

LightGUARD® & HeavyGUARD®

Protected Membrane Roof Insulation Panels

Durability. Sustainability. Energy Efficiency.

- ✓ *Ballast & Insulation in one easy step*
- ✓ *Predictable long-term performance*
- ✓ *Protect membrane of your choice*
- ✓ *Recyclable & reusable*
- ✓ *Reduce energy and yearly maintenance costs*
- ✓ *Greater life-cycle value*

It's Not Rocket Science. It Just Works.



Concrete Building Envelope Products
800.544.7398 www.tclear.com



UL Listed
Factory Mutual Accepted-FM 1-29
Contributes to LEED Points!

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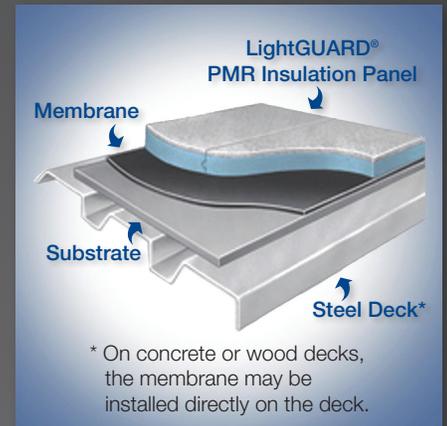
LightGUARD® & HeavyGUARD® Protected Membrane Roof (PMR) Insulation Panels from T. Clear Corporation combine insulation and ballast to protect the waterproof membrane from wind and damage caused by hail, UV radiation, vandalism, thermal cycling and physical abuse. With a longer life span, reduced maintenance costs and the energy savings of Dow Styrofoam® insulation, a T. Clear PMR will pay for itself!



By simply reversing conventional design and placing the insulation above the membrane rather than below, the cause of many life shortening roofing problems can be eliminated. This unconventional arrangement of roofing material—roof deck, roof membrane, LightGUARD® or HeavyGUARD® ballasted roof insulation panels—is commonly referred to as the upside-down system, or Protected Membrane Roofing (PMR) system.

In all areas of the building envelope, the moisture barrier is placed on the warm side of the insulation. With one exception—a conventional roof system. In a T. Clear PMR system the insulation is placed above the waterproof membrane to protect it from the harsh rooftop environment.

Each 2'x4' LightGUARD®/ HeavyGUARD® PMR Insulation panel utilizes the superior moisture resistance and high compressive strength properties of Dow Styrofoam®. A layer of latex-modified concrete is bonded to the surface of each panel further protecting it from physical abuse as well as providing ballast. Each panel has tongue-and-groove edges for easy installation.



Roofs That Last...And Last...And Last

At one major Midwestern university a routine roof inspection turned up enough furniture to fill a classroom. The low lying building proved to be too much of a temptation for students living on the upper floors of a neighboring high-rise. However, maintenance required nothing more than a clean-up thanks to the PMR construction technique which allowed the roof to survive the regular onslaught of debris. If up-front cost is considered as part of the lifetime cost of a roof...the cost of a PMR system measures up well against the cost of a conventional system.



A T. Clear PMR System is the perfect choice for environments with high humidity such as paper and textile mills.

When warm air meets cool air, water vapor condenses. The temperature at which water vapor condenses is called the “dew point.”

In conventional roof systems, the dew point is below the waterproof membrane. So when vapor condenses it is deposited into your insulation and spread throughout by capillary action, decreasing its insulating value. It can literally “rain” inside your building and deteriorate the roof deck over a period of time.

In a T. Clear PMR, the dew point is raised above the waterproof membrane. So, water vapor isn't allowed to condense inside your building.



Protect Your Investment with T. Clear's Protected Membrane Roof System

Features	Advantages	Benefits
Engineered concept <i>(Insulation above the waterproof membrane)</i>	<ul style="list-style-type: none"> • Membrane protected from: <ul style="list-style-type: none"> – Sun's ultraviolet rays – Temperature extremes – Physical abuse – Hail 	<ul style="list-style-type: none"> • Eliminates major causes of leaks and roof failures • Reduces yearly maintenance costs • Membrane remains pliable longer
During installation membrane is put down before the insulation	<ul style="list-style-type: none"> • Membrane is installed in a single operation • Ballast can be installed later, even in inclement weather 	<ul style="list-style-type: none"> • Building is waterproofed quicker • More roofs installed in a shorter time
Extruded polystyrene	<ul style="list-style-type: none"> • Retains at least 80% of its R-value for 20 years • Is resistant to water from absorption, capillary transmission and freeze-thaw cycles • Has high compressive strength properties • Free of CFC's 	<ul style="list-style-type: none"> • Reduces energy costs • Long-term performance • More predictable thermal efficiency • Helps protect membrane from foot traffic and abuse from outside contractors and vandals • Environmentally sound
Authorized Contractors	<ul style="list-style-type: none"> • Better control of installation quality 	<ul style="list-style-type: none"> • Roof performs better, longer
Full Range of Warranties <i>(Including the T. Clear Total Performance Warranty)</i>	<ul style="list-style-type: none"> • Choose option that best suits your long-term plan and budget 	<ul style="list-style-type: none"> • Extended term, wind, and liabilities available

