



Office of Louisiana State Fire Marshal
Code Enforcement and Building Safety

Department of Public Safety and Corrections
Public Safety Services



H. BUTCH BROWNING
STATE FIRE MARSHAL

INTERPRETIVE MEMORANDUM 2014 - 02

To: OSFM Industry Partners
OSFM Staff

From: Joe Delaune, Chief Architect/Plan Review, OSFM

Approved by: Chief Butch Browning, State Fire Marshal *BB*

Date: September 15, 2014

Re: **Cloud Ceilings**

NFPA 13, Standard for the Installation of Sprinkler Systems, 2013 Edition

This Memorandum will remain valid until adoption of the 2016 Edition of NFPA 13.

The NFPA National Fire Protection Association describes a "Cloud Ceiling" as "ceiling panels that sit beneath the structural ceiling of a room or space and are seen increasingly in commercial and industrial buildings. "Cloud" panels range in area from discrete ceiling panels with large spaces in between, to close-to-full-room-area contiguous coverage with small gaps at the perimeter wall location."

The currently adopted Edition of NFPA 13 does not provide definitive guidance with regards to sprinkler protection of these conditions. Therefore, until such time that a future Edition of NFPA 13 that addresses this condition is adopted, the Office of State Fire Marshal will review the sprinkler system plans using the following definitions and requirements proposed for the 2016 Edition published by the NFPA 13 technical committee as Input No. 167-2013 report.

DEFINITIONS:

Cloud Ceilings: Any ceiling system installed in the same plane with horizontal openings to the structure above on all sides. This does not include sloped ceilings as defined in NFPA 13:3.3.5.3.

Concealed Spaces: The space above a cloud ceiling will be considered a concealed space.

Small Openings: Small openings between cloud ceilings or construction features of a concealed space that allow limited amounts of heat to enter the concealed space with any dimension greater than 4 feet may not have a least dimension greater than 8 inches. Small openings may not have a combined total area of more than 20% of the ceiling, construction feature, or plane used to determine the boundaries of the concealed space.

Note: A return air diffuser may be 4 feet by 2 feet and meet the definition of a small opening. A linear diffuser may be longer than 4 feet but is then limited to 8 inches in width (or least dimension). Spaces between ceiling panels of architectural features that create a concealed space must meet the same criteria.

REQUIREMENTS:

1. Except as provided in 2 and 3 below, sprinkler protection shall be required above and below cloud ceilings.

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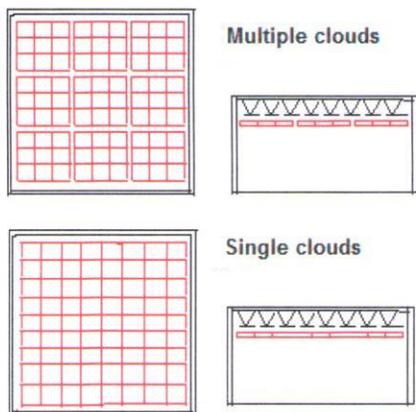
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2. Sprinklers shall be permitted to be omitted from the above ceiling space when the ceiling openings meet the definition of small openings.
3. Concealed spaces formed by cloud ceilings installed below noncombustible and limited combustible construction shall not require sprinkler protection.
4. A concealed space is formed above cloud ceilings when the ceiling panels are adjacent to another ceiling panel in the same plane or a wall and the ceiling panels are located such that the opening is not more than one inch for each foot of elevation between the panel and the floor.
5. The space above cloud ceilings installed below noncombustible and limited combustible construction shall be considered concealed where the ceiling panels are more than 20 feet above the floor.

An opening in the ceiling may be located along a wall or may occur between panels to give an architectural effect such as a floating ceiling. Fire modeling results have shown that there will be heat loss to the space above the ceiling when the openings are too large. The modeling results indicate that sprinklers should activate on the lower ceiling level when the opening dimension is no greater than one inch per foot of elevation above the floor. When an opening between ceiling panels, or a ceiling panel and a wall, are any larger, the space above the ceiling panels should not be considered a concealed space.

Examples of Cloud Ceiling Configurations:



For more information concerning this subject, visit NFPA at: <http://www.nfpa.org/research/fire-protection-research-foundation/reports-and-proceedings/suppression/other-sprinkler-protection/sprinkler-protection-for-cloud-ceilings>

END