

WHAT'S THE DIFFERENCE BETWEEN TRU-R INSULATION AND XPS INSULATION



Tru-R Insulation is a UL recognized insulation which has 50 years of proven performance.

There are marketplace misconceptions on the performance of molded polystyrene compared to XPS (extruded polystyrene) insulation.



There are marketplace misconceptions on the performance of Tru-R insulation compared to XPS insulation.
- Consider these facts and make an educated decision -



ASTM C578 Standard Compliance.

Tru-R insulation is manufactured in full compliance with ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".

UL Recognition.

Tru-R insulation is recognized in UL ER40266-01 evaluation reports.



Closed Cell Polystyrene Foam Filled with Air.

Tru-R insulation is a closed cell foam. It is manufactured from polystyrene resin which is molded into blocks. Tru-R insulation contains air within the closed cells.

R-value: Stable Long-Term.

Tru-R insulation is stable and the R-value will not change with time.

Excellent Water Resistance.

Tru-R insulation is a closed cell polystyrene foam which is naturally water resistant. Don't be fooled by comparisons using short term laboratory test which are conducted for only 24 hours. Tru-R insulation has been demonstrated to have lower water absorption than XPS in a number of long-term exterior exposure studies.

R-value: Water Exposure.

Insulations lose R-value when exposed to moisture. Long-term in-situ testing has shown Tru-R insulation maintains a serviceable R-value.

Vapor Permeance.

The vapor permeability of Tru-R insulation ranges from 2.5 to 5.0 perms for a 1 in. thick material. This is approximately 2-3 times better than XPS.

ASTM C578 Standard Compliance.

XPS is usually manufactured in compliance with ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".

Limited Recognition.

Code reports for XPS are not available from UL. Some, but not all manufacturers have ICC-ES reports.

Closed Cell Polystyrene Foam Filled with an Unknown Gas.

XPS insulation is a closed cell foam. It is manufactured from polystyrene, blowing agents, and dyes which are extruded into boards. XPS insulation contain gases other than air within the closed cells.

R-value: Loses R-value over Time.

XPS is not stable and the R-value will drop over time as the cell gases escape.

Excellent Water Resistance.

XPS is a closed cell polystyrene foam which is naturally water resistant. The water resistance of XPS is published for exposure to water in a laboratory after only 24 hours. Short term laboratory results do not correlate to long-term performance of XPS in exterior exposure conditions.

R-value: Water Exposure.

Insulations lose R-value when exposed to moisture. Long-term in-situ testing has shown XPS will trap water which enters the cells and lower its R-value.

Vapor Permeance.

The vapor permeability of XPS is typically 1.5 perms for a 1 in. thick material. XPS over 1.5 in. thick will act as a vapor retarder which may trap moisture in some climate zones.



A Great Value.





When purchasing insulation materials, the cost per R-value and strength are critical benchmarks. Tru-R insulation is available in various types which comply with ASTM C578. Products with compressive strengths of 10, 13, 15, 25, 40, and 60 psi are available. The wide range of Tru-R insulation types makes selecting the best product for your application easy. The cost per R-value for Tru-R insulation is much less than XPS.

Expensive.

XPS is available in a limited number of types which comply with ASTM C578. The most common product has a compressive resistance of 25 psi. Although XPS has a slightly higher R-value, the cost per R-value is much higher making XPS a more expensive insulation. In addition, the R-value is not fully warranted nor stable for the life of the product.

Don't Compromise, Tru-R insulation provides more thermal resistance (R-value) per dollar.

Selecting Comparable Tru-R insulation and XPS Insulations.

Insulation	Compressive Strength (psi)	Density ¹ (lbs/ft ³)	50 Year R-value ² °F·ft ² ·h/Btu
	15	1.5	4.2
vs XPS Type X	15	1.3	4.3 ³
	25	2.0	4.4
vs XPS Type IV	25	1.45	4.3 ³
	40	2.5	4.4
vs XPS Type VI	40	1.8	4.3 ³
	60	3.0	4.5
vs XPS Type VII	60	2.2	4.3 ³

¹ Nominal

² R-value at 75°F

³ Based on available testing and published research

When comparing the performance of Tru-R insulation to XPS insulation, Tru-R insulation is the clear winner.

Foam face-off:

Choosing Tru-R insulation over XPS.

- Tru-R provides a stable long-term R-value at a lower cost
- Tru-R uses a blowing agent with 10 x lower global warming potential and 10,000 x lower ozone depletion
- Tru-R meets strength requirements at a lower cost
- Tru-R and XPS have resistance to moisture. Tru-R has a higher vapor permeance leading to superior drying potential
- Tru-R with borate treatment available to provide termite resistance

Proven to meet, or exceed, building codes.

Tru-R is manufactured under an industry leading quality control program monitored by UL and further recognized in UL Evaluation Report UL ER40266-01. Tru-R meets ASTM C578, "Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation".



Ready to take control? Start here.

If you're ready to have Tru-R contribute to your next project, just contact your nearest Tru-R manufacturer and Technical Sales Representative. They will be happy to give you design consultation, information about Tru-R products, pricing, and answers to all of your questions.



Buffalo

(716) 874-6474

buffaloinfo@thermalfoams.com

Syracuse

(315) 699-8734

syracuseinfo@thermalfoams.com

Rochester

(585) 247-0324

buffaloinfo@thermalfoams.com

Pittsburgh

(724) 742-1200

buffaloinfo@thermalfoams.com

Albany

(518) 621-7960

syracuseinfo@thermalfoams.com

Copyright © 2020 Thermal Foams, Inc.
All rights reserved. Printed in USA.

TF38-06/20