



1. Product Name

- LIGHTGUARD®
- HEAVYGUARD®
- COOLGUARD®

2. Manufacturer

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3. Product Description

BASIC USE

LIGHTGUARD, HEAVYGUARD and COOLGUARD, as part of a Protected Membrane Roof (PMR), are effective in controlling condensation and dew point location in industrial plants such as paper mills.

LIGHTGUARD

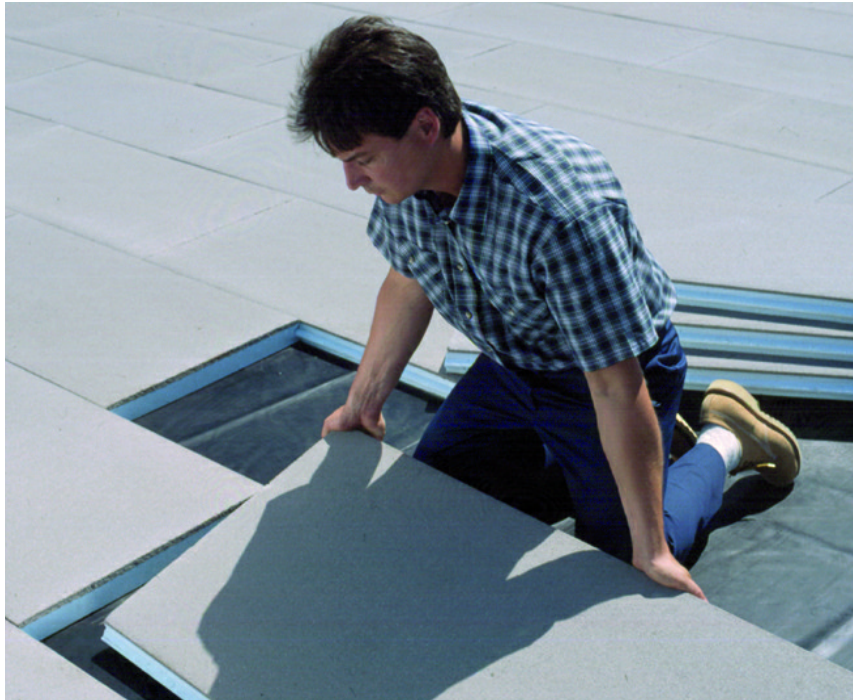
LIGHTGUARD provides insulation as well as ballast. It is used as the ballast component of a PMR assembly and is suited for new or reroofing use on commercial and industrial buildings. LIGHTGUARD consists of a concrete panel laminated to insulation board. The panels can be installed on top of most types and brands of roof membranes, offering protection from weathering forces, thermal shock, and maintenance related foot traffic.

HEAVYGUARD

HEAVYGUARD is a heavier version of the LIGHTGUARD panel. It is used where high traffic and higher point loading require a thicker concrete panel component.

COOLGUARD

COOLGUARD is available in both concrete thicknesses with a factory applied, Energy Star rated, elastomeric coated top surface to reduce rooftop temperatures and "heat island effect."



Installation of LIGHTGUARD®

COMPOSITION & MATERIALS

3/8" (9.5 mm) latex modified concrete is laminated to Styrofoam® closed-cell extruded polystyrene insulation board, ASTM Type VI, 2" or 3" (51 or 76 mm) thick. HEAVYGUARD is fabricated with a 15/16" (23.8 mm) thick concrete face.

SIZES

- LIGHTGUARD/COOLGUARD - 2' x 4' (610 • 1219 mm) x 2 3/8" or 3 3/8" (60 or 86 mm) thick
- HEAVYGUARD/COOLGUARD - 2 15/16" or 3 15/16" (75 or 100 mm) thick

WEIGHT

- LIGHTGUARD - 4.5 psf (22 kg/m²)
- HEAVYGUARD - 11 psf (54 kg/m²)
- COOLGUARD - 4.5 or 11 psf (22 or 54 kg/m²)

COLORS

- Green
- Red
- Natural gray
- Tan

SHAPES

T. Clear PMR insulation panels are flat and rectangular. Tongue-and-groove edges allow interlocking construction.

LIMITATIONS

See Table 1 for manufacturer approved deck/membrane assemblies suitable for T. Clear PMR applications.

