Technical Data Sheet

ProGUARD® Concrete Insulated Sheathing

Specifications & Installation

Table Of Contents

Product Description:
ProGUARD is a non-structural concrete faced exterior insulation consisting of 1/4" thick Util-A-Crete® cement backerboard laminated to Dow Extruded Polystyrene (XPS), Expanded Polystyrene (EPS) or Mineral Wool in varying thicknesses. The Util-A-Crete cement backerboard is offset 3/4" to create a ship lap around each panel.

Basic Use:
ProGUARD can be applied directly to the exterior side of structural steel or wood studs if applicable.
ProGUARD can also be attached to concrete walls. The R-Value is 5 per inch for XPS insulation and 4.35 per inch for EPS insulation at 75° F. The ship lap edge reduces thermal transfer through the studs and greatly reduces air leaks that occur with butt joint applications. Additional water proof coatings such as Water Armor may be applied as required per local code.

Exterior Finishes:
Sheathing surfaces are designed for direct application of synthetic stucco finishes, sand and cement stucco, siding, synthetic stone, thin brick or other exterior finish systems.

Standard Sizes:
Width 36" / Length 96"
Composite thicknesses of:
1.75", 2.25" 2.75", 3.25" & 4.25".
(Note: Mineral Wool panels are only available in 48" lengths.)

Special thicknesses are available upon request for EPS versions only.

Applicable Standards:
ASTM International

- ASTM C518
- ASTM D1621
- ASTM C272
- ASTM E96
- ASTM D696
- ASTM C578
- ASTM D2842
- ASTM D3273
- ASTM D2394
- ASTM C947
- ASTM D1037
- ASTM E84
- NFPA 285

Manufacturer

Section:
061613 Insulating Sheathing
072100 Insulating Sheathing
072113 Cementitious Sheathing

T. Clear Corporation
3255 Symmes Road
Hamilton, OH 45015
Phone: 800-544-7398

Physical / Chemical Properties:
ProGUARD Concrete Insulated Sheathing exhibits the properties and characteristics indicated in the charts below. When properly installed, prolonger exposure to the Util-A-Crete cement board surface will not be significantly damaged by exposure to ultraviolet radiation. All joints and exposed foam edges should be sealed prior to any extended exposure.

Util-A-Crete® Concrete Facing

Performance Property	Test Method	Value
Compressive Strength - psi	ASTM D2394	≥2600
Flexural Strength - psi	ASTM C947	≥1500
Linear Variations with change in Moisture to Air dry (50% R.H., 73°) Width Length	ASTM D1037	 0.02% 0.02%
Surface Burning Characteristics Flame Spread Smoke Developed	ASTM E84	 5 0
Weight per Square Foot (lbs)		2
Fastener Pull Through (lbs)	ASTM D1037	≥195
Bond Strength (lbs) (Ceramic Tile Wet & Dry)	ASTM A118	≥50

Expanded Polystyrene Insulation (EPS)

Performance Property	Test Method	Value
Nominal Density (lbs/cf)	ASTM C303	2.0
Compressive Strength (psi)	ASTM D1621	25
R-Value per Inch of Material (75 degree mean temp)	ASTM C518	4.35
Water Absorption (% by volume Max)	ASTM C272	<2.0
Water Vapor Permeance (perm) 2”	ASTM E96	<0.6 *
Flame Spread	ASTM E84	<25
Smoke Developed	ASTM E84	<450

* Value with Util-A-Crete concrete skin adhered

Dow Extruded Polystyrene Insulation (XPS)

Performance Property	Test Method	Value
Nominal Density (lbs/cf)	ASTM C303	1.55
Compressive Strength (psi)	ASTM D1621	25
R-Value per Inch of Material (75 degree mean temp)	ASTM C518	5
Water Absorption (% by volume Max)	ASTM C272	<0.3
Water Vapor Permeance (perm) 2”	ASTM E96	<0.6 *
Flame Spread	ASTM E84	5
Smoke Developed	ASTM E84	165

