Air Krete: Foam Without Plastics

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Air krete insulation is not all that new-it has been around since the early 1980s. In that time, it has collected a small but very enthusiastic group of advocates, especially among the chemically sensitive. There are also skeptics, however, who are concerned about its long-term durability or just question whether it is worth the higher cost. Recent evidence about the product's firestopping capabilities may provide the big break air krete advocates have been waiting for.

Air krete insulation is essentially foamed minerals: magnesium oxychloride cement, derived from sea water, and a particular variety of ceramic talc mined in Governor, New York. These minerals are mixed with a proprietary foaming agent-"glorified soap suds," according to air krete inventor R. Keene Christopher-and sprayed with pressurized air through a foaming gun. The resulting foam has a density of 2.25 lb/ft^3 (26 kg/m^3). It takes a few hours to cure, so when it's being installed in open cavities a fine screen is stapled across the opening to hold the foam in place. Air krete used to be pink, but some purists objected to the use of red dye #2 food coloring, so it now has a blue-green tint, achieved with an inert mineral pigment.

Air krete is quite effective as an insulation, with an R-value of 3.9 per inch (RSI-27/m). Like other foamed or blown-in insulation, it is much more effective than batts at filling cavities, especially odd-shaped or hard-to-reach spaces. Air krete is not flexible after it cures, however, nor does it bond to surfaces, so shrinkage or movement in a frame may open up small gaps.

Air krete may be most notable for its performance as a firestop material. Although the company has long touted the fact that air krete will not create smoke or contribute to flame spread, its performance in a fire goes beyond these factors. Sea Cliff, New York architect Sergio Zori reports that a standard, 2x4-framed wall filled with air krete insulation has passed a 2-hour firestopping test. Anecdotal evidence seems to confirm this claim: One section of an old barn in Acworth, New Hampshire was converted to living space and insulated with air krete. A severe fire subsequently gutted the