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## Acting and reacting: A roofing dilemma

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Roofing/Siding/Insulation (RSI)



In the roofing industry, we have been able to provide durable and reliable roofing systems, even though the building environment has changed. Structures have gotten lighter, the envelope has become more energy efficient, yet demands for fire, hail and wind resistance have become more stringent.

Some of our systems, such as hot bituminous, lead, copper, slate and tile roofing have been around for centuries. Their performance is predictable, the roofs are sustainable, and we have a workforce that can install these systems successfully. Changes have come slowly, following technological advances and sound research.

External forces have hastened our pace of change, and some of the changes have worked out well. For example, modified bituminous roofing incorporated advances in bitumen/polymer technology at a time when the cost of petroleum was skyrocketing. Two-ply, coated MB systems are well accepted, and have provided systems that are both labor and petroleum efficient.

But not everything goes so smoothly. Lead has been used for hundreds, if not thousands, of years in constructing roofs and flashings. Lead has been banned from paints and coatings because of health concerns, as well as from solder used in potable water systems. Forces seem to be at work to remove all construction lead, even though the medical evidence against its use is lacking.

Asphalt, a mainstay of built-up and MB roofing, has also been under the gun. Currently, the OSHA limits for asphalt fumes are 5.0 mg/m<sup>3</sup>, compared to 0.5 for pitch, but some hygienists want to dramatically reduce the permitted levels. Fume collection equipment and low-fuming asphalts are now available to address these concerns. Cold-process BUR and MB systems are alternatives, but are not suitable for all applications. Self-adhering systems need no torches, but have many concerns, especially since they are so new.

Petroleum solvents have been another mainstay of the roofing industry. They fluidize our roof mastics, coatings and primers, and are termed "mineral spirits," suggesting how long they have been around.

Now, in an effort to reduce hydrocarbon emissions into the atmosphere, several air pollution districts have imposed VOC regulations on how many hydrocarbons a pail of material can contain. This VOC regulation becomes a serious problem when you consider some products, such as roofing primers, have only two ingredients—*asphalt and mineral spirits*. (See RSI "On the Roof," March 2004).

Cellulose products are a new environmental target. Some owners don't want any organic compounds in their building construction, because under the right circumstances they might support mold. Some producers of polyiso have converted to inorganic facers to meet this demand. Gypsum cover boards are now getting inorganic facers as well.

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The newer single-ply products seem to be having less trouble with regulators. The reflective properties of some single-ply membranes fit the "cool-roof" demands for urban heat islands.

While early on, PVC membranes were implicated as a problem for disposal, they are low-bulk and can be recycled. Tetrahydrofuran (THF), a popular solvent used for solvent-welding PVC has been entirely replaced with heat-welding techniques. Solvents for EPDM splices and washes are being replaced with talc-free membrane surfaces and peel-and-stick techniques. Improvements in acrylic technology have replaced the solvent-based coatings used in the past over neoprene, butyl and EPDM membranes.

The roofing business is a tough taskmaster. We are trying to provide durable and sustainable systems, despite the external influences forcing all these changes. With hindsight, some will fail and might sink our reputations, much as the rush to two-ply roofs did some 40 years ago. Being a leader without adequate research—or worse yet—a follower who does no research at all may come back to haunt us once again.

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