

The Station House

A News Letter for
AHJ's



New Tyco Residential Sprinklers for New Listing Requirements

Residential Densities have changed in accordance with NFPA 13 and UL 1626 to require a minimum 0.05 gpm/sq.ft. density . We have mentioned this change in the previous editions of Station House to inform and to advise you of the impact it will have in the residential sprinkler market.

Tyco Fire Products has created a full new line of residential sprinklers to optimize their performance with respect to the new density and listing requirements. The new product line will be the Residential Low Flow Series II, or the LF II. This sprinkler minimum density mandate made the optimization simple, offer the lowest possible pressure requirements for the industries residential sprinklers. Also, add features such as a specific "sloped ceiling" listing to accommodate the initial offering.

Newly available LFII residential sprinklers:

- **Pendent & Recessed Pendent**
- **Sidewall & Recessed Sidewall**
- **Concealed Pendent (Flat Plate)**

All new residential sprinklers have been tested and "Listed" for sloped ceiling conditions, up to an 8" in 12" roof slope.

Note for older, residential sprinklers – if sprinklers have been manufactured prior to July 11, and were UL listed at the time of manufacture, they remain 'listed' products. **If acceptable to the local authority having jurisdiction**, contractors can continue to design and install the old sprinklers to their prior listings. However, as the supplies of the old sprinklers are exhausted, sprinklers manufactured after July 12 will be available and must be installed in compliance with their listing.



New LFII Pendants



New LFII Sidewalls

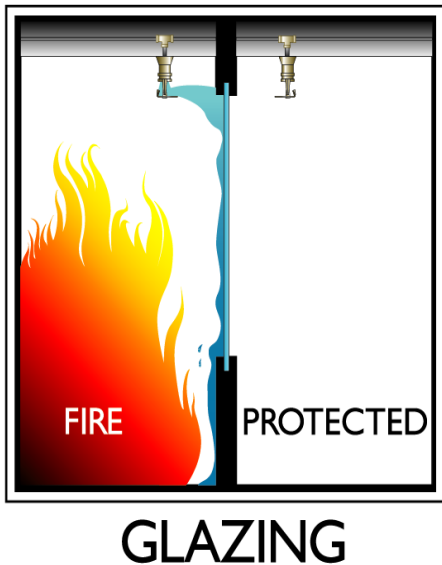


New LFII Concealed Pendent

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Window Sprinkler Listing– A Glass Wall Thing...



“Exposure Protection” and “Window Sprinklers” are two completely different terms, which are often confused when it comes to the application of fire sprinklers. NFPA standards reference protection criteria for exposure protection. None of these however state that closely spaced sprinklers required for exposure protection establish a **fire rating** as required by the building code.

course are required to be fire rated. Again, these are not “Listed Window Sprinklers”.

Because of the aesthetic desire for glazing to create an open look to the building, conflicts with building and fire code often resulted. This usually resulted in ‘trade-offs’ being made by the building and fire authorities. It seemed reasonable that if closely spaced sprinklers were located near the glass, this would create a kind of “water curtain”, thereby possibly protecting the glass from failure. This would be a true variance. And a guess.

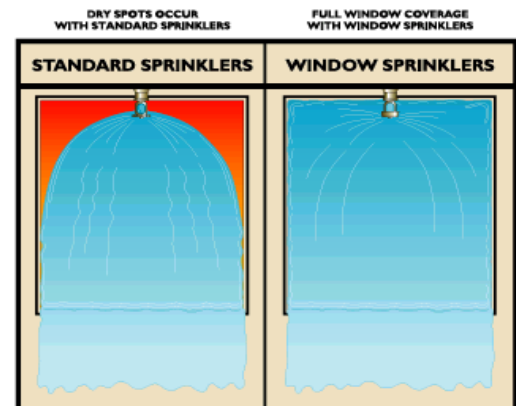
There are problems with this however. Where is the ceiling in relation to the top of glass? Is it 6”, 1’-0”, or possibly 2’-0” above? Regardless of the best intentions and engineering judgment of the building and fire officials, questions and uncertainty remained.

