

Subject 852

June 15, 2018

SUMMARY OF TOPICS

The following changes in requirements to the Standard for Safety for Metallic Sprinkler Pipe for Fire Protection Service, UL 852, are being proposed:

1. Fire Test Revision

STP BALLOTS AND ALL COMMENTS DUE: July 30, 2018

UL's goal is to have no interest category comprise more than one-third of the STP membership balance. To improve the current balance for STP 852, UL is looking for participants in the AHJ, Commercial/Industrial User, Consumer, General, Government, International Delegate, Supply Chain, Testing & Standards Org. interest categories. Definitions for these interest categories are available on the Standards STP Internet site:

<http://ulstandards.ul.com/develop-standards/participation/interest-categories/>

If you are interested in applying for STP 852 membership or are aware of potential candidates for this STP, please contact the STP Project Manager, griff.edwards@ul.com.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~. When an entirely new section is being proposed for addition, the section is shown as a "NEW SECTION" but the individual clauses are not underlined.

1. Fire Test Revision

RATIONALE

Proposal submitted by: Jeff Hebenstreit, UL LLC

The test methods for UL 852 were developed several years ago based on the information available and laboratory capabilities at the time. These methods have been a basis for fire testing of thin wall metallic sprinkler pipe, unique fitting types, and served as a starting point in consideration for testing of non-metallic sprinkler pipe.

In an effort to harmonize fire testing across several standards used to evaluate product types that may be used in similar installations, temperature data was reviewed from testing of several product standards including UL 852 (Metallic Sprinkler Pipe for Fire Protection Service), UL 199 (Automatic Sprinkler for Fire-Protection Service), and UL 1821 (Thermoplastic Sprinkler Pipe and Fittings for Fire Protection Service). Of particular interest was testing in accordance with UL 199, Piled Stock Fire Test for Extended Coverage Sprinkler Intended for Ordinary Hazard Occupancies.

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Target temperature ranges and durations of the fire test were identified upon this review and broken into two basic stages. The target thermal environment for a pipe or product during Stage 1 was 1400-1600°F (760-870°C) for 5 minute duration. Directly following Stage 1, a target temperature range of 500-700°F (260-370°C) was identified for Stage 2 for 5 min duration.

In order to determine the fire conditions necessary to achieve the desired temperature profile, a series of tests with a heptane spray burner were conducted. The heptane spray burner assembly from UL 2901 (Outline of Investigation for Antifreeze Solutions for Use in Fire Sprinkler Systems) was utilized and a representative pipe sample was attached to a ceiling above the burner. The ceiling height and heptane flow rate were adjusted to attain the target temperatures. After 10 experiments, the following test parameters were found to create average temperatures within the target thermal environment: 1.6 gpm heptane flow with an 8'6" ceiling for Stage 1 and 0.5 gpm heptane flow with the same 8'6" ceiling for Stage 2.

The revisions proposed serve to simplify the fire exposure test method, update the fire test method based on the data reviewed from the various standards, and harmonize fire testing across several product types.

