



## Unsprinklered Limited or Non-Combustible Concealed Spaces Policy

There has been considerable discussion concerning San Jose Fire Department (SJFD) policy “*Fire Sprinkler Systems Design, Installation, & Plan Submittal Requirements*” (SJFD <AS> policy) Section 3.5.7 regarding applicability. The following are guidelines to certify what is required for Structure and Mechanical/Electrical/Plumbing (MEP) compliance as a Limited or Non-Combustible Concealed Space and therefore Not Requiring Fire Sprinkler Protection.

2016 NFPA 13 provides the following descriptions for **Limited or Non-Combustible Materials**:

**3.3.16\* Limited-Combustible (Material).** Refers to a building construction material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8100 kJ/kg), where tested in accordance with NFPA 259, and includes either of the following: (1) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 1/8 in. (3.2 mm) that has a flame spread index not greater than 50; or (2) materials, in the form and thickness used, having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion, when tested in accordance with ASTM E84, Standard Test Method of Surface Burning Characteristics of Building Materials, or ANSI/UL 723, Standard Test Method of Surface Burning Characteristics of Building Materials.

**3.3.17 Noncombustible Material.** A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat; materials that are reported as passing ASTM E136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C, shall be considered noncombustible materials.

**Unless allowed under section 8.15.1.2 and 8.15.6 (further discussed herein), all spaces and materials within these spaces shall comply with the testing requirements presented by 3.3.16 and/or 3.3.17.**

The discussion concerning SJFD <AS> policy Section 3.5.7 is mostly about the interpretation of section 8.15.1.2.1 and the applicability of 8.15.1.5.

2016 NFPA 13 Appendix 8.15.1.2.1 says we should allow the usual amount of cabling and goes on to say the threshold is not defined. We find “usual” and “not defined” too obscure, hence impossible to review and then inspect as such. Although the “industry” had assured us that any “usual” cabling is now available in fire resistant sheathing if installed exposed. We have found that almost all of the cabling presented has been tested to NFPA 262 standards and not NFPA 259 standards and hence, NOT compliant materials for the requirements to allow the omission of sprinklers as indicated in section 2016 NFPA 13 section 3.3.16. There are few cable products available that pass the requirements of 2016 NFPA 13 section 3.3.16.

## **Unsprinklered concealed spaces** cont...

For ease of use, we have provided the following guidelines for acceptable installation of MEP products in 2016 NFPA 13 Section 8.15.1.2 compliant Non-Sprinklered concealed spaces (other measures may also be deemed acceptable):

### **Electrical**

- a. For **alternating current (AC)** wiring: wiring shall be in 2016 California Electrical Code compliant metal conduit or be MC cabling.
- b. For single **direct current (DC)** and **Data** wiring: wiring shall be in 2016 California Electrical Code compliant for plenums and run as single cables at a min. of 12” apart.
- c. For bulk **direct current (DC)** and **Data** wiring (multiple cables grouped together). When run in bulk, the wiring shall be neatly bundled, banded with wire ties and properly attached to the structure. The following conditions are acceptable in concealed spaces with wiring being bulked together:
  1. Provide localized sprinkler protection per 2016 NFPA 13 Section 8.15.1.5 (See herein).
  2. Provide metal conduit/metal jacket (MC cabling) throughout.
  3. Provide limited combustible wiring per 2016 NFPA 13 Section 3.3.16.

*Note: The majority of plenum-rated low voltage cable does NOT meet this requirement. Approved material must be tested in accordance with NFPA 259 and either ASTM E84 or ANSI/UL 723.*

4. Fill entire concealed space with insulation with 2” gap at the top for ventilation.
5. If not per c.1 – 4. above, it may be acceptable to separate wires into bundles of 1” max. diameter, spaced at a min. of 12” apart.

### **Mechanical**

- a. Control wiring: Control wiring will not need protection since the wiring is not bulked together.
- b. Duct work: Class A rated ductwork (Flame-Spread Classification, Flame-Spread Rating or Index Class I (or A) 0-25) will not need protection. All insulation and lining shall have a flame spread rating of not more than 25 and a smoke develop rating of no higher than 50 when tested in accordance to ASTM C411, or as required by local codes.
- c. Mechanical units: Fan coils will not be an issue since the units have a metal exterior.

### **Plumbing**

- a. CPVC and steel piping will not need protection.

2016 NFPA 13 section **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.