

## TECHNICAL DATA SHEET

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### Wallshell® Thermal Panoply™ XPS Panel



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### Characteristics

#### Application

Use as the exterior wall panel component with exterior insulation and a decorative finish in Wallshell® exterior wall system.

#### Description

The panel consists of the fiber cement carrier board coated with weather barrier finish on the surface, adhered with an extruded polystyrene (XPS) insulation board, steel brackets slotted into premade carrier board slots, and steel anchors fastened brackets into substrate.

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### Panel

#### Thickness

Thickness of finish coating:	95~120 µm
Thickness of carrier board:	6 mm
Thickness of insulation board:	38, 44, 57, 70, 83, 95, 108, 121, 133, 146 mm

Thickness of backboard: 0, 2, 3, 4, 6 mm

## Size

All measurements are in mm:

488x1220;

812x1220;

1220x406; 1220x610; 1220x1220;

2440x305; 2440x406; 2440x610; 2440x1220

Please refer to list of product catalog.

**Attention:** Wallshell® Thermal Panoply™ panel size is subject to be cut on-site to meet the technical requirements.

## Panel Technical Data

Properties	Test Method	Average Value
Tensile Strength at Water	ASTM C297	0.13 MPa was damaged
Tensile Strength at Freeze/Thaw	ASTM C297	0.14 MPa was damaged
Mass Change after Freeze/Thaw Cycles	ASTM E2485	No Deleterious Effects (+0.25%)
Flexural Strength	ASTM C1185	794 N/ m <sup>2</sup>
Water Absorption (24 hours)	ASTM C1185	56 g/m <sup>2</sup>
Wind Load	ASTM C1354	6.7 kPa
Thermal Resistance	ASTM C1155	0.029 W/(m·K)
Single Anchor Load	ASTM C1354	0.34 kN
Falling Ball Impact	ASTM D1037	Pass (10J)
Finish Surface Acid Resistance	48 hour	No abnormality
Finish Surface Alkali Resistance	96 hour	No abnormality
Finish Surface Salt Resistance	500 hour	No abnormality
Finish Surface Stain Resistance	≤ 10%	9%
Finish Surface Accelerated Aging	1000 hour	No abnormality

## Carrier Board Technical Data

Properties	Test Method	Average Value
Dimensional measurements	ASTM C1186	Pass
Flexural Strength (Equilibrium Conditioning)	ASTM C1185	26.1 MPa

Flexural Strength (Wet Conditioning)	ASTM C1185	18.1 MPa
Linear Change in Moisture Content	ASTM C1185	0.070%
Density	ASTM C1185	1.64 g/cm <sup>3</sup>
Water Absorption	ASTM C1185	14.9%
Water Tightness	ASTM C1185	Pass
Freeze-Thaw	ASTM C1185	Pass
Insulation Non-Combustibility	ASTM E136	Pass
Combustion Characteristics Mass Loss	ASTM E136	16.33%
Combustion Characteristics Temperature Rise	ASTM E136	15 °C
Unit Weight	6mm thick carrier board	12.80 kg/m <sup>2</sup>

## Insulation Technical Data

Properties	Test Method	Average Value
Insulation Density	ASTM C303	25~35 kg/m <sup>3</sup>
Insulation Fiber Diameter	ASTM C592	600~800 μm
Thermal Resistance (0 °C)	≤ 1.85 (m <sup>2</sup> ·K)/W	1.85 (m <sup>2</sup> ·K)/W
Thermal Conductivity (0 °C)	ASTM C1114	0.029 W/(m·K)
Dimension Stability (70 °C, 48 hr)	≤ 5.0 %	5.0 %
Vapor Sorption (50 °C, RH95%, 96 hr)	ASTM C1104	0.4 %
Water absorption (by volume)	ASTM C1185	0.3%
Minimum Service Temperature °C	≤ -50 °C	-60 °C
Maximum Service Temperature °C	≥ 70 °C	74 °C
Flexural Strength	≥ 80 kPa	345 kPa
Compressive Strength	ASTM C165	172 kPa
Unit Weight	38mm thick	0.95~1.33 kg/m <sup>2</sup>
	44mm thick	1.1~1.54 kg/m <sup>2</sup>
	57mm thick	1.43~2.00 kg/m <sup>2</sup>
	70mm thick	1.75~2.45 kg/m <sup>2</sup>
	83mm thick	2.08~2.91 kg/m <sup>2</sup>
	95mm thick	2.38~3.33 kg/m <sup>2</sup>
	108mm thick	2.70~3.78 kg/m <sup>2</sup>
	121mm thick	3.03~4.24 kg/m <sup>2</sup>
	133mm thick	3.33~4.66 kg/m <sup>2</sup>
	146mm thick	3.65~5.11 kg/m <sup>2</sup>
<b>Insulation Combustibility</b>		
Average Maximum Temperature	ASTM E84	≤ 200 °C
Smoke Density Rating	ASTM E84	≤ 75

## Backboard Technical Data

### Glass-fiber reinforced concrete membrane

Properties	Test Method	Average Value
Surface Burning Characteristics	ASTM E84	Class A
Combustion Characteristics Duration of Flaming	ASTM E84	0 sec
Insulation Non-Combustibility	ASTM E136	Pass
Combustion Characteristics Mass Loss	ASTM E136	17.9%
Combustion Characteristics Temperature Rise	ASTM E136	24.5°C
Unit Weight	2mm thick	2.6 kg/m <sup>2</sup>
	3mm thick	3.9 kg/m <sup>2</sup>
	4mm thick	5.2 kg/m <sup>2</sup>
	6mm thick	7.8 kg/m <sup>2</sup>

## LT Anchor System

T-profile Clip and/or L-profile Clip  
 L-profile Bracket or T-profile Rail  
 Adjuster  
 Fastener  
 Surfactant  
 Mortar

Please refer to installation manual.

## Substrate Requirements

Structural Substrate, such as concrete share wall, or metal framed share wall that is established with vapor barrier.

## Delivery

Packaging  
 Wooden crate

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## Storage

Storage Conditions

Dry condition

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## Application Requirements

<b>Apply Wallshell® LS Surfactant:</b>	Thoroughly cover all the panel surfaces
<b>Apply Wallshell® SE Edge Sealant:</b>	Thoroughly cover all the cuttings
<b>Apply Wallshell® LM Mortar:</b>	No less than 6.2 kg / m <sup>2</sup>
<b>Apply Wallshell® LF1 Fastener:</b>	No less than 60 mm depth into the shear wall

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## Special Information

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