Unsprinklered Limited or Non-Combustible Concealed Spaces Policy (for Existing Sprinklered Buildings)

Effective Date: January 1, 2020

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.

2019 NFPA 13 provides the following descriptions for **Limited or Non-Combustible Materials:**

4.10.2* Limited-Combustible (Material). A material shall be considered a limited-combustible material where both of the following conditions of 4.10.2(1) and 4.10.2(2), and the conditions of either 4.10.2.1 or 4.10.2.2, are met:

(1) The material does not comply with the requirements for a noncombustible material in accordance with 4.10.1.

(2) The material, in the form in which it is used, exhibits a potential heat value not exceeding 3500 Btu/lb (8141 kJ/ kg), when tested in accordance with NFPA 259.

4.10.2.1 The material shall have a structural base of noncombustible material with a surfacing not exceeding a thickness of 1⁄8 in. (3.2 mm) where the surfacing exhibits a fame spread index not greater than 50 when tested in accordance with ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials, or UL 723, Standard for Test for Surface Burning Characteristics of Building Materials. [5000:7.1.4.2.1]

4.10.2.2 The material shall be composed of materials that in the form and thickness used, neither exhibit a fame spread index greater than 25 nor evidence of continued progressive combustion when tested in accordance with ASTM E84 or UL 723 and are of such composition that all surfaces that would be exposed by cutting through the material on any plane would neither exhibit a fame spread index greater than 25 nor exhibit evidence of continued progressive combustion when tested in accordance with ASTM E84 or UL 723. [5000:7.1.4.2.2]

4.10.1.1 Noncombustible Material. A material that complies with any of the following shall be considered a noncombustible material:

(1)* The material, 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.

(2) The material is reported as passing ASTM E136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.

(3) The material is reported as complying with the pass/fail criteria of ASTM E136 when tested in accordance with the test method and procedure in ASTM E2652, Standard Test Method for Behavior of Materials in a Tube

Furnace with a Cone-shaped Airfow Stabilizer, at 750°C. [5000:7.1.4.1.1]

Unless allowed under section 9.2.1 as amended by San Jose Municipal Code, all spaces and materials within these spaces shall comply with the testing requirements presented by 4.10.2 and/or 4.10.1.1.

2016 NFPA 13 Annex 9.2.1.1 says we should allow the usual amount of cabling and goes on the 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 2019 NFPA 13 section 4.10.2. There are few cable products available that pass the requirements of 2019 NFPA 13 section 4.10.2.

For ease of use, we have provided the following guidelines for acceptable installation of MEP products in 2019 NFPA 13 Section 9.2.1 compliant non-sprinklered concealed spaces (other measures may also be deemed acceptable):

Electrical

a. For **alternating current** (**AC**) wiring: wiring shall be in 2019 California Electrical Code compliant metal conduit or be MC cabling.
b. For single **direct current (DC)** and **Data** wiring: wiring shall be in 2019 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 2019 NFPA 13 Section 9.3.17.1.2 (See herein).
    2. Provide metal conduit/metal jacket (MC cabling) throughout.
    3. Provide limited combustible wiring per 2019 NFPA 13 Section 4.10.2.

    ***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.

2019 NFPA 13 section **9.3.17.1.2 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 than12 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.