

# CALIFORNIA COUNCIL OF TESTING & INSPECTION AGENCIES

## FAQ<sub>10.038</sub> DEFICIENT SFRM DENSITY/INCREASE THICKNESS

**Q** If the density of the SFRM does not meet the design criteria can an increase of thickness compensate for the deficient density? If the preceding is possible, what responsibility or duties does the Special Inspector or the agency/laboratory have?

**A** When determining the density of SFRM the Special Inspector is referred to ASTM E605 *Standard Test Method for Thickness and Density of Sprayed Fire-Resistive Materials (SFRM) Applied to Structural Members*. Section 8.4.1.2 states that when the calculated average density of the SFRM is less than that allowed by the respective fire resistance design see Note 4 & 5. And Note 4 states the following: “A thickness to density correction formula is contained in certain fire resistance rating criteria or is available from some SFRM manufacturers. Consult the rating criteria....before citing for deficiency.” In some cases it has been determined that an increase in thickness will compensate for the deficient density, so what duty does the special inspector/agency/laboratory have in such a case? If we go back to the IBC 1704.10.4 the laboratory is to determine the density according to E605. It makes no reference to Note 4 in using a correction formula. 1704.10.4 states, “The density of the sprayed fire-resistant material shall not be less than the density specified in the approved fire-resistant design.” Unless the fire-resistant design mentions a correction formula and the design professional performs this calculation, the as-measured low density is a non-compliance. From the point of view of the special inspector /agency/laboratory it should be reported in a timely manner to the contractor as a discrepancy for correction.

The concept of a correction formula has a valid basis and should not be considered as a loop hole or an easy way out. It is based on the same design concept of the original tested assembly but it is up to the design professional to determine if the

increase in thickness compensates for the low density of the SFRM. As special inspectors or

agency/laboratory we report our findings, and the interpretation and revisions are at the discretion and approval of others.

It would be appropriate to mention the alternate method for determining the in-place density stated, in ASTM E605 Section 8.3 as a referee method. *This method measures the volume of the material without the need for thickness or area measurements. It can be used to retest a sample that may be in question. It reduces some of the measuring and sampling variables that are inherent with other methods.*

Published May 2008

**Terry Egland** is a principle at Testing Engineers, Inc. and a registered engineer in California. He can be reached at [Terry@Testing-Engineers.com](mailto:Terry@Testing-Engineers.com)

### Got a question?

Send it to Q&A,CCTIA, 2811 Teagarden St. San Leandro, Ca.94577 or email [terry@testing-engineers.com](mailto:terry@testing-engineers.com)

This is the author's opinion, not necessarily that of CCTIA  
To read more or respond, go to [www.CCTIA.org](http://www.CCTIA.org)