

INSULGRADE

BELOW GRADE INSULATION SYSTEMS

INSULFOAM[®]
A **CARLISLE** COMPANY



InsulGrade Below Grade Products Consistently Outperform Specifications



The Foundation For Below Grade Moisture Resistance

- Below-Grade | Under Slab | Perimeter Insulation | Waterproofing Protection Board
- Plaza Decks | Block Outs | Concrete Forms | Landscape & Void Fill | Cold Storage
- Drainage Board | Radiant Heated Floors | Stadium Seating

INSULATION ENGINEERED TO MAKE A DIFFERENCE

How is InsulGrade better than XPS?

InsulGrade EPS outperforms XPS below grade insulation for less. Evaluate these three criteria and InsulGrade is clearly the best insulation for your project needs, and your budget's bottom line.



Why Insulate Below Grade?

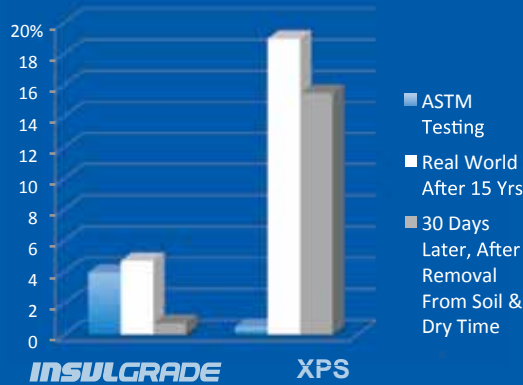
It's simple. Below-grade insulation is important for both your project and the earth.

Below-grade insulation helps reduce heating & cooling bills by 10-20%.

Lack of insulation on below-grade projects accounts for up to 25% of a structures total energy loss!

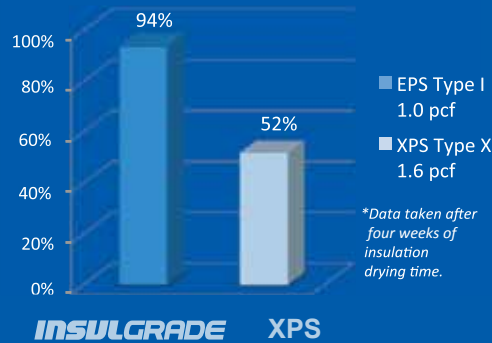


1 MOISTURE ABSORPTION



2 R-VALUE STABILITY

15 YEAR IN-SITU STUDY*



3 COMPRESSIVE STRENGTH

Seven standard compressive strengths available, for up to 40% less material cost than XPS insulations.

Six standard compressive strengths available.

INSULGRADE

XPS



Why Long-Term Moisture Matters

EPS closed-cell below-grade insulation is designed to perform for the life of the building. InsulGrade:

- Absorbs less moisture than XPS in the long term
- Retains its R-value during freeze-thaw cycles, unlike XPS

In a 15-yr field study comparing EPS and XPS, EPS retained an impressive 90% of its R-value when tested after extraction. However, XPS lost almost 50% of its R-value. After drying for 30 days, EPS came back to almost its full R-value, whereas similarly-dried XPS recovered to just over 50% of its original R-value.

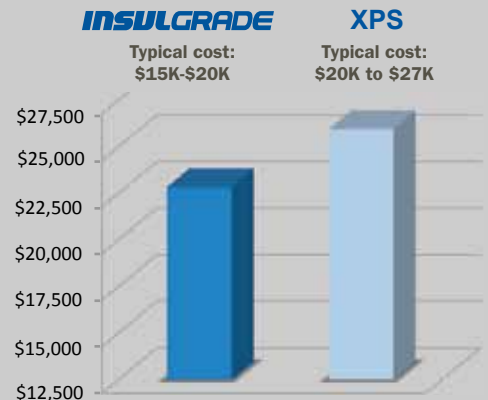
Stable R-Values = Strong Warranty

Another critical component for R-value stability is thermal drift while insulation is installed. In a nutshell, thermal drift is when the insulation's insulating power escapes out of the foam and is replaced by air. While XPS insulation's R-values typically start higher than InsulGrade EPS insulations, InsulGrade does not have thermal drift. XPS insulations have thermal drift, so thermal performance is reduced every day XPS is in the field. Be sure to consider that XPS R-values may start slightly higher at the time of manufacture, but they irreversibly decrease over time.

Product warranties reflect this perfectly. InsulGrade EPS insulations stand behind R-value warranties 100%, while XPS warrants 90% of R-value claims. Further, InsulGrade EPS does not void its warranty in the case of water ponding or immersion.

Cost Savings

Specify the strength you need. Over specifying below grade insulation with XPS often results in additional material costs of up to 40%!



Average material savings on a job using 20,000 sq. ft. of 2-inch 40 psi insulation

InsulGrade Insulation Advantages:

- Stable long-term R-value of 3.85-4.6 per inch
- Wide variety of compressive strengths
- Made to order, short lead times, available in panels, blocks & custom shapes
- More size options than XPS
- Ultra Lightweight, for quick installation
- Enhanced performance and code reports

INSULGRADE

Available in custom sized panels and blocks, for ease of material handling. Available in widths up to 4', lengths up to 16' and thicknesses up to 40", InsulGrade is also available in nominal compressive strengths of 10-60 psi. Customize properties to make InsulGrade suitable for your precise project needs.

