



TechClad

Insulated MgO Cladding System



**MANUFACTURED IN
NORTH AMERICA**

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Insulated MgO Cladding System

Non-structural Insulated Cladding

As part of the building envelope, TechClad provides a comprehensive cladding solution designed to enhance thermal performance, fire protection, and structural integrity. This versatile system integrates magnesium oxide (MgO) sheathing with a variety of insulation options, allowing it to meet the specific needs of any project.

TechClad improves energy efficiency by reducing thermal bridging and increasing the building's R-value, while also enabling faster and more efficient installations by allowing direct attachment of claddings without the need for additional support framing. Its robust composition not only provides superior protection from external elements but also contributes to sustainable building practices by minimizing material waste and labor time on site.

The Benefits

- Instantly increases building's R-value, effectively reducing energy consumption for heating and cooling while enhancing overall thermal performance
- Overall panel thickness is customizable based on project R-Value requirements
- On-site flexibility. Easy to cut and modify on-site, allowing for seamless adjustments to fit specific design needs without compromising performance

The Applications

- Versatile applications for Type II, III, IV and V construction
- Reduce thermal bridging while maintaining structural and fire resistance
- Easily installs over existing structures, providing immediate insulation improvements and enhancing building envelope performance without extensive demolition.

TechClad Designed For:

- Multi-story wood and steel frame buildings
- Retrofitting existing structures
- Roofing applications

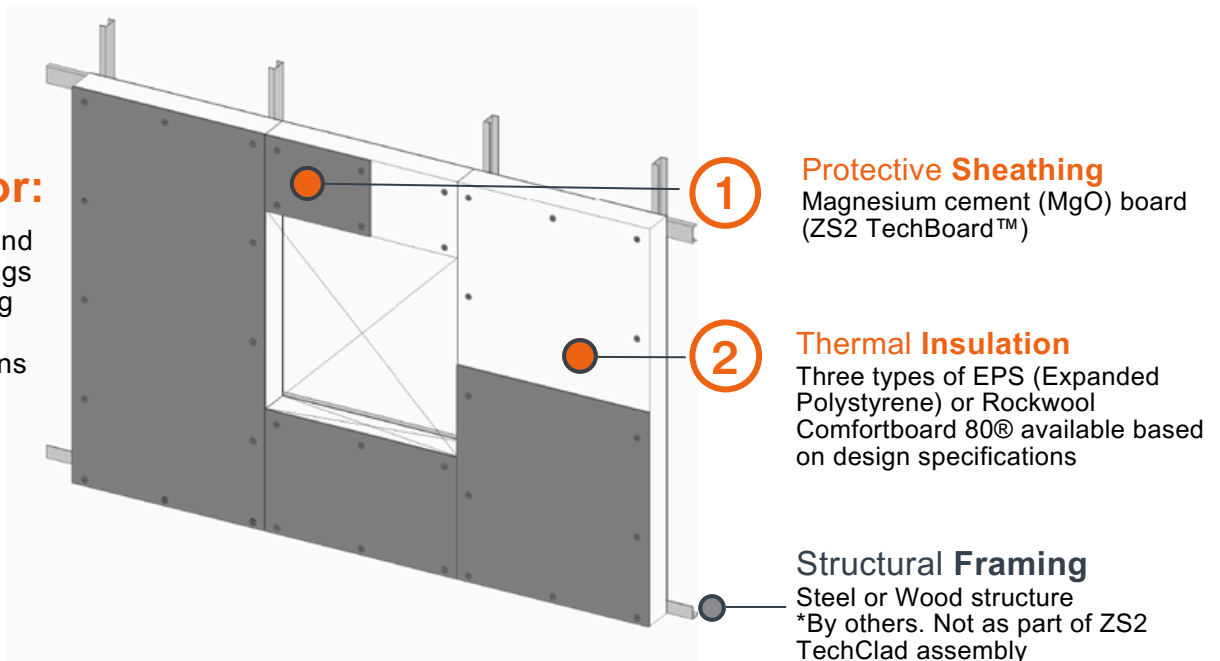


Fig. 1.1 TechClad Assembly



TechClad Advantages

Material **Properties**

Leading MgO cement technology to safeguard your investment



MgO
Technology



Fire
Resistant



Water
Resistant



Mold
Resistant



Humidity
Control



Pest
Resistant

Onsite **Benefits**

Where the benefits of offsite construction meet onsite efficiency.



