

# Sure-Seal® EPDM

## Ballasted Roofing Systems



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The ballasted system was the first roofing system introduced by Carlisle in the 1960's, and today it continues to be one of the most sustainable options available for commercial buildings. New research has provided us with valuable information that many building owners and roofing contractors already know – due to its quick installation, material longevity, and the ability to keep a building cool during the warm summer months, a ballasted roof has one of the lowest life cycle costs of any roofing system.

### HISTORY OF CARLISLE

For more than 50 years, Carlisle's roofing products have set the standard for durability in a variety of applications. With more than 15 billion square feet of roofing materials sold, Carlisle continues to lead the single-ply industry with a constant stream of innovative products.

When combined with the advances in EPDM seaming and perimeter securement technology, ballasted roofs remain at the forefront of high performance systems, allow for fast coverage and economical installations that provide benefits to roofing contractors, building owners, and the environment.

### COST EFFICIENT

Due to the nature of a ballasted roof system, it has one of the lowest life cycle costs of roof systems currently available. Installation is fast and efficient due to the speed of insulation placement and the ability to use wider EPDM membrane panels (up to 50') resulting in less seaming and increased productivity. When wide EPDM sheets are used in conjunction with Carlisle's patented Factory Applied Tape (FAT™), labor costs are reduced while enhancing workmanship quality.

### ENERGY EFFICIENT AND NATURALLY COOL



For those who are looking to reduce air conditioning costs in a more natural way, a ballasted roof is the answer. Oak Ridge National Laboratories (ORNL) has certified that ballasted roof systems meet the criteria of a Cool Roof, designed to reduce air conditioning costs. Ballasted roofing systems feature the use of natural river-washed stone, which keeps the membrane surface temperature in the 90° to 103° F range. This is comparable to the surface temperature of highly reflective roofing membranes without the concerns of reflected heat or glare that can impact HVAC equipment or nearby window efficiency. Ballasted systems can also help mitigate the heating cost penalty associated with the use of reflective membranes in northern climates where heating costs are typically 3-5 times greater than cooling costs.

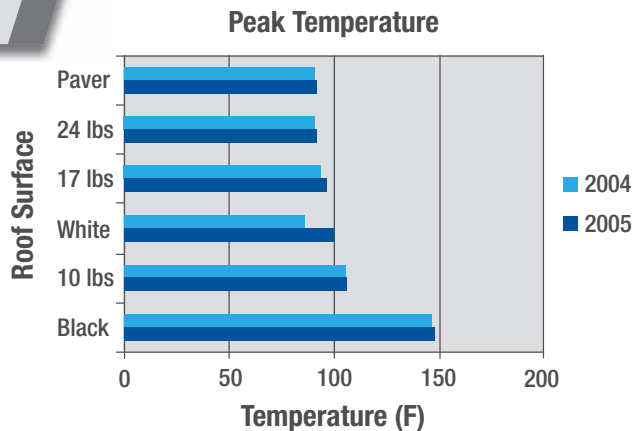
In the ORNL study "Evaluating the Energy Performance of Ballasted Roof Systems," the ballast provides membrane protection and thermal mass to help reduce roof top temperatures and delays the heat flow into a building, resulting in air conditioning savings comparable to those of a light-colored reflective membrane. Ballasted roofing systems remain aesthetically pleasing and minimal maintenance is required to retain the cooling performance of a ballasted EPDM assembly. Reflective membranes are washed periodically to maintain optimum reflectivity and keep the membrane looking clean. The ENERGY STAR® program recognizes ballasted EPDM as a viable means to reducing air conditioning costs.

