



Tapered ACFoam® Insulation DATA SHEET

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Codes and Compliances

- Federal Specification HHH-1972/GEN, HHH-1972/2, Class 1 and HHH-1972/3 have been cancelled.
- ASTM C 1289, Type II, Class 1¹
- ASTM C 1289, Type II, Class 2²
- ASTM C 1289, Type III⁴
- ASTM C 1289, Type IV³
- Miami-Dade County, Florida Product Control No.03-0103.01^{1,2,4}
- California State Insulation Quality Standards and Title 25 Foam Flammability Criteria (License #TC 1231)^{1,2,4}
- IBC, NBC, UBC, and SBC Sections on Foam Plastic Insulation (Chapter 26)
- CCMC No. 12464-L¹
- CCMC No. 12423-L²
- CAN/CGSB-51.26-M86^{1,2}
- CAN/ULC-S704^{1,2}

FM Standard 4450/4470 Approval

Tapered ACFoam is approved for Class 1 insulated steel, wood, concrete and gypsum roof deck construction for 1-60 and 1-90 Windstorm Classifications (may be mopped or mechanically fastened to structural concrete roof decks).^{1,2,3,4}

Refer to FM Approval Guide for details on specific systems.

Tapered ACFoam Composite/GB is approved for Class 1 insulated steel and concrete roof deck construction for 1-60, 1-75, 1-90, and 1-165 Windstorm Classifications.

Refer to FM Approval Guide for details on specific systems.

UL Standard 1256 Classification

Insulated metal deck construction assemblies - Construction No. 120 and No. 123^{1,2,3,4,5}

UL Standard 790 (ASTM E 108) Classification

Class A with most roof membrane systems.

See UL Roofing Materials & Systems Directory.^{1,2,3,4,5}

UL Standard 263 Fire Resistance Classification (ASTM E 119)

Some classifications for fire resistance for Tapered ACFoam-II and Tapered ACFoam-III are P225, P230, P259, P508, P510, P514, P701, P710, P713, P717, P718, P719, P720, P722, P723, P724, P725, P727, P728, P729, P730, P732, P801, P814, P815, P818, P819, and P828.

Some classifications for fire resistance for Tapered ACFoam Composite/FB, /PB, and /GB are P230, P259, P508, P510, P514, P710, P711, P715, P717, P718, P814, P815, P818, and P828.

See UL Fire Resistance Directory.

UL of Canada

Insulated Roof Deck Assemblies - Construction #C34

CAN/ULC-S126-M86, CAN/ULC-S101-M89, CAN/ULC-S107-M87^{1,2}

- 1 - Tapered ACFoam-II
- 2 - Tapered ACFoam-III
- 3 - Tapered ACFoam Composite/FB
- 4 - Tapered ACFoam Composite/PB
- 5 - Tapered ACFoam Composite/GB

Tapered ACFoam® Insulation

Product Description and Recommended Uses

Tapered ACFoam is manufactured in a tapered profile to attain positive drainage while maintaining the highest thermal efficiency available in a tapered system. Tapered ACFoam is also available in a 25-psi formula. Available in 4' x 4' (1220mm x 1220mm) only. Tapered ACFoam-II is specified for use in hot asphalt or coal tar BUR, modified bitumen and single-ply membrane systems.

Tapered ACFoam-III, which features a durable and dimensionally stable facer, is typically specified for single-ply, cold-applied BUR and cold-applied modified bitumen membrane systems. DO NOT USE WITH HOT BITUMEN, i.e., coal tar or asphalt. Tapered ACFoam-III is a closed-cell polyiso foam core integrally laminated to heavy coated-glass facers.

Tapered ACFoam Composite/FB consists of Atlas closed-cell polyiso bonded to 1/2" high density wood fiberboard on the top and a fiber-reinforced felt facer on the bottom. The wood fiberboard top eliminates the need for cover boards or vented base sheets normally recommended over foam insulations. Tapered ACFoam Composite/FB may be used with BUR, modified bitumen and single-ply systems.

