

ENVIRONMENTAL  
PRODUCT  
DECLARATION

***Prōtean***<sup>™</sup>  
*The Form of Architectural Vision*

ALUMINUM COMPOSITE MATERIALS (ACM)

Prepared by Protean Construction Products

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# ENVIRONMENTAL PRODUCT DECLARATION

## Protean – Aluminum Composite Materials (ACM)

### 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:** Aluminum Composite Material (ACM)

**Product Identification:** ACM-3000RS, ACM-100

**Geographic Scope:** USA

#### Product Description:

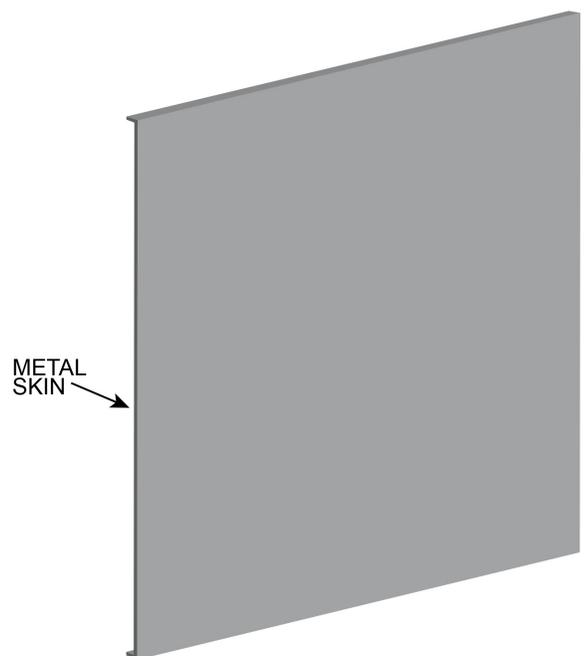
**The ACM-3000RS** Series is an extruded perimeter spline joint, back-ventilated rainscreen panel system, which provides a contemporary look with crisp, caulk free edges. ACM panel systems are best used in low rise applications above grade. The ACM-3000RS system is our lowest cost option for the service life of your project based upon low initial material cost and minimal service cost over the life of the product.

**The ACM-100** Series is a barrier system best used when a contemporary look is desired and a shorter service life is anticipated. ACM panel systems are best used in low rise applications above grade. The ACM-100 system is our lowest cost product option for new construction.

ACM panel systems, when either the ACM-3000RS Standard Construction or the ACM-100 Standard Construction is Basis of Design, provide a warranty of 5 year Workmanship and 20 year finish.

**Other codes for product classification:** ACM

ACM-100 PANEL



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## Content Declaration

### Product

Component	Material	Availability	Origin	Mass (%)
Aluminum face/liner	Painted aluminum coil	Fossil resource, limited	North America	38%
Panel hardware	Aluminum, extruded or hot rolled	Fossil resource, limited	North America	24%
Polyethylene core	Polyethylene, primary and secondary	Fossil resource, limited	North America	38%

### Recycled Material

Provenience of recycled materials in the product:

Post-consumer recycled content: 19.8% (full panel), 85% (aluminum only)

## Environmental Performance

### Potential environmental impact

PARAMETER (per 1000 square feet)	UNIT	Polyethylene core thickness		
		4mm	3mm	6mm
Global warming potential (GWP)	kg CO <sub>2</sub> -eq.	6,120	5,950	6,430
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11-eq.	0.000145	0.000142	0.00015
Acidification potential (AP)	kg H <sup>+</sup> mol-eq.	1,850	1,770	2,030
Eutrophication potential (EP)	kg N-eq.	0.852	0.787	0.983
Smog formation potential (SFP)	kg O <sub>3</sub> -eq.	292	285	305

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## Protean – Aluminum Composite Materials (ACM)

### Use of resources

PARAMETER (per 1000 square feet)	UNIT	Polyethylene core thickness		
		4mm	3mm	6mm
Primary energy resources – Renewable	MJ, net calorific value	12,600	12,500	12,600
Primary energy resources – Non-renewable	MJ, net calorific value	88,000	83,000	100,000
Secondary material	kg	363	336	417
Net use of fresh water	m <sup>3</sup>	1,588	1,587	1,588
Stockpile goods	kg	6,110	6,040	6,260

### Waste production and output flows

#### Waste production

PARAMETER (per 1000 square feet)	UNIT	Polyethylene core thickness		
		4mm	3mm	6mm
Hazardous waste disposed	kg	361	360	363
Non-hazardous waste disposed	kg	6.26	6.16	6.45
Radioactive waste disposed	kg	2.42	2.36	3

#### Output flows

PARAMETER (per 1000 square feet)	UNIT	Polyethylene core thickness		
		4mm	3mm	6mm
Stockpile goods	kg	6,110	6,040	6,260
Materials for recovery	kg	121	121	122

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### Additional Information:

#### End of Life Stage:

The ACM-3000RS and ACM-100 panel systems both have recyclable attachment clips and extrusions. The clips and extrusions can be mechanically removed and then can be placed into a recycle stream. The aluminum skins of the ACM material are recyclable with specialty processing to chemically and mechanically separate them from the polyethylene core. If not processed in this fashion, ACM material would be put in landfill.

#### Release of Dangerous Substances:

There is no release of dangerous substances from aluminum composite material during the use stage. An exception, however, may be the “off gassing” of caulk sealant for ACM-100 panels.

#### Installation and Energy Efficiency:

Energy consumption using Aluminum Composite Material panels is optimized by attachment methods that eliminate/minimize thermal bridging. The proper installation of aluminum composite material is as follows. Utilizing standard installation details, ACM-3000RS series panels are sequentially installed to the structure with mechanical fasteners to attachment clips that engage with the extruded perimeter spline joint. 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. Panel system must be backed by and requires proper air/water barrier to be designed and installed as with any rainscreen panel system. Utilizing standard installation details, ACM-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.

### References

ALUCOBOND® Environmental Product Declaration for wall panel systems with Metal Construction Association

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 Guinée 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.