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ISOLEREN TECHNICAL BULLETIN: TESTING INSULATED METAL ROOF

PRODUCT:

Isoleren Insulated Metal Roof Panels

Isoleren Profiles: RL



TESTING:

TYPE	TEST PROTOCOL	DESCRIPTION	RESULTS
ENVIRONMENTAL PERFORMANCE	ASTM C518	Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	K-Factor 0.139 BTU - in/hr-ft ² -F° at 75° mean K-Factor 0.129 BTU- in/hr-ft ² -F° at 35° mean
	ASTM E1680	Rate of Air Leakage Through Exterior Metal Roof Panel Systems	0.001 - cfm/sf at 12-psf
	ASTM E1646	Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference	Zero penetration at 12-psf
FOAM CORE CHARACTERISTICS	ASTM C273	Shear Properties of Sandwich Core Materials	Shear Strength = 16-psi
	ASTM D1621	Compressive Properties of Rigid Cellular Plastics	Compressive Strength - 18-psi
	ASTM D1622	Apparent Density of Rigid Cellular Plastics	Apparent Density - 2.25-pcf
	ASTM D1623	Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics	Tensile Strength - 21-psi
	ASTM D6226	Open Cell Content of Rigid Cellular Plastics	Open Cell Content ≥ 90% closed cells
FIRE RESISTANCE	ASTM E84	Surface Burning Characteristics of Building Materials	Flame Spread < 25, Smoke Developed < 450
	FM 4880	Factory Mutual Approval Standard for Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings and Exterior Wall Systems	Class 1 Fire Rated
IMPACT RESISTANCE	FM 4771	Factory Mutual Approval Standard for Class 1 Panel Roofs	Class 1 Approved
ENGINEERING PROPERTIES	ASTM E1592	Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference	See Load Tables
	ASTM E72	Strength Tests of Panels for Building Construction	See Load Tables
	FM 4471	Factory Mutual Approval Standard for Class 1 Panel Roofs	Class 1 Approved
BOND STRENGTH	Fatigue Endurance	2,000,000 Alternating Cycles of L/180 Deflection	No evidence of facer or liner delamination fracture of foam core or permanent set
	Freeze/Heat Cycle	Twenty-Once (21) Eight-hour Temperature Cycles (-20° F to 180° F)	No evidence of delamination, blistering or permanent set
	Humidity Endurance	1,200 Hours of 93% Humidity at a Temperature of 158° F	No evidence of delamination, blistering or interface corrosion
	Autoclave	Exposure to 218° F and a pressure of 2-psig for 2 1/2 hours	No evidence of facer or liner delamination

ITB-0015