

# BEHLEN

## STEEL BUILDINGS



INDUSTRIAL | COMMERCIAL | RECREATIONAL | INSTITUTIONAL

# INSULATED METAL PANELS

For 50 years, **BEHLEN Industries LP** has grown to be the largest manufacturer of steel building systems in Canada. As a global leader in our industry, **BEHLEN Industries LP** was the first North American steel building manufacturer registered to ISO 9001. In addition to ISO we are certified to CSA standard A660, the Canadian standard for Steel Building Systems, and are a member of Canadian Institute of Steel Construction as a Steel Fabricator.

Through our authorized builders with continue to earn a reputation as a global leader in our industry

## Insulated Metal Panels

We offer insulated metal panels that are available in a variety of configurations. They can be installed as exterior and interior walls and high-performance roofs; including cold storage applications. These panels are well suited for Institutional, Commercial and Industrial projects of all sizes and complexities.

The installation of insulated metal panels is quick and easy, allowing the building to be completely enclosed in a fraction of the time compared to conventional wall assemblies. The superior thermal values make increasing thermal performance across climatic zones easy to achieve for both walls and roofs.

## DISTRIBUTION COAST TO COAST



Plants in Manitoba



Office Location

## HORIZON Wall MS



### HORIZON WALL MS - MESA SMOOTH

Horizon Wall panels are produced with a standard Mesa profiled smooth steel face. Provides economical panels for industrial and commercial walls with added strength from a double Mesa profile for long panel lengths.

**COVERAGE WIDTH:** 42" (1067mm)

**PANEL LENGTHS:** 8' to 52' (2438mm to 15850mm)

**EXTERIOR FACE:** 22ga, 24ga, or 26ga Mesa Smooth galvanized G-90 (Z275) pre painted steel

THICKNESS	2"	3"	4"	5"	6"
R-VALUE*	16.67	25	33.33	41.67	50

**INTERIOR FACE:** 22ga, 24ga, or 26ga Mesa profile in Smooth or Light Embossed finish galvanized G-90 (Z275) pre painted steel in Regal White. Other colour options may be available.

## HORIZON Wall MLE



### HORIZON WALL MLE - MESA LIGHT EMBOSSED

Horizon Wall panels are produced with a standard Mesa profiled Light Embossed steel face. Provides economical panels for industrial and commercial walls with added strength from a double Mesa profile for long panel lengths.

**COVERAGE WIDTH:** 42" (1067mm)

**PANEL LENGTHS:** 8' to 52' (2438mm to 15850mm)

**EXTERIOR FACE:** 22ga, 24ga, or 26ga Mesa Light Embossed galvanized G-90 (Z275) pre painted steel

THICKNESS	2"	3"	4"	5"	6"
R-VALUE*	16.67	25	33.33	41.67	50

**INTERIOR FACE:** 22ga, 24ga, or 26ga Mesa profile in Smooth or Light Embossed finish galvanized G-90 (Z275) pre painted steel in Regal White. Other colour options are available.

## SKYLINE Roof



### SKYLINE ROOF

Skyline Roof panels are produced with a standard exterior Mesa profiled non-embossed smooth steel face. Provides economical roof panels for industrial and commercial projects. 2" Standing seam is mechanically folded and incorporates a hidden fastened clip.

**COVERAGE WIDTH:** 42" (1067mm)

**PANEL LENGTHS:** 10' to 52' (3048mm to 15850mm)

**EXTERIOR FACE:** 22ga, 24ga, or 26ga Mesa Smooth galvanized G-90 (Z275) pre painted steel

THICKNESS	2"	3"	4"	5"	6"
R-VALUE*	16.67	25	33.33	41.67	50

**INTERIOR FACE:** 22ga, 24ga, or 26ga Mesa profile in Smooth or Light Embossed finish galvanized G-90 (Z275) pre painted steel in Regal White. Other colour options are available.

