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) vs. Extruded Polystyrene (XPS)

<table>
<thead>
<tr>
<th></th>
<th>Expanded Polystyrene (EPS)</th>
<th>Extruded Polystyrene (XPS)</th>
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</thead>
<tbody>
<tr>
<td><strong>Raw Material</strong></td>
<td>Polystyrene resin</td>
<td>Polystyrene resin</td>
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<tr>
<td><strong>Manufacturing Process</strong></td>
<td>Plastic resin is expanded, then molded to form a closed-cell material that uses trapped air as its insulating medium.</td>
<td>Plastic resin is liquefied, then extruded through a die to form a closed-cell material that uses trapped air as its insulating medium.</td>
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<tr>
<td><strong>Compressive Strengths</strong></td>
<td>15, 25, 40, 60 psi</td>
<td>15, 25, 40, 60, 100 psi</td>
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<tr>
<td><strong>R-Value &amp; Energy Efficiency</strong></td>
<td>Foam-Control® Plus® 250 is R-4.8 per inch at 40°F and R-4.4 per inch at 75°F.</td>
<td>XPS is R-5.4 per inch at 40°F and R-5.0 per inch at 75°F.</td>
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<tr>
<td><strong>R-Value Warranty</strong></td>
<td>50-Year R-Value Warranty.</td>
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#### Moisture Performance in 15-Year Real World Test (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 **less affected by moisture content** 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 **greatly affected by exposure to moisture**.

#### Permeability

**Higher rate of permeability** allows Foam-Control® Plus+® to expel moisture faster and maintain R-value.

**Lower rate of permeability** delays the drying process and results in greater time to recover lost R-value when exposed to moisture.

#### Recycled Content

Contains up to **15% recycled content**. ACH Foam Technologies recycled 6.4 million pounds of EPS in 2014.

Has limited amounts of recycled content. Not offered in all products.

#### Environment & Sustainability

EPS has **never contained** HFCs, CFCs, HCFCs, formaldehyde, or color dies. The **natural color of polystyrene rigid foam is white**.

XPS generally **contains** HFCs such as HFC 134a. HFCs are harmful to the environment. XPS also **contains color dies**, such as pink, blue or green to brand & market their product.

#### Constructability

**Widths:** 8”, 12”, 16”, 24”, 36”, or 48”

**Lengths:** 2’, 4’, 8’, 9’, 10’ or 16’

**Thicknesses:** ½” up to 36” in any variation.

**Variety of R-Values in single sheet thicknesses.**

**Widths:** 16”, 24” or 48”

**Lengths:** 8’

**Thicknesses:** ¾”, 1”, 1-½”, 2”, or 3”

**Limited** sheet thicknesses for R-Values.

#### Testing, Codification, Certification


#### Cost

At equal R-values Foam-Control Plus+, costs **10-30% less.**

At equal R-Values, costs **10-30% more.**

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**Which rigid foam insulation would you choose?**