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- ASTM D2842 Standard Test Method for Water Absorption of Rigid Cellular Plastics
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials

Factory Mutual - Factory Mutual Standard M 4470

Underwriters Laboratories, Inc. - Roofing Materials and Systems Directory

APPROVALS

UL Loose-Laid Single-Ply Membrane Systems, BUR and Modified Bitumen Membrane Systems TGIK R14358(N). Status of approvals by code bodies and other agencies can be obtained from T. Clear Corporation.

ENVIRONMENTAL CONSIDERATIONS

By insulating the roof assembly and keeping dew point above roof membrane, LIGHTGUARD protects valuable machinery in pulp and paper mills, textile mills and other installations where moisture can cause damage to equipment.

LIGHTGUARD is reusable in reroofing and vertical expansion situations. It is free of chlorofluorocarbons (CFCs).

PHYSICAL/CHEMICAL PROPERTIES

Test reports are available to design professionals upon request.

- R-value - 5 ft² x h x °F/Btu per inch (0.88 m² x K/W per 25.4 mm) of foam
- Thermal conductivity (k-value) - 0.2 Btu/(ft² x h x °F) (0.35 W/(m x K))
- Compressive strength of insulation - 40 psf (1915 Pa)

FIRE RATING

A variety of fire resistance rated assemblies can be constructed using LIGHTGUARD panels, ranging from 1 - 2 hour assembly ratings. Consult UL Directory or manufacturer for specific construction requirements.

5. Installation

METHODS

Installation requirements vary according to roof deck and roofing membrane type. Complete installation recommendations are available from the manufacturer. Refer to manufacturer's technical installation sheet for specific membrane/deck combinations under consideration.

PRECAUTIONS

Roofs must be designed and constructed to drain water within 48 hours after rainfall. A 1/4" per foot (20.8 mm/m) slope is recommended. Prevention of air infiltration into the area beneath a loose-laid single-ply membrane is critical to its wind

TABLE 1 T. CLEAR PMR APPROVED DECK/MEMBRANE ASSEMBLIES

Membranes	Deck type						Existing
	Metal	Concrete slab	Concrete panel	Wood	Insul. Wood fiber concrete		
<i>Fully adhered</i>							
Fiberglass BUR	Y	Y	Y	N	Y	N	N
Modified bitumen	Y	Y	Y	N	Y	N	N
Single-ply	Y	Y	Y	N	Y	N	N
<i>Mechanically attached</i>							
Fiberglass BUR	Y	N	N	Y	Y	Y	Y
Modified bitumen	Y	N	N	Y	Y	Y	Y
Single-ply	Y	N	N	Y	Y	Y	Y
<i>Loose-laid</i>							
Single-ply	Y	Y	Y	Y	Y	Y	Y

Y = Approved; N = Not approved.

stability. Where a fire resistant underlayment material such as gypsum board is used as a 15 minute fire barrier, it must be mechanically attached to the deck in accordance with the applicable Factory Mutual criteria.

BUILDING CODES

Installation must comply with the requirements of all applicable local, state and national code jurisdictions.

6. Availability & Cost

AVAILABILITY

LIGHTGUARD, HEAVYGUARD and COOLGUARD panels are available throughout the U.S. For distribution information, contact the manufacturer.

COST

Cost information can be obtained directly from the manufacturer.

7. Warranty

T. Clear Corporation offers single-source total performance warranties, limited warranties and extended warranties. Standard 10 year warranty covers product integrity and insulation value. Also covered are concrete delamination and wind disturbance up to 90 mph (145 kph). The company offers 5, 10, and 20 year extensions and wind speeds up to 130 mph.

8. Maintenance

Proper roof maintenance includes periodic inspection of panels, flashing and parapets, sealants, building joints, drains and other components which can have a direct impact on roof performance and longevity. Broken concrete panels should be repaired as soon as possible to protect the polystyrene foam from sunlight (UV) degradation. Vegetation growth should be controlled.

9. Technical Services

A staff of factory trained service personnel offers design assistance and technical support. For technical assistance, contact T. Clear Corporation.

10. Filing Systems

- Sweet's Catalog Files
- Additional product information is available from the manufacturer.