

# EPS vs. XPS

## APPLES-TO-APPLES COMPARISON OF RIGID FOAM INSULATION

### Insulation

Image is nice but performance is what really matters. Understanding the differences between the types of rigid foam insulation can save you up-front material cost and improve energy performance for the life of the building. An evaluation of Foam-Control® Plus+® expanded polystyrene (EPS) insulation and extruded polystyrene (XPS) will help you choose the right rigid foam insulation for your project.

Foam-Control® Plus+® is an industry leading architectural grade EPS insulation with a high compressive strength and high R-Value. It's designed to give architects, designers, and contractors all of the benefits of a high quality insulation: strength + energy efficiency + moisture resistance, bundled together to equal a budget friendly product that will help keep project costs on track.



Expanded Polystyrene (EPS)	Extruded Polystyrene (XPS)
<b>Raw Material</b>	
Polystyrene resin	Polystyrene resin
<b>Manufacturing Process</b>	
Plastic resin is expanded, then molded to form a <b>closed-cell material</b> that uses trapped air as its insulating medium.	Plastic resin is liquefied, then extruded through a die to form a closed-cell material that uses trapped air as its insulating medium.
<b>Compressive Strengths</b>	
15, 25, 40, 60 psi	15, 25, 40, 60, 100 psi
<b>R-Value &amp; Energy Efficiency</b>	
Foam-Control® Plus+® 250 is R-4.8 per inch at 40°F and R-4.4 per inch at 75°F.	XPS is R-5.4 per inch at 40°F and R-5.0 per inch at 75°F.
<b>R-Value Warranty</b>	
<b>50-Year R-Value Warranty.</b>	<b>50-Year R-Value Warranty.</b>

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FOAM TECHNOLOGIES

LEADING THE INDUSTRY IN EPS MANUFACTURING ●●●

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<b>Moisture Performance in 15-Year Real World Test</b> (EPS & XPS side-by-side on the same building)	
Excavated after 15-years as a below-grade foundation insulation, the EPS had retained 94% of its published R-value and contained only 4.8% moisture content. The R-value at the time of excavation showed that EPS is <b>less affected by moisture content</b> than XPS.	Excavated after 15-years as a below-grade foundation insulation, XPS only retained 52% of its published R-value and contained higher moisture content of 18.9%. The R-value at the time of excavation reflected that XPS is <b>greatly affected by exposure to moisture</b> .
<b>Permeability</b>	
<b>Higher rate of permeability</b> allows Foam-Control® Plus+® to expel moisture faster and maintain R-value.	<b>Lower rate of permeability</b> delays the drying process and results in greater time to recover lost R-value when exposed to moisture.
<b>Recycled Content</b>	
Contains up to <b>15% recycled content</b> . ACH Foam Technologies recycled 6.4 million pounds of EPS in 2014.	Has <b>limited amounts of recycled content</b> . Not offered in all products.
<b>Environment &amp; Sustainability</b>	
EPS has <b>never contained HFCs, CFCs, HCFCs, formaldehyde, or color dies</b> . The <b>natural color of polystyrene rigid foam is white</b> .	XPS generally <b>contains HFCs</b> such as HFC 134a. HFCs are harmful to the environment. XPS also <b>contains color dies</b> , such as pink, blue or green to brand & market their product.
<b>Constructability</b>	
Widths: 8", 12", 16", 24", 36", or 48" Lengths: 2', 4', 8', 9', 10' or 16' Thicknesses: ½" up to 36" in any variation. <b>Variety</b> of R-Values in single sheet thicknesses.	Widths: 16", 24" or 48" Lengths: 8' Thicknesses: ¾", 1", 1-½", 2", or 3" <b>Limited</b> sheet thicknesses for R-Values.
<b>Testing, Codification, Certification</b>	
ASTM C578, "Standard Specification for Rigid Cellular Polystyrene Thermal Insulation." Is monitored for quality control by UL and is code approved by the International Code Council Evaluation Service and UL ER 11812-01.	ASTM C578, "Standard Specification for Rigid Cellular Polystyrene Thermal Insulation." Is monitored for quality control and is code approved by the International Code Council Evaluation Service.
<b>Cost</b>	
At equal R-values Foam-Control Plus+, costs <b>10-30% less</b> .	At equal R-Values, costs <b>10-30% more</b> .
<b>Which rigid foam insulation would you choose?</b>	



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