

MARCH CALENDAR ITEM EPDM



Baumann



Jannasch

Three industry experts — Kate M. Baumann, marketing director, Mule-Hide Products Co.; Jim Jannasch, EPDM product manager, Firestone Building Products; and Scott Long, EPDM



Long

product manager, Carlisle SynTec — discuss the state of ethylene propylene diene monomer:

With TPO growing so quickly, we need to remind our readers about the benefits of EPDM. Can you discuss a few?

Baumann: EPDM offers building owners the roofing industry's longest average service life and has more than 40 years of field performance, representing more than 20 billion square feet installed. EPDM features superior fatigue, heat, and hail resistance, as well as high resistance to ozone, weathering, abrasion, and wind. Its flexibility in low temperatures and thermal shock durability make for an ideal roofing system in all climates. White-on-black EPDM offers a cool roof solution for hot climates, or black EPDM can be field-coated with white elastomeric acrylic coatings.

Jannasch: The benefits include long-term performance, sustainability, and low life-cycle costs. With landfills seeing as much as 75 percent of content being construction material, it is imperative that we reduce this number, and using EPDM can help. EPDM is easy to refurbish or "tune-up," thus extending its life. With a good maintenance program, periodic tune-ups, and the possible addition of an acrylic coating,

EPDM can last well past its expected life. The SKZ group in Germany has conducted a study on EPDM and found that its expected life is between 50 and 75 years.

Long: EPDM continues to lead the nation in market share for single-ply applications. With 45 years of proven field performance, ballasted, mechanically fastened, and fully adhered EPDM roof systems remain the most popular options for low-slope commercial roofing applications. More than 10 billion square feet of EPDM membrane has been installed worldwide, proving that this membrane has established itself as a superior roofing solution for all climatic conditions. This is supported by various laboratory studies and actual field installations and an excellent track record that results from a unique set of physical characteristics: EPDM has superior resistance to UV (ultraviolet) radiation; EPDM has unmatched resistance to thermal shock; EPDM exhibits superior resistance to cyclic fatigue; EPDM has superior resistance to hail damage; EPDM will not become brittle and will not shatter due to low temperature flexibility.

Where do you see the EPDM market strongest — retrofit or new construction?

Baumann: Retrofit is the strongest market for EPDM.

Jannasch: This depends on the building, warranty needs, etc. Ballasted EPDM systems are still the most economic roof system installed. Recent studies show that ballasted systems can be as cool as white roofs, thus making them the perfect option for big box new construction at the lowest cost.

Long: Retrofit and new construction represent significant opportunities for EPDM. As older roofs need to be replaced or recovered, EPDM offers an excellent option for sustainable roof assemblies. EPDM roofing membrane remained the leader in industry market share, according to the results of the National Roofing Contractors Association (NRCA) 2006-07 annual market survey. The association's survey found that EPDM claimed 27 percent of new construction, and 25 percent of

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This new EPDM roof will one day have contractors asking, "Should I tear off? Or should I repair?" Thanks to technology, the answer will more often involve restoration.



Extreme Makeover

By Ron Goodman / RSI Contributing Writer

Good roofing practice has always been to tear off an existing roof to the deck and replace it with new material, but that is beginning to change. The age has come where tearing off an older roof may not be the best choice on behalf of the building owner or the environment.

Sustainability, the latest buzzword in the commercial roofing industry, is fueling the desire of building owners to minimize resource consumption and also reduce landfill usage. The advent of several forensic diagnostic tools available to roof consultants is consist-



Aged EPDM roof systems can be repaired and restored rather than torn off

ent with the trend of minimizing waste and extending the life of existing materials. Now, consultants can provide their customers with multiple options when their roof systems need repair.

Consultants are increasingly turning to technologies such as infrared and nuclear moisture scans, moisture meters, fastener pull-out equipment, insulation density tests, and GPS tools to help determine the best option for an aged roof. When these tools are used in conjunction with thorough energy analyses and life-cycle costing, the best solution becomes clear. With these technologies, consultants have the upper hand in providing clients with the

most logical and economical roofing solutions for their aging roof systems.

All of these testing methods and technologies could not have come at a better time. Over the past 45 years, ethylene propylene diene monomer (EPDM) single-ply roof systems have grown considerably in market share compared with their modified bitumen and built-up competition. As a result, there are many aging EPDM roofs, and consultants will be faced with the task of providing cost-effective, durable solutions to keep them in proper working order without tearing off the existing roofs.

Several factors impact a consultant's decision regarding a roof system at the end of its useful life. Thermal bridging, proper drainage, R-value, surface color, wind uplift, and hail resistance are all important factors to consider. When everything is taken into account, consultants are faced with two primary choices, besides a complete tear off and replacement, when addressing an aged EPDM roof — restoration and recover.

In this month's issue, we will focus on EPDM restoration. Part 2 of the two-part series, in the April issue of *RSI Magazine*, will highlight EPDM recovery.

EPDM restoration

Because of today's technology and environmental concerns, consultants may justifiably choose to restore an existing roof without the need for replacement or full recover. Restoring single-ply systems can be the most prudent thing to do for a building owner. The life cycle should not be counted until the usable life of the roof is really over, and many single-ply systems are providing serviceable life well beyond 20 years.