## EDGE Wall SM



### LEADING EDGE WALL SM - SMOOTH

Leading Edge SM panels are produced with a standard smooth steel face. Provides a flat, smooth face adding a clean look to the exterior.

**COVERAGE WIDTH:** 42" (1067mm)

**PANEL LENGTHS:** 8' to 32' (2438mm to 9754mm)

**EXTERIOR FACE:** 22ga Flat Smooth galvanized G-90 (Z275) pre painted steel

THICKNESS	2"	3"	4"	5"	6"
R-VALUE*	16.67	25	33.33	41.67	50

**INTERIOR FACE:** 22ga, 24ga, or 26ga Mesa profile in Smooth or Light Embossed finish galvanized G-90 (Z275) pre painted steel in Regal White. Other colour options are available.

## EDGE Wall LE



### LEADING EDGE WALL LE - LIGHT EMBOSSED

Leading Edge LE panels are produced with a standard light embossed flat steel face. Provides added subtle visual texture to a flat panel.

**COVERAGE WIDTH:** 42" (1067mm)

**PANEL LENGTHS:** 8' to 32' (2438mm to 9754mm)

**EXTERIOR FACE:** 22ga Flat Light Embossed galvanized G-90 (Z275) pre painted steel

THICKNESS	2"	3"	4"	5"	6"
R-VALUE*	16.67	25	33.33	41.67	50

**INTERIOR FACE:** 22ga, 24ga, or 26ga Mesa profile in Smooth or Light Embossed galvanized G-90 (Z275) pre painted steel in Regal White. Other colour options are available.

## EDGE Wall HE



### LEADING EDGE WALL HE - HEAVY EMBOSSED

Leading Edge HE panels are produced with a standard heavy embossed steel face. Provides added visual depth and texture to a flat panel.

**COVERAGE WIDTH:** 42" (1067mm)

**PANEL LENGTHS:** 8' to 32' (2438mm to 9754mm)

**EXTERIOR FACE:** 22ga Flat Heavy Embossed galvanized G-90 (Z275) pre painted steel

THICKNESS	2"	3"	4"	5"	6"
R-VALUE*	16.67	25	33.33	41.67	50

**INTERIOR FACE:** 22ga, 24ga, or 26ga Mesa profile in Smooth or Light Embossed finish galvanized G-90 (Z275) pre painted steel in Regal White. Other colour options are available.

Test based on ASTM C1363 with 40F (4.4C) mean temp with a temp differential of 58F (14C).

