



JOHNS MANVILLE PVC BUILT TO SURPASS.
PROVEN TO LAST.



PVC Roofing Systems

Overview Brochure

THE INTEGRITY TO BUILD YOUR BUSINESS STRONG.

Integrity is the foundation of our relationship with you, and something we engineer into every roofing product we deliver. It's how we've built our reputation for more than 150 years – as a partner you can count on for the right products, support and information you need for a successful project. We are driven by a company-wide philosophy of adapting our business for you – around your needs and schedules to drive your business success. Integrity is more than a word. It's a way of business we strive to live every day.

Because, like other great traditions, integrity is what truly stands the test of time.



600 MILLION SQUARE FEET. A QUARTER CENTURY OF PROVEN PERFORMANCE. JM PVC PASSES THE TEST OF TIME.

Relentless sun. Torrential rain. Severe heat and cold. Commercial roofs face no shortage of extremes. And the true test of any roofing system is how it stands up to these conditions over a long lifespan.

The JM PVC formulation has proven itself time and again – protecting airports, manufacturing facilities, educational buildings, stadiums and retail structures across the continent and continuing to pass the test of time.



JM and Cooley Group: A Strategic Partnership Aimed at Your Success.

Our nearly decade-long partnership with the Cooley Group is what allows us to deliver an advanced membrane formulation. We combine the Cooley Group's century of chemical expertise with our deep knowledge of the roofing industry, working side-by-side to deliver a quality product.

Elvaloy® KEE: The Key to Unrivaled Performance.

JM PVC is born of the perfect combination of two robust polymers, PVC (polyvinyl chloride) and KEE (ketone ethylene ester). More than 25 years ago, Cooley chemists achieved this ideal formulation. Elvaloy® ensures a pliable, durable and UV-resistant sheet with superior chemical resistance – even in the most extreme environments.

Why Choose a PVC Membrane?

- Unmatched chemical resistance
- Inherent fire resistance (PVC is self-extinguishing)
- Excellent durability and life expectancy
- Recyclability
- Highly resistant to UV damage

Cover: Salt River Fields at Talking Stick, Scottsdale, AZ

Left: BOK Center, Tulsa, OK

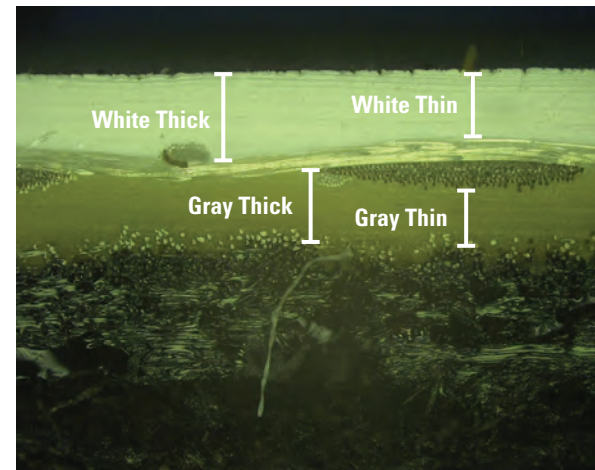
*Elvaloy® KEE is a registered trademark of E.I. du Pont de Nemours and Company.

THE PROOF IS IN THE DATA.

- 18.14 inches average annual precipitation.
- 18.69 mph average wind speed.
- 63.62 inches average snow annually.
- 26.00 inches of extreme snow on January 11, 1993.
- 50.30 inches of record snow in January 1993.
- 222 sunny days with 4.7 UV index.
- 107° F plus July 13, 2002 record heat.

How JM PVC Stood Up To 18 Years Of Exposure.

We tested samples of a 40 mil Fleece Back asphalt applied PVC roof that was installed in 1992 and harvested in 2010. It's withstood the test of the elements, and was still performing when removed.



Thickness Testing ¹					
Tested Physical Properties	Test Method	ASTM D4434 Requirements	Johns Manville 50 mil Fleece Back	Exposed Sample Average	Unexposed Sample Average
Thickness Minimum Inches	ASTM D751	± 10% From Nominal	0.073	0.040	0.043
Thickness Over Scrim Minimum Inches	ASTM D4434	0.016	0.020	0.0187	0.0191

Low Temperature Bend Testing					
Tested Physical Properties	Test Method	ASTM D4434 Requirements	Johns Manville 50 mil Fleece Back	Exposed Sample Average	Unexposed Sample Average
Low Temperature Bend, °F	ASTM D2136	Pass	Pass @ -40°F	Pass @ -40°F	Pass @ -40°F

"Don't judge a membrane roof by its material data sheet alone. Pair it with performance history to get the full picture."

