



By Kirk Parsons, RRC and Chris Upperman

Kirk Parsons earned a B.S. in engineering physics in 1989 and began his career at Engineering and Technical Consultants, Inc. later that year. He was named vice-president and manager of ETC's Columbia, Maryland office in 2003. His areas of expertise include roofing, waterproofing, exterior facing systems, windows, pavement, and site drainage systems.



Chris Upperman is an Assistant Project Manager and has worked for ETC for over 13 years. He has more than 25 years of experience in the building trades. He's an RCI-designated Registered Roof Observer and a Concrete Level II Technician with the Washington Area Council of Engineering Laboratories (WACEL).



Architecture/Engineering Trends

What's Hot and What's Not in Building Repairs

Construction technologies are ever-evolving and keeping up with every new product or practice is daunting, to say the least. They are somewhat easier to track when they become trends. Below are a few construction trends that could be of interest to this publication's readership.

Special Inspections

Special-inspection provisions have been part of the building code for years, but many jurisdictions require them for many more tasks than they did in the past. This code provision requires that structural repairs must be monitored only by persons certified and/or licensed in the involved discipline and the costs of these more stringent inspections can add significantly to major projects. Inspection protocols (frequency, inspector qualifications, documentation, etc.) are established as part of the permitting process.

Regulatory Prohibitions

Construction and maintenance materials are routinely legislated or litigated out of existence; some (e.g. asbestos, lead, coal-tar, etc.) for health reasons, some for performance reasons (e.g. polybutylene water conductors and wood-fiber siding). Products with volatile organic compounds (VOCs) are not allowed in certain locations and applications. In a lot of cases, the substitutes are inferior with respect to performance.

For example, coal-tar pitch is unsurpassed in roofing/waterproofing applications, but it's also an irritant and its fumes have been deemed hazardous. Coal-tar roofs and pavement seal coats have been banned in some jurisdictions. VOCs have also been removed from coatings and adhesives and the jury is still out on what the overall impact of these changes has on performance.

Restorative Roof Coatings

Over the past several years there has been an increase in the use of coatings to extend the lives of roofs. Once the exclusive domain of second-party producers, several major roofing manufacturers have developed their own coatings or have teamed up with coating manufacturers to package single-source systems. Some manufacturers even offer what appear to be attractive warranties (up to ten years).



Warrantees and manufacturer claims notwithstanding, coatings are not cure-alls. They're not suitable for every roof and they should generally be considered stop-gap measures. Coatings should not be confused with other surface treatments (such as re-saturants or rejuvenators), which are intended to restore depleted or degraded asphalt in built-up roofs.

Liquid-Applied Flashings

Base flashings in roofing and waterproofing systems are more often than not formed of materials similar in composition to the membrane or sheet metal. Fabric-reinforced, liquid applied flashings have been available for years, but have recently gained in popularity. The system is comprised of a two-part (resin and catalyst) liquid component, usually polymethyl methacrylate (PMMA) or urethane and a fabric reinforcement. The end product is robust and flashings are easily formed around complex, intricate features. These flashings are also included in primary roofing system warranties, whereas sheet metal flashings are often times not covered.

Alternative Air and Water Barriers

Asphalt-impregnated building felt (so-called tar paper) was the material of choice for weather-resistant barriers in exterior facing systems until it was largely supplanted by building wraps formed of polyethylene fibers (such as Tyvek, by DuPont). These sheet goods are installed between the facing material (masonry, siding, etc.) and internal wall sheathing. Some manufacturers offer sheathing that incorporates air and water barriers, theoretically

eliminating the need for secondary felts or wraps.

Those systems only require that panel joints be taped, while fastener penetrations can be left unprotected (a potential weakness, in our opinion). Liquid-applied air barriers are gaining in popularity and properly applied they yield excellent results. Although not inexpensive at this time, costs are likely to drop as more manufacturers develop, and contractors gain experience with, these types of coatings.

LED Lighting

With the development of blue-light-emitting diodes (for which a Nobel Prize was recently awarded) white-light producing LEDs became viable for consumer use. In terms of efficacy (lumens per watt of energy) LEDs are between five to ten times more efficient than incandescent lamps and two times more than fluorescent. They can last up to 100,000 hours, compared to 1,600 hours for incandescent and 8,000 for fluorescent. LEDs are insensitive to temperature, require no ballasts or starters, generate a fraction of the heat produced by other sources and contain no hazardous materials (such as the mercury in fluorescent lamps). They're still fairly expensive, but costs have dropped and will probably continue to do so.

This list is by no means exhaustive and new products and practices are continually introduced. Many will fizzle and some will become gold standards for their respective industries. We generally recommend caution when considering departures from established norms. Let the "other guy" try them first and see how things work out with time. 📺