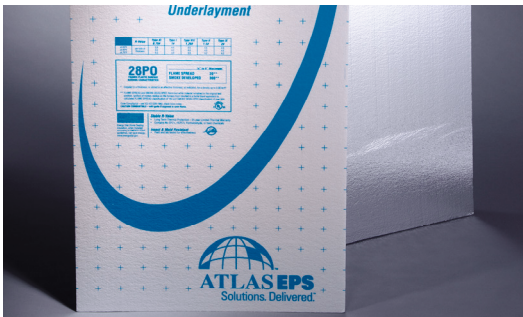


ThermalStar® Siding Underlayment

PRODUCT DESCRIPTION

ThermalStar Siding Underlayment is rigid insulation with a polymeric film facer on both sides. This product is available as 4'x8' sheets or 4'x50' fan fold. Standard features include:

- Warranted R-value
- Excellent moisture resistance
- Marked for nail spacing
- Available with reflective barrier one side
- Tested perm rating
- Code approved as a weather resistive barrier
- Recyclable
- Thicknesses available:
Sheets: 1/2", 3/4", 1", 1-1/2", 2", 2-1/2", 3"



TYPICAL USES

ThermalStar Siding Underlayment has been designed specifically for use behind siding. Siding Underlayment can be used as a cover board to level the surface for a remodel project or used in place of wood sheathing on new construction. Consult with a structural engineer when using ThermalStar Siding Underlayment in place of wood sheathing. The combination of polymeric film facers, EPA listed termiticide, and polystyrene assures long term performance.

Table 1 US Physical Properties

Property & ASTM Test Method	Type 8 clear	Type 8 foil	Type 10 clear	Type 10 foil
Compressive Strength (minimum psi) @10% Deformation ¹ D1621	8	8	10	10
R-value per inch (minimum) at 75F mean temperature C518	3.2	3.2	3.9	3.9
ASTM Classification C578	Type XI	Type XI	Type I	Type I
R-value per inch (minimum) at 40F mean temperature C518	3.5	3.5	4.2	4.2
R-value per inch (minimum) at 25F mean temperature C518	3.9	3.9	4.4	4.4
Compressive Strength (minimum psi) @1% Deformation ¹ D1621	2.9	2.9	4.4	4.4
Flexural Strength (minimum psi) C203	18	18	35	35
Water Absorption % by volume, maximum after 24 hr immersion C272	3.0	3.0	3.0	3.0
Water Vapor Permeance at 1" thick (perms) - typical E96	<1—5*	<1—5*	<1—5*	<1—5*
Surface Burning - Flame Spread and Smoke Developed E84	Flame Spread 20, Smoke Developed 400 [meets code]	Flame Spread 5, Smoke Developed 170 [meets code]		
Maximum Use Temperature	Short Term (10-15 minutes) 180F, Long term 165F			

¹ This product is available perforated and un-perforated. Perforated product will have a perm rating up to 5 depending on installation details. Un-perforated product will have a perm rating of <1 if the joints are taped. Contact Atlas EPS Technical Director for more details. * ThermalStar Siding Underlayment is elastic within 1-2% deformation. To prevent long term creep, 3:1 design safety factors for static loads of the 10% deformation values are recommended, or use the tested 1% deformation values for design, whichever is greater

THERMAL RESISTANCE

R means resistance to heat flow. The higher the R-value, the greater the insulating power. **Foil faced products installed with a 1/2" air space will have an additional R value of 2.**

INSTALLATION AND HANDLING

ThermalStar Siding Underlayment can be handled much the same as wood sheathing, using similar tools or simple utility knives to cut, score, shape, or otherwise customize panels to fit the application.

WARRANTY

ThermalStar Siding Underlayment is backed by a limited 20 year warranty for physical and thermal performance, as well as for termite resistance.

The color Pale Creamy Orange is Registered with the US Patent and Trademark Office
ThermalStar is a registered trademark of Atlas Roofing Corporation

Atlas EPS, a Div of Atlas Roofing
8240 Byron Center Ave SW Byron Center, MI 49315
(800) 917-9138 www.atlaseps.com



CHEMICAL & PHYSICAL PROPERTIES

Tables 1&2 list physical properties of various grades for US and Canada, respectively. Chemical resistance is listed in Table 3, contact Technical Services for compatibility of materials not listed.

MOLD RESISTANCE

ThermalStar Siding Underlayment insulation has been tested against 4 week exposure to various mold and fungi via ASTM G21, D3273, and C1338 with no growth of spores on the product. Siding Underlayment provides no nutritive value for mold. However, construction practices greatly impact mold growth, and fungi have been known to even grow on glass.

