

TECHNICAL BULLETIN: 21-02

EPS as an Alternative Insulation Option

Currently, the roofing industry has been faced with raw material shortages that adversely affect the supply of almost every roofing component within a roof system. Polyisocyanurate manufacturers are in extremely short supply of polyisocyanurate both from a raw material standpoint as well as limited production capacity due to equipment issues or labor issues.

In most cases, polyisocyanurate ordered today cannot be filled for up to 90 days. This makes for a logistical and planning nightmare for roofing projects. The following alternative insulations may be considered when seeking alternative solutions to polyisocyanurate material shortages:

- IB EPS of **1.0 lb.** density, meeting ASTM C578 Type I or **1.25 lb.** density, meeting ASTM C578 Type VIII.
 - EPS, because of its low compressive strength requires the use of an approved mechanically fastened cover boards.
- IB Tapered EPS minimum **1.0 lb.** density, meeting ASTM C578 Type I or **1.25 lb.** density, meeting ASTM C578 Type VIII.
 - EPS, because of its low compressive strength requires the use of an approved mechanically fastened cover boards.
- IB EPS minimum **1.5 lb.** density, meeting ASTM C578 Type II or **2.0 lb.** density, meeting ASTM C578 Type IX.
 - EPS can be furnished with a facer for mechanical attachment of IB PVC directly over the faced EPS.
 - Unfaced EPS requires at a minimum a separation sheet (IB Separator Sheet, IB Poly Separator Sheet, IB HD Poly Separator Sheet, or Fire Sheet 10) or a cover board (DensDeck, DensDeck Prime, Securock, or Structodek Red Board) as a separation layer between EPS and mechanically fastened IB PVC.
- IB Tapered EPS minimum **1.5 lb.** density, meeting ASTM C578 Type II or **2.0 lb.** density, meeting ASTM C578 Type IX.
 - Unfaced EPS may be adhered with ICP BoardMax direct to approved decks or approved coverboards.
 - Unfaced EPS requires the use of an approved cover board (DensDeck Prime, Securock, or HD ISO) as a separation layer between adhered EPS and adhered IB PVC.
 - Faced EPS may not be compatible with low rise foam adhesives, as the adhesive may cause delamination of the facer from the EPS.

Check with IB Technical Services for code, wind and/or fire rating differences or impact when determining alternative insulation solutions.

EPS R-Value Table

R-value - per inch (hr • ft ² • °F)/BTU ASTM C518 Or ASTMC177	Temp @	IB EPS Type I	IB EPS Type VIII	IB EPS Type II	IB EPS Type IX
	°F				
	@ 25°F	4.35	4.55	4.76	5.00
	@40°F	4.17	4.25	4.55	4.76
@75°F	3.85	3.92	4.17	4.35	

LTTR/Thickness Comparison Table: Example take ISO LTTR / EPS R-value = EPS thickness to achieve equal R-Value of ISO.

Polyisocyanurate		IB EPS Type I		IB EPS Type VIII		IB EPS Type II		IB EPS Type IX	
20 psi – standard 25 psi – special order		1.00 lb. density/ 10-14 psi		1.25 lb. density/ 13-18 psi		1.5 lb. density/ 15-21 psi		2.0 lb. density/ 25-33 psi	
Thickness	LTTR Value	Thickness	LTTR Value	Thickness	LTTR Value	Thickness	LTTR Value	Thickness	LTTR Value
1.0	5.7	1.0	3.85	1.0	3.92	1.0	4.17	1.0	4.35
1.5	8.6	2.3	8.8	2.2	8.6	2.1	8.7	2.0	8.7
2.0	11.4	3.0	11.5	3.0	11.8	2.8	11.7	2.7	11.7
2.5	13.2	3.5	13.5	3.4	13.3	3.2	13.3	3.1	13.5
3.0	17.4	4.6	17.7	4.5	17.6	4.2	17.5	4.0	17.4
4.0	22.8	6.0	23.1	5.9	23.1	5.5	22.9	5.3	23.0
4.4	25.0	6.5	25.0	6.4	25.1	6.0	25.0	5.8	25.2
4.5	25.6	6.7	25.8	6.6	25.9	6.2	25.8	5.9	25.6
5.0	28.5	7.4	28.5	7.3	28.6	6.9	28.8	6.6	28.7
5.26	30.0	7.8	30.0	7.7	30.2	7.2	30.0	6.9	30.0

Please visit www.ibroof.com to view the latest specifications and system requirements or contact IB Technical Services at (800) 426-1626.