



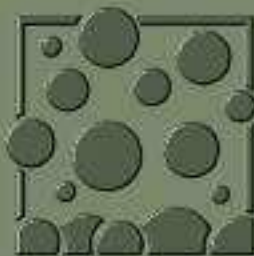
Defy the Elements



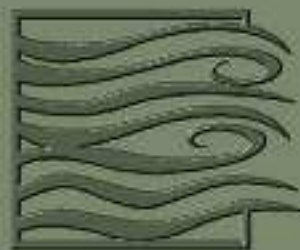
W A T E R



F I R E



H A I L



W I N D

# JM PVC Systems

## Single Ply Roofing



## JM's Commitment to Meeting Your Single Ply Roofing Needs

Johns Manville Roofing Systems helps you defy the elements with the industry's most comprehensive portfolio of commercial roofing solutions. Our single ply, built-up and modified bitumen systems are complemented by a complete line of insulations and cover boards, coatings and specialty products for single-source convenience. Every installation is supported by readily available design and technical resources, reassuring customer service and backed by guarantees that are among the strongest in the industry.

We have maintained our legacy of excellence for more than 150 years by investing in products that address unique building requirements and advances in roofing technology. With nearly 30 years of experience in high-performance single ply roofing systems, we continue to help our customers succeed in this demanding marketplace.



Bank of Oklahoma (BOK) Center, Tulsa, Okla.  
220,000 square feet of JM PVC-60  
Roofing Contractor: Oklahoma Roofing & Sheet Metal Inc., Oklahoma City, Okla.  
Owner: City of Tulsa

*"Since the roof is visible on this high profile project, appearance was very important. That was the reason the renowned architect Cesar Pelli selected a JM PVC membrane, which looks very clean after installation. The JM PVC-60 is also exceedingly durable and easy to weld."*

Earl Craig, project manager, Oklahoma Roofing & Sheet Metal Inc.  
Oklahoma City, Okla.

## JM PVC with DuPont™ Elvaloy® KEE (Ketone Ethylene Ester) Single Ply Systems

### High Quality in a Variety of Applications

JM has more than a decade of experience with PVC systems. PVC with Elvaloy has been installed on more than 500 million square feet of roofing systems on projects including airports, manufacturing facilities, educational buildings, stadiums and retail structures.

PVC is a flexible, thermoplastic-reinforced membrane that performs well in demanding environments requiring resistance to chemicals, wind, rain and varying temperatures. It is often specified by architects, consultants and building owners because it is:

- Durable
- Easy and cost-effective to maintain
- Installed at a lower cost
- Chemically resistant
- Energy efficient

### Multiple Membrane Types, Sizes and Colors to Fit Your Needs

The accompanying photos and chart indicate the variety of ways in which you can specify JM PVC, including our new, easier-to-install 10-foot sheet. JM PVC is also available with a polyester fleece-backed option for fully adhered systems and for use over uneven surfaces.

JM offers a number of roof constructions that can qualify for 10-, 15- or 20-year NDL Peak Advantage® Guarantees.

### Available colors



### Stocked Product Information

Thickness	50 mil and 60 mil	80 mil
Standard Sheet Size	120" x 100' (3.05 m x 30.48 m)	78" x 75' (1.98 m x 22.86 m)
	78" x 100' (1.98 m x 30.48 m)	39" x 75' (1.0 m x 22.86 m)
	60" x 100' (1.52 m x 30.48 m)	
	39" x 100' (1.0 m x 30.48 m)	
Fleece Backed Sheet Size	76" x 90' (1.93 m x 27.43 m)	76" x 75' (1.93 m x 22.86 m)
Color	50 and 60 mil - Grey, White or Sandstone 10' (3.05 m) Sheets, 80 mil and Fleece Backed - White Only	
Special Orders	Nonstandard colors and sizes are available with extended lead times. Minimum order quantities may apply.	



## JM PVC has Excellent Approvals

JM PVC membranes meet or exceed all the requirements of ASTM D 4434. In addition, JM PVC mechanically fastened and fully adhered roof systems are classified by Underwriters Laboratories Inc., Underwriters Laboratories of Canada and FM Global®. JM membranes meet the material requirements of the International Building Code, Miami-Dade County and the Florida Building Code.

Current code information is available on the Web or contact your JM representative for more details.



## JM Provides the Next Generation of PVC

Johns Manville's PVC formulation uses Elvaloy KEE technology for longer lasting protection.