Buildings Magazine, May 2012

THE RIGHT FORMULATION MAKES ALL THE DIFFERENCE.

Maintains Flexibility, For Long-Term Performance Even In Extreme Temperatures.

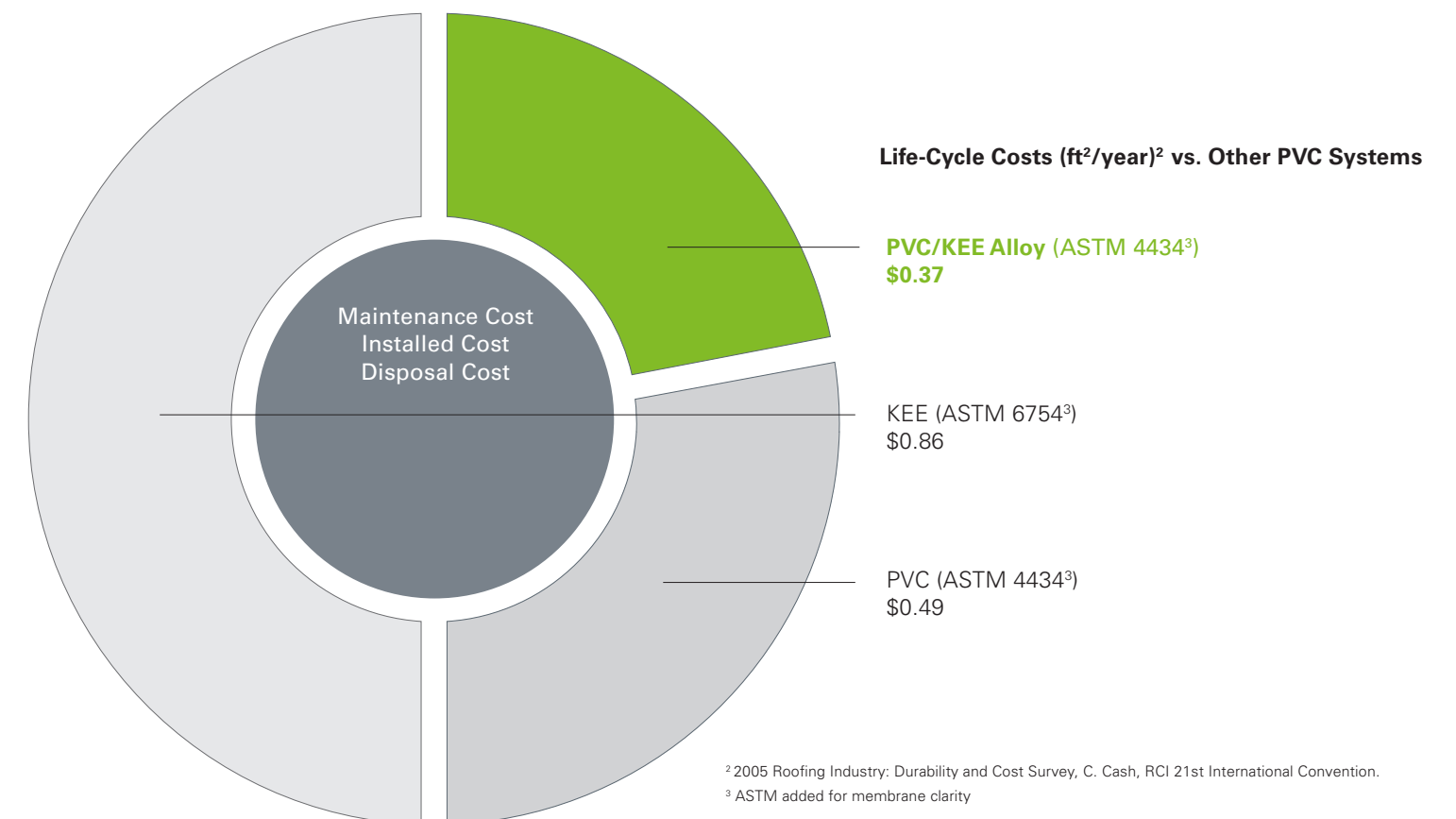
Some PVC membranes can become brittle over time. JM PVC never loses flexibility, because when the Elvaloy® and PVC molecules melt together, they stay together naturally – resulting in a compound that does not lose flexibility and is chemical resistant. Elvaloy® is a polymeric plasticizer that is 100% compatible with the PVC resin over its useful life.