* Value with Util-A-Crete concrete skin adhered

Mineral Wool Insulation

Performance Property	Test Method	Value
Nominal Density (lbs/cf)	ASTM C303	6.0
R-Value per Inch of Material (75 degree mean temp)	ASTM C518	4.3
Water Absorption (% by volume Max)	ASTM 1104	0.03
Water Vapor Permeance (perm)	ASTM E96	50 (unfaced)
Flame Spread	ASTM E84	0
Smoke Developed	ASTM E84	0

Installation:
When installing ProGUARD to steel or wood stud wall structures, begin at the bottom of the wall and run the 8' dimension of the panel parallel with the ground line and/or roof line of the building. The 8' dimension of the panel should cross the studs. It is recommended that the studs be placed 16" O.C. or closer. ProGUARD is not a structural sheathing. Structural requirements for the wall system should be accommodated through the design of the wall stud and allied structural bracing.

To insure a sealed bottom edge at ground line, when installing on stud walls a steel "J" channel with weeps should first be installed along the bottom of the studs and perpendicular to them. The size of the "J" channel will vary depending on the thickness of the ProGUARD panel being used. This channel should be level and securely fastened to each stud. This will serve as a track to insure proper alignment of the first row of panels. The track can be fastened to the studs using self-drilling pancake head screws.

Once the track has been installed insert the bottom row of ProGUARD panels with the 8' edge inserted into the bottom track. Please note that the heads of the screws which fasten the track to the studs may interfere with the foam insulation on the panel causing difficulty when inserting the edge of the panel into the track. If this occurs, cut a slight bevel on the foam a the lower edge of the panel. This will allow clearance of the screw heads in the track. The bevel can easily be cut with a circular saw.

Upon start of the installation, insure that the vertical panel joints fall on a stud. If you have to cut a panel to accommodate this, do so. It is likely that you will have to cut the end of the panel. It is recommended to cut a 45 degree angle on the 3' panel dimension. By doing this, all outside corners will be 90 degree and will be covered with cement board. No foam edges will be exposed.

When screwing the panels to steel studs, use the appropriate size Silver C#14 pancake head self-drilling screw pro-vided by T. Clear. If attaching to structural wood studs use the appropriate screw so that you obtain at least 1" embedment into the stud. In all cases, when attaching to studs, the screws should be placed ac-cording to Table 1 on page 4 along the stud line or closer. It is important that the screw head is driven into the concrete backerboard face so that the top of the head is flush with the face of the backerboard. Penetrating the screw head too deep into the backer-board may tear or denigrate the fiberglass mesh em-bedded in the concrete (see Figure 1, page 5).

When starting the second row of ProGUARD panels it is important to stagger the joints so the second row should start with a half or quarter panel so the joints from the first row are offset from that of the second. Continue this staggered joint pattern up the wall.

When applying ProGUARD to masonry walls, use Silver C#14 pancake head screws of the appropriate length to obtain at least 1" embedment into the masonry structure. Holes for the screws shall be pre-drilled with masonry drill bits of the appropriate size and to the appropriate depth so that the hole is deeper than the masonry screw embedment penetration. With masonry walls the screws should be installed 12" O.C. over the en-tire panel surface. If required, an additional urethane adhesive may be used by applying four 1/4" beads to the foam side of the ProGUARD panel along the four outer edges and at 12" from the 8' edge running the full length of the panel.

All panel joints should be sealed with a fiberglass mesh tape embedded in an approved waterproofing compound such as Water Armor as supplied by T. Clear Corp. All screw heads should also be covered with Water Armor or an approved equal. The exterior finish manufacturer may supply an appropriate sealing compound compatible with the synthetic finish or thinset.

NFPA 285 Fire Compliance Installations:
When applying ProGUARD on projects that must comply with NFPA 285 Fire Standard, installation proceeds as described before. However, a MINERAL WOOL ProGUARD panel must be used above all window and door openings (header panels).

The Util-A-Crete cement board is adhered to the mineral wool backing. The mineral wool replaces either the XPS or EPS backing for these panels. Use the same screw and attachment method as described in the installation section being careful not to compress the mineral wool panel so that it is not flush with the adjoining polystyrene backed standard ProGUARD panels. The mineral wool header panel prevents flame penetration and heat transfer along the vertical wall chase should a fire engulf the window or door openings.

