Optim-R® and Optim-R®E

Vacuum Insulation Panels



Description:

Optim-R®, by Kingspan®, is a high thermal insulation solution comprised of a rigid vacuum insulation panel (VIP) with a microporous core. The panel is evacuated, encased and sealed in a thin, gas-tight envelope, giving an outstanding thermal resistance in an exceptionally thin insulation solution.

VIPs should not be penetrated and therefore can only be installed in adhered or inverted applications. Due to the nature of specific panel sizes, a roof plan layout design is required to determine panel placement and to ensure drainage. Many VIP systems work in conjunction with both polyiso and XPS insulation panels. These panels can be cut to fit around areas such as skylights, penetrations or parapets. A 1" thick, minimum 2" wide insulation panel is required on all perimeters to protect the VIPs.

Each Optim-R® system comes with a roof design which maximizes the ratio of VIPs to infill for optimal thermal performance. Each layout will illustrate size, number and location of each panel on the roof.

Optim-R®E is also available and is a more durable version of Optim-R®. Optim-R®E is encapsulated within a polyurea coating to give increased compressive strength and protection from installation accidents. With Optim-R®E there is no longer a need for other insulations to be used as infill protecting Optim-R®E from skylights, penetrations or parapets.

Features and Benefits:

- Thinner profile – high thermal value
- Core and facing will resist mold and microbial growth and are pest resistant

System Approvals:

Approved component in commercial roof systems:

- Single Ply Roofing Systems
- Inverted Roofing Systems
- Balcony and Terrace Systems
- Modified Bitumen with a cover board

Codes and Approvals:

- FM Approved — refer to RoofNav.com for specific assemblies
- Classified by UL in accordance with ANSI/UL 790. Refer to UL Product iQ for specific assemblies
- ETK Intertek
- Manufactured and certified to ISO 9001:2015, ISO 14001:2015, ISO 45001 2018
- OHSAS 18001: 2007
- ASTM C1667
- ASTM C165
- ASTM D212
- ASTM D2126



Optim-R® Panel Characteristics*†

Panel Size mm	Thickness			
	20 mm	30 mm	40 mm	50 mm
	pcs	pcs	pcs	pcs
300 x 300	44	32	24	16
300 x 400	33	24	18	12
400 x 600	22	16	12	8
600 x 600	22	16	12	8
300 x 1200	11	8	6	5
400 x 1200	11	8	6	5
600 x 1200	11	8‡	6	5‡

* Sold in full boxes only.

† Optima R®E is only available in 20mm thickness. Contact Siplast for packaging information.

‡ Most common sizes.

Optim-R® and Optim-R®E

Vacuum Insulation Panels

Product Data Tables

Property	Value
Nominal Thickness (in / mm)	0.79 - 1.97 / 20 - 50
Standard Dimensions Width (in / mm)	11.8 - 23.6 / 300 - 600
Standard Dimensions Length (in / mm)	11.8 - 47.2 / 300 - 1200

Property	Test Method	Results
Nominal Panel Mass (20 mm thickness)	N/A	0.82 lbs per sq. ft. / 4 kg per sq. m
Nominal Panel Mass (25 mm thickness)	N/A	1.02 lbs per sq. ft. / 5 kg per sq. m
Nominal Panel Mass (30 mm thickness)	N/A	1.23 lbs per sq. ft. / 6 kg per sq. m
Nominal Panel Mass (35 mm thickness)	N/A	1.43 lbs per sq. ft. / 7 kg per sq. m
Nominal Panel Mass (40 mm thickness)	N/A	1.64 lbs per sq. ft. / 8 kg per sq. m
Compressive Strength, in. (psi) @ 10% deformation	ASTM C165	23

ASTM C1667 Center Panel Thermal Resistance Properties			
Thickness in.	Thickness mm	R-values	
		Optim-R®	Optim-R®E
0.79	20	26	29.4
0.98	25	32§	34.2
1.18	30	37§	41.4
1.57	40	49§	52.3
1.97	50	60	66.9

