

GREENSTONE ICE PANEL

DESIGN PARAMETERS



The following design parameters are required to streamline Greenstone's Design and Production Process. Designs outside of the below list will be considered complex and will require additional design, drafting and production fees and time lines.

1	Rough Openings (RO's) require a plywood sub-frame/rough buck – please specify if they are ¾" or 1.5".
2	RO's must be a minimum of 5 ¾" from inside corners minimum and 6 ½" between adjacent RO.
3	Greenstone headers require a minimum 8" clearance above, and can not span more than an 11' RO*.
4	Ledge cuts should only be on the bearing wall, and not the walls parallel to main joist runs.
5	5.5" walls are limited to 10' high, beyond which, they must be upgraded to 7.5" wall minimum.
6	After 12' of wall height, there is a cost increase for tall walls.
7	Foundations are limited to 6' backfill pressure maximum from top of basement floor to top of backfill.
8	Heights of walls to be supplied by Greenstone must be clearly dimensioned, especially tall walls and rake walls in vaulted ceiling areas, either to truss or to ladder.
9	Both structural faces of the wall must bear down on a load bearing surface.
10	Top plates can be beneficial in most applications. They are required for RTM foundations.
11	Compound notches on panels are highly complex and will delay time lines and increase cost.

* Engineered headers can be used to span larger spaces if needed. Product supplied by third party supplier.

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QUICK REFERENCE GUIDE



1-Hour FRR (Load Bearing Pre-Fabricated Wall Assembly) 2 layers Type X gypsum board (min 5/8") 7.5" ICE Panel w/ 20ga studs @ 16" c/c (max) 1 layer Exterior covering (see Greenstone QAI design listing B1122-1a for allowable types)	CAN/ULC S101-14/ASTM E119
2-Hour FRR (non-load Bearing Pre-Fabricated Wall Assembly) 2 layers Type X gypsum board (min 5/8") 2" offset z bar 20 ga @ 24" c/c (max) 2" ComfortBoard 80 7.5" ICE Panel w/ 20 ga studs @ 16" c/c (max) 1 layer Exterior Grade Type X gypsum board (min 5/8")	CAN/ULC S101-14/ASTM E119
STC Rating = 35	ASTM E 90-09, E413-10, 1332-10A
Flame Spread Index < 250	CAN/ULC S102.2-10
Smoke Developed Index > 500	CAN/ULC S102.2-10
Type 2 EPS	CAN/ULC S701
Vapour Barrier (when panel joints are sealed with approved caulking or tape)	CAN/ULC S701 Type 2
Structural Capacity - Standard 20 ga panels = 6,570 plf vertical load - HD panels = 21,350 plf vertical load - Basement wall panels = 6' burial depth	ASTM E72 - 2015
Gr 33 G90 Steel Studs and Connectors minimum yield strength 39ksi	ASTM A653, G90 Galvanized
QAI Evaluation/Listing	Listing B1122-1

R-VALUES								
Panel Thickness	5.5"		7.5"		9.25"		11.5"	
Core Material (EPS: Expanded Polystyrene - Standard GPS: Graphite Polystyrene - Premium)	EPS	GPS	EPS	GPS	EPS	GPS	EPS	GPS
EPS R-Value (tested at 24.02°C)	22.91	25.85	31.24	35.25	38.53	43.475	46.00	55.20
THERM Analysis of ICE Panel Assembly	22.18	•	30.24	•	37.3	•	44.53*	•

*estimated based on THERM Analysis of 5.5"-9.25" ICE Panels



EPS vs GPS – YOU’VE GOT OPTIONS.

Greenstone Building Products offers two selections for the ICE Panel core. Our standard offering being **Expanded Polystyrene (EPS)** and a premium option – **Graphite Polystyrene (GPS)**.

Expanded Polystyrene (EPS) and Graphite Polystyrene (GPS) are Type 2 EPS options available for the core of the ICE Panel. Both options offer identical structural capacity (flexural strength minimums, compressive strength minimums, and density targets). This is set by the CAN/ULC S701.1 standard for EPS insulation.

The graphite does not change the burning behavior or finished foam density. As such, the fire-resistance rating, flame spread/smoke developed index, STC rating, and water vapour permeance remain the same.

WHAT’S THE DIFFERENCE?

Other than the difference in color of the resin bead, the main difference is the superior R-values offered by the GPS option. GPS includes graphite which increases the emissivity of the EPS over standard white EPS, making it more energy efficient. See the comparison chart below for reference.

	Expanded Polystyrene (EPS)	Graphite Polystyrene (GPS)
Bead Color	White	Grey
R-value per Inch	4.0	4.8

Connect with our customer service team to learn more about EPS vs GPS.
Send your emails to info@gsbp.ca or call us at 204-726-1426.