

# ATLAS EPS ARCHITECTURAL SPECIFICATIONS

## SECTION 07 22 00 : ROOF BOARD INSULATION

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

A. Rigid board type roof insulation(s) for thermal protection as part of roofing assemblies.

B. Recover board roof insulation.

C. Roofing crickets.

#### 1.2 RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

A. Section 05 30 00 - Metal Deck.

B. Section 06 10 00 - Rough Carpentry: Wood roof sheathing.

C. Sections 07 51 13, 07 51 00, 07 51 16 - Built-Up Roofing.

D. Section 07 53 00 - Elastomeric Membrane Roofing.

#### 1.3 REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

A. ASTM C 578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

B. FM 4450 - Approval Standard - Class I Insulated Steel Roof Decks.

C. FM 4470 - Approval Standard - Class I Roof Covering.

D. UL 790 - Tests for Fire Resistance of Roof Covering Materials.

E. UL 1256 - Fire Test of Roof Deck Constructions.

#### 1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Shop Drawings: Roof plan showing fastening patterns of boards and layout.

D. Verification Samples: Two samples of each fastener type required and two samples of each board type required, minimum size 6 inches (150 mm) square, representing actual products.

E. Manufacturer's Certificates: Manufacturer's certification that materials meet or exceed specification requirements.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver insulation in packages labeled with material name, thermal value, and product code.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. When stored outdoors, stack insulation on pallets above ground or roof deck, slit or remove packaging, and cover with tarpaulin or other suitable waterproof coverings.

#### 1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

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 or when proper adhesive temperature cannot be maintained.

#### 1.7 COORDINATION

A. Coordinate Work with installation of roof covering and associated roof penetrations and counterflashings installed by other sections as Work of this section proceeds.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturer: Atlas Roofing Corp.; 2000 RiverEdge Parkway, Suite 800, Atlanta, GA 30328. Phone: (770) 952-1442. Fax: (770) 952-3170. Web Site: www.atlasroofing.com. E-mail: rickg@atlasroofing.com.

\*\* NOTE TO SPECIFIER \*\* Consult with manufacturer and insert the name and address of the local representative.

B. Local Representative: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

C. Requests for substitutions will be considered in accordance with provisions of Section 00 25 00, 00 26 00.

D. Provide all roof board insulation from a single manufacturer.

### 2.2 MATERIALS

A. Roof Board Insulation: Provide products that comply with the following:

\*\* NOTE TO SPECIFIER \*\* Delete all of the following standards that are not required; coordinate with product specifications.

1. ASTM standards specified.

2. Factory Mutual (FM) approvals specified.

3. Underwriters Laboratories Inc. (UL) classifications specified.

4. California State Insulation Quality Standards and Title 25 Foam Flammability Criteria.

5. ICC International Building Code Sections on Foam Insulation.

6. BOCA National Building Code Sections on Foam Insulation.

7. ICBO Uniform Building Code Sections on Foam Insulation.

8. SBCCI Standard Building Code Sections on Foam Insulation.

B. Roof Insulation Type(s): \*\*\* SELECT ONE OR MORE OF THE INSULATION TYPES FROM THE LISTING AS FOLLOWS, AS APPROPRIATE/REQUIRED BY THE PROJECT. DELETE THE UNUSED ITEMS AND RENUMBER. ALSO TYPICALLY MAKE PROPER SELECTION FROM ITEMS IN BRACKETS [ ] AND PARENTHESIS ( ) AND DELETE ITEMS NOT USED.\*\*

1. Atlas Flat EPS Roof Insulation: ASTM C 578, [ Type I, 0.90 pcf ], [ Type II, 1.35 pcf ], [ Type VIII, 1.15 pcf ], [ Type IX, 1.80 pcf ].

a. Thickness shall be \_\_\_\_ inches.

b. R-Value shall be \_\_\_\_.

2. Atlas Tapered EPS Roof Insulation: ASTM C 578, [ Type I, 0.90 pcf ], [ Type II, 1.35 pcf ], [ Type VIII, 1.15 pcf ], [ Type IX, 1.80 pcf ].

a. Minimum Thickness \_\_\_\_.

b. Slope \_\_\_\_.

c. Average R-Value \_\_\_\_.

d. Mark tapered insulation panels according to designations shown on Atlas shop drawing.

