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Drop-Out Panels

Eliminate Sprinkler Heads from Ceilings

By BEN CARR

Sprinkler heads penetrating through holes in drop ceiling tiles are a common sight. Even though they spoil the clean look of the surface, add visual clutter in a ceiling already burdened with air diffusers and lighting fixtures, and create obstacles when trying to perform above ceiling maintenance, they are accepted as a necessary evil.

However, they are not really necessary. They can be eliminated while still maintaining fire safety. Considerable time and expense can be saved by installing the sprinkler heads above the ceiling, utilizing a little-known suspended ceiling option: drop-out panels.

According to National Fire Protection Association (NFPA) Standard 13 – Standard for the Installation of Sprinkler Systems, §3.3.61, a drop-out ceiling is “a suspended ceiling system, which is installed below the

[fire suppression] sprinklers, with listed translucent or opaque panels that are heat sensitive and fall from their setting when exposed to heat.”

Conventional ceiling panels such as mineral fiber cannot be installed below sprinklers because they would slow down the sprinklers’ activation by the heat of a fire and would block the sprinklers’ life-saving water from falling on the fire if they did activate.

In contrast, drop-out panels are engineered to soften, deform, and fall out of the grid when temperatures rise above 120° F (such as heat generated by fire). The sprinklers are then exposed, and a path for fire suppression is cleared. Heat above 130° F activates the sprinklers. Using approved drop-out panels, sprinklers can safely be located out of sight above the ceiling.

Time and Cost Savings

This simple solution has multiple benefits in terms of cost, installation time, and appearance.

In new construction and many renovations, it simplifies and speeds up both sprinkler and ceiling installation. A drop-out ceiling eliminates many of the struggles of coordinating between trades and their attendant delays.

Installing a ceiling with poke-through sprinkler heads has five steps, alternating back and forth between plumber and ceiling installer. 1) The sprinkler mains are piped; 2) the ceiling grid is installed; 3) the plumber comes back to locate the sprinkler “drops” precisely over centers of the panels; 4) the installer cuts holes in the panels to match the exact position of the drops, and installs the ceiling; 5) the plumber returns to install the sprinkler heads.

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With a drop-out ceiling, there are only two steps. 1) The entire sprinkler system is installed; 2) the ceiling is installed. Sprinkler head-location does not have to be coordinated or aligned with the grid, and there are no holes to cut for sprinklers. Panels can just be popped in as soon as the grid is complete. Additionally, drop-out panels such as Ceilume thermoformed ceiling panels are lightweight and flexible, making them fast and easy to install.

A drop-out ceiling can also save money, because the sprinkler system is much simpler, and therefore, more economical. Sprinkler heads can be installed directly on the mains, eliminating expensive procedure drop installation. Non-appearance grade sprinklers can be used, and finishing rings and escutcheons can be eliminated. The savings can be huge.

An example of these savings was enjoyed by Small Batch Organics, a commercial bakery in Maine. They built a new commercial kitchen in a former warehouse space. In order to provide a clean and cleanable ceiling surface that would pass health regulations, they installed a suspended grid ceiling with drop-out thermoformed pan-

els. According to the manager who oversaw the renovation, eliminating the sprinkler drops saved so much money that it paid for the ceiling.

Upgraded Performance

A drop-out ceiling may also save money on materials due to superior performance properties. Mineral fiber tiles are fragile and often damaged in shipping, handling and normal installation practices, causing expensive wastage before they ever come into service. Ceilume panels, for example, have been laboratory tested and proven more robust. They do not chip, crack, or break in normal use, are water impermeable and stain resistant, and therefore require far less frequent replacement.

Owners and occupants will also appreciate that many drop-out panels improve the appearance of a ceiling. Poke-through sprinklers add to the visual clutter of air diffusers, light fixtures, sensors, public address speakers, and other services. Even so-called concealed sprinkler heads are quite visible at typical ceiling heights with normal lighting.

Getting rid of poke-through sprinkler heads by using drop-out panels keeps a

cleaner, more consistent ceiling look.

In addition to the advantages that apply to many ordinary commercial and residential spaces, there are numerous special situations where drop-out ceilings are an ideal solution.

- Enclosed rooms within larger open spaces, such as a lab on a factory floor, or a conference room in an open-plan office. The sprinkler system above in the larger space provides fire protection.
- Luminous ceilings are possible using translucent drop-out ceiling panels.
- Computer server facilities use translucent drop-out ceilings to make “cold aisles” between the servers
- High seismic areas where sprinkler plumbing may sway more than the rigid ceiling grid, causing poke-through sprinklers to permanently damage the panels.

Before installing a drop-out ceiling, consult Authorities Having Jurisdiction (AHJ) for both fire and building code approval. AHJ have final say for any specific installation, even with approved panels. Manufacturers such as Ceilume can help by providing documentation to show AHJ and verify that drop-out ceilings may be used. **BSM**

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