When considering restoration options, the type of membrane must be taken into account. If a building owner originally selected an economical membrane, such as a 45-mil sheet, then the restoration process may require a roof coating to extend the life of the sheet in addition to stripping in the seams and

redoing the flashings.

Over the past several years, coating technology has advanced significantly. Today's coatings are considered a viable solution to an aged but not failing system. Many roof coatings feature warranties that cover the products' reflectivity and performance, providing buildings and their owners with years of protection and extended service life.

For buildings that feature a thicker, more premium membrane, such as a 60-, 75- or 90-mil sheet, restoration procedures may only have to address the seams and flashings. Coatings can still be used to enhance reflectivity, but in many instances, they are not necessary to enhance the field membrane's performance. The old adage of "pay me now or pay me later" holds true when it comes to the thickness of some roofing materials, and it is encouraging that building owners are increasingly recognizing the benefits of thicker membranes.

When redoing seams and flashings, nothing is more important than proper membrane preparation, regardless of thickness. The accepted method of membrane prep for the area to be stripped in is to scrub it using warm water and a low sudsing soap such as Spic and Span, Tide or Lestoil. After the membrane has been washed, it must be rinsed with clean water and given time to dry. Next, a weathered membrane cleaner and primer coat of splicing cement must be applied prior to installing a cured, EPDM cover strip that will ultimately waterproof the seam.

For fully adhered systems with large areas of delamination, the primary restoration procedure involves adhering a reinforced universal securement strip (RUSS) to the existing membrane and then mechanically fastening it at 12 inches on center. RUSS is available in standard and self-adhering options. It is used in perimeter securement on mechanically fastened, fully adhered, ballasted, and metal retrofit systems and can also be installed horizontally

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roofing

Extreme Makeover / continued from page 11

and vertically with seam-fastening plates below the EPDM deck membrane for additional securement or in conjunction with gravel stops and edging details. Many contractors favor this option over installing narrow-width perimeter sheets to meet wind-uplift requirements.

After installing the fasteners and plates, the upgraded attachment is stripped in with cured cover strip. For areas with a small amount of delamination, fasteners can be in-

When redoing seams and flashings, nothing is more important than proper membrane preparation, regardless of thickness.

stalled directly through the existing sheet and then stripped in with cured cover strip. For mechanically fastened systems, any loose or tented fasteners should be replaced or re-secured prior to completing the strip-in process outlined above.

The restoration procedure for ballasted systems is similar to the fully adhered and mechanically attached method; however, the stone must first be removed from the areas in need of repair. It should be noted that rakes or show-

els should not be used, as they can damage the field membrane. A gravel pusher or push broom should be used to clear approximately 12 inches of area on each side of the splice. After the splice has been exposed, the same strip-in procedures outlined above can be followed.

For large restoration or full recover projects, many contractors use a vacuum method to efficiently remove ballast from the roofing system. This method uses a Hydro-Vac

(industrial vacuum) that sucks the ballast from the roof and into a truck or tank on the ground. After large roof areas are recovered or replaced, the ballast can be reloaded back onto the roof by reversing the vacuum, pumping the ballast back to the rooftop. This method creates less dust and debris within the building and the surrounding environment, while allowing the ballast to be easily reused. **RSI**

RON GOODMAN is a product manager with Carlisle SynTec Inc.

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re-roofing work. The survey also highlighted that 2007 sales found EPDM in first place, with 26.9 percent of new construction and 24.3 percent of re-roofing work.

What are the latest EPDM innovations of interest to contractors?

Baumann: EPDM is a mature market segment without any unique innovations since the advent of seam tapes. Seam tapes continue to make EPDM easier for contractors to install. The tapes offer leak-free performance that contractors, architects, and building owners can count on.

Jannasch: Pre-taped panels, as well as white EPDM, are two of the biggest areas of innovation available to contractors. Stand-up tools for applying primer and rolling seams have helped contractors produce quality seams while doing it efficiently and ergonomically.

Long: The NRCA has identified a shortage in skilled labor as the No. 1 challenge facing roofing contractors for the foreseeable future. EPDM membranes with factory-applied tape and pressure-sensitive accessories represent the most significant opportunity to reduce the installed cost and improve the long-term performance of EPDM roof systems. The systems eliminate the requirement to invest in new equipment, retraining, and additional overhead.

Is mechanically attached EPDM still most popular, or has fully adhered caught up?

Baumann: Fully adhered and ballasted EPDM systems far outnumber mechanically attached systems. With our experience in water-base adhesives, fully adhered EPDM is the dominant system for us.

Jannasch: Fully adhered EPDM is the most popular system today. With reductions in fastening rates to obtain FM ratings and mechanized equipment to apply bonding adhesive, combined with large no-fold panels, fully adhered systems are now a preferred option over mechanically attached systems for most projects.

Long: In reality, fully adhered EPDM systems continue to be the most popular, particularly when using large sheets measuring up to 30 feet by 100 feet. Either non-reinforced or scrim-reinforced membrane can be used, with the non-reinforced membrane making up most adhered installations. Fully adhered systems are lightweight and ideal for a wide range of building sizes and geometric configurations, including high-slope applications. Because of recent technological advances in application, the fully adhered system is becoming the system of choice for roof replacement applications in many areas of the country. **RSI**

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