C. Related Materials:

1. Coverboards: Minimum 1/2" fiberboard meeting ASTM C 208, or a minimum of 1/2" perlite meeting ASTM C 728-82.

2. Thermal Barrier: 1/2" Gypsum Board or 3/4" Perlite Board.

Note to Specifier: Follow local building codes for use of EPS in metal deck construction.

3. Fasteners: Factory Mutual approved.

4. Asphalt Bitumen: Comply with ASTM D 312, Type III (steep) or Type IV.

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

## PART 3 - EXECUTION

### 3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Examine roof deck for suitability to receive insulation. Verify that substrate is dry, clean, and free of foreign material that will damage insulation installation.

C. Verify that roof drains, scuppers, roof curbs, nailers, equipment supports, vents, and other roof accessories are secured properly and installed in conformance with drawings and submittals.

D. Verify that deck is structurally sound to support installers, materials, and equipment without damaging or deforming work.

E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

### 3.2 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.\*\*

A. Install specified insulation in accordance with manufacturer's latest printed instructions and as required by governing codes and Owner's insurance carrier. Install using one of the following installation methods:

\*\* NOTE TO SPECIFIER \*\* Select one of the following three paragraphs and delete the ones not required.

1. Mechanical fasteners for securing insulation.

2. Adhesives for securing insulation.

3. Hot asphalt for securing insulation.

\*\* NOTE TO SPECIFIER\*\* OPTIONS FOR USE WITH HOT ASPHALT FOLLOW

a. Concrete Deck: Primed Deck shall be solidly mopped with steep asphalt at an application rate of 25 lbs./square. Allow asphalt to cool to 225° F and embed EPS roof insulation into the asphalt. EPS insulation boards shall be 'walked in' as they are embedded in the hot asphalt.

b. Steel Deck: Fasten thermal barrier to the steel deck. Solidly mop thermal barrier with steep asphalt at a rate of 25 lbs./square. Allow asphalt to cool to 225° F - 250° F and embed EPS roof insulation. EPS insulation boards shall be 'walked in' as they are embedded in the hot asphalt.

\*\* NOTE TO SPECIFIER \*\* The minimum insulation thickness for deck with spans of up to 2-5/8 inches is 1 inch; and for deck with spans of 2-5/8 inches to 4-3/8 inches the minimum thickness is 1-1/2 inches. Coordinate minimum insulation thickness with roof covering manufacturer and indicate on the Drawings.

B. Install with end joints staggered. Do not align insulation joints with joints in deck.

\*\* NOTE TO SPECIFIER \*\* Atlas supports NRCA and other industry authorities in recommending multi-layer insulation applications. Delete the following paragraph if multi-layer insulation is not specified for the project.

C. In multi-layer installations, stagger joints in top and bottom layers. Do not align joints in insulation.

D. Do not leave installed insulation exposed to weather. Cover and waterproof immediately after installation.

E. Seal exposed insulation edges at the end of each day. Remove insulation edge seal when work resumes.

F. Remove installed insulation that has become wet or damaged and replace with new solid and dry insulation material.

### 3.3 CLEANING

A. Remove trash and construction debris from insulation before application of roofing membrane.

### 3.4 PROTECTION

A. Protect installed products until completion of project.

B. Protect installed insulation traffic by use of protective covering materials during and after installation.

C. Repair or replace damaged products before Substantial Completion.

END OF SECTION



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### EXPANDED POLYSTYRENE INSULATION