Elvaloy is an advanced thermo-plastic, solid phase polymer with tough, yet flexible properties. Its high molecular weight and compatibility with PVC provides long-term plasticizer retention — one of its best known properties.



DuPont Elvaloy KEE

Maintaining the plasticizer in the PVC sheet is essential to long-term roof life. That is why JM teamed up with leading manufacturing experts and scientists to optimize the product formulation and develop the next generation of highly engineered membranes. Now, potential loss of plasticizer is minimized, ensuring greater flexibility and impact resistance for years after installation.

## Proven Performance

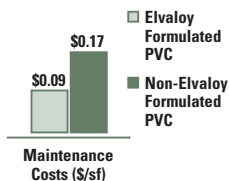
JM PVC with Elvaloy is a highly durable membrane offering:

### Exceptional weathering capabilities exceeding 12,000 hours of testing

When tested in accordance with ASTM G 53 Accelerated Weathering Test, the JM PVC formulation exceeded 12,000 hours (minimum requirements = 5,000 hours).

### Lower maintenance costs

Based on third-party market research, building owners found that membranes manufactured with Elvaloy are less costly to maintain.



## Lowest commercial roofing life cycle cost: \$0.37 per square foot per year

In a 2005 Durability and Cost survey performed by Carl Cash, Elvaloy PVC had a life cycle cost of \$0.37/sf per year.\*

## Inherent chemical resistance to oils, air conditioning coolants, fuels and grease

The JM PVC membrane performs extremely well. According to a study conducted by Simpson Gumpertz & Heger Consulting Engineers, the PVC/KEE (JM PVC) membrane is the most resistant to the chemicals tested.\*\*

### Chemicals Tested

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



### Physical Properties

Mass Loss  
Puncture Resistance  
Dimensional Stability

## JM's Integrated Manufacturing Process Adds Toughness and Tensile Strength

Our fully integrated process includes the weaving of a reinforcing polyester fabric with anti-wicking properties and an enhanced, aramid-reinforced edge. In FM Global tests conducted on mechanically fastened PVC systems, the reinforcing fabric improved the fastener pull-out resistance by 17 percent.

When JM PVC Fleece-Backed Membrane is manufactured, the polyester fleece is embedded during the manufacturing process to provide one integrated sheet.



\* Study presented by Carl Cash at the 21<sup>st</sup> RCI Convention and Trade Show, Phoenix, Ariz., March 2006.

\*\* Study presented to ASTM, 2008.

## Enhanced Installation Efficiency Equals Labor and Cost Savings

JM PVC membranes are now available in both 6- and 10-foot (1.83 m and 3.05 m) widths to offer a broader range of installation options.

By using JM's new 10-foot (3.05 m) membrane, contractors can save even more time and labor on:

- Measuring and cutting to size
- Unrolling and aligning
- Fastening
- Sealing the seams

The 10-foot (3.05 m) sheet reduces the number of rolls needed and decreases the number of heat-welded seams by approximately *33 percent* versus 6-foot (1.83 m) wide sheets.

Mechanically fasten or fully adhere JM PVC directly to an approved roofing substrate for a clean, quick, economical installation, whether it is a new or re-roof project.

The JM PVC membrane is hot-air weldable. Its wide temperature window\* for welding results in a secure, watertight seam that is also clean and economical.

\* 8 feet to 14 feet (2.44 m to 4.27 m) per minute at 1,150°F (621°C) depending on ambient air temperature and membrane thickness

1. Unroll



2. Mechanically Fasten or Fully Adhere



3. Weld



## JM PVC is an Ideal Re-Cover Solution

You can greatly reduce labor and debris disposal costs by installing a JM PVC system over an existing bituminous, single ply or metal roofing system.

When allowed by local code and applied correctly, a re-cover can often extend the life of an existing system, saving a significant investment. Johns Manville has FM Global approvals for re-cover systems.

JM PVC works best as a re-cover solution in two ways:

- As a high-thermal, energy-smart solution used over ENRGY 3® or ISO 3™ polyisocyanurate insulation boards and/or Invinsa™ roof board
- As a lower cost alternative, by using Invinsa™ as a barrier in place of a new insulation system

NOTE: In re-cover systems, Johns Manville requires a thermal scan and the removal of all wet insulation prior to installation. Contact your local JM sales representative for specific system and guarantee requirements. Be sure to check the local code regulations and building conditions to ensure this type of installation is allowed.

