



## Insulation Material Choices

The Icon composite system can be used with any rigid insulation.

**Expanded Polystyrene (EPS)**

EPS is the least expensive choice. The most commonly used value is R-4 per inch. The manufacturing method allows for different densities of foam ranging from a density of 0.75 pounds per cubic foot to 2 PCF.

**Extruded Polystyrene (XPS)**

XPS is a popular choice for sandwich wall panel construction. The R-Value is 5 per inch of thickness. The material is widely available from several different manufacturers. Cost is moderate and the material has good compressive and tensile strength.

**Poly Isocyanurate (Poly-Iso)**

Poly-Iso is commonly used as roof insulation. The R-Value is about 6 per inch. Poly-Iso can not be cut with a hot wire cutter, however, it can be easily be cut with the Icon hole saw. Cost is generally higher than XPS.

**Graphite Polystyrene (GPS)**

BASF created a new type of rigid insulation that is branded NEOPOR™. The insulation uses silver-gray graphite in the polymer to reflect heat. The R-Value is about 5 per inch. Check with your local EPS supplier for availability. Cost is between EPS and XPS.

**Phenolic Insulation (K-20™)**

New in 2017 Kingspan™ is introducing an insulation that utilizes phenolic plastic called Kooltherm K-20™. The R-Value is 8+ per inch. The product is sold in metric thicknesses. Icon shear connectors can easily adjust and lock to any metric dimension from 50mm to 100mm.

## R-8 to R-34

The designer has a range of insulation options to choose from.

	R-Value/ inch	2" (50 mm)	3" (75 mm)	4" (100 mm)
EPS (1 PCF)	4	8	12	16
EPS (2 PCF)	4.5	9	13.5	18
XPS	5	10	15	20
Poly-iso	6.1	12.2	18.3	24.4
GPS	4.9	9.8	14.7	19.6
K-20	8+	17	25	34

*Icon compatible insulation types. Consult with the insulation manufacturer for the most accurate R-Value information.*

## Insulation Cost

The cost per R-Value, per square foot of insulation is between \$0.05 and \$0.09. For example, an R-15 insulation would be between \$0.75 and \$1.35 per square foot. This is only a rough estimate, the price will vary depending on many factors including local availability and shipping costs.

## Foam Bond

**The Icon Design Manual does NOT use the foam bond in the engineering calculations.**

Testing has shown a large variation in the amount of foam bond. There is also concern that the foam bond will dissipate over time.

## Compatibility

The Icon shear connector is compatible with all types of rigid insulation. The hole saw allows for quick and efficient fabrication of the insulation in any thickness desired by the specifier.