

# THERMALSTAR® TS, CG, CG PRO, X-PRO, AND UNDERLAYMENT SPECIFICATIONS

## DIVISION 07 THERMAL AND MOISTURE PROTECTION

### SECTION 07 22 00–ROOF AND DECK INSULATION

### SECTION 07 22 16–ROOF BOARD INSULATION

**ThermalStar®**  
Commercial Roof Insulation

#### PART 1 – GENERAL

##### 1.01 Section Includes

- A. HCFC-Free Expanded Polystyrene (EPS) Rigid board-type roof insulation(s) for thermal protection as part of roofing assemblies – ThermalStar® TS
- B. Slipsheet/EPS board for roof insulation – ThermalStar® CG & CG PRO
- C. EPS for vegetative roof systems – ThermalStar® X-PRO
- D. Underlayment for new membrane over existing roofing assembly – ThermalStar® Underlayment

##### 1.02 Related Sections

- A. Section 05 30 00 – Metal Decking.
- B. Section 06 10 00 – Rough Carpentry: Roof blocking and nailers.

##### 1.03 References

*NOTE TO SPECIFIER: Finish article heading number in sequential order.*

- A. ASTM C 578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- B. ASTM D 312 – Standard Specification for Asphalt Used in Roofing.
- C. ASTM E 108 – Standard Test Methods for Fire Tests of Roof Coverings.
- D. ASTM E 119 – Standard Test Methods for Fire Tests of Building Construction and Materials.
- E. FM 4450 – Approval Standard – Class I Insulated Steel Roof Decks.
- F. FM 4470 – Approval Standard – Class I Roof Covers.
- G. LTTR – Long-Term Thermal Resistance predicted by CAN/ULC-S770-03.
- H. UL 263 – Fire Tests of Building Construction and Materials.
- I. UL 790 – Standard Test Methods for Fire Tests of Roof Coverings.

- J. UL 1256 – Fire Test of Roof Deck Constructions.
- K. ASTM E 2114-01 – Standard Terminology for Sustainability Relative to the Performance of Buildings.
- L. ASTM E 2129-01 – Standard Practice for Data Collection for Sustainability Assessment of Building Products.

##### 1.04 Definitions

*NOTE TO SPECIFIER: Define unusual terms not explained in the Contract Documents but are used in unique ways not included in standard references. This article is rarely used BUT this is a new term as of 2003.*

- A. LTTR (Long-Term Thermal Resistance) is defined as using techniques from ASTM C1303 or CAN/ULC-S770, the predicted R-Value that has been shown to be equivalent to the average performance of a permeably faced foam insulation product over 15 years. LTTR applies to ALL foam insulation products with blowing agents other than air, such as polyiso, extruded polystyrene and polyurethane. It does NOT apply to Expanded Polystyrene insulation, which contains only air in the cellular structure.

##### 1.05 Submittals

- A. Submit under provisions of Section 01 30 00 and 01 60 00.
- B. Product Data:
  - 1. Manufacturer's specifications.
  - 2. Installation instructions for insulation board and fasteners.
  - 3. Product Data as per ASTM 2129-01 Standard for Data Collection for Sustainability Assessment of Building Products.
- C. Samples:
  - 1. Submit 6 by 6 inch (152 by 152 mm)

- 2. Submit samples of each board type required.
- 2. Submit samples of each fastener type required.
- D. Shop Drawings: Roof plan showing layout of boards and fastening patterns.
- E. Certificates: System manufacturer's or insulation manufacturer's certification that the insulation meets Zero ODP (Ozone Depletion Potential) and Zero GWP (Global Warming Potential) specification requirements.
- F. Thermal Warranty: Submit sample warranty indicating conditions and limitations.

##### 1.06 Quality Assurance

- A. Regulatory Requirements:

**\*\*\*VERIFY WITH APPLICABLE GOVERNING AGENCIES THE SPECIFIC STANDARDS TO BE COMPLIED WITH AND RETAIN, DELETE OR ADD ADDITIONAL REQUIREMENTS BELOW.\*\*\***

- 1. American Society for Testing and Materials (ASTM).
- 2. Federal Specifications (FS).

*NOTE TO SPECIFIER: The FS references are no longer applicable, but may still be in some house master specs – it is recommended to remove these.*

- 3. Factory Mutual (FM).
- 4. Underwriters Laboratories Inc. (UL) Classification.
- 5. Metro-Dade County, Florida Product Control.
- 6. California State Insulation Quality Standards and Title 25 Foam Flammability Criteria.
- 7. IBC, BOCA, ICBO and SBCCI Sections on Foam Plastic Insulation.
- 8. Canadian Compliance: CAN/ULC.

**1.07 DELIVERY, STORAGE AND HANDLING**

- A. Comply with general requirements specified in Section 01 65 00.
- B. Deliver insulation in packages labeled with material name, thermal value and product code.
- C. When stored outdoors, stack insulation on pallets above ground or roof deck and cover with tarpaulin or other suitable waterproof coverings. Slit or remove manufacturer's packaging before covering with waterproof covering.

**1.08 PROJECT CONDITIONS**

- A. Comply with insurance underwriter's requirements applicable for products of this Section.
- B. Do not install insulation on roof deck when water of any type is present. Do not apply roofing materials when substrate is damp or wet.