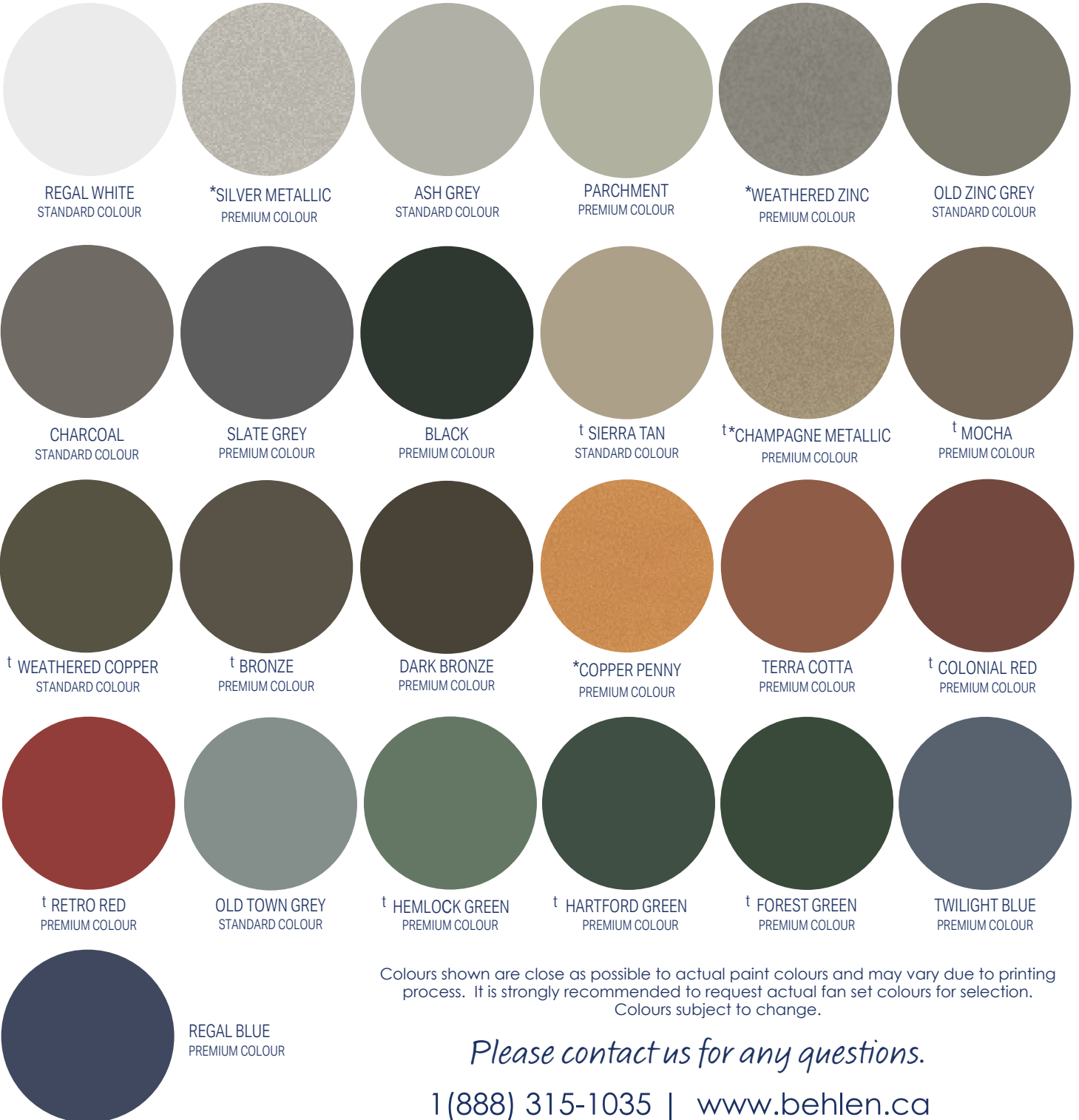


# Insulated Metal Panel Colour Chart

PVDF colours available in standard and premium colours

\*Metallic Colours are batch sensitive and directional in nature.

†Special order in 22ga. Colour selection may affect maximum panel lengths. Please contact for delivery times and additional information.



# TESTING: INSULATED METAL PANELS

Standard	Description	Results
CAN/ULC S101	Standard Methods of Fire Endurance Tests of Building Construction and Materials	15-minute stay in place
CAN/ULC S102	Standard Method of Test for Surface Burning characteristics of Building Materials and Assemblies	Flame Spread $\leq 25$ , Smoke Development $\leq 200$
CAN/ULC S126	Standard Method of Test for Fire Spread Under Roof-Deck Assemblies	Complies
CAN/ULC S127	Standard Corner Wall Method of Test for Flammability Characteristics of Non-Melting Foam Plastic Building Materials	Flame Spread $\leq 350$ foam core w/o steel skin
CAN/ULC S138	Standard Method of Test for Fire Growth of Insulated Building Metal Panels in a Full-Scale Room Configuration	Complies
ASTM E84	Standard Test Method for Surface Burning Characteristics of Building Materials	Flame Spread $\leq 25$ , Smoke Development $\leq 200$
NFPA 286	Standard Methods of Fire Tests for Evaluating Contribution for Wall and Ceiling Interior Finish to Room Fire Growth	Complies
ASTM E72	Standard Test Methods of Conducting Strength Tests of Panels for Building Construction	See Load Charts for load/span and deflection tables
ASTM E1592	Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference	See Load Charts
ASTM E1646	Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems	No water penetration at 20 psf pressure differential
ASTM E1680	Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems	0.02 L/(s·m <sup>2</sup> ) at 75 Pa (0.004 cfm/ft <sup>2</sup> at 1.57 psf)
ASTM E283	Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen	0.02 L/(s·m <sup>2</sup> ) at 75 Pa (0.004 cfm/ft <sup>2</sup> at 1.57 psf)
ASTM E331	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference	No water penetration at 20 psf pressure differential
ASTM C518	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	K-Factor of 0.136 BTU·in/hr·ft <sup>2</sup> ·°F at 75°F
ASTM C1363	Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus	K-Factor of 0.12 BTU·in/hr·ft <sup>2</sup> ·°F at 39°F