## JM is Dedicated to Service and Support

### Use JM Training for Even Greater Productivity

To complement the greater efficiency of our products, JM provides installer training through the JM Roofing Institute™. This education and development program builds on the strength of JM's experience and knowledge to meet the needs of

JM Peak Advantage® roofing contractors. Courses are designed to provide hands-on experience that will enhance day-to-day operations and improve productivity.



### Helping to Specify the Complete Roofing System

The Systems Engineering Group at Johns Manville emphasizes the roof as a complete system. These highly skilled technicians and engineers provide diverse and essential support services to the design professional throughout the project life cycle — from conceptual information and analysis, which may be required in the early design stages, all the way to the completion of a bid package.

To learn more about JM's comprehensive services, visit [www.jm.com/roofing](http://www.jm.com/roofing).





Southwest High School, El Centro, Calif.  
 76,000 square feet of JM PVC-60  
 Roofing Contractor: Roof Construction, Escondido, Calif.  
 Owner: Central Union High School District

*“The school is an architectural masterpiece . . . the best solution was a retrofit to minimize any disturbance. With JM Invinsa™ Roof Board as the separator, the JM PVC-60 membrane worked perfectly and complied with California’s Title 24 energy efficiency regulation.”*

Ron Chambers, president, Roof Construction, Escondido, Calif.

### Conserve Energy in a Cleaner Environment

Energy efficiency is one of the primary factors in the specification of PVC systems. JM PVC exceeds this requirement with its white or light-colored membranes, which reflect solar energy away from buildings, reducing air-conditioning energy loads and costs.



The white membranes meet the ENERGY STAR®, LEED® and Cool Roof Rating Council (CRRC) requirements for reflectivity and emissivity, and are California Title 24 compliant.

		Reflectivity Requirements	Emissivity Requirements	White JM PVC Reflectivity	White JM PVC Emissivity	SRI
ENERGY STAR		0.65	N/A	0.86	N/A	N/A
Title 24 (CRRC)	Initial	0.70	0.75	0.86	0.86	N/A
	3 Yr. Aged	N/A	N/A	0.70	0.82	N/A
LEED		0.65	0.90	0.86	0.94	109

### Use JM PVC to Earn LEED Credits

If you are pursuing a LEED certified building, using a JM PVC roofing system can help the building meet LEED requirements, lower building operation costs and save energy.

JM offers vegetative systems containing 80 mil JM PVC, Invinsa, and ENRGY 3 insulation. This system qualifies for a 20-year guarantee and has the potential to contribute up to 10 points toward the achievement of LEED certification.

### Options for Photovoltaic Systems

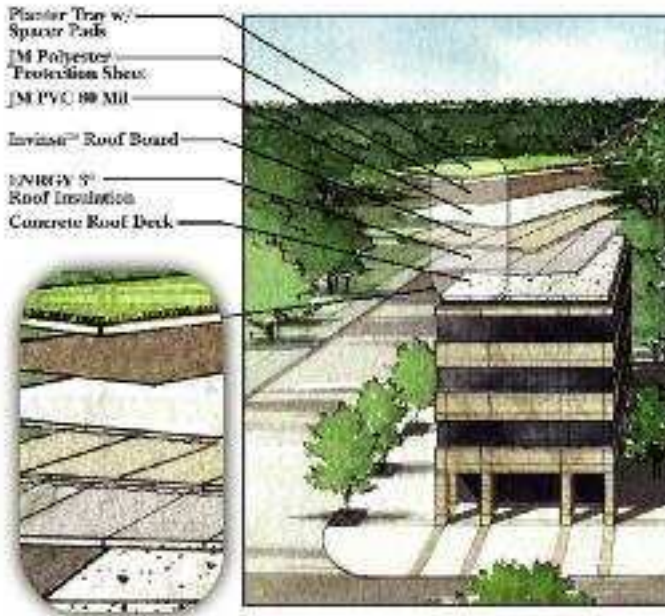
JM is now affiliated with best-in-class photovoltaic solutions integrators. These partnerships enable JM to provide customized turnkey solutions to protect your building from the elements and help generate a renewable energy source. These systems have the potential to help you achieve credit from your provider, or to help provide for the energy needs of your building. JM PVC can be an integral component of this system to provide a smart solution for building owners. Since every building is unique, please consult JM for application assistance.