FREEZE/ THAW EXPOSURE

ThermalStar Siding Underlayment has been tested via ASTM C1512 Moisture & Temperature Cycling for Insulation with no loss of physical or thermal performance. This test places the product between a cold chamber and a high humidity chamber with temperature cycling, measuring the effect on the insulation as natural moisture drive occurs.

Table 2 Canadian Physical Properties

Property & ASTM Test Method	Type 8 clear	Type 8 foil	Type 10 clear	Type 10 foil
Compressive Strength (minimum kpa) @10% Deformation ¹ D1621	55	55	69	69
RSI per 25mm (minimum) at 75F mean temperature C518	0.55	0.55	0.65	0.65
CAN/ULC S701 Type	Type 11	Type 11	Type 1	Type 1
RSI per 25mm (minimum) at 40F mean temperature C518	0.60	0.60	0.71	0.71
RSI per 25mm (minimum) at 25F mean temperature C518	0.67	0.67	0.79	0.79
Compressive Strength (minimum kpa) @1% Deformation ¹ D1621	20	20	30	30
Flexural Strength (minimum kpa) C203	70	70	173	173
Water Absorption % by volume, maximum after 96 hr immersion D2842	4.0	4.0	4.0	4.0
Water Vapor Permeance at 25mm thick (ng/PA*s*m ²) - typical E96	287	287	287	287
Surface Burning - Flame Spread and Smoke Developed CAN/ULC S102.2	Flame Spread 290, Smoke Developed Over 500			

Maximum Use Temperature Short Term (10-15 minutes) 82C, Long term 74C

¹ ThermalStar Siding Underlayment is elastic within 1-2% deformation. To prevent long term creep, 3:1 design safety factors for static loads of the 10% deformation values are recommended, or use the tested 1% deformation values for design, whichever is greater

CODE COMPLIANCE

ThermalStar Siding Underlayment complies with the model building codes when properly installed:

- Surface Burning – UL BRYX.R16529
- Cal Std Reg #CA472
- International Energy Conservation Code
- ASTM C578 – see product marking for Type
- Physical Properties – UL QORW.R16529
- International Residential Code (IRC) – ICC-ES ESR-1962
- International Building Code (IBC) – ICC-ES ESR-1962
- CAN/ULC S102.2, S701 – ULC BOZCC.R16529

Table 3 Chemical Compatibility of ThermalStar Siding Underlayment

Inorganic Acids (Muriatic, Sulfuric, Boric Acid)	Excellent
Organic Acids (Carbolic, Citric, Acetic Acid)	Good
Bases (Sodium Hydroxide, Potassium Hydroxide, Ammonia)	Excellent
Alcohols (Methanol, Ethanol, Isopropyl Alcohol)	Good
Beer, Tea, Coffee, Carbonated Soda, Water, Fruit Juice	Excellent
Household Liquid Spray Insecticides (non-aqueous)	Poor
Cement	Excellent
MEK, Methylene Chloride, Acetone	Poor
Antifreeze (Ethylene Glycol - Green, Propylene Glycol - Orange)	Excellent
Hydrocarbons (Hexane, Gasoline, Diesel, Kerosene)	Poor
Mineral Oil	Excellent
Other Oils (Corn, Motor, Palm, Coconut Oil)	Good
Agricultural (Manure, Feed, Urine, Soil, Fertilizer)	Excellent
Formaldehyde, Turpentine, Chloroform, Naphtha	Poor
Salts (Ammonium, Ferrous, Sodium Chloride, Sulfur)	Excellent
MDI-based Adhesive (Gorilla Glue, Fast-Tac, Dow Great Stuff)	Good
Bleach, Detergents, Borax	Excellent
Cured Mastic, Construction Adhesive, Hardened Asphalt	Good
Wherever XPS insulation is used	Excellent

Excellent = No degradation, no effect from exposure
 Good = some effect from exposure, but not significant for product performance
 Poor = significant degradation affecting performance, up to completely dissolving product
 This table is a guide only - consult Atlas Technical Services for specific chemical design questions

SAFETY

MSDS for this product available at www.atlaseps.com. Dust generated from cutting ThermalStar Siding Underlayment should be avoided using a dust mask as with other building materials. Siding Underlayment is combustibile and the product should be protected from ignition sources such as open flames or welder's torch. Applications not specifically listed in ICC-ES ESR-1962 require permanent separation of Siding Underlayment from the interior of the building by a thermal barrier such as drywall or concrete for fire safety.

ENVIRONMENTAL

ThermalStar Siding Underlayment uses air in the insulating cells, emitting no gasses. The ppm levels of termiticide incorporated into the polystyrene do not present leaching concerns under typical applications. Siding Underlayment is readily accepted for recycle at many drop off locations.