\*Standards are tested and valid for all IMP Product lines, including Edge Wall, Horizon Wall, and Skyline Roof panels.  
 2020

**LOAD SPAN TABLES****PRODUCT: INSULATED ROOF PANEL  
SERIES: SKYLINE****PROFILE: MESA  
GAUGE: 26 GA OR HEAVIER  
FINISHED: SMOOTH**

Panel Thickness	Design Criteria	Allowable Loads (PSF)						
		2'	3'	4'	5'	6'	7'	8'
2" Thick	Bending / Shear	192	128	96	77	64	49	38
	Deflection (L/240)	58	53	48	43	36	29	24
	Connection	65	44	33	26	22	19	16
3" Thick	Bending / Shear	192	128	96	77	64	49	38
	Deflection (L/240)	58	53	48	43	36	29	24
	Connection	65	44	33	26	22	19	16
4" Thick	Bending / Shear	291	224	168	134	112	96	84
	Deflection (L/240)	98	95	92	90	76	63	53
	Connection	65	44	33	26	22	19	16
5" Thick	Bending / Shear	317	286	215	172	143	123	107
	Deflection (L/240)	108	102	96	90	83	70	58
	Connection	65	44	33	26	22	19	16
6" Thick	Bending / Shear	349	312	248	199	166	142	124
	Deflection (L/240)	110	110	109	109	108	92	77
	Connection	65	44	33	26	22	19	16

**TABLE NOTES:**

- 1) Allowable loads were derived from tests conducted in accordance with ASTM E1592 and ASTM E72.
- 2) Allowable loads are calculated with a factor of safety of 2.0 for bending and shear.
- 3) Connection strengths reflect a standard fastener pattern - (@) 1/4" - 14 self drilling screw into minimum 14 ga. substrate. Other substrates must be designed separately.
- 4) Fastener capacity is based on manufacturer pullout / pullover data and are calculated with a safety factor of 3.0.
- 5) Allowable loads assume a minimum bearing of 2".
- 6) Thermal Effects were not considered in analysis.
- 7) The structural capacity of the supporting members were not considered.

**LOAD SPAN TABLES**
**PRODUCT: INSULATED WALL PANEL**
**SERIES: EDGE, HORIZON**
**PROFILE: MESA OR SMOOTH**
**GAUGE: 26 GA OR HEAVIER**
**FINISHED: EMBOSSED OR SMOOTH**

Panel Thickness	Design Criteria	Allowable Loads (PSF)										
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
2" Thick See Table Notes # 3)	Bending / Shear	93	59	41	30	23	18	15	12	10		
	Deflection (L/180)	47	41	33	27	22	19	16	14	12		
	Connection	42	35	33	26	22	19	16	15	13		
3" Thick	Bending / Shear	126	101	84	68	52	41	33	27	23		
	Deflection (L/180)	94	77	68	58	34	32	29	19	17		
	Connection	57	45	38	33	29	25	23	20	19		
4" Thick	Bending / Shear	168	134	112	84	64	51	41	34	29	24	21
	Deflection (L/180)	110	101	92	79	67	57	49	42	37	32	29
	Connection	57	45	38	33	29	25	23	20	19	17	16
5" Thick	Bending / Shear	168	134	112	84	64	51	41	34	29	24	21
	Deflection (L/180)	110	101	92	79	67	57	49	42	37	32	29
	Connection	57	45	38	33	29	25	23	20	19	17	16
6" Thick	Bending / Shear	168	134	112	84	64	51	41	34	29	24	21
	Deflection (L/180)	110	101	92	79	67	57	49	42	37	32	29
	Connection	57	45	38	33	29	25	23	20	19	17	16