When sprinklers are referenced for exposure protection for glass, the comment is usually followed by the phrase “sprinklers shall be capable of completely wetting the entire surface of the glass”. How can a standard spray sprinkler wet the entire surface of the glass if the distribution pattern falls 12 inches? It cannot. Dry spots will occur.

Currently there is confusion about the term ‘Listed Window Sprinklers’. In Underwriters Laboratories (UL) Listing Directory, you will find a category titled “Sprinklers, Outside”. Under this heading you will find an explanation stating in part, “These sprinklers are non-automatic and are intended for protection of windows, walls and roofs against exposure fires”. These nozzles (none in this category have operating elements) are intended for use with deluge systems to provide exposure protection and will not provide a fire resistive rating. These are **not** “Window Sprinklers”.

So, what are these nozzles, and why do they not provide a fire resistance rating? NFPA 13, as well as NFPA 80A, provides design criteria for protecting a building from a fire from a neighboring building. This is known as “exposure protection”. In short, “exposure protection” requires that sprinklers be spaced closely together just outside the exterior wall of a protected building.

For a time standard spray sprinklers with fusible elements had been used by a variance, or exception to the specific codes, to protect glazing or windows in walls. Walls of



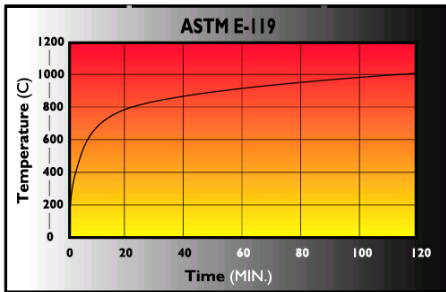
Does it matter if the sprinkler doesn’t wet the entire surface of the glass, and leaves dry spots? Yes!

Window Sprinkler Listing– A Glass Wall Thing... (Continued From Page 2)

What is a Listed “Window Sprinkler”?

In the late 1990’s Tyco Fire Products (Central Sprinkler) opened a test program with UL for the purposes of determining if Window Sprinklers could maintain the integrity of single pane, heat strengthened glass for two hours, when subjected to an exposure fire test.

Part of the testing was the window exposure fire test with test furnaces that were calibrated to bring room temperature up to 1832°F (1000° C) over a period of two hours.



In addition to this test, a 40 kW fire test was performed using a pan of lit heptane at various distances off the face of the glass partition. A fire of this size concentrated in a small area of the glass

can create stress on the glazing surface to cause thermal shock of the glass when the sprinklers eventually operate.

These tests included glazing assemblies connected with vertical mullions as well as glazing assemblies that were connected by a silicone butt joint. After successful completion of the tests, a project was opened at UL to obtain a Listing for the two versions of the Model WS Window Sprinkler; a horizontal and vertical pendent sidewall.



40 kW Fire Test

A break or cracking of the glazing panel at any time during the fire testing, and during a “hose shock” after the fire test would result in failure.

These successful tests generated a “Listing” for a verti-

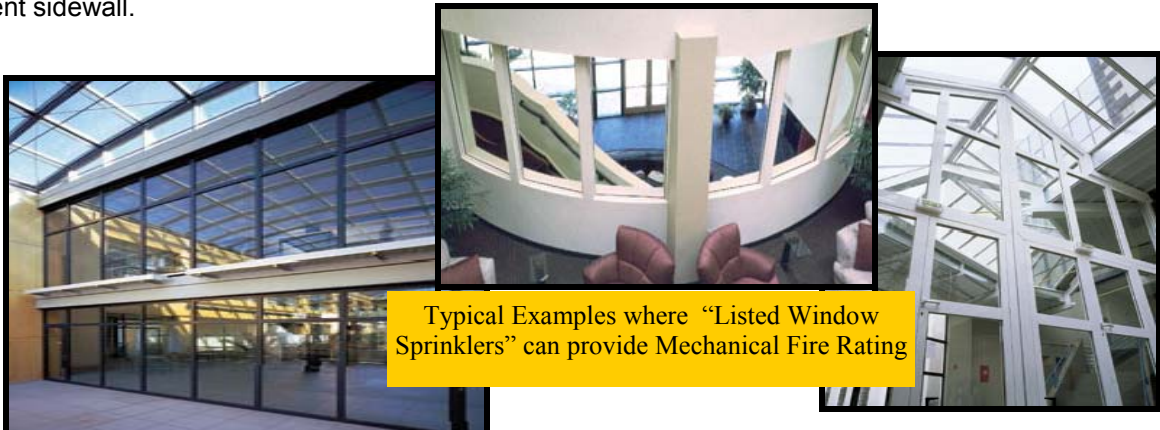
cal and horizontal WS sprinkler.