On-site
Flexibility



Quality
Control



Reduced
Schedule



Reduced
Labor



Cost
Certainty



Less
Waste

Sustained **Value**

Long term support



Energy
Efficiency



Climate
Resilient



Reduced
Operational Costs

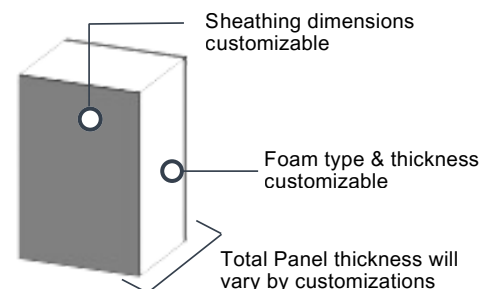


Sustainable
Material

Manufactured to Specification

ZS2 manufactures TechClad to spec from the individual requirements of your architectural, electrical and mechanical drawings.

Sheathing options, insulation options and standard dimensions and thicknesses of panel assemblies are listed in the charts below for reference.



Sheathing Options

TechClad exclusively utilizes ZS2 TechBoard™ for its sheathing, with the option to apply it on one or both sides of the insulation depending on project requirements. ZS2 TechBoard is a cementitious magnesium oxide (MgO) board, reinforced with fiberglass mesh layers and made using ZS2's proprietary MgO cement technology. The board thickness can be customized, allowing for tailored cladding assemblies that meet specific performance and strength needs.

Nominal Product Thickness	Edge Profile	Standard Sizes	Weight Per Board*	R-Value
1/4"	Square	4' x 8' (1219 mm x 2438 mm)	40 lbs	0.25
1/2"	Square	4' x 8' (1219 mm x 2438 mm)	80 lbs	0.50
1/2"	Square	4' x 9' (1219 mm x 2750 mm)	90 lbs	0.50
1/2"	Square	4' x 10' (1219 mm x 3050 mm)	100 lbs	0.50

*Average board weight may vary

*R-Value information provided to be used as a reference only

Insulation Options

TechClad offers four insulation options to meet various project needs. Expanded Polystyrene (EPS) is a closed-cell foam providing thermal resistance and moisture protection, with Type 1 and Type 2 EPS differing in density and strength—Type 2 is more durable. Graphite EPS enhances thermal performance by reducing infrared heat transfer. For non-combustible applications, ROCKWOOL Comfortboard® 80 is a rigid stone wool board that offers superior fire resistance and continuous insulation. Each material's selection depends on factors like fire safety, durability, and energy efficiency.

Material Property	Test Method	Type I EPS	Type II EPS	Graphite EPS	ROCKWOOL Comfortboard® 80
Thermal Resistance Minimum RSI per 25mm (R per inch)	ASTM C518	0.65 m2 • 0C/W (3.75 ft2•h•0F/BTU)	0.70 m2 • 0C/W (4.04 ft2•h•0F/BTU)	0.82 m2 • 0C/W (4.7 ft2•h•0F/BTU)	25.4 mm @ 240C (4.2 hr•ft2 •0F/BTU)
Compressive Resistance	ASTM D1621	70 kPa (10 psi)	140 kPa (20 psi)	70 kPa (10 psi)	
Compressive Strength	ASTM C165				439psf (21kPa) @ 10% 1065psf (50kPa) @ 25%
Flexural Strength	ASTM C203	170 kPa (25psi)	280 kPa (40psi)	170 kPa (25psi)	
Water Vapour Permeance	ASTM E96	300 ng/(Pa.s.m2) (5.0 Perms)	200 ng/(Pa.s.m2) (3.5 Perms)	300 ng/(Pa.s.m2) (5.2 Perms)	1768 ng/(Pa.s.m2) (31 Perms)
Density	ASTM C303	0.90 pcf			8 lbs/ft³ (128 kg/m³)
Reaction to Fire	ASTM E84 CAN/ULC S102				Flame spread index = 0 Smoke developed index = 0

*Increasing EPS density will enable a reduction in overall panel thickness while maintaining high energy efficiency

*A Certified Energy Consultant should perform project-specific calculations

Have a project in mind? Get in touch.