**Byron Center, MI**  
(800) 917-9138 • Fax: (800) 626-9942

**Irvine, CA**  
(866) 811-9517 • Fax: (619) 241-8310

**Perryville, MO**  
(800) 888-2332 • Fax: (573) 547-1027

### EPS TAPERED DESIGN ASSISTANCE

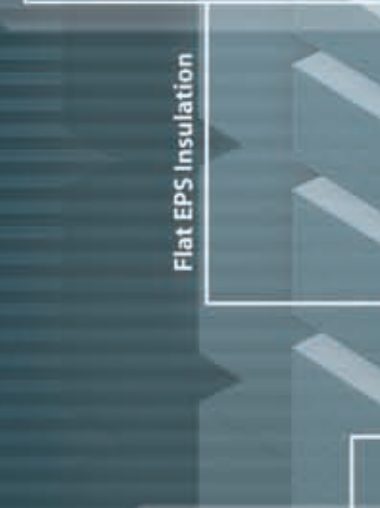
(770)-952-1442 • Fax: (770)-952-3170

# Expanded Polystyrene EPS INSULATION

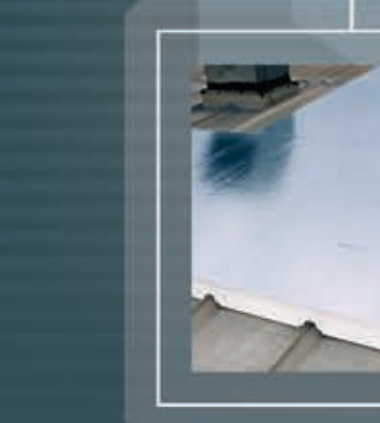
For Roof Applications



Tapered EPS Insulation



Flat EPS Insulation



Specialty Products



Expanded Polystyrene Insulation



# ATLAS EXPANDED POLYSTYRENE (EPS) PRODUCTS

ATLAS EPS roof insulation offers cost-effectiveness and energy-efficiency. Its thermal and mechanical properties are ideal for commercial and industrial applications where R-value and moisture resistance are critical.

Available in a full range of densities, in standard and custom-cut sizes, Atlas EPS roof insulation meets the specific needs of architects, contractors and building owners. Atlas EPS roof insulation offers a smooth, non-abrasive surface for safe, easy handling and requires no special tools or construction techniques. Atlas EPS roof insulation meets appropriate ASTM Standard Specifications and building requirements.

## LONG-TERM THERMAL VALUE

The R-Value of EPS insulation is permanent because the cellular structure of EPS contains only stabilized air. Its R-Value will not decrease over time.

## PERMANENCE

EPS insulation is an inert, organic material. It provides no nutritive value to plants, animals or micro-organisms. It will not rot, and is resistant to mold and mildew.

## TEMPERATURE CYCLING

EPS can withstand the abuse of temperature cycling, assuring long-term performance. In a series of tests conducted by Dynatech Research and Development Co., Cambridge, Mass., core specimens removed from existing freezer walls, some as old as 16 years, proved that EPS withstands freeze-thaw cycling without loss of structural integrity or other physical properties.

## MOISTURE RESISTANCE

A study by the Energy Materials Testing Laboratory (EMTL) has shown that EPS insulation installed in well-constructed roofs does not absorb appreciable moisture, even under conditions characteristic of prolonged cold, damp winters. The small amount of moisture absorbed (an average of 0.2% by weight) has little or no effect on the compressive or flexural strength, and the EPS insulation retains between 95% and 97% of its thermal efficiency.

## ENVIRONMENTAL BENEFITS

Atlas EPS does not contain CFCs or HCFCs and may also be recycled through EPS collection sites located throughout the country.

## LOW-SLOPE COMMERCIAL ROOF SYSTEMS

Atlas EPS roof insulation is a cost-effective insulation choice for a low slope roof system. It may be used without a coverboard in loose-laid ballasted and mechanically attached single-ply roof systems. It may be used with a coverboard in adhered single-ply roof systems and built-up roofing (BUR). (Follow roof system manufacturer's recommendation for appropriate density of product.) Atlas EPS roof insulation is lightweight, making it easy to hoist, handle, and install.

## TAPERED EPS ROOF INSULATION

### THE CUSTOM TAPERED ROOF INSULATION/DRAINAGE SYSTEM

Atlas Tapered EPS roof insulation helps eliminate ponded water and increases the thermal efficiency of the roof system. Atlas Tapered roof insulation consists of EPS panels factory-cut to approved detailed shop drawings and provides a cost-effective tapered roof insulation and drainage solution.

Tapered EPS roof insulation panels can be cut into the specific hips, valleys, saddles, and straight tapered sections indicated on drawings. The panels are factory-cut in easy-to-handle 4'x4' and 4'x8' sections, and pre-cut hips and valleys are laid out at a 45 degree angle to drains and exterior walls. The panels may be laminated on one or both sides with perlite, fiberboard or foil facers to meet special roofing requirements.

In a ballasted roof system, an approved thermal barrier is inserted between the deck and the Atlas Tapered EPS roof insulation, with the roofing membrane applied directly over the roof insulation. Ballast is placed over the membrane to complete the installation.

The tapered system channels water directly to drains, keeping the roof free from damaging ponded water. Therefore, the roof dries faster and lasts longer. Since the panels are pre-cut at the factory, sizes are packaged and clearly identified for ease of installation.