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## FEATURES AND BENEFITS

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- » More than 50 years of proven performance
- » Industry leading UV resistance of 41,480 kJ/m<sup>2</sup>
- » Economical system with low life cycle costs
- » Excellent hail damage and fire resistance
- » Low global warming potential, acid rain and smog impact according to a study using EPA's TRACI model
- » Accepted as cool roof alternative by ENERGY STAR, ASHRAE, California Energy Commission and the City of Chicago
- » Recyclable membrane and insulation
- » Stormwater retention options
- » Ideal for concrete decks
- » River washed stone ballast or Concrete Paver options available through Carlisle
- » Factory-Applied Tape (FAT™) and Pressure Sensitive Flashings enhance workmanship quality



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## WEATHER RESISTANT

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Ballasted systems are designed to resist high winds and offer excellent protection against hail. In a study conducted by the National Roofing Contractors Association, EPDM systems performed better against hail than any other roofing system tested, including BUR, SPF, Modified Bitumen, and PVC. Ballast can also protect roof membranes from ultraviolet radiation and extreme temperature fluctuations improving the long-term performance of the roofing system. A 2006 study proved that EPDM membrane from a 20 year old ballasted roof system maintained its' physical properties and still met the ASTM standards for new membrane. Non-reinforced EPDM has industry leading UV resistance of 41,580 kJ/m<sup>2</sup> and is available in 45-, 60- and 90-mil thicknesses with Factory-Applied Tape (FAT). FAT has led to an 80% reduction in seam-related workmanship issues.

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## STORMWATER MANAGEMENT

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Carlisle's Ballasted Stormwater Retention Option offers building owners and developers an innovative alternative to costly stormwater collection basins and the associated land requirement. The Stormwater Retention Option can retain in excess of 65% of the rainwater from a 1" storm event. This retention capability can help owners and developers reduce land requirements, recognize valuable tax incentives and achieve up to 2 LEED® points.

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## RECYCLABLE

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EPDM membranes are recyclable. Membrane installed on roofs several decades ago demonstrates superior sustainability while technology has given us the ability to recycle aged EPDM membranes into new products and help a building achieve up to 2 LEED points. The ability to reuse the ballast and insulation reduces installation costs and has a positive effect on the environment by providing an alternative to the disposal of the old materials.



## EXPERIENCE THE CARLISLE DIFFERENCE

### AESTHETIC AND TRANQUIL APPEAL

Ballast is available in several forms – from naturally occurring round river stone, to crushed stone, to pavers. Ballast can be easily maneuvered to fit a variety of designs or customized graphics to provide superior aesthetics as well as protection from the elements. Architectural pavers are available through Carlisle and can be included as part of a Total System Warranty.

The tranquility of the building can be enhanced by a ballasted EPDM system by reducing the interior noise level from rainfall transmission. Less disruption from the outside elements results in a more appealing living, work, or retail environment.

With over 50 years of success for low slope applications, EPDM is the leading roofing choice of architects, roof consultants and contractors. Ideal for both new construction and replacement roofing projects, more than 13 billion square feet of EPDM has been installed on more than 300,000 warranted roofs. Utilizing a combination of wide membrane panels and aesthetically pleasing stone or pavers, Ballasted EPDM roofs offer a sustainable roof solution with unmatched service and performance. The recent research completed also confirms the ability to withstand the elements while serving to protect the environment as a cool roof alternative capable of reducing stormwater runoff and being recycled at the end of service.

### BALLASTED EPDM – THE ORIGINAL SUSTAINABLE ROOF

- » Low global warming potential, acid rain and smog impact
- » Economical installation cost
- » Provides cooling and warming benefits
- » Natural cooling without the side effects
- » Less prone to condensation accumulation
- » Storm water mitigation options
- » Excellent hail and wind uplift resistance
- » Enhances building tranquility by reducing rainfall noise transmission and by creating a visually pleasing natural appearance that doesn't show dirt accumulation
- » No thermal bridging of fasteners
- » No bonding adhesives with VOCs and odors
- » No electric consumed for seaming
- » Zero (no growth) rating for fungal growth
- » Well documented long service life (more than 40 years of experience)
- » Recycle or reuse everything (insulation, membrane and ballast)