Logic will tell you that a PMR utilizing LightGUARD® or HeavyGUARD® ballasted insulation panels will last longer than the typical conventional roof system because the membrane is protected from deterioration and damage.

Experience will tell you that yearly maintenance costs are generally limited to clearing drains and checking the membrane along any parapets. A T. Clear PMR will literally pay for itself.

LightGUARD® & HeavyGUARD®

Protected Membrane Roof Insulation Panels



PMR Insulation Panels protect the membrane, reduce energy costs and provide an attractive, walkable surface.

- LightGUARD panels consist of 3/8" latex-modified concrete bonded to 2" or 3" Styrofoam and weigh 4.5 lbs./sq. ft.
- HeavyGUARD panels consist of 15/16" latex-modified concrete bonded to 2" or 3" Styrofoam and weigh 11 lbs./sq. ft.
- Each 2'x4' panel is tongue-and-grooved and loose laid over the membrane.
- Styrofoam has an R-value of 5 per inch, guaranteed.
- Ballast and insulation are laid in one easy step.
- Panels are recyclable, free of CFC's and can be reused in any roof situation or vertical expansion.
- LightGUARD & HeavyGUARD are available in 4 attractive color finishes—gray, tan, red and green.
- HeavyGUARD is perfect for rooftop gardens and light-traffic decks.

T. Clear PMR Warranties

Material Only Warranty

Material only warranty offered at no additional charge.

This warranty insures that your system will:

- Retain at least 80% of its R-value for 20 years
- LightGUARD and/or HeavyGUARD panels will not delaminate

Basic Limited Warranty

This warranty insures that your system will:

- Retain at least 80% of its R-value for 20 years
- LightGUARD and/or HeavyGUARD panels will not delaminate
- Stay in place on the roof in winds up to 90 mph

Total Performance Warranty

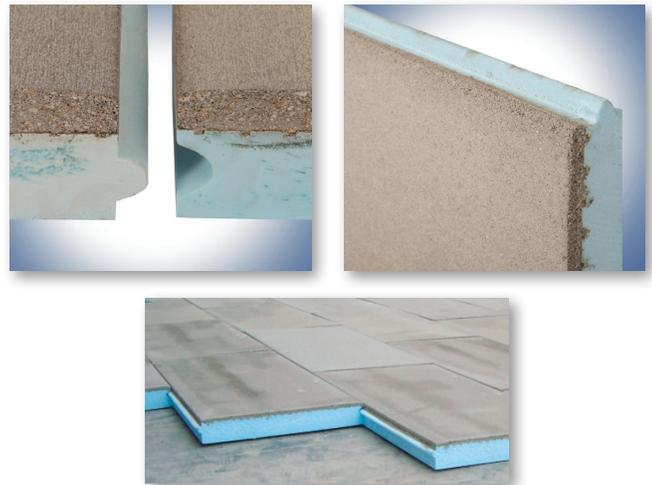
Covers the total roof system with single-source responsibility.

- Available for 10, 15 and 20 years
- No haggling over who is responsible
- Includes pre-job, start-up and job completion inspections by independent inspector/advisors

Extended Wind Warranties*

- Covers wind speeds of 100, 110 and 120 mph
- Roof system must be designed for the next highest wind rating (Ex. 110 mph design for a 100 mph warranty)

* Indicate desire during design stage so system can be engineered for higher rating.



Additional Concrete Building Envelope Products from T. Clear Corporation

WallGUARD® Concrete Faced Insulated Perimeter Wall Panels

ProGUARD® Concrete Insulated Sheathing

ThermaDRY® Insulating Drainage Panels

For more information on any T. Clear Products or for a list of nationwide manufacturer's representatives, call T. Clear at **800-544-7398** or email sales@tclear.com.



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