FIRE PREVENTION AND BUILDING SAFETY COMMISSION
Department of Homeland Security

Written Interpretation of the State Building Commissioner

Interpretation #: CEB-2020-15-2020 IRC-R302.11

Building or Fire Safety Law Interpreted
675 IAC 14-4.4; 2020 Indiana Residential Code, Section R302.11, Item #4: "At openings around vents, pipes, ducts, cables, and wires at ceiling and floor levels, with an approved material to resist the free passage of flame and products of combustion. The material filling this annular space shall not be required to meet ASTM E136 requirements but shall have an ignition point at or above that of white pine wood, 350° F (177° C), and where surrounding electrical cables shall meet the requirements of E3705.4.4."

Issue
Whether a specific firestopping product (Everkem "Thermal Seal All In One Gun Foam") meets the requirements of Item #4, Section R302.11, of the 2020 Indiana Residential Code, for the purposes of sealing annular spaces in fireblocking where such fireblocking is penetrated by vents, pipes, ducts, cables, and wires.

Interpretation of the State Building Commissioner
Any firestopping material that meets the requirements of Item #4, R302.11, is acceptable to seal annular spaces around penetrations in fireblocking. However, we do not have enough information to state that the Everkem product named above meets all of those requirements. Specific performance criteria must be met, and evidence has not been provided that all have been met, whether by lack of documented performance by independent testing agencies, or the fact that some performance criteria require observation in the field by the local building official.

Rationale
Section R302.11 lists locations in which fireblocking material must be provided in wood framed Class 2 construction. As part of that discussion, Item #4 provides the requirement to install effective fire stopping material in the annular spaces around any vents, pipes, ducts, cables, and wires that penetrate fireblocking. In doing so, the code establishes four specific criteria that the product and its installation must satisfy. Three must be met by the product itself in conjunction with its installation, while the fourth is a requirement for electrical cables that penetrate the fireblocking, when the annular space surrounding such penetrations is to be sealed with thermal insulation, caulk or sealing foam, and as such is specific to other conditions of the construction *in situ*, and is not related to the fire stopping product's own performance characteristics. All of these criteria are examined in detail below.

The first criterion we will examine is the one most readily confirmed, as it is specifically quantified in the text of the code, to wit, the product's own combustion point must be no less than 350° F (177° C). The manufacturer of the Everkem fire stopping material has provided data indicating the product has been tested in accordance with ASTM E659 for autoignition. The test was performed by Alcor Petrolab, a subsidiary of ASTM-certified SPL, Inc., and the results indicated the product ignited at a temperature of 515° C, well above the minimum allowable 177° C. As such, the material clearly meets this requirement.

The second criterion we will examine is that the product must be effective for its intended use, as that use is described in the code. If a product is proposed as fire stopping material, the implication is that it must be effective at blocking flame, smoke, and other combustion byproducts, preventing them from passing through the annular spaces the product fills. The only test result provided as part of the interpretation request was for ignition temperature alone, and that in and of itself is not adequate evidence for satisfaction of this criterion. Steel wool might well pass the code's ignition temperature requirement, but no one could ever argue that by itself it is effective at blocking the passage of flame, smoke or gas, nor even that it fills all possible gaps in annular spaces. Since we are not a testing laboratory and our scope does not extend to the construction site, we cannot comment on whether the material in question meets this performance criterion. That must be confirmed by other reputable third-party test results, or observed in the field by the local building official (or both if necessary). If satisfactory evidence is provided to the building official that the proposed product is effective for this use, then the product will have met this criterion.

The third criterion we will examine is a requirement not for the fire stopping material itself, but for any electrical cables it surrounds. In these installations, those cables must meet the requirements of Section E3705.4.4 of the code. Since, as we stated above, the scope of a code interpretation does not extend to an examination of field

conditions, we cannot verify any specific installation meets this criterion. It remains for the local building official to verify in the field wherever the material is used around electrical cables.

The last criterion we will examine is the process of "approving" any product or material used under this code. The concept of approval consists of two distinct principles: following stated methods of demonstration that a product qualifies for acceptance; and who grants such acceptance (and therefore approval), and how that is done.

The code defines "approved" as "acceptance by the building official by one (1) of the following methods: 1. Investigation or tests conducted by recognized authorities; 2. Investigation or tests conducted by technical or scientific organizations; or 3. Accepted principles." In the case of the Everkem product at the center of this interpretation, evidence was provided of tests conducted by technical or scientific organizations for the purposes of satisfying one of the four performance criteria, and the results of those tests indicated the product passed, and so met the "acceptance" standard for that one performance criterion. However, that is the only test provided, and the only result it demonstrated. Other performance criteria remain undemonstrated to us, either because tests have not been provided, or the specific performance characteristic requires verification in the field.

The second principle underlying approval is the question of who has the authority to grant acceptance and thereby approval. The code's definition of "approved" places that authority with the building official, which is itself a code-defined term. Outside the context of structures regulated by the state's Industrialized Building Systems program under 675 IAC 15, "building official" is defined simply as "the local official or officials as designated in local ordinance." Consequently, the authority to grant "accepted" and thereby "approved" status to a product under this code lies with the local building official, and not with us. It is not outside the scope of our authority, however, to state that a given product qualifies for acceptance and approval by the local official, and that the local official must grant it if they are not able to demonstrate sufficient reason to deny such approval.

In summary, if the manufacturer of this, or any product, proposed for fire stopping use under Item #4, Section R302.11 of the 2020 Indiana Residential Code wishes to be approved for use, and the manufacturer demonstrates compliance with the required performance criteria discussed above, that product meets the requirements of the code and qualifies for approval.

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