**TABLE NOTES:**

- 1) Allowable loads were derived from tests conducted in accordance with ASTM E1592 and ASTM E72.
- 2) Allowable loads are calculated with a factor of safety of 2.0 for bending and shear.
- 3) Connection strengths reflect a standard fastener pattern - (@) 1/4" - 14 self drilling screw into minimum 14 ga. substrate. Other substrates must be designed separately. 2" wall panel utilize a flat clip. All other thicknesses utilize an angle clip.
- 4) Fastener capacity is based on manufacturer pullout / pullover data and are calculated with a safety factor of 3.0.
- 5) Allowable loads assume a minimum bearing of 2".
- 6) Thermal Effects were not considered in analysis.
- 7) The structural capacity of the supporting members were not considered.
- 8) Bending/Shear and Deflection for 5" and 6" panels based on 4" capacity.



# PANEL WEIGHTS & LENGTHS TABLES

## Product Names

### Edge Profile Wall Panel

Width: 42"

Profile: Flat

Insulation Thickness: 2", 3", 4", 5", 6"

Exterior Facing: 22ga

Interior Facing: 22ga, 24ga, 26ga

Available Finish: Heavy Emboss, Light Emboss

### Horizon Wall Panel

Width: 42"

Profile: Mesa

Insulation Thickness: 2", 3", 4", 5", 6"

Exterior Facing: 22ga, 24ga, 26ga

Interior Facing: 22ga, 24ga, 26ga

Available Finish: Light Emboss

### Skyline Roof Panel

Width: 42"

Profile: Mesa

Insulation Thickness: 2", 3", 4", 5", 6"

Exterior Facing: 22ga, 24ga, 26ga

Interior Facing: 22ga, 24ga, 26ga

Available Finish: Light Emboss interior

PANEL WEIGHTS (PSF)										
Panel Thickness (in.)	Panel Width (in.)	Steel Gauge (Facer/Liner)								
		26/26	24/26	22/26	26/24	24/24	22/24	26/22	24/22	22/22
2	42	2.23	2.48	2.73	2.48	2.73	2.98	2.73	2.98	3.23
3	42	2.44	2.69	2.94	2.69	2.94	3.19	2.94	3.19	3.44
4	42	2.65	2.90	3.15	2.90	3.15	3.40	3.15	3.40	3.65
5	42	2.85	3.10	3.35	3.10	3.35	3.60	3.35	3.60	3.85
6	42	3.06	3.31	3.56	3.31	3.56	3.81	3.56	3.81	4.06

MAXIMUM PANEL LENGTHS BASED ON COLOUR (ft)										
Panel Thickness (in.)	Panel Width (in.)	Edge 22ga Wall*			Horizon 26ga/26ga Wall			Skyline 24ga/26ga Roof		
		Light	Medium	Dark	Light	Medium	Dark	Light	Medium	Dark
2	42	25'	25'	20'	38'	25'	16'	47'	36'	24'
3	42	30'	30'	20'	45'	35'	25'			
4	42	30'	30'	25'	50'	38'	28'	52'	41'	32'
5	42	32'	30'	25'	52'	41'	30'	52'	44'	34'
6	42	32'	30'	25'	52'	44'	32'	52'	47'	36'