Tested To Withstand Extensive Weathering.

In ASTM G 53 (UV and water) testing, JM's 60 mil sample has exceeded 39,000 hours of exposure – more than seven times the ASTM minimum – and still shows no signs of cracking or other damage.

The Lowest Commercial Life-Cycle Cost.

Elvaloy® PVC is proven to have the best life-cycle cost. When factoring in initial installation cost, maintenance cost over the life of the roof and longevity of the membrane, JM PVC offers the most practical solution.



² 2005 Roofing Industry: Durability and Cost Survey, C. Cash, RCI 21st International Convention.

³ ASTM added for membrane clarity

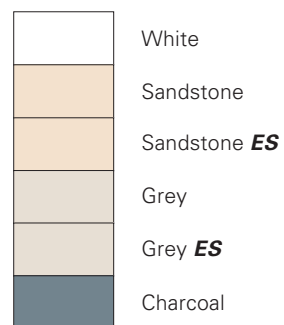
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¹ 2011, Long-term durability study conducted by SGH

WHATEVER THE DEMAND, JM PVC DELIVERS.

An Extensive Portfolio To Meet Every Project's Requirements.

The JM PVC offering includes energy-saving grey and sandstone (ES), along with a number of weather tested and approved colors. They are available with extensive mil thickness options, application methods and profiles. Fabricated and custom accessories are also available to complete your installation.



ES Grey and Sandstone membrane are LEED 2009 Compliant

Formulated for a Cooler Roof Advantage and LEED Potential.

Meet your ENERGY STAR® and LEED requirements. ENERGY STAR rated JM PVC membranes are produced in an extrusion process that yields a reflective, smooth surface – achieving a solar reflectance index (SRI) of 108 without needing a lacquer coating.

Polyester-Reinforced Seam Strength Provides Excellent Long-Term Waterproofing.

JM's polyester reinforcement offers improved strength and water resistance. Because the reinforcement is based on special low wick treated yarn, no edge sealant is needed. This results in lower installation cost and a more pleasing finish. JM PVC can be used in either mechanically fastened or fully adhered systems, providing greater application flexibility than fiberglass reinforced membranes.

Excellent Chemical Resistance.

With inherent chemical resistance, PVC is ideal for restaurants and food manufacturing – where roofs face challenges like exhaust stack spills of salts and oils. A study conducted by SGH Consulting Engineers found that PVC with Elvaloy® is the most chemical resistant of all single ply membranes.

Chemicals Tested: HVAC Oil, Canola Oil (Restaurants), Dry Heat (Arid Climates), Water (Humid Climate), 1N Acid (Acid Rain), pH11 Base (Cleaning Solution)

