

**Insulations**

**Product Information** An effective roof insulation reduces overall energy consumption, brings about improved comfort for the building’s occupants and provides an excellent substrate for a new roof system. The InsulFoam product line can satisfy these needs for virtually every type of roof system. The preceding section reviews the complete Insulfoam product line. To ensure correct selection of any roof insulation or membrane, it is recommended that a product’s performance be considered.

**Thermal Values of Insulfoam Products** The following chart provides the InsulFoam thicknesses needed to obtain the corresponding R-Value. Over the last century, the average temperature within the contiguous United States as reported by the National Oceanic and Atmospheric Administration (NOAA) was 52.8 °F. Insulfoam generally quotes the R-Values of its products at 40 °F, which is one of the testing temperatures provided within ASTM C518. This temperature most closely reflects the average overall temperature throughout the U.S. The R-Values were determined per ASTM C518, *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*.

R-Values and Thicknesses				
Insulfoam Type	I	VIII	II	IX
R-Value per inch	4.17	4.25	4.55	4.76
R-Value	InsulFoam® Thicknesses			
1.0	0.24	0.24	0.22	0.21
2.0	0.48	0.47	0.44	0.42
3.0	0.72	0.71	0.66	0.63
4.0	0.96	0.94	0.88	0.84
5.0	1.20	1.18	1.10	1.05
6.0	1.44	1.041	1.32	1.26
7.0	1.68	1.65	1.54	1.47
8.0	1.92	1.88	1.76	1.68
9.0	2.16	2.12	1.98	1.89
10.0	2.40	2.35	2.20	2.10
11.0	2.64	2.59	2.42	2.31
12.0	2.88	2.82	2.64	2.52
13.0	3.12	3.06	2.86	2.73
14.0	3.36	3.29	3.08	2.94
15.0	3.60	3.53	3.30	3.15
16.0	3.84	3.76	3.52	3.36
17.0	4.08	4.00	3.74	3.57
18.0	4.32	4.24	3.96	3.78
19.0	4.56	4.47	4.18	3.99
20.0	4.80	4.71	4.40	4.20
21.0	5.04	4.94	4.62	4.41
22.0	5.28	5.18	4.84	4.62
23.0	5.52	5.41	5.05	4.83
24.0	5.76	5.65	5.27	5.04
25.0	6.00	5.88	5.49	5.25
26.0	6.24	6.09	5.71	5.46
27.0	6.47	6.32	5.93	5.67
28.0	6.71	6.56	6.15	5.88
29.0	6.95	6.79	6.37	6.09
30.0	7.19	7.03	6.59	6.30

**Warranties** The owner of a low-slope roof may wish to receive a material and labor warranty that covers both the InsulFoam insulation and the membrane. InsulFoam insulations are eligible for inclusion in many membrane manufacturers’ total system warranties. Contact your local Insulfoam representative for a list of membrane manufacturers with which Insulfoam is a partner.

**Product Considerations**

Roof insulation should perform two basic functions; it is a thermal barrier for the building’s roof and a substrate for the roof system. In order to perform these functions, it should have the following basic characteristics:

- Stable thermal resistance (R-Value) to meet the long-term needs of the designer and building owner
- Resistance to damage during typical construction traffic during the installation of the roof or roof-top units (antennae, HVAC, etc.)
- Rigidity to span rib openings in metal decks and minor deck irregularities, and to support the roofing membrane
- Dimensional stability
- Resistance to moisture absorption
- Acceptable by Underwriters Laboratories and other local and national code agencies
- Meet applicable building code requirements or designer requirements

**Material Storage and Handling**

**General Storage Recommendations**

- Roofing materials can be damaged by exposure to the elements and may be susceptible to moisture retention; all material should be protected from the weather and stored in a dry location.
- Insulation that is stored outside should be covered by canvas tarpaulins that can breathe. Tarpaulins or other covers should be properly secured.
- Loose insulation material should be weighted down to prevent wind blow-off or damage.
- Materials that are stored outside should be placed on pallets or raised platforms to keep them off the ground or roof deck.

**General Handling and Installation Recommendations**

- Use caution when handling any roofing insulation to avoid breaking, crushing or cracking the board or its edges.
- Load or stage insulation in a manner that will minimize repetitive movement of the material.
- Install only as much insulation as can be covered by a roof system and/or made watertight by the end of each day.
- Any temporary water cut-offs or roof tie-ins should be completely removed before additional insulation is installed.

## ROOF INSULATIONS

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- InsulFoam insulations should be protected from solvent-based or petroleum-based adhesives and from direct contact with coal-tar products.
- InsulFoam insulations should not come in contact with asphalt at temperatures above 250 °F.
- InsulFoam insulation should not be exposed to open flames or other ignition sources.
- Any decks or substrates that require a primer should be primed at least 24 hours before the installation of InsulFoam insulations.
- Allow approximately 1/4" between InsulFoam products and any vertical surfaces or roof projections. Do not force or jam product into place.

### General Tapered Insulation Recommendations

- Review the layout of Tapered InsulFoam systems before loading and installing panels.
- In cut-up areas and for complex tapered layouts, material should be laid out unattached to allow for trimming and fitting.
- The use of a chalk line is recommended to start the installation of any Tapered InsulFoam system.
- Whenever practical, Tapered InsulFoam systems should be installed starting from the thickest point and working towards the thinnest point. This will allow any trimming or cutting to be done at the drain points. This will not be feasible for factory-fabricated valley or ridge systems.
- When starting first and second rows of taper, start one of the rows with a half-length board so that joints are staggered between rows. Repeat throughout the tapered system.
- Do not dispose of any end cuts until the installation is complete. These pieces may have been figured in and required elsewhere in the system.
- End cuts should be marked with a permanent marker with the same letter or number as the piece from which they were cut.

### Asphalt Recommendations

- Asphalt-applied roofing membranes are not to be installed directly to InsulFoam insulations.
- Always mop an area 6"- 8" larger than the insulation piece being installed.
- The asphalt mop should not come in contact with any previously installed insulation pieces.
- Only solid mopping of InsulFoam insulation is recommended. Spot or strip mopping is not recommended. Do not overload the mop, as asphalt will cool more slowly than normal if excessive quantities are applied.
- InsulFoam should not come in contact with asphalt at temperatures above 250 °F. A common rule-of-thumb for appropriate asphalt temperature is the lack of visible fuming of the installed asphalt.
- All insulation boards must be walked-in immediately after being placed in the mopping asphalt.
- If the board is slightly cupped, apply the cupped face downward.
- Asphalt is not recommended for InsulFoam-to-InsulFoam attachment. For these applications, contact your Insulfoam representative for recommendations on approved adhesives.
- When InsulFoam is used in a hot-asphalt system (BUR or modified bitumen), a suitable cover board is required. The membrane manufacturer should be contacted for recommendations on approved cover boards.
- The joints between the cover board and the joints of the initial layer of InsulFoam should be staggered a minimum of 6".
- Cover boards to be mopped to InsulFoam should have the asphalt applied to their bottom sides only. Asphalt should not be applied directly to the InsulFoam insulation.
- To minimize asphalt migration between insulation joints, Insulfoam recommends the use of 6" strips of an ASTM D2178 Type VI ply felt over the joints and the application of asphalt over the strips using a small mop. Asphalt should be hot enough at the point of application to bleed through the ply felt so that it will attach to the insulation. Mechanized equipment may also be available for strip application.
- An alternate means of addressing asphalt migration through insulation joints would be to apply a protection sheet (e.g. red rosin, Kraft paper) between the cover board joints and the InsulFoam insulation.