

ENVIRONMENTAL PRODUCT DECLARATION

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INSULATED METAL PANELS (IMP)

Prepared by Protean Construction Products

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Protean – Insulated Metal Panels (IMP)

Company Information:

Protean Construction Products provides custom manufactured architectural metal wall panel systems tailored to meet your project's needs – both the design concept and the pragmatic needs of construction. With a passion for teaming with our customers to create great buildings that last, Protean is committed to providing products that make your building more sustainable through the use of recycled materials, ability to recycle the metal wall panels at end of use, and other aspects of the product and our manufacturing processes.

Name and location of production site:
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Product Information:

Product Name: Insulated Metal Panel (IMP)

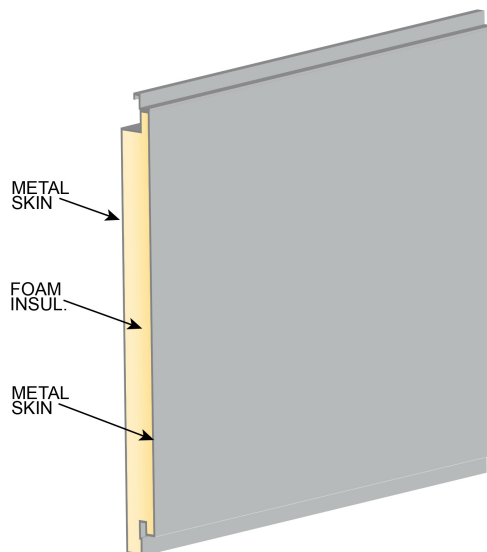
Product Identification: FM-200, FM-100

Geographic Scope: USA

Product Description:

Insulated metal wall panels combine a finished metal skin with an insulated foam core, providing energy efficiency and noise reduction for the building's interior.

FM-200 PANEL



ENVIRONMENTAL PRODUCT DECLARATION

Protean – Insulated Metal Panels (IMP)

The FM-200 Series is a rain screen style system best used when high R-Value or noise deadening is required. Panels tested to R-Value = 14 (7 per inch of depth). Laminated foam panels are well suited for projects needing large panels with long, smooth expanses. The FM-200 is best when a crisp aesthetic with no caulk lines and insulation qualities are desired.

The FM-100 Series is a barrier system best used when high R-Value or noise deadening is required. Panels tested to R-Value = 14 (7 per inch of depth). Laminated foam panels are well suited for projects needing large panels with long, smooth expanses. The FM-100 is highly recommended when complex panel configurations, corners and openings make lower cost foam-in-place panels more costly to fabricate and install.

The insulated metal panels, when either the FM-200 Standard Construction or the FM-100 Standard Construction is the Basis of Design, provide a warranty that includes 5 Year Workmanship and 20 year finish.

Content Declaration

Product

Component	Material	Availability	Origin	Mass (%)
Aluminum face/liner	0.40" Aluminum (coil coated)	Fossil resource, limited	North America	75.62
22 Galvanized Steel coil	Steel coil, hot dipped galvanized (alternate)	Fossil resource, limited	North America	75.62
Polyisocyanurate core	2.0" Polyisocyanurate	Fossil resource, limited	U.S.	8.68
Polyisocyanurate foam	MDI	Fossil resource, limited	U.S.	13.43
Polyisocyanurate foam	Blowing Agent	Fossil resource, limited	U.S.	0.92

Recycled Material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

Post-consumer recycled content: 64.3% (full panel), 85% (aluminum only)

ENVIRONMENTAL PRODUCT DECLARATION

Protean – Insulated Metal Panels (IMP)

Environmental Performance

Potential environmental impact

Component	Availability	Origin
Global warming potential (GWP)	kg CO ₂ -eq.	6,485
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11-eq.	4.12E-5
Acidification potential (AP)	kg H ⁺ mol-eq.	1,072
Eutrophication potential (EP)	kg N-eq.	0.864
Smog formation potential (SFP)	kg O ₃ -eq.	241
Human Health Criteria Pollution	kg PM ₁₀ -eq.	2.37
Photochemical Ozone Creation Potential	kg O ₃ -eq.	435
Abiotic Depletion Potential – Elements (ADP-elements)	kg Sb-eq.	0.0507
Abiotic Depletion Potential – Fossil Fuels (ADP-fossil fuels)	MJ	93,000

Use of resources

PARAMETER (per 100 SF)	UNIT	
Primary energy resources – Renewable	MJ, net calorific value	1,810
Primary energy resources – Non-renewable	MJ, net calorific value	60,300
Feedstock energy	MJ, net calorific value	10.2
Net use of fresh water	L	11,900

Waste production and output flows

Waste production

PARAMETER (per 1000 SF)	UNIT	
Hazardous waste disposed	kg	40

ENVIRONMENTAL PRODUCT DECLARATION

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Additional Information:

End of Life Stage:

The FM-200 and FM-100 have a recyclable face and liner (skins). Skins are easily mechanically separated from the polyisocyanurate foam core and can then be placed into a recycling stream. The polyisocyanurate foam core goes to landfill for the FM-200 and FM-100.

Release of Dangerous Substances:

There is no release of dangerous substances from insulated metal panel systems during the use stage. An exception, however, may be the “off gassing” of caulk sealant for FM-100 panels.

Installation and Energy Efficiency:

Insulated metal panel systems optimize energy consumption by attachment methods to eliminate/minimize thermal bridging. The proper installation of insulated metal panels is as follows. Utilizing standard installation details, FM-200 series panels are sequentially installed to the structure with mechanical fasteners with an easy tongue and groove alignment. We recommend use of hat girts and self-tapping screws; however, our panels can be fastened to flat strap furring or direct to 5/8” or heavier plywood. Utilizing standard installation details, FM-100 series panels are sequentially installed to the structure with mechanical fasteners and formed attachment legs. The minimum joint of 1/2” is sealed with backer rod and sealant compatible with the finish. We recommend use of hat girts and self-tapping screws; however, our panels can be fastened to flat strap furring or direct to 5/8” or heavier plywood. With attachment tabs removed, the FM-100 can be glazed in to curtain walls in lieu of glass at spandrels, etc. Typical foamed-in-place insulated panels are not suited for glazed-in applications.

References

Life Cycle Assessment of Metal Construction Association (MCA) Production Processes, Metal Roof and Wall Panel Products

TRACI 2.0 Bare, J. “TRACI 2.0: the Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts 2.0.” Clean Technologies and Environmental Policy. Volume 13, Number 5, 687-696. 2011.

CML 2001 GuinÈe et al. “An operational guide to the ISO-standards (Centre for Milieukunde (CML), Leiden 2001.” Center for Environmental Sciences (CML) at the University of Leiden, The Netherlands. Last Updated 2010.