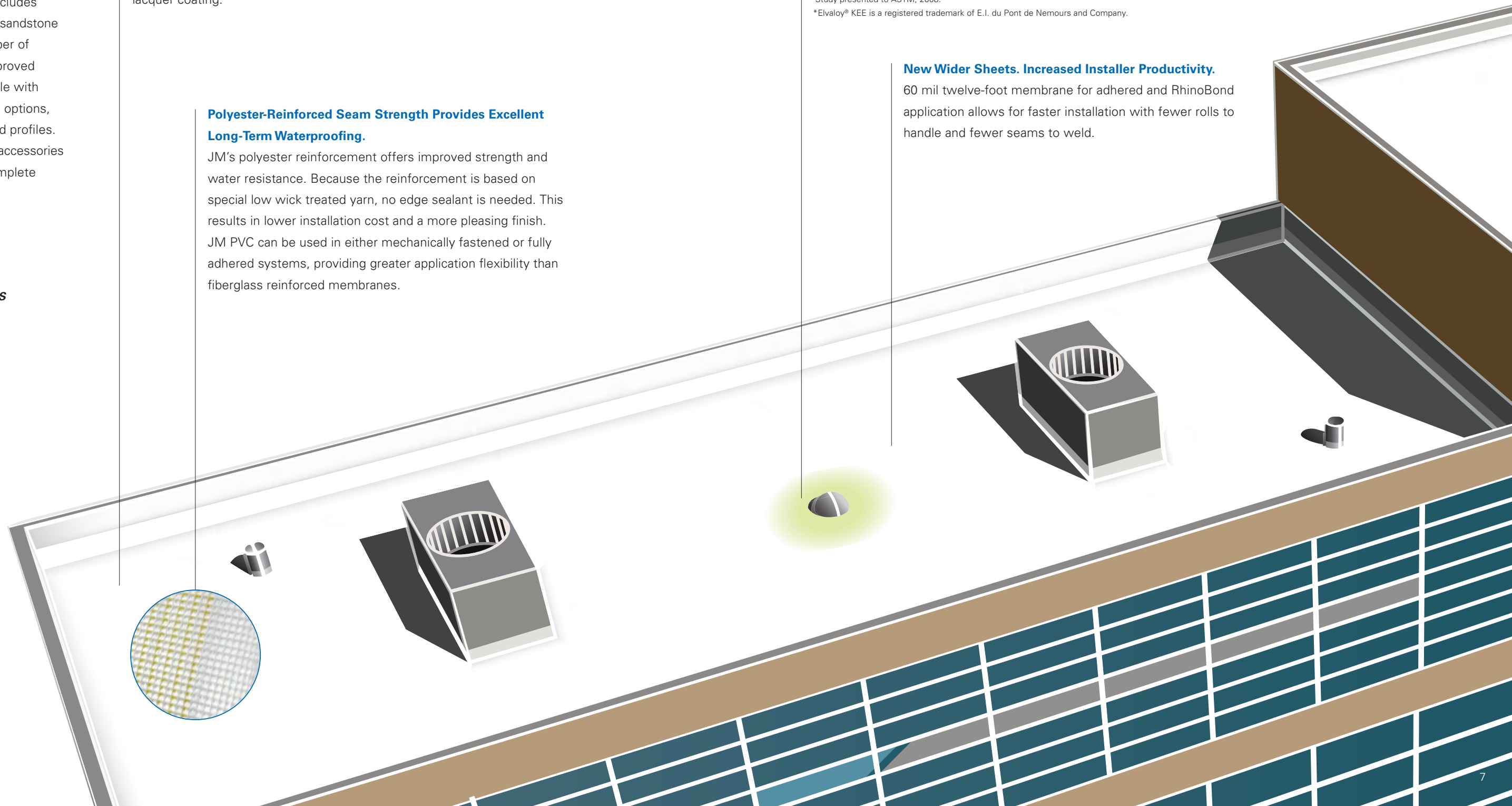
No Change In: Mass, Puncture Resistance, Dimensional Stability⁴

⁴Study presented to ASTM, 2008.

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New Wider Sheets. Increased Installer Productivity.

60 mil twelve-foot membrane for adhered and RhinoBond application allows for faster installation with fewer rolls to handle and fewer seams to weld.





BUILD YOUR BUSINESS STRONG WITH JM PVC.

Supporting The Complete Roofing System.

We're committed to personalized technical and sales support whenever and wherever you need it – with an emphasis on helping you choose complete roofing systems that are right for the job. And we offer you single-source convenience with a complete line of insulations, cover boards, coatings and specialty products.

Invested In You.

The best roofing systems are installed by the best-trained roofing professionals. That's why the JM Roofing Institute™ invests in specialized education and training, together with a comprehensive approved contractor program – the Peak Advantage Contractor Program.

Strong Heritage. Unquestionable Stability.

JM is owned by Berkshire Hathaway, a company known for maintaining the highest standards of ethics and operation, and one of the most financially sound corporations in the world. We have the financial strength to honor our guarantees and continue investing in our commitment to PVC and other single-ply solutions.

Stringent Manufacturing Standards.

JM and Cooley are dedicated to ensuring quality control, continued testing and the development of innovative and enhanced PVC products. The formulation is the proof – as it has delivered more than two decades of proven field performance.

To learn more about how JM's comprehensive services can help your business, visit www.jm.com/roofing.