The Listed Model “WS” Window Sprinkler is indeed different than commonly referred to “window sprinklers” (which actually is a standard spray sprinkler) in both its application and testing.

Because of this specific testing and subsequent installation parameters, it may be used as an “equivalent method of construction”, when acceptable the Authority Having Jurisdiction, to provide an equivalency of a two hour rated partition when using glazed assemblies.

**Footnote-*

Test reports for the full series testing of the Listed WS Window Sprinklers are available for free on direct request.



Typical Examples where “Listed Window Sprinklers” can provide Mechanical Fire Rating

Tyco Fire Jumps in at Nissan Manufacturing

When **Nissan Motors** of North America needed fire protection for their new Vehicle Manufacturing Plant in Canton, Mississippi, they called on the experts and specified sprinklers from Tyco Fire and Building Products along with Allied Sprinkler Pipe of Tyco Electrical and Metal Products.

Nissan's new facility is a 2.1 million square foot project started in 2001 with a completion date of July 2002. They require 9,000 TFP EC-25 sprinkler heads, 80 Gem riser check valves and several truckloads of Allied Sprinkler Pipe, bringing the total value of fire protection products to just over 2.5 million.

The project requires effective coordination beginning with Nissan's Engineering firm "SSOE" all the way to Tyco Fire and Building Products division.

The construction site consists of several buildings that make up the entire Nissan manufacturing facility. The installation work started with the largest operation in the trim and chassis plant, then progressed into the body shop building, paint and coatings operation, general services building, administrative offices and several additional out buildings for various secondary functions.

As with any new technology from Tyco Fire

Products, the new EC-25 has successfully undergone full-scale fire testing by Factory Mutual (FM) and Underwriters Laboratory (UL) for use with the new types of plastics used in automotive parts in these high rack storage warehousing as well as the specialty hazard assembly plants with high density/area applications. The installing contractor representative Mike Sullivan states, "The EC-25 enables the spacing requirements to be 196 square feet compared to 100 square feet that an ordinary high hazard

sprinkler head offers.

This larger spacing per sprinkler greatly expedites the installation of the systems; therefore helps us to meet an already tight schedule."

While Tyco Fire and Building Products are providing the sprinkler heads for the Nissan project, Tyco Electrical and Metal Products is shipping truckloads of Allied Dyna-Flow® sprinkler pipe with an anti-

bacterial formula coating (ABF), the first Fire Sprinkler pipe with an anti-microbial internal coating. In specific laboratory tests, ABF proved to have superior resistance to Microbiologically Influence Corrosion (MIC) of pipe walls, thereby delaying or possibly preventing the onset of MIC when the fire sprinkler system is first installed. "This was the deciding factor for Nissan's Engineering firm to specify the Allied Pipe," according to Jeffery Bell from American Pipe and Supply (project distributor).

"The combination of superior products and services from the Tyco divisions we represent, really make the difference for the Nissan Project," concludes Bell.



Fire Sprinklers Never Sleep– Success Stories

1- Apartment Save

Shawnee Fire Marshall John Maddux said the Mona Issawi family of four escaped serious harm recently after fire sprinklers extinguished a blaze in their apartment. Mattox said the sprinkler's fire alarm system notified the fire department of the blaze and automatically extinguished the fire before the fire department arrived.