Tapered ACFoam Composite/PB consists of Atlas closed-cell polyiso bonded to 1/2" perlite on the top and a fiber-reinforced felt facer on the bottom. The perlite top eliminates the need for cover boards or vented base sheets normally recommended over foam insulations. ACFoam Composite/PB may be used with BUR, modified bitumen, and certain single-ply systems.

Tapered ACFoam Composite/GB consists of Atlas closed-cell polyiso foam bonded to 1/4" primed glass-mat gypsum board on the top and a fiber-reinforced felt facer on the bottom. The glass-mat gypsum board provides a dense protection layer for the primary foam insulation and has a 500-psi compressive strength, which makes Composite/GB a good choice when foot traffic is a design concern.

Gemini™ Pre-Cut Crickets are pre-packaged with only the triangular sections, not the entire cricket. Each cricket has a right angle to align with Atlas's standard 4' x 4' tapered insulation panels. Available in 1/4" per ft. and 1/2" per ft. slope. Construction variances from building drawings are easily accommodated on site. Specify Gemini™ Pre-Cut Crickets, the only pre-engineered hinged cricket. Patent Number 5,966,883 and 6,105,324.

Long-Term Thermal Resistance (LTTR)*

MARKING	THICKNESS		SLOPE PER		AVERAGE	
	in	mm	ft	30.5 cm	LTTR Value*	RSI**
TAPERED ACFOAM®-II & TAPERED ACFOAM®-III						
AA	0.5"-1.0"	12-25	1/8"	3 mm	4.5	0.79
A	1.0"-1.5"	25-38	1/8"	3 mm	7.5	1.32
B	1.5"-2.0"	38-50	1/8"	3 mm	10.6	1.86
C	2.0"-2.5"	50-63	1/8"	3 mm	13.7	2.40
X	0.5"-1.5"	12-38	1/4"	6 mm	6.0	1.06
Y	1.5"-2.5"	38-63	1/4"	6 mm	12.1	2.13
G	1.0"-2.0"	25-50	1/4"	6 mm	9.0	1.58
H	2.0"-3.0"	50-76	1/4"	6 mm	15.3	2.69
JJ	0.5"-1.25"	12-32	3/16"	5 mm	5.3	0.93
KK	1.25"-2.0"	32-50	3/16"	5 mm	9.8	1.72
Q	0.5"-2.5"	12-63	1/2"	12 mm	9.0	1.58
TAPERED ACFOAM® COMPOSITE/PB (PERLITE)						
A	1.0"-1.5"	25-38	1/8"	3 mm	5.9	1.04
B	1.5"-2.0"	38-50	1/8"	3 mm	8.9	1.57
C	2.0"-2.5"	50-63	1/8"	3 mm	12.0	2.11
D	2.5"-3.0"	63-76	1/8"	3 mm	15.1	2.66
G	1.0"-2.0"	25-50	1/4"	6 mm	7.4	1.30
H	2.0"-3.0"	50-76	1/4"	6 mm	13.5	2.38
XX	1.0"-3.0"	25-76	1/2"	12 mm	10.4	1.83
TAPERED ACFOAM® COMPOSITE/GB (GLASS-MAT GYPSUM)						
A	1.0"-1.5"	25-38	1/8"	3 mm	6.3	1.11
B	1.5"-2.0"	38-50	1/8"	3 mm	9.3	1.64
C	2.0"-2.5"	50-63	1/8"	3 mm	12.4	2.18
D	2.5"-3.0"	63-76	1/8"	3 mm	15.6	2.75
G	1.0"-2.0"	25-50	1/4"	6 mm	7.8	1.37
H	2.0"-3.0"	50-76	1/4"	6 mm	14.0	2.46
XX	1.0"-3.0"	25-76	1/2"	12 mm	10.9	1.92
TAPERED ACFOAM® COMPOSITE/FB (FIBERBOARD)						
A	1.0"-1.5"	25-38	1/8"	3 mm	5.8	1.02
B	1.5"-2.0"	38-50	1/8"	3 mm	8.8	1.55
C	2.0"-2.5"	50-63	1/8"	3 mm	11.9	2.09
D	2.5"-3.0"	63-76	1/8"	3 mm	15.0	2.64
G	1.0"-2.0"	25-50	1/4"	6 mm	7.3	1.28
H	2.0"-3.0"	50-76	1/4"	6 mm	13.4	2.36
XX	1.0"-3.0"	25-76	1/2"	12 mm	10.3	1.82
GEMINI™ PRE-CUT CRICKETS						
X	0.5"-1.5"	12-38	1/4"	6 mm	6.0	1.06
Y	1.5"-2.5"	38-63	1/4"	6 mm	12.1	2.13
Q	0.5"-2.5"	12-63	1/2"	12 mm	9.0	1.58
2"	2.0"	50	N/A	N/A	12.1	2.13