NOTE: NFPA 285 compliance has been tested for 2" insulation maximum thickness. Therefore 2.25" ProGUARD panels (or thinner) can only be used in these applications.

Table 1 - Shear/Fastener Spacing

Recommended Fastener Spacing for ProGUARD Silver C#14 Fasteners Pancake Head Self-Drilling Screws when Used to Support the Shear Load of T. Clear ProGUARD Insulated Sheathing into Cold-Formed Steel Framing (0.0451" minimum thickness 18ga.)

Horizontal Fastener Spacing, *s* *(in. oc)*	ProGUARD Thickness, *t* *(in.)*	Shear Strength *V* *(lbf/ fastener)*	Vertical Fastener Spacing, *g (in. oc)* *Maximum Insulation Assembly Weight to be Supported(psf)**						
			5	7.5	10	12.5	15	17.5	20
16"	1.75	10.0	12"	12"	8"	6"	6"	4"	4"
	2.25	9.8	12"	8"	8"	6"	4"	4"	4"
	2.75	9.5	12"	8"	8"	6"	4"	4"	4"
	3.25	9.2	12"	8"	8"	6"	4"	4"	4"
	4.25	8.7	12"	8"	6"	6"	4"	4"	N/A

* Assembly weight shall include all materials supported, including, but not limited to, ProGUARD panel, water resistive barrier, flashing and weather-resistive exterior covering or cladding. Average weight per square foot for ProGUARD panel is approximately 2.0 lbs for 1.75" up to 2.75 lbs for 4.25". Weights may vary.

Table 2 - Wind Design

Maximum Wind Speed for ProGUARD Silver C#14 Pancake Head Self-Drilling Screws when Used to Secure T. Clear ProGUARD Insulated Sheathing to Cold-Formed Steel Based on Fastener Spacing and Wind Exposure

Minimum Steel Design Thickness (in.)	Horizontal Fastener Spacing, *s* *(in. oc)*	Vertical Fastener Spacing, *g* *(in. oc)*	Maximum Wind Speed (mph) Based on Wind Exposure					
			ASCE 7 - 05, IRC, 2006/2009 IBC			ASCE 7 - 10, 2012 IBC		
			B	C	D	B	C	D
0.0451" (18ga)	16"	12"	100	85	75	125	105	95
		8"	120	105	95	155	130	120
		6"	140	120	110	180	150	140
		4"	175	145	135	220	185	170

Storage/Protection:
Protect panels from abuse, damage and contamination prior to exterior wall finish application.

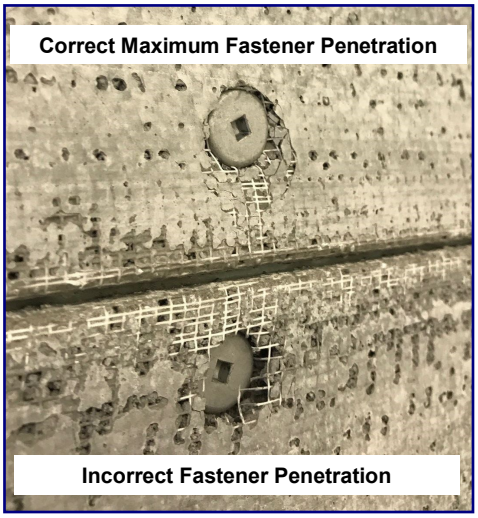
Availability:
ProGUARD Concrete Insulated Sheathing is distributed through a national network of distributors and agents. Please call 800-544-7398 to obtain the name and contact information for your local T. Clear Sales Agent.

Warranties:
T. Clear warrants ProGUARD to be free of material defects.

Maintenance:
Not applicable. This will be a function of the finish system applied to the surface of the ProGUARD panels.

Technical Assistance:
T. Clear can provide technical information to address questions about using ProGUARD. Please contact T. Clear corporate office at 800-544-7398 or email sales&tclear.com.

Figure 1 - Fastener Penetration



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