Investigators said the fire, which ignited in a pan of food on the stove, spread when one of the apartments occupants tried to move the burning pan from the stove to the sink. Mona Issawi suffered third degree burns to her hand and was taken to a medical center. She was released the next day. Mattox said because the fire was put out so quickly, there was very little damage to the building and all occupants were able to return to their homes that night. "We were really lucky", said Angie Stahl, apartment manager. "It could have been a lot worse."

(Reprinted from The Overland Park Sun)

2- Cannery Row Fire Contained by Sprinklers

The Monterey Fire Department responded to a reported automatic fire sprinkler activation at 600 Cannery Row in the Steinbeck Plaza. Upon arrival fire units found a fire within a tenant space. Fire crews also determined the automatic fire sprinkler system had quickly extinguished the fire, leaving very little fire damage to the space. The particular tenant space was under remodel. Workers had stored a large amount of combustible debris within the space and oil-soaked rags were discarded in the pile and spontaneously combusted.

Fire Marshal Rick Rodewald estimated the damages to be less than \$10,000. "Without the automatic fire sprinkler installed in the building, we would have been looking at a fire loss in the millions," stated Rodewald. The building has five commercial rental spaces on the first floor with a restaurant occupying the entire top floor.

(Reprinted from the Monterey County Post)

3- Sprinkler Controls Illinois Nursing Home Fire

Cleaning rags left in a nursing home laundry room spontaneously ignited, but the fire was quickly doused by a single sprinkler. Fire department notification was delayed when the fire alarm signal wasn't automatically sent to 911, and the night manager had to phone in the alarm. Despite the delay, the property sustained only

minimal damage. The three-story building had been equipped with a full-coverage fire detection system and a wet-pipe sprinkler system. The facility provides care for nearly 70 residents.

Fire alarms alerted staff of a basement smoke detector. When the administrator went to investigate she found the laundry room full of smoke. Returning to the main floor, she expected the fire department to automatically respond. Ten minutes later, she called 911 to confirm their response. However, the fire department had never received the alarm. The fire alarm system had failed to send a signal to 911, but provided notification in the building. Three engines, a truck company and an ambulance arrived within four minutes of the administrator's call. Fire crews went to the basement laundry room, where they found that a single sprinkler had extinguished the fire. Losses were estimated at \$1,000. There were no injuries.

(Reprinted from the NFPA Journal)

NFPA Code Update (2002)

- *NFPA posted their decision on an appeal to include the provision in their Building Code (NFPA 5000) that all 1 and 2 family dwellings be provided with sprinklers. The Standards Council denied the appeal by the NFSA, so there will be no requirement for sprinklers in these dwellings. This action is very disappointing, but not unexpected.*
- *NFPA Standards Council rejected an appeal on eliminating the 0.05 gpm/sq. ft. min. density for residential sprinklers in 1 and 2 family dwellings. This decision was not surprising since the minimum density was accepted throughout the NFPA standards revision process.*
- *NFPA has issued their ruling on the appeal to replace the area density curves in NFPA 13 with the single point density tables. The Standards Council denied the appeal so the design curves will remain in the standard.*
- *Of the roughly 60 appeals the 2002 NFPA Standards Council heard, only 3 were upheld.*

New Tyco Fire BlazeMaster CPVC Listing Obtained

Tyco Fire BlazeMaster® CPVC plastic pipe and fittings have obtained new Underwriters Laboratories (UL) listings that allow the installation in extended coverage applications with the plastic piping being exposed. Prior to this new listing, fire sprinklers were limited in sprinkler spacing based on the piping material. Now, in light hazard occupancies with the use of quick response, extended coverage sprinklers, the piping can be uncovered or exposed, and the spacing allowance has been increased to 20 feet between sprinklers. (Maximum allowed for any scenario.)

This new listing applies to quick response extended coverage, light hazard sprinklers AND residential sprinklers,



as well. There are some restrictions: when exposed, the piping must be installed under a smooth, flat horizontal ceiling; deflector distance requirements that vary for a pendent and a sidewall; and a minimum density application of 0.10 gpm/sq. ft.