**Light** = Regal White   **Medium** = Sierra Tan, Parchment, Silver Metallic   **Dark** = All others

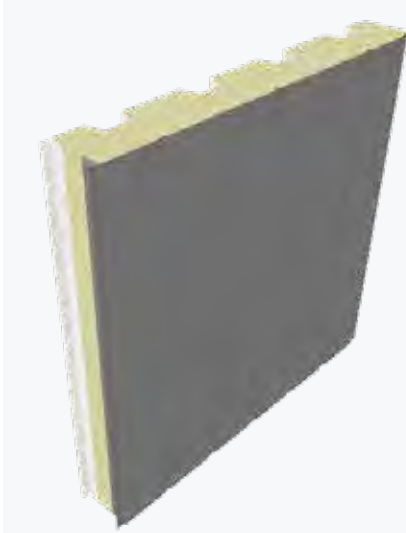
Based on 5' support spacing for walls & 4' support spacing for roofs

\*Smooth or Embossed.

Subject to change without notice. Please refer to our website, [www.behlen.ca](http://www.behlen.ca) for current information.



# SUMMIT Structural Panels



## SUMMIT STRUCTURAL PANELS - LIGHT EMBOSSED

Artspan Inc. also offers the Summit Structural Panels, to eliminate the need for additional structural framework in your project. These panels are used to form the floor, wall, and roof systems of your building envelope.

**COVERAGE WIDTH:** 36" (914.4mm)

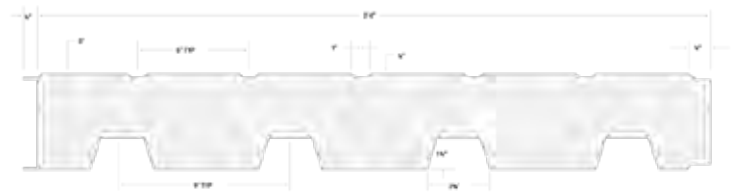
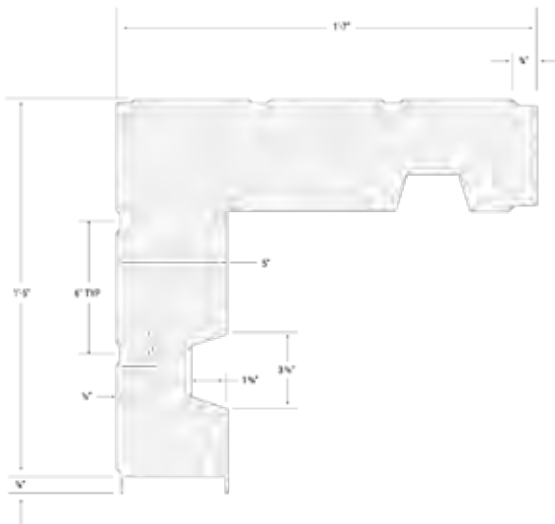
**PANEL LENGTHS:** 4' to 52' (1219mm to 15850mm)

**EXTERIOR FACE:** 24ga or 26ga light corrugated pre-painted Grade 33 steel (conforms to ASTM A792), Z275 or AZM150 finish, Light Embossed texture.

**THICKNESS:** 5"

**EFFECTIVE R-VALUE\*:** 28.5

**INTERIOR FACE:** 24ga deep corrugated galvanized G-90 (Z275) pre-painted steel.



Artspan's Summit Structural Panels are self-framing, structural insulated steel panels that are manufactured by encompassing our proprietary polyisocyanurate foam with top and bottom pre-painted steel sheets. The strength of these steel sheets combined with the characteristics of our foam allow the panel to serve as a structural component of the building envelope.

Above: A typical Summit panel profile.  
Left: A Summit corner panel profile.

Test based on ASTM C1363 with 40F (4.4C) mean temp with a temp differential of 58F (14C).