### JM PVC Roofing System LEED Credits

ROOFING SYSTEMS	
<b>Roofing Membranes</b>	
JM PVC 50, 60, 80 mil	
JM PVC Fleece-Backed 50, 60 and 80 mil Single Ply Systems	
<b>Roof Insulations</b>	
ENRGY 3® (ENRGY 3® Foil Face Roof Insulation, ENRGY 3® Roof Insulation, ENRGY 3® Plus Roof Insulation or ENRGY 3® 25 PSI)	
Invinsa Roof Board	

SUSTAINABLE SITES (SS)			
<b>CREDIT 5.1</b> Site Development - Protect or Restore Habitat	<b>CREDIT 5.2</b> Site Development - Maximize Open Space	<b>CREDIT 7.1</b> Heat Island Effect - Non-Roof	<b>CREDIT 7.2</b> Heat Island Effect - Roof

## Environmentally Smart Roof System



For a more detailed discussion of Johns Manville Roofing's energy-efficiency measures, see the "Cool Roofing" section of the JM Single Ply Roofing Systems Binder, and visit us online at [www.jm.com/roofing](http://www.jm.com/roofing).

Choose the system that meets your needs, from the company you trust.

### LEED-NC v2.2 Criteria

#### Prerequisites or Credits Where JM Products Contribute

	SS		EA		MR					
	CREDIT 5.1	CREDIT 5.2	CREDIT 7.1	CREDIT 7.2	PREREQUISITE 2	CREDIT 1	CREDIT 4.1	CREDIT 4.2	CREDIT 5.1	CREDIT 5.2
SRI 109 – Flexible, thermoplastic membrane of UV-resistant PVC and Elvaloy® KEE, reinforced with nonwicking polyester fabric (needs no edge sealant).	●	●	●	●	●	●	●	●	○	○
SRI 109 – Flexible, thermoplastic membrane of UV-resistant PVC and Elvaloy® KEE, reinforced with polyester fabric and backed with lightweight polyester fleece.	●	●	●	●	●	●	●	●	○	○
Rigid insulation board that provides high thermal insulation value over metal, nailable and non-nailable roof decks in built-up, modified bitumen and single ply membrane roofing systems. Polyisocyanurate foam factory bonded to fiber glass-reinforced facers.	●	●	●	●	●	●	●	●	○	○
Resilient, lightweight polyisocyanurate roof board that maximizes membrane performance and protects insulation below.	●	●			●	●				

● JM products contribute to this prerequisite or credit.

○ Contact JM to find out how JM products can contribute to credits at your project site.

#### ENERGY AND ATMOSPHERE (EA)

#### MATERIALS AND RESOURCES (MR)

**PREREQUISITE 2**  
Minimum Energy Performance

**CREDIT 1**  
Optimize Energy Performance

**CREDIT 4.1**  
Recycled Content: 10%  
(Postconsumer+  
1/2 preconsumer)

**CREDIT 4.2**  
Recycled Content: 20%  
(Postconsumer+  
1/2 preconsumer)

**CREDIT 5.1**  
Regional Materials:  
10% Extracted, Processed  
and Manufactured  
Regionally

**CREDIT 5.2**  
Regional Materials:  
20% Extracted, Processed  
and Manufactured  
Regionally



## PRODUCT WARRANTIES

Johns Manville designs roofing products that work together to provide a one-source comprehensive roofing system solution. Total roofing system guarantees are available under the JM Peak Advantage Guarantee program. To learn more about our standard guarantee terms and conditions, visit our Web site at [www.jm.com](http://www.jm.com) or talk to your local JM sales representative.

JM Peak Advantage Guarantees are available only on qualified JM roofing systems containing JM roofing products. JM standard product terms and conditions will apply to include a one-year limited product warranty. Limited product warranty information is available at [www.jm.com/About Us/US Terms and Conditions](http://www.jm.com/About Us/US Terms and Conditions).

### Peak Advantage Contractor Program



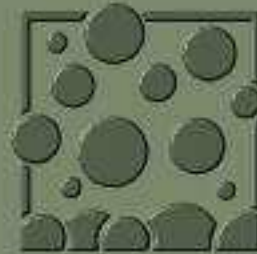
To ensure quality workmanship and top-notch installation, JM offers its Peak Advantage Contractor Program. Contractors selected to participate are proven to be best of class, having lived up to the highest performance standards. These contractors have access to JM's strongest guarantees. To be assured of the best possible results on the roofing system you specify, make sure it's installed by a JM Peak Advantage contractor.



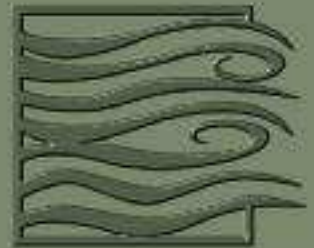
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