**PART 2 – PRODUCTS**

**2.01 MANUFACTURERS**

- A. Acceptable Manufacturers:  
Atlas EPS, a Division of  
Atlas Roofing Corporation,  
8240 Byron Center SW,  
Byron Center, MI 49315  
Ph: (800) 917-9138  
Fax: (800) 626-9942
- B. Local Representative(s):  
Atlas Roofing Corporation

**\*\*\*INSERT NAME, ADDRESS AND PHONE NUMBER\*\*\***

- C. Substitutions: Not permitted.
- D. Provide expanded polystyrene roof board insulation from a single manufacturer.

**2.02 MATERIALS**

- A. EPS Roof Board Insulation: Provide products that comply with the following:
  1. ASTM standards specified.
  2. Underwriters Laboratories Inc. (UL) classifications specified.
  3. Metro-Dade County, Florida Product Control.

- 4. California State Insulation Quality Standards and Title 25 Foam Flammability Criteria.
  - 5. IBC International Building Code Section on Foam Plastic Insulation.
  - 6. Canadian Compliance: CAN/ULC and CCMC.
  - B. ThermalStar® CG, CG-PRO: Closed-cell HCFC-free "Green" polystyrene foam core integrally laminated to non-asphaltic glass fiber-reinforced coated facers; FM [1-60] [1-90] wind uplift classification; compressive strength – [13 psi] [15 psi] [20 psi] [25 psi].
  - C. ThermalStar® TS, X-PRO: Closed-cell HCFC-free "Green" polystyrene non-faced foam board; FM [1-60] [1-90] wind uplift classification; compressive strength – [13 psi] [15 psi] [20 psi] [25 psi] [40 psi] [60 psi].
  - D. ThermalStar® Underlayment: Closed-cell HCFC-free "Green" polystyrene with PVC membrane compatible polymer film both sides; FM [1-60] [1-90] wind uplift classification; compressive strength – [13 psi] [15 psi] [20 psi].
- ASTM C 578, Type I, VIII, II, IX, XIV and XV  
ICC-ES ESR-1962  
IBC, NBC, UBC and SBC Sections on Foam Insulation (Chapter 26)  
CAN/CGSB-51.26-M86  
CAN/ULC-S704

**UL Standard 790 (ASTM E 108) Classification**

Class A with most roof membrane systems over NC decks. See UL Roofing Materials & Systems Directory.

**\*\*\*INSERT REQUIRED "R" VALUE BELOW\*\*\***

- E. Related Materials:
  1. Fasteners: Factory mutual approved.
  2. Base Ply: As recommended by membrane manufacturer.
  3. Slip Sheets: Atlas FR10 or FR50 as required for the assembly.
  4. Fasteners: For Nail Base and Vented-R: Atlas Nail Base Fasteners.
  5. Asphalt Bitumen: Comply with ASTM D 312, Type III (steep) or Type IV. USE ONLY ON APPROVED BOARD INSULATION TYPES.

- a. Provide with labels indicating flash point, softening point, finished blowing temperature, and equiviscous temperature.

**PART 3 – EXECUTION**

**3.01 EXAMINATION**

- A. Examine roof deck for suitability to receive insulation. Verify that substrate is dry, clean and free of foreign material that will damage insulation or impede installation.
- B. Verify that roof drains, scuppers, roof curbs, nailers, equipment supports, vents and other roof accessories are secured properly and installed in conformance with Contract Drawings and submittals.
- C. Verify that deck is structurally sound to support installers, materials and equipment without damaging or deforming work.
  1. Start of installation indicates installer accepts conditions of existing deck surfaces.

**3.02 APPLICATION/INSTALLATION**

**\*\*\*VERIFY NEED FOR A VAPOR RETARDER WITH DESIGNER IN ACCORDANCE WITH CURRENT VAPOR RETARDER THEORY AND ENGINEERING FORMULAS. WHEN REQUIRED, INSERT INSTALLATION REQUIREMENTS OF VAPOR RETARDER MANUFACTURER.\*\*\***

*NOTE TO SPECIFIER: Atlas strongly recommends the use of a vapor retarder with a perm rating of 0.5 or less (i.e., 4 mil polyethylene minimum) on all projects except those in extreme cooling climates.*

- A. Install specified insulation using approved [mechanical fasteners] [hot asphalt] [adhesives] in accordance with manufacturer's latest written instructions and as required by governing codes and owner's insurance carrier.
- B. Install with end joints staggered to avoid having insulation joints coinciding with joints in deck. In multi-layer installations, stagger joints in top and bottom layers.

**\*\*\*NOTE TO SPECIFIER: ATLAS  
SUPPORTS NRCA AND OTHER INDUSTRY  
AUTHORITIES IN RECOMMENDING  
MULTI-LAYER INSULATION APPLICATIONS.  
(SEE TECHNICAL BULLETIN #00-01)\*\*\***

### **3.03 CLEANING/PROTECTION**

- A. Remove trash and construction debris from insulation surface prior to application of roofing membrane.
- B. Do not leave installed insulation exposed to weather. Cover and waterproof with completed roof system immediately after installation.
  - 1. Temporarily seal exposed insulation edges at the end of each day.
  - 2. Remove and replace installed insulation that has become wet or damaged with new insulation.
- C. Protect installed insulation and roof cover from traffic by use of protective covering materials during and after installation.
- D. Clean ThermalStar® insulation may be recycled. (See recycle drop off centers at [www.epspackaging.org](http://www.epspackaging.org).)



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**MANUFACTURING PLANTS**  
East – Byron Center, MI – Tel: (800) 917-9138  
Central – Perryville, MO – Tel: (800) 888-2332  
West – Tijuana, MX – Tel: (866) 811-9517

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