



e-BULLETIN

Safety Alert on Non-Certified Sprinklers

Tuesday, June 2, 2015, Patterson, New York - As a part of its effort to advance the use of effective fire sprinkler protection worldwide, the International Fire Sprinkler Association (IFSA) has identified a significant concern in certain regions of the world regarding the use of counterfeit fire sprinkler products, as well as those products that have no marking indicating that they have been certified by a reputable third party certification organization. The use of faulty fire sprinkler products can cause a fire sprinkler system to be ineffective in controlling or suppressing a fire. This can put lives and property at risk.

A report provided to the IFSA by Underwriters Laboratories (UL) highlights the concerns associated with sprinklers that have no evidence of being certified by a reputable third party certification organization. These sprinklers were reported to be representative of ESFR (early suppression fast response) sprinklers installed in several storage facilities located in China.

Due to the small quantity of samples available for testing, the scope of UL's investigation was limited to conducting only 9 tests described in *ANSI/UL 1767-2013, Standard for Early-Suppression Fast-Response Sprinklers*, which includes more than 30 performance tests required for UL certification of an ESFR sprinkler. Many critical tests described in ANSI/UL 1767, including the large scale fire testing to investigate the ability of the sprinkler to suppress a fire, were not conducted as a part of this investigation.

Even though the scope of UL's investigation was limited, testing on the two sprinkler models covered by this report revealed that these sprinklers did not demonstrate compliance with ANSI/UL 1767 in the majority of tests conducted. Some of the key safety concerns highlighted in this report include the following:

O-ring Water Seal - Both sprinkler models utilized an O-ring type water seal. UL banned the use of O-ring type water seals more than 10 years ago and many of the sprinklers that utilized these seals have been recalled due to concerns related to non-operation as well as leakage in field installation environments.

Water deflector - Both sprinkler models were marked as ESFR sprinklers, but neither sprinkler was constructed with the type of water deflector that has demonstrated the ability to suppress a fire using ESFR sprinkler system design criteria as referenced in standard NFPA 13 - *Installation of Sprinkler Systems*. In fact, one of the sprinklers was fitted with an extended coverage deflector design rather than an ESFR type deflector design intended for standard coverage areas.

Proper design of the water deflector is critical for a sprinkler to achieve its fire control or suppression objective.

Operating Characteristics - The link-type heat responsive element used for one of the sprinkler models operated very slowly or did not operate at all when a propane torch was applied. For the sprinkler model fitted with a glass bulb heat responsive element, the strut lodged on the splitter of the sprinkler in 8 of the 9 samples subjected to the Operation-Lodgement Test conducted over a range of inlet pressures. This lodged part caused a substantial portion of the water to be discharged upward above the deflector rather than downward as needed to effectively attack a high challenge fire.

IFSA has received information indicating that a significant number of counterfeit and non-certified sprinklers have been found in several regions around the world including, but not limited to, China, Brazil and countries in the Middle East. The IFSA plans to share additional information regarding this important concern when additional data becomes available.

The full report prepared for IFSA by UL can be accessed at the following link:

http://www.sprinklerworld.org/product_articles/Non-Certified%20ESFR%20Sprinklers%20Report%2020150129.pdf

For additional information, contact Russell P. Fleming, P.E. - IFSA Managing Director (fleming@sprinklerworld.org).