Before this new listing, sprinkler spacing, when installed on exposed CPVC plastic pipe, was limited to 15 feet between sprinklers for pendants and 14 feet for sidewalls. This can now be increased to 20 feet for pendent sprinklers and 18 feet for the sidewalls. This new benefit will expand the use of Tyco Fire BlazeMaster® CPVC plastic pipe and fittings, creating a cost effective way to grow the overall fire sprinkler / life-safety market.

New Tyco Division Name Shake Up....

Tyco has changed recently. In line with the strategy of continuing the growth of its industrial businesses, the Flow Control division is being re-named Tyco Engineered Products & Services (TEPS) to better describe the businesses that make up this unit.

Tyco Engineered Products & Services consists of four global businesses each with industry leadership positions in the Fire Protection, Construction, Process Industrial, Water/Wastewater and Electrical markets around the world. These businesses are:

Tyco Infrastructure Services
Tyco Flow Control
Tyco Fire & Building Products
Tyco Electrical & Metal Products

And Who Are We?

Tyco Fire & Building Products

Bob Brinkman, President
Lansdale, Pennsylvania - USA



TFBP is a Global manufacturer of water based fire suppression system components and ancillary building products. It has continually expanded its capabilities and research to develop and provide state-of-the-art fire protection solutions and services throughout residential, industrial, commercial and institutional buildings of all kinds. Tyco's fire products are sold worldwide under the brand names GEM, Star, Central, Grinnell, Central Spraysafe and Central Grooved Products, offering the most complete line of products in the fire protection market.

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Remember State Fire Marshal, Your VRP Statistics Are Attached ...

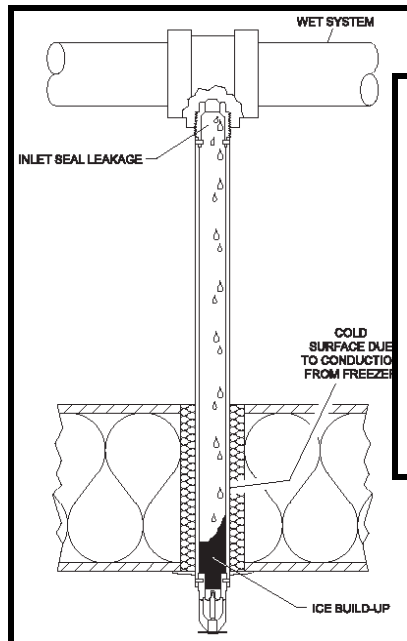
Your state's Voluntary Replacement Program Statistics are attached to this Newsletter. The Statistics for the VRP are state and Program specific. You may distribute these statistics or this news letter to your constituents. We encourage you to pass along the information contained in this newsletter and the positive progress that is being made in the VRP.

Tyco Develops Dry Type Sprinkler "Use and Maintenance" Guidelines

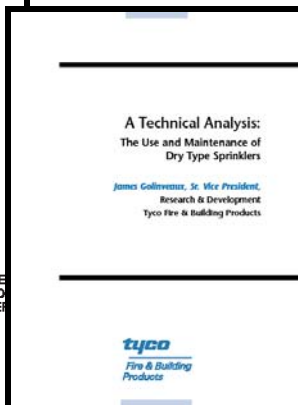
Tyco Fire Products is pleased to announce the availability of a technical analysis for the "Use and Maintenance of Dry Type Sprinklers".

As you may know, Tyco Fire Products continually provides information to the fire protection community on matters that affect property owners and fire professionals with the installation, use and maintenance of fire protection devices.

The installation of a dry sprinkler in a freezer application is very technical and must take into consideration many factors to ensure the proper performance



of the sprinkler (s) and fire protection system. Dry type sprinklers are usually installed in harsh environments where temperature, humidity and corrosive conditions are prevalent. These conditions may contribute to a life expectancy that is less than normal for standard sprinklers.



Tyco Fire & Building Products has performed an extensive analysis of the design, use and maintenance of dry type sprinklers. As a result of the study, several issues have been identified and those issues have been addressed with Tyco Fire & Building Products' new product offering.

These guidelines are available at no charge on direct request, or can be downloaded from any of the Tyco Fire & Building Products' web sites.

Contact us on the Web at: www.tyco-fire.com