

# EPDM ROOF RECYCLING

BY GEORGE EVANKO

Recycling of EPDM reached a significant milestone at the beginning of 2010. Nearly 5,000,000 sq ft of post-consumer EPDM roof membrane have been recycled in the past three years. EPDM is now the leading recycled commercial roof membrane material in North America. In all, approximately 1.25 million pounds of reclaimed EPDM membrane have been diverted from landfills during this time.

This landmark highlights the great progress that has been made since the project was initiated in 2006. At that time, the

EPDM Roofing Association (ERA), in conjunction with roofing manufacturers Firestone Building Products and Carlisle SynTec, sought pilot locations and partners for the program. Those contractors and companies assisted in removing, transporting, and recycling the material. Recycled material was tested to determine its viability as a recyclable product, either on its own or in combination with other materials.

ERA and its members successfully expanded the program with the creation of a Recycling Council, including ERA Affiliate Members. ERA created the Affiliate Member category for any company, corporation, or



*Photos 1, 2, and 3 – EPDM is removed from a ballasted system (above, left). Afterward, it is taken to the grinder (top right), and the final product results (bottom right). (Photos courtesy of ERA.)*

other form of enterprise not eligible for Regular or Associate membership but which is engaged in any aspect of the business of recycling EPDM or other single-ply roof membranes. The first two Affiliate members were Nationwide Foam, Inc. (NFI) of Framingham, MA, and West Development Group (WDG) of LaGrange, OH.

NFI is the country's largest foam insulation board recycler. It operates on a national scale, collecting and hauling rooftop materials for commercial flat roof repair and replacement projects of all sizes. NFI brings more than 20 years of recycling experience to the roofing industry. Through its nationwide network, NFI has created an easy-to-use EPDM roof recycling program that has been used in 48 states and several provinces in southern Canada.

WDG specializes in silicone and polyurethane foam technologies used in the roofing industry. It uses recycled EPDM material to add UV stability to, and enhance the physical properties of, its silicone products. WDG processes this material and blends it into solvent-free silicone membrane for new roofing projects. The addition of Affiliate members enabled the program to make significant strides in scope and cost efficiency.

#### PROCESS

ERA's recycling program is available for low-slope ballasted and mechanically attached nonreinforced EPDM membrane tear-offs. It offers jobsite collection and direct transportation to a recycling center. ERA Affiliate Members such as NFI also collect and recycle polyiso, EPS, XPS, composite board foam insulation, and concrete roof pavers. In addition, the ballast from a roof can often be cleaned and recycled, making the recycling process more cost-efficient in many cases.

No special equipment is required to recycle EPDM. On the rooftop, crews start the process by removing ballast, sweeping the rooftop clean, and then cutting the EPDM panels into large sections, making certain to avoid fasteners and areas covered with bonding adhesive. After cutting, the EPDM sections are folded into bundles, stacked on pallets, and set aside until a truck arrives on site for transportation to a grinding facility. It may be necessary to find a suitable spot on site to store the material while awaiting the arrival of the truck that will take the material to the recycling center. This will make loading of the material onto the truck a quick and easy process.


#### BENEFITS

Given the increased emphasis on "green building" and environmental responsibility, the growth of the EPDM recycling program should not be a surprise. There is good reason for the roofing industry to face the spotlight when it comes to recycling. The U.S. Environmental Protection Agency (EPA) estimates that 40% of total landfill waste comes from construction and demolition debris – one quarter of which is generated by roofing materials.

When combined with hot-button issues such as the urban heat island effect, global

warming, and a decline in available landfill space in some parts of the country, it is no wonder a rising number of laws and regulations are requiring recycling in commercial projects.

For example, the state of Wisconsin announced that all EPDM roofing membrane and insulation removed from state buildings must be recycled. The Denver Public School System specifies that all materials removed during reroofing projects be recycled. In addition, many cities now require that new building construction and major renovations achieve specific LEED®



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Photos 4, 5, and 6 – Membranes are stacked and stored for transportation to the grinder. (Photos courtesy of WDG).



Several facts make it clear this goal is plausible.

Evidence indicates that recycling is a viable option for any project of more than 250 to 300 squares. With more than 20 billion sq ft installed on more than 500,000 warranted roof installations, there is obviously a large amount of EPDM that can be recycled in the future, as this durable material finally reaches the end of its usefulness on a rooftop. The existing recycling infrastructure has already simplified the process and made it economically viable for roofing contractors and building owners.

ERA and its partners are now focusing their efforts on expanding the network to ease the logistics of recycling and finding more end-use applications of recycled materials. A steady supply of material entering the pipeline will enhance the value of recycled EPDM to potential users. ERA is actively seeking additional companies interested in becoming Affiliate members and participating in the EPDM


rating levels, and LEED points may be earned for waste diversion and recycling.

Fortunately, many building owners and managers have responded with an open attitude toward recycling (even when it may not be mandatory). This effort is supported by the fact that recycling now makes financial sense. Based on the experience of the participants in ERA's recycling project, in more than 80% of the cases, recycling EPDM is a less expensive option than disposal.

In addition, some contractors have found that recycling EPDM membrane, along with the insulation, offered a 30% cost savings compared to traditional disposal.

#### NEXT STEPS

The continuing challenge is to make the recycling process available on an even wider scale and within reasonable expectations of cost efficiency to create a viable, ongoing recycling network.

recycling project. To find out more about the Affiliate member category, the Recycling Council, or the recycling program, please visit [www.epdmroofs.org](http://www.epdmroofs.org). 

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