ZS2's building materials are available across North America. We have regional TechPartners and construction experts ready to support and help you cement the details.

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Physical Properties

Property	Method	Value	MAX Supporting Spacing	Edge / Field Spacing	Code Evaluation Report
Sound Transmission Coefficient (TechBoard™ / ROCKWOOL Comfortboard® 80)	ASTM E90	31	4'		
Thermal Resistance Insulation (TechBoard™ / ROCKWOOL Comfortboard® 80)	ASTM C518	4.2 per inch (RSI 0.7)			
Vapour Permeance (TechBoard™ / ROCKWOOL Comfortboard® 80)	ASTM E96	2.2 perms / 31 perm			
Vapour Permeance (TechBoard™ /Type II EPS)	ASTM E96 (Procedure A)	1.1 US Perms (62.02 ng/Pa·s·m²)	10 ft height	2.5" ring shank nail @ 3" o.c / 12" o.c	<u>CERUS-1009</u>
Screw Pull Through Test (TechBoard™ /Type II EPS)	ASTM D1037	459 lbf	12"	Simpson Self-Drilling Bugle-Head Screw #10 x 3.5 410 SS Screw	
Flame Spread / Smoke Development Index (TechBoard™)	ASTM E84	0 / 0			
	CAN/ULC S102	0 / 7			
Fire Resistance (TechBoard™)	NFPA 286	PASS			
	CAN/ULC S135	PASS			
	ASTM E119 CAN/ULC S101	1 hr 2hr			
Mold & Mildew (TechBoard™)	ASTM G21	0 Growth	4'	2.5" ring shank nail @ 3" o.c / 12" o.c	
	CAN/ULC S135	PASS			
Transverse (Conventional Frame) (TechBoard™)	ASTM E72	45 psf	24"	staples @ 3" o.c	
	ASTM E72	57 psf	24"	#8 screw @ 6" o.c	
Racking (Conventional Frame) (TechBoard™)	ASTM E72	162 plf	16"	staples @ 3" o.c	
	ASTM E72	178 plf	16"	#8 screw @ 6" o.c	



CERUS-1009
Meets
Requirements

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Testing Standards

- **ASTM E90** - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- **ASTM E119** - Standard Test Methods for Fire Tests of Building Construction and Materials.
- **ASTM E84** - Standard Test Method for Surface Burning Characteristics of Building Materials.
- **ASTM C518** - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- **ASTM E96** - Standard Test Methods for Water Vapor Transmission of Materials.
- **ASTM E84** - Standard Test Method for Surface Burning Characteristics of Building Materials.
- **CAN/ULC S102** - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- **NFPA 286** - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.
- **CAN/ULC S135** - Standard Test Method for the Determination of Combustibility Parameters of Building Materials Using an Oxygen Consumption Calorimeter (Cone Calorimeter).
- **ASTM E119 / CAN/ULC S101** - Standard Test Methods for Fire Tests of Building Construction and Materials.
- **ASTM E96 (Procedure A)** - Standard Test Methods for Water Vapor Transmission of Materials.
- **ASTM G21** - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- **ASTM E72** - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
- **ASTM D1037** - Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.

Handling & Use

All materials should be delivered and stored in their original unopened package and stored in an enclosed shelter providing protection from damage and exposure to the elements.

Please refer to ZS2 Install Drawings, Specifications and Instructions for installation of your individual project.

Visit zs2technologies.com/construction-solutions/techclad/technical-documents or contact a ZS2 representative for more details.

Fastening

Mechanical fastener: Cement board screws, stainless steel staples, stainless-steel wood screws, or coated wood screws with a minimum salt spray coating of 1000 should be used. Proper spacing and installation methods should be followed to avoid damaging the sheathing.

Finishing

All interior and exterior finishes must be approved by the local building authority with jurisdiction. ZS2 defers to traditional finishing methods, ensuring that all internal and external finishes comply with local building codes. Standard industry practices should be followed, integrating appropriate supplementary materials as required by conventional construction methods and specific project needs. Refer to project architect, or envelop engineer for specifications of exterior finishes.

Warranty

10 Year Limited – Prorated – Nontransferable Warranty.

Visit www.zs2technologies.com/warranty or contact a ZS2 representative for details.

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