## Load Span Tables

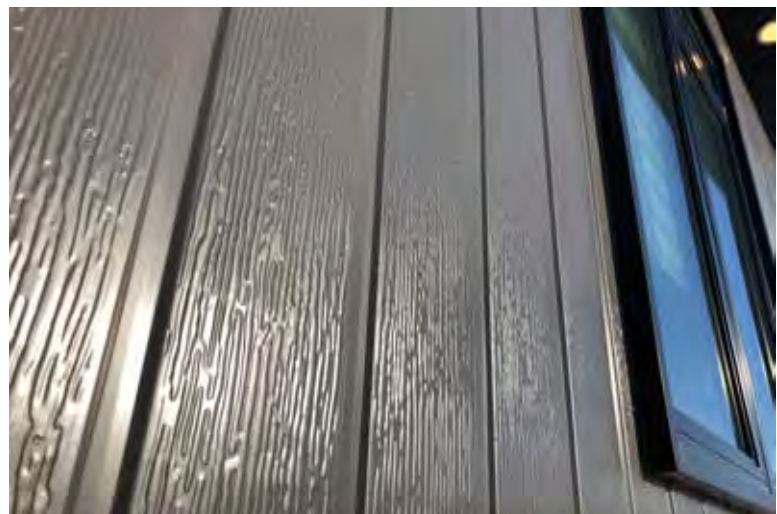
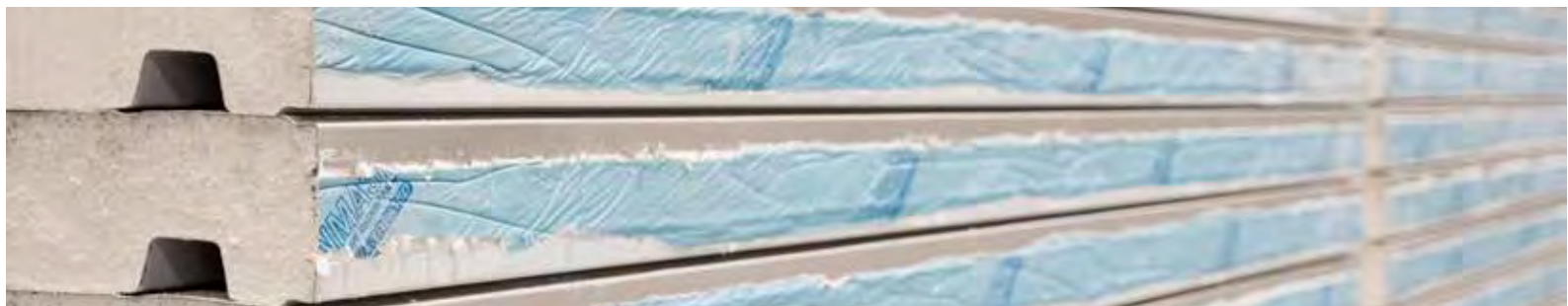
Product: Structural Insulated Panel  
Series: Summit

Profile: Corrugated  
Gauge: 26 ga or heavier  
Finished: Embossed

Panel Orientation	Design Criteria	Allowable Loads (PSF)													
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'	17'
Flat Side Up	Bending / Shear	500	400	300	220	169	133	108	89	75	64	55	48	42	37
	Deflection (L/180)	400	225	149	110	90	85	80	73	65	58	50	42	23	13
Flat Side Down	Bending / Shear	500	400	333	253	193	153	124	102	86	73	63	55	48	43
	Deflection (L/180)	400	225	150	110	90	85	80	73	65	58	50	42	23	13

### TABLE NOTES:

- 1) Table based on allowable stress design.
- 2) Based on 5" Artspan panel with 24ga light profile exterior and 24ga fluted interior panel (Min Grade 50 ksi).
- 3) Structural capacity of the purlins/girts are not considered and must be examined independently.
- 4) Fasteners are not considered and must be examined independently.



The Summit Structural Panels allow for quick and easy assembly of small projects with minimal structural steel requirements. Panels are fit into a channel in the ground and slid in next to each other to create a firm and secure seal without the need for other large components. This method allows for fast construction while also offering the maximum usable space inside.

# BEHLEN

## STEEL BUILDINGS

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