* Long-term thermal resistance values were determined in accordance with CAN/ULC-S770 and ASTM C 1289, Annex A1. All test samples were third-party selected and tested by an accredited materials testing laboratory. The R-value (1.39) for 1/2" perlite was provided by ASHRAE Handbook Fundamentals. The R-value (.28) for 1/4" glass-mat gypsum board was provided by the glass-mat gypsum manufacturer. The R-value (1.3) of 1/2" high density wood fiberboard was provided by the wood fiberboard manufacturer.

** RSI is the metric expression of LTTR (m² • K/W)

Moisture/Vapor Controls

Vapor retarders are used to impede the passage of water vapor into roofing systems, thereby preventing condensation and resulting damage to the insulation and roof system. All ACFoam Roof Insulation products may be installed with or without a vapor retarder. The need for and placement of a vapor retarder is determined by the designer. The designer may consult the NRCA Roofing and Waterproofing Manual for guidance in determining the need for a vapor retarder. Special consideration should be given to construction-generated moisture, as well. For example, construction-generated moisture will be released when concrete floor slabs are placed after the roof has been installed, which can drive large quantities of moisture into the roof system. Therefore, Atlas is not responsible for damage to the insulation when exposed to construction-generated moisture. Refer to the NRCA Roofing and Waterproofing Manual for their recommendations for the use of a vapor retarder when construction-generated moisture is present (4th Edition, Volume 1, p. 121). Refer to Atlas Technical Bulletin #00-01.

Installation

Before installation begins, the roof deck should be firm, well attached, even, clean and dry. Proper attachment of the insulation is necessary to prevent roof failures. Atlas is not responsible for any damage caused by improper attachment. Tapered ACFoam products can be attached to decks that are approved by FM Approvals and local codes. Atlas is not responsible for determining the suitability of the deck. **ACFoam shall be kept dry before, during, and after installation.** Install only as much insulation as can be covered the same day with completed roofing. Although Tapered ACFoam has been designed to withstand normal foot traffic, protection from damage by construction traffic and/or abuse is extremely important. Roof surface protection such as plywood shall be used in areas where storage and staging are planned and heavy or repeated traffic is anticipated during or after installation. Refer to Atlas Technical Bulletin #00-01.

Attachment to Concrete Decks

Structural concrete, poured gypsum and lightweight insulating concrete decks require special consideration to address the large amounts of inherent moisture. Consult the NRCA Roofing and Waterproofing Manual for recommendations and instructions.

Mechanical Attachment

Mechanical fastening is the recommended method of attachment over nailable decks. Fastener frequency and spacing for steel, wood, structural concrete and poured gypsum decks are covered in the current Atlas Commercial Roof Insulations & Accessories Catalog according to the membrane system. Refer to FM Loss Prevention Data Sheet 1-29 for special considerations regarding perimeter and corners of the roof. Go to www.atlasroofing.com for fastening patterns for field, perimeter, and corner areas. For recommendations regarding attachment of insulation to lightweight insulating concrete decks or poured gypsum concrete decks, follow the instructions outlined in the NRCA Roofing and Waterproofing Manual. Tapered ACFoam products shall not be adhered directly to these decks by any bitumen or non-approved adhesive attachment method.

