



EXPANDED POLYSTYRENE (EPS)

- The most versatile of the three rigid insulation options
- Used in Roof, Wall, Floor, Below Grade & Structural GeoFoam applications
- Used most widely in insulated concrete forms and structural insulated panels
- Highest average R-value per dollar (about 4.6 R per inch) – costs the least, while meeting or exceeding all required building and energy codes
- Approved for ground contact, below grade applications and can be treated to resist insects
- Does not retain water over the long term
- Should be used over house wrap, or with a product that incorporates a factory laminated option
- Available faced or unfaced
- Faced products are considered vapor retardant and specialty products are considered vapor barriers
- Warrant 100% of R-value over the long term since does not degrade over time



EXTRUDED POLYSTYRENE (XPS)

- Easily recognized by its blue, green, or pink color
- Falls in the middle of the three types of rigid-foam insulation in both cost and R-value
- Used most in walls or below grade applications
- Recyclable, and at about R-5 per inch, costs around 42¢ per sq. ft. for a 1-in.-thick 4x8 panel
- Comes unfaced or with a number of different plastic facings
- Unfaced 1-in.-thick has a perm rating around 1, making it semipermeable
- Thicker and faced is stronger and can have a lower perm rating
- Considered a vapor retarder, not a vapor barrier
- Absorbs more moisture than other insulation over the long term, and as a result its warranty doesn't honor R-value retention over the long haul



POLYISOCYANURATE (Polyiso, ISO)

- Most used in roofing applications
- More expensive, costing as much as 70¢ per sq. ft. for a 1-in.-thick panel
- Pay off with (aged) R-values as high as R-6.5 per inch. (R-values start around R-8 and degrade slightly over time)
- The manufacturing process is not environmentally friendly, starting with liquid foam
- Not able to be recycled
- Has to be sprayed against a substrate to form a rigid panel, so all ISO panels are faced
- Different facings affect the performance of the panel in both durability and perm rating
- Foil-faced panels are considered impermeable (because applying these products as sheathing creates an exterior vapor barrier, they never should be used with an interior vapor barrier)
- More permeable panels are faced with fiberglass and can be used without creating a vapor barrier