spaces described in 8.15.1.6 shall be permitted to protect composite wood joist construction with a maximum of 36 in. (914 mm) between the top of the bottom joist and the bottom of the upper joist.

#### **8.15.2 Vertical Shafts.**

**8.15.2.1 General.** Unless the requirements of 8.15.2.1.1 or 8.15.2.1.2 are met, one sprinkler shall be installed at the top of shafts.

**8.15.2.1.1** Noncombustible or limited-combustible, nonaccessible vertical duct shafts shall not require sprinkler protection.

**8.15.2.1.2** Noncombustible or limited-combustible, nonaccessible vertical electrical or mechanical shafts shall not require sprinkler protection.

#### **8.15.2.2\* Shafts with Combustible Surfaces.**

**8.15.2.2.1** Where vertical shafts have combustible surfaces, one sprinkler shall be installed at each alternate floor level.

**8.15.2.2.2** Where a shaft having combustible surfaces is trapped, an additional sprinkler shall be installed at the top of each trapped section.

**8.15.2.3 Accessible Shafts with Noncombustible Surfaces.** Where accessible vertical shafts have noncombustible surfaces, one sprinkler shall be installed near the bottom.

#### **8.15.3 Stairways.**

**8.15.3.1 Combustible Construction.** Sprinklers shall be installed beneath all stairways of combustible construction.

**8.15.3.1.1** Sprinklers shall be installed at the top of combustible stair shafts.

**8.15.3.1.2\*** Sprinklers shall be installed under the landings at each floor level.

**8.15.3.1.3** Sprinklers shall be installed beneath the lowest intermediate landing.

#### **8.15.3.2 Noncombustible Construction.**

**8.15.3.2.1** In noncombustible stair shafts having noncombustible stairs with noncombustible or limited-combustible finishes, sprinklers shall be installed at the top of the shaft and under the first accessible landing above the bottom of the shaft.

**8.15.3.2.2** Where noncombustible stair shafts are divided by walls or doors, sprinklers shall be provided on each side of the separation.

**8.15.3.2.3** Sprinklers shall be installed beneath landings or stairways where the area beneath is used for storage.

**8.15.3.2.3.1** Sprinklers shall be permitted to be omitted from the bottom of the stairwell when the space under the stairs at the bottom is blocked off so that storage cannot occur.

**8.15.3.2.4** Sprinklers shall be permitted to be omitted from exterior stair towers when the exterior walls of the stair tower are at least 50 percent open and when the stair tower is entirely of noncombustible construction.

**8.15.3.3\* Stairs Serving Two or More Areas.** When stairs have openings to each side of a fire wall(s), sprinklers shall be installed in the stair shaft at each floor landing with multiple openings.

#### **8.15.4\* Vertical Openings.**

**8.15.4.1\* General.** Unless the requirements of 8.15.4.4 are met, where moving stairways, staircases, or similar floor openings are unenclosed and where sprinkler protection is serving as the alternative to enclosure of the vertical opening, the floor openings involved shall be protected by closely spaced sprinklers in combination with draft stops in accordance with 8.15.4.2 and 8.15.4.3.

**8.15.4.2 Draft Stops.** Draft stops shall meet all of the following criteria:

- (1) The draft stops shall be located immediately adjacent to the opening.
- (2) The draft stops shall be at least 18 in. (457 mm) deep.
- (3) The draft stops shall be of noncombustible or limited-combustible material that will stay in place before and during sprinkler operation.

#### **8.15.4.3 Sprinklers.**

**8.15.4.3.1** Sprinklers shall be spaced not more than 6 ft (1.8 m) apart and placed 6 in. to 12 in. (152 mm to 305 mm) from the draft stop on the side away from the opening.

**8.15.4.3.2** Where sprinklers are closer than 6 ft (1.8 m), cross baffles shall be provided in accordance with 8.6.3.4.2.

**8.15.4.4 Large Openings.** Closely spaced sprinklers and draft stops are not required around large openings such as those found in shopping malls, atrium buildings, and similar structures

where all adjoining levels and spaces are protected by automatic sprinklers in accordance with this standard and where the openings have all horizontal dimensions between opposite edges of 20 ft (6 m) or greater and an area of 1000 ft<sup>2</sup> (93 m<sup>2</sup>) or greater.

#### 8.15.5 Elevator Hoistways and Machine Rooms.

**8.15.5.1\*** Sidewall spray sprinklers shall be installed at the bottom of each elevator hoistway not more than 2 ft (0.61 m) above the floor of the pit.

**8.15.5.2** The sprinkler required at the bottom of the elevator hoistway by 8.15.5.1 shall not be required for enclosed, non-combustible elevator shafts that do not contain combustible hydraulic fluids.