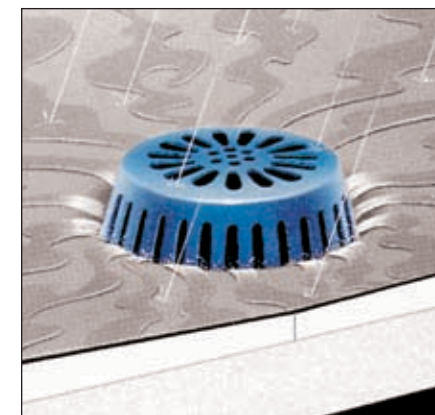
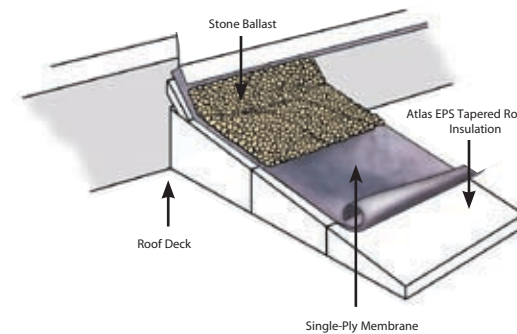
The Tapered Systems Group works closely with designers and contractors to design the insulation system that meets drainage and thermal requirements. Shop drawings are then prepared that show all drains, hips, valleys and saddles for a faster, more accurate installation.

### PRECAUTIONS

Do not apply asphalt to polystyrene insulation at a temperature that exceeds 250°F. Do not apply flame directly to EPS. It will burn upon exposure to an adequate source of heat or flame. EPS should be kept away from any open flame or source of ignition. Do not install or use EPS with coal tar pitch, highly solvent-extended mastics or solvent-based adhesives without adequate separation.

Do not leave insulation exposed to the weather. Install no more insulation than can be completely covered by the finished roofing system on the same day. Installed insulation that has become wet shall be removed and replaced with dry insulation. Protect installed roof insulation and membrane from roof traffic damage.

Atlas EPS Tapered Roof Insulation System —Ballasted (shown), Adhered, or Mechanically Attached



# ATLAS EPS TECHNICAL INFORMATION

## TYPICAL\* PHYSICAL PROPERTIES

PROPERTY	Units	ASTM Test	ASTM Designations						
			Type XI	Type I	Type VIII	Type II	Type IX	Type XIV	Type XV
ASTM Density	pcf(min)	C 303 or D 1622	0.70	0.90	1.15	1.35	1.80	2.40	2.85
Common Designation	pcf		0.75#	1#	1.25#	1.5#	2#	2.5#	3#
Thermal Resistance Values	at 75°F	C 177 or C 518	3.20	3.85	3.92	4.20	4.36	4.40	4.40
	at 40°F	C 177 or C 518	3.50	4.22	4.35	4.55	4.66	4.70	xxx
	at 25°F	C 177 or C 518	3.90	4.40	4.55	4.82	4.94	4.96	xxx
Compression at 10% Deformation	psi	D 1621	8.0	12.0	16.5	20.0	28.0	45.0	60.0
Flexural Strength	psi	C 203	18.0	29.0	35.0	42.0	55.0	75.0	95.0

\*The physical properties above are presented as typical values as determined by accepted ASTM test methods and are subject to normal manufacturing variation. This data is offered as a service to our customers and is subject to change. All information can be confirmed by contacting Falcon Foam's Technical Department.

Moisture Resistance									
Water Vapor Permeance	perm/in	E 96	5.0	5.0	3.5	3.5	2.0	2.0	
Water Absorption	volume %	C 272	4.0	4.0	3.0	3.0	2.0	1.0	
Dimensional Stability									
Change in dimensions	max %	D 696	2.0	2.0	2.0	2.0	2.0	2.0	
Maximum Service Temp									
Long Term			167°F for all densities						
Intermittent			180°F for all densities						
Flame Spread									
Up to 6" thickness		E 84*	< 25 for all densities						
Smoke Development									
Up to 6" thickness		E 84*	< 450 for all densities						
Oxygen Index									
	volume %	D 2863	24 for all densities						

**Caution:** Combustible. Insulation will ignite if exposed to fire or sufficient heat and intensity.  
**Notice:** Atlas Roofing Corporation shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

\*The numerical ratings as determined by ASTM Test Method E 84 are not intended to reflect hazards presented by this or any other material under actual fire conditions.