Bitumen Attachment

For installing Tapered ACFoam to a structural concrete deck, adhesive/bitumen attachment is the recommended method. When using asphalt on concrete decks, priming is necessary. Precautions must be taken to prevent bitumen drippage. When using hot-applied bitumen for insulation attachment, the temperature of the asphalt should be approximately 50° F below the interply hand mopping EVT. The deck must be dry and care must be taken to apply the bitumen in sufficient quantity to totally cover the available deck surface. Use 18 to 30 pounds of bitumen per square to ensure proper attachment. To ensure embedment, the board must also be "stepped in" at several points while the bitumen is still hot enough to allow positive attachment. The recommended Tapered ACFoam insulation size for hot asphalt attachment is 4' x 4'. **DO NOT INSTALL TAPERED ACFOAM-III WITH HOT BITUMEN.**

Typical Physical Properties (Foam Portion)

PROPERTY	TEST METHOD	TYPICAL RESULTS
Dimensional Stability (Length and Width)	ASTM D 2126	< 2 %
Compressive Strength (10% Deformation)	ASTM D 1621	20 psi (140 kPa)
Water Absorption	ASTM C 209 ASTM D 2842	< 1 % < 3.5 %
Moisture Vapor Transmission	ASTM E 96	< 1.5 perm (85.0 ng / (Pa*s*m ²))
Product Density	ASTM D 1622	Nominal 2.0 pcf (32.04 kg/m ³)
Flame Spread	ASTM E 84 (Full 10 min. Test)	25-50**
Smoke Developed	ASTM E 84 (Full 10 min. Test)	50-170**
Tensile Strength	ASTM D 1623	>730 psf (35 kPa)
Service Temperature	-	-100 to 250° F (-73 to 122° C)

** 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. A flame spread index of 75 or less and smoke development of 450 or less meet code requirements regarding flame spread and smoke development for foam plastic roof insulation. The codes exempt foam plastic insulation used in roof deck constructions that comply as an assembly with FM 4450 or UL 1256 (see IBC, NBC, UBC, and SBC Sections on Foam Plastic Insulation (Chapter 26)). Smoke development does not apply to roofing.

The physical properties listed above are presented as typical average 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 Atlas's Technical Department.

Storage

Factory applied packaging is intended only for protection during transit. When stored outdoors or on the job site, the insulation should be stacked on pallets at least four inches above ground level and completely covered with a weatherproof covering such as a tarpaulin. The temporary factory-applied packaging should be slit or removed to prevent accumulation of condensation. Roof insulation which has become wet or damaged should not be installed.

WARNING - Do Not Leave Exposed

This product is a polyiso organic plastic foam and will burn if exposed to an ignition source of sufficient heat and intensity, or open flame, such as a welder's torch. Like other organic materials, this product will release smoke if ignited. Do not apply flame directly to ACFoam Roof Insulations. This product should be used only in strict accordance with Atlas recommended uses and application instructions.

Limitation of Liability

Other than the aforementioned representations and descriptions, Atlas Roofing Corporation (hereafter, "Seller") makes no other representations or warranties as to the insulation sold herein. The Seller disclaims all other warranties, express or implied, including the warranty of merchantability and the warranty of fitness for a particular purpose. Seller does, however, have a limited warranty as to the LTRR-Value of the insulation, the terms of which are available upon request from the Seller.

The Seller shall not be liable for any incidental or consequential damages including the cost of installation, removal, repair or replacement of this product. The Buyer's remedies shall be limited exclusively to, at Seller's option, the repayment of the purchase price or resupply of product manufactured by Atlas in a quantity equal to that of the nonconforming product. Atlas distributors, agents, salespersons or other independent representatives have no authority to waive or alter the above limitation of liability and remedies.



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