PROPOSAL

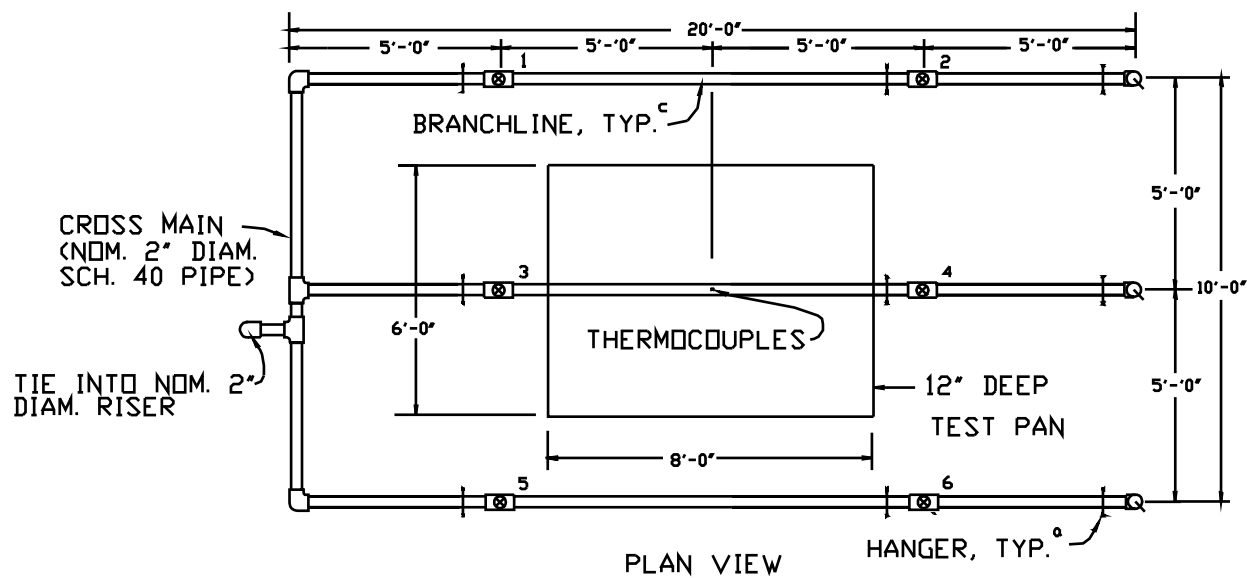
16 Fire Test

~~16.1 Steel pipe having thickness less than Schedule 5 in accordance with Standard Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use, ASTM A795, Standard Specification for Electric Resistance Welded Steel Pipe, ASTM A135, or Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, ASTM A53, or equivalent, or pipe fabricated of material other than steel, shall withstand the fire exposures specified in 16.2 – 16.19 without leakage of the piping material or rupture of the joints or piping material when subjected to hydrostatic pressure of 120 psig (827 kPa).~~

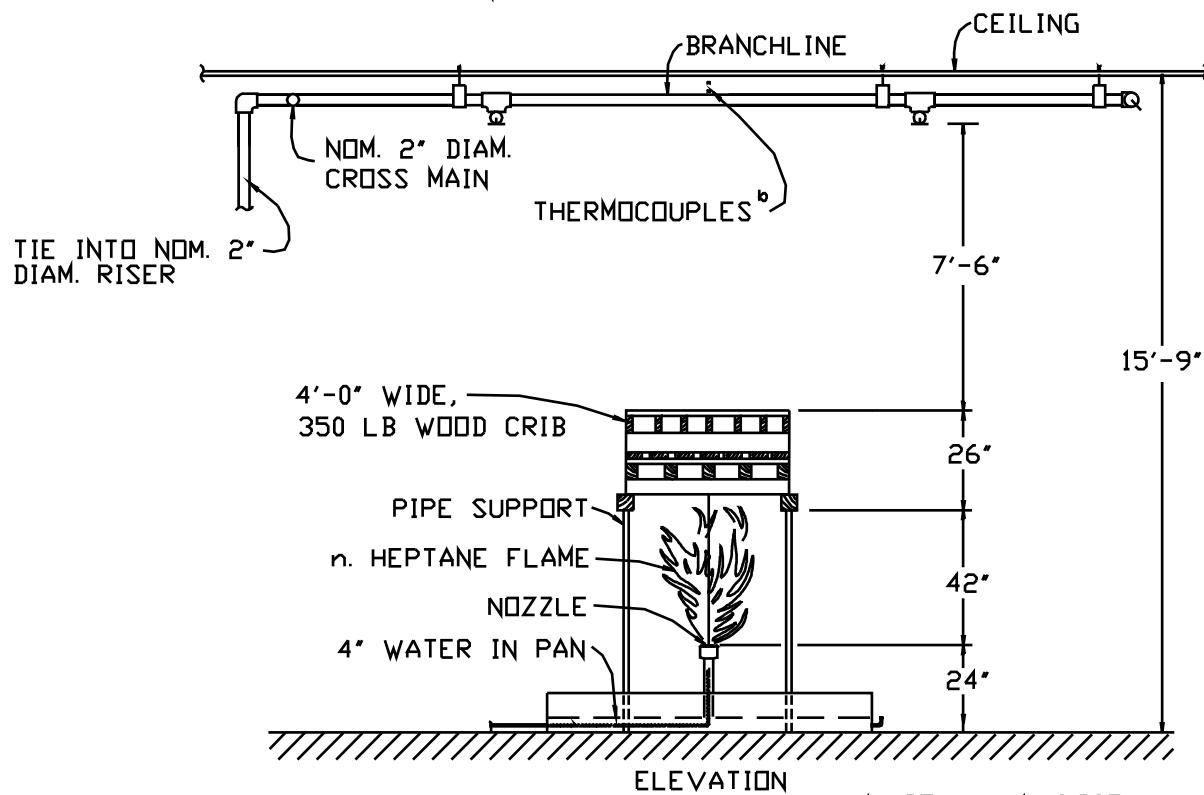
~~16.2 The fire exposure tests are to be conducted in a room at least 60 by 60 feet (18.2 m by 18.2 m) with a 15 feet (4.6 m) 9 inches (229 mm) high ceiling equipped with a piping grid consisting of representative sample pipe lengths and diameters. The pipe grid is to include "Tee" fittings specified by the manufacturer and arranged to allow for the installation of six, 1/2-inch orifice, pendent, standard response sprinklers. Two thermocouples, Nos. 1 and 2, centered over the grid, are used to record the air temperature 4 inches (102 mm) below the ceiling and the temperature directly adjacent to the pipe at the center of the grid as shown in Figure 16.1.~~

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Figure 16.1
Fire exposure test arrangement



- ⊗ -165 DEG. F STANDARD ORIFICE PENDENT SPRINKLER
- Q -BRANCHLINE BALL DRAIN VALVE
- -LISTED FITTING



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(1"=25.4mm, 1'=0.305m)

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