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Fireblocking

Fireblocking and draftstopping is contained in Section 717 "Concealed Spaces" of the International Building Code. Tests conducted by Omega Point Laboratories demonstrated that cellulose insulation performed better than wood as a fire stop.

The following is contained in the 2003 INTERNATIONL BULIDING CODE (IBC) and 2004 SUPPLEMENTS. Contact your architect, engineer, or local code official concerning your specific project application.

SECTION 717: CONCEALED SPACES

717.1 General
Fireblocking and draftstopping shall be installed in combustible concealed locations in accordance with this section. Fire blocking shall comply with Section 717.2. Drafstopping shall comply with Sections 717.3 and 717.4 respectively. The permitted use of combustible materials in concealed spaces of Type I or II construction shall be limited to the applications indicated in Section 717.5.

717.2 Fireblocking In combustible construction
Fireblocking shall be installed to cut off concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a floor or attic space. Fireblocking shall be installed in the locations specified in Section 717.2.2 through 717.2.7

What materials can be considered fireblocking and what is the criteria for a fireblocking material? There is no specific test criteria for a fireblocking material however 717.2.1 states the following about fireblocking materials.

717.2.1 Fireblocking materials
Fireblocking shall consist of 2-inch nominal lumber or two thicknesses of 1-inch nominal lumber with broken lap joints or one thickness of 0.719-inch wood structural panel with joints backed by 0.719-inch wood structural panel or one thickness of 0.75-inch particleboard with joints backed by 0.75-inch particleboard. Gypsum board, cement fiber board, batts, or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fireblock.

Since there is no test criteria, how are "other approved materials" determined. Logic dictates "other approved materials" would need to have the same fire endurance as the any of the materials listed above. Since 2-inch nominal lumber is a common construction fireblock material, cellulose insulation was compared to this lumber sample in the time-temperature curve used in ASTM E119 to compare fire endurance.

The Cellulose Insulation Manufacturers Association (CIMA) contracted with Omega Point Laboratories to compare the fireblocking abilities of spray-applied cellulose insulation versus spruce-pine-fir wood fireblocking. Small-scale wood stud wall sections were constructed and divided into three sections. The fireblocking materials under evaluation were: 1) two layers of 1 x 4 lumber, 2) spray-applied cellulose insulation at a depth of 14-1/2", and 3) one layer of 2 x 4 or 2 x 6 lumber. The wall sections were mounted in slots in a horizontal test frame, and the ASTM E119 time/temperature curve was followed for a period of 60 minutes. The maximum furnace temperature under this test was 1,721 degrees F. The temperature on the unexposed surface (opposite the furnace heat) of the cellulose insulation remained well below those on the unexposed surface of the wood fireblocking throughout the test.

The detailed test data is contained in Omega Points Laboratories Project Report 10694-111638 dated August 28, 2002.

Summary:
After 1-hour cellulose insulation kept the temperature in the area above the heat source well below the lumber that is defined in the IBC as a fireblock material. This is another demonstration of the fire resistance of cellulose insulation compared to conventional building materials.

* If you would like to review this test report, please contact us.