

Subject 10C

October 10, 2017

## **SUMMARY OF TOPICS**

***The following changes in requirements to the Standard for Safety for Positive Pressure Fire Tests of Door Assemblies, UL 10C, are being proposed for preliminary review and comment only:***

### ***1. For Preliminary Review Only: Technology for Measuring Average Unexposed Surface Temperatures***

## **COMMENTS DUE: OCTOBER 24, 2017**

This proposal is for review and comment only (no ballot at this time). Please note that comments on a preliminary review document will not receive a response from the proposal author through CSDS. Instead, the proposal author will be asked to review the comments and adjust the proposals and/or supporting rationale as the author determines to be appropriate. The preliminary review process is an informal mechanism that provides authors with the opportunity to refine their proposals before they advance to the next stage in UL's standards development process.

In some cases, the author of the proposals may choose to discontinue them. In this case, the author need not do anything after preliminary review has ended. Normally, the next step in the process is the more formal STP ballot and stakeholder review process. Only comments posted during the STP ballot and stakeholder review process will be provided with a response in CSDS.

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 10, UL is looking for participants in all interest categories except Producer. 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 10 membership or are aware of potential candidates for this STP, please contact the STP Project Manager, Mary.Huras@ul.com.

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

### **1. For Preliminary Review Only: Technology for Measuring Average Unexposed Surface Temperatures**

## **RATIONALE**

Proposal submitted by: Kurt Roeper, ASSA ABLOY Americas

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**Documents**

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As an outcome of the March 2016 STP 10 meeting in Northbrook, a Task Group (TG) was formed to address issues related to the measurement of temperature on the unexposed face of specimens tested to UL 10B or UL 10C. There were two specific topics within the scope of the TG:

- The technology used for temperature measurement on the unexposed surface
- The methodology for calculating the resulting average temperature

As a result of multiple TG conference calls and additional work done by the testing agencies, two separate proposals have been developed. The following proposal deals exclusively with the technology for measuring the average unexposed surface temperature. The subject of methodology for calculating the resulting average temperature is being presented to the STP in a separate proposal being posted for Ballot.

## PROPOSAL

### 6 Unexposed Surface Temperatures and Cotton Pad Test

6.2 Unexposed surface temperatures shall be taken at not less than three points, with a minimum of one thermocouple in each 16-ft<sup>2</sup> (1.5 m<sup>2</sup>) area of the door. Thermocouples shall not be located over reinforcements extending through the door, over glass panels, or nearer than 12 in (305 mm) from the edge of the door. Unexposed surface temperatures are to be measured by an infrared thermometer with a distance to spot ratio of 10 to 20 to 1 (10:1 to 20:1). Each door leaf is to be divided into a minimum of 6 equal areas and the temperature measured centered in each area from a distance that produces a spot size with a diameter between 67% and 75% of the least dimension of the area (see Figure 6.1).

Note: IR thermometers are typically equipped with laser indicators that show the area being measured. The size of the measurement area can be adjusted by changing the distance between the device and the measured surface. Examples of typical temperature measurement locations are shown in Figure 6.1.

(NEW) Proposed Figure 6.1

[Please note that the proposed new figure can be viewed in CSDS by clicking on "Supporting Documentation" under the Quick View tab on the right-hand side of the work area. A pop-up window with the supporting documentation should appear. Select the magnifying glass icon to bring up the figure.]

6.3 Surface temperatures of test specimens are to be measured by means of thermocouples with a wire diameter of not more than 0.03 in (0.7 mm). Each thermocouple is to be brazed to the center of the face of a copper disk 1/2 in (12 mm) in diameter and 0.01 in (0.2 mm) thick, which is secured to the surface of the specimen at the required position. The IR thermometer shall have a stated accuracy of  $\pm 1.5\%$  of reading or better, a spectral response of 8 to 14 microns, a range of at least 32 to 1000 F and shall have an adjustable emissivity setting. The emissivity shall be set to the appropriate value for the assembly surface and can be assumed to be 0.90 for painted steel, wood or plastic laminate when permitted by the thermometer manufacturers' operating instructions.

6.5 The disk and the felted pad are to be fixed to the surface of the specimen by mechanical fastening, tape, or adhesive, based on the nature of the material forming the specimen. When a mechanical fastening method is used to secure the thermocouple and pad, the testing laboratory shall ensure the fastener is not greater than 3/8 inch in length. The pads shall be fixed so as to maintain contact between the thermocouple and the surface of the test specimen.