**8.15.5.3** Automatic fire sprinklers shall not be required in elevator machine rooms, elevator machinery spaces, control spaces, or hoistways of traction elevators installed in accordance with the applicable provisions in NFPA 101, or the applicable building code, where all of the following conditions are met:

- (1) The elevator machine room, machinery space, control room, control space, or hoistway of traction elevator is dedicated to elevator equipment only.
- (2) The elevator machine room, machine room, machinery space, control room, control space, or hoistway of traction elevators are protected by smoke detectors, or other automatic fire detection, installed in accordance with NFPA 72.
- (3) The elevator machinery space, control room, control space, or hoistway of traction elevators is separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire resistance rating of not less than that specified by the applicable building code.
- (4) No materials unrelated to elevator equipment are permitted to be stored in elevator machine rooms, machinery spaces, control rooms, control spaces, or hoistways of traction elevators.
- (5) The elevator machinery is not of the hydraulic type.

**8.15.5.4\*** Automatic sprinklers in elevator machine rooms or at the tops of hoistways shall be of ordinary- or intermediate-temperature rating.

**8.15.5.5\*** Upright, pendent, or sidewall spray sprinklers shall be installed at the top of elevator hoistways.

**8.15.5.6** The sprinkler required at the top of the elevator hoistway by 8.15.5.5 shall not be required where the hoistway for passenger elevators is noncombustible or limited-combustible and the car enclosure materials meet the requirements of ASME A17.1, *Safety Code for Elevators and Escalators*.

#### 8.15.5.7 Combustible Suspension in Elevators.

**8.15.5.7.1** Sprinklers shall be installed at the top and bottom of elevator hoistways where elevators utilize combustible suspension means such as noncircular elastomeric-coated or polyurethane-coated steel belts.

**8.15.5.7.2** The sprinklers in the elevator hoistway shall not be required when the suspension means provide not less than an FT-1 rating when tested to the vertical burn test requirements of UL 62, *Flexible Cords and Cables*, and UL 1581, *Reference Standard for Electrical Wires, Cables, and Flexible Cords*.

#### 8.15.6 Spaces Under Ground Floors, Exterior Docks, and Platforms.

**8.15.6.1** Unless the requirements of 8.15.6.2 are met, sprinklers shall be installed in spaces under all combustible ground floors and combustible exterior docks and platforms.

**8.15.6.2** Sprinklers shall be permitted to be omitted from spaces under ground floors, exterior docks, and platforms where all of the following conditions exist:

- (1) The space is not accessible for storage purposes and is protected against accumulation of wind-borne debris.
- (2) The space contains no equipment such as conveyors or fuel-fired heating units.
- (3) The floor over the space is of tight construction.
- (4) No combustible or flammable liquids or materials that under fire conditions would convert into combustible or flammable liquids are processed, handled, or stored on the floor above the space.

#### 8.15.7\* Exterior Projections.

**8.15.7.1** Unless the requirements of 8.15.7.2, 8.15.7.3, or 8.15.7.4 are met, sprinklers shall be installed under exterior projections exceeding 4 ft (1.2 m) in width.

**8.15.7.2\*** Sprinklers shall be permitted to be omitted where the exterior projections are constructed with materials that are noncombustible, limited-combustible, or fire retardant-treated wood as defined in NFPA 703.

**8.15.7.3** Sprinklers shall be permitted to be omitted from below the exterior projections of combustible construction, provided the exposed finish material on the exterior projections are noncombustible, limited-combustible, or fire retardant-treated wood as defined in NFPA 703, and the exterior projections contain only sprinklered concealed spaces or any of the following unsprinklered combustible concealed spaces:

- (1) Combustible concealed spaces filled entirely with noncombustible insulation
- (2) Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached to the bottom of solid wood joists so as to create enclosed joist spaces 160 ft<sup>3</sup> (4.5 m<sup>3</sup>) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered attic [see 11.2.3.1.4(4)(d)]
- (3) Concealed spaces over isolated small exterior projections not exceeding 55 ft<sup>2</sup> (5.1 m<sup>2</sup>) in area

**8.15.7.4** Sprinklers shall be permitted to be omitted from exterior exit corridors when the exterior walls of the corridor are at least 50 percent open and when the corridor is entirely of noncombustible construction.

**8.15.7.5\*** Sprinklers shall be installed under exterior projections greater than 2 ft (0.6 m) wide over areas where combustibles are stored.

#### 8.15.8 Dwelling Units.

##### 8.15.8.1 Bathrooms.

**8.15.8.1.1\*** Sprinklers shall not be required in bathrooms that are located within dwelling units of hotels and motels, that do not exceed 55 ft<sup>2</sup> (5.1 m<sup>2</sup>) in area, and that have walls and ceilings of noncombustible or limited-combustible materials with a 15-minute thermal barrier rating, including the walls and ceilings behind any shower enclosure or tub.

**8.15.8.2\* Closets and Pantries.** Sprinklers are not required in clothes closets, linen closets, and pantries within dwelling units in hotels and motels where the area of the space does not exceed 24 ft<sup>2</sup> (2.2 m<sup>2</sup>), the least dimension does not exceed 3 ft (0.9 m), and the walls and ceilings are surfaced with noncombustible or limited-combustible materials.