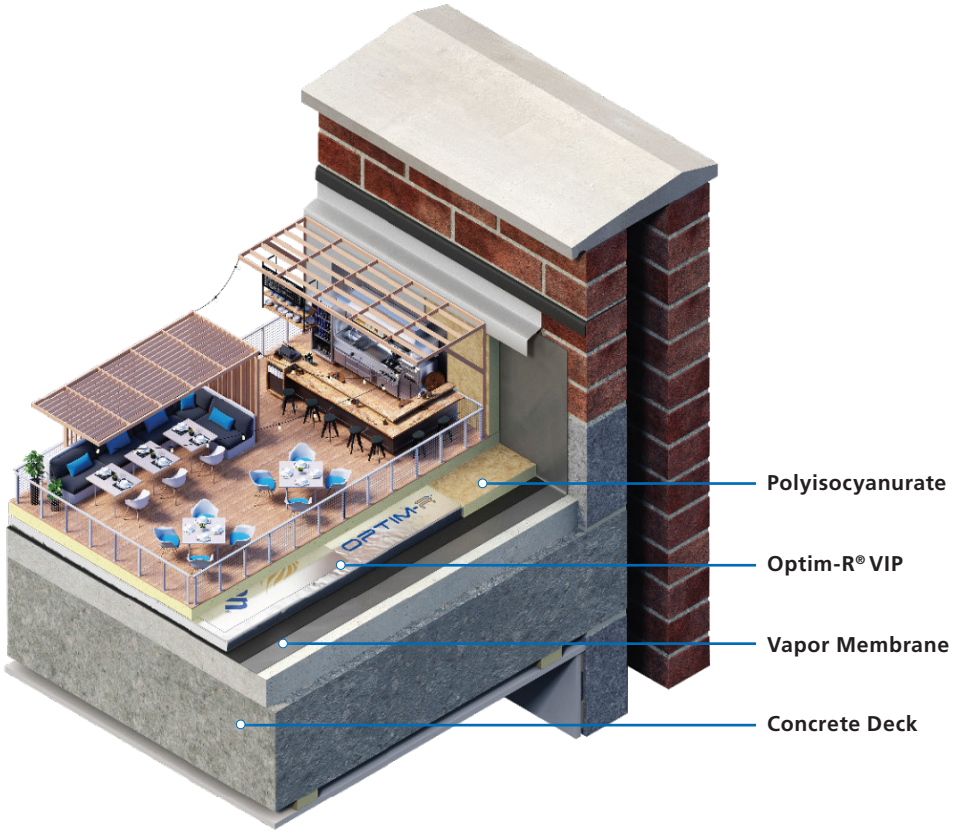
§ These values are based on linear interpolation of test results for 20 mm and 50 mm Optim-R® boards.

Calculated Edge Effect Thermal Resistance Properties**			
Thickness in.	Thickness mm	R-value	
		Optim-R®	Optim-R®E
0.79	20	22	18.8
0.98	25	28	23.5
1.18	30	33	30.5
1.57	40	46	36.9
1.97	50	57	47.1

** Based on ASTM C1667 Thermal Resistance Values. Edge effect R-values vary based on panel size. The listed edge effect R-values in the table are based on the average edge effect R-values from six of the most commonly used panel sizes. Refer to Kingspan® Insulation for current stock and non-stock sizes.

Warnings and Limitations:

- Refer to the application specifications in the current membrane manufacturer's application and specifications manual for proper installation procedures.
- Material delivery should be carefully coordinated with the schedule for roofing operations to minimize job site storage time. Whenever possible, store boxes over finished surfaces rather than on dirt or grass to avoid upward transpiration of moisture and the accumulation of condensate. Consider interior storage offering dry, well ventilated conditions when the Optim-R® is to be stored for more than 14 days prior to installation.
- Panels cannot come into contact with solvent based adhesive systems, solvents, or acids.
- Avoid foot traffic over panels until protection layers and final finish has been installed.



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