Today’s buildings are better insulated than they have been in the past, to comply with building and energy conservation codes. A building with concrete block walls exposed as both the interior and exterior finished surfaces needs insulation to meet these requirements. For years, dry granular insulating materials like perlite and vermiculite have been poured into the tops of open cores in the concrete block walls before they were capped. These materials work well, and are still in use today. However, they can settle from vibration and leave the top of the wall without insulation. Besides, if a hole is cut or drilled lower in the wall, the insulation in that core will run out.

In the last decade, systems have been perfected that solve the problems with the granular materials. They inject a liquid foam mixture into each vertical core of the concrete block wall with compressed air; the foam mixture expands to fill all of the voids and hardens; and the injection holes are patched with mortar.

One of these systems is CoreFoam®, (www.cfifoam.com) which mixes dry plastic resin powder and a liquid catalyst at the job site. This mixture is injected with compressed air through a series of ¾-inch holes drilled into the horizontal mortar joint about four feet above the floor into each vertical core in the wall. The foam expands to many times its original volume, adheres to the inside of the concrete block, and hardens. It does not settle, shrink, or run out of the wall if it is drilled or cut. Similar materials and systems are available from other manufacturers.

Photo1 shows a concrete block wall that has been injected with this foam insulation, and that has had the injection holes plugged with mortar. Note that there are no injection holes at four-foot intervals along the mortar joint. The vertical cores at these locations are filled with steel reinforcing bars and Portland cement grout from the top of the wall to the footing, because they are directly below the bearing plates for steel beams or bar joists.
According to the manufacturers’ literature, the cured foams used in these injected insulation systems do not support combustion. They will burn slowly, usually with a flame spread rating of 25 or less (red oak = 100), and will produce a lot of smoke. The same literature also states that these foam insulations can be used inside fire-rated masonry walls without affecting the rated performance of the wall assemblies.

Photo 2 shows an opening for a fire extinguisher cabinet that has been cut into a foam-insulated wall of eight-inch concrete blocks. The foam that has been exposed is still firmly in place, and is about as rigid as the foam in an inexpensive bait bucket.

Any manufacturers or brand names noted above are used only as examples, and the websites only as sources of additional information. Reference to them is not an endorsement of either product or manufacturer.

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