R-TECH[®]
BELOW GRADE INSULATION

InsulGrade R-Tech features a premium factory-applied laminate polymeric facer that is virtually impervious to moisture, keeps water from entering the insulation, and away from concrete foundations & slabs. Available in 4'x8' panels and thicknesses starting at 3/8", with compressive strengths from 10-60 psi, pick the right thickness and compressive strength for your job.

For reduced labor choose InsulGrade R-Tech fanfold protection board, available in lightweight 200 sq. ft. bundles available in thicknesses of 3/8", 1/2" and 3/4".

INSULGRADE^{DB}
BELOW GRADE INSULATION DRAINAGE BOARD

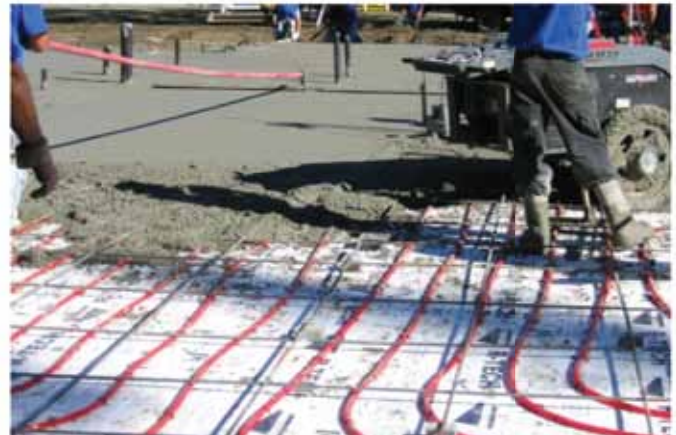
Manufactured from any standard InsulGrade product, DB's factory-applied channels and filtration facers help drain and reduce hydrostatic pressure. Available in thicknesses up to 5.0".

EPS is Code-Compliant for Below-Grade Use:

- EPS consistently meets and regularly exceeds code requirements
- The ICC modified its codes to include EPS in horizontal insulation applications
- IRC Table R403.3 - "Horizontal insulation shall be expanded polystyrene or extruded polystyrene"

Green from the Start:

- Up to 20 LEED points possible
- 100% recyclable
- May contain up to 15% recycled content
- Minimal job site waste
- No Thermal Drift
- Helps preserve energy & fossil fuels
- Significantly contribute toward Energy Efficiency Code requirements



Comparing R-values: Long-term is the right term

As compressive strengths increase and temperatures decrease, the in-field (warranted) R-values of InsulGrade and R-Tech are HIGHER than the in-field (warranted) R-values of XPS.

Cost Effective:

- Highest R-value per dollar
- 100%, 20 year R-value warranty
- 10-30% less than XPS insulations

PROPERTY	INSULGRADE II 15 psi	R-TECH X 15 psi	XPS TYPE X 15 psi	INSULGRADE IX 25 psi	R-TECH IV 25 psi	XPS TYPE IV 25 psi	INSULGRADE XIV 40 psi	R-TECH VI 40 psi	XPS TYPE VI 40 psi	INSULGRADE XV 60 psi	R-TECH VII 60 psi	XPS TYPE VII 60 psi
Compressive Strength (psi, 10% deformation)	15	15	15	25	25	25	40	40	40	60	60	60
Water Absorption (Max. % vol.)	3.0	0.3	0.3	<2.0	0.3	0.3	<2.0	0.3	0.3	<2.0	0.3	0.3
Water Vapor Transmission (Max. Perm.)	3.5	<1.5	1.5	2.0	<1.2	1.1	<2.5	<1.1	1.1	2.5	<1.1	1.1
Warranted R-value vs. Published (25° F)	4.8/4.8	4.8/4.8	5.0/5.6	5.0/5.0	5.0/5.0	5.0/5.6	5.1/5.1	5.1/5.1	5.0/5.6	5.1/5.1	5.1/5.1	5.0/5.6
Warranted R-value vs. Published (40° F)	4.6/4.6	4.6/4.6	4.9/5.4	4.8/4.8	4.8/4.8	4.9/5.4	4.9/4.9	4.9/4.9	4.9/5.4	5.1/5.1	5.1/5.1	4.9/5.4
Warranted R-value vs. Published (75° F)	4.2/4.2	4.2/4.2	4.5/5.0	4.4/4.4	4.4/4.4	4.5/5.0	4.5/4.5	4.5/4.5	4.5/5.0	4.6/4.6	4.6/4.6	4.5/5.0

Choose the path towards a strong insulation foundation. Customize the right InsulGrade product for your job, while saving energy for the future.



Football Stadium, CA



Port of Longview, WA



McDonald's, Fairmont, WV



Civic Center, Newport Beach, CA



Military Housing, AK



Pier 27, San Francisco, CA

All InsulGrade products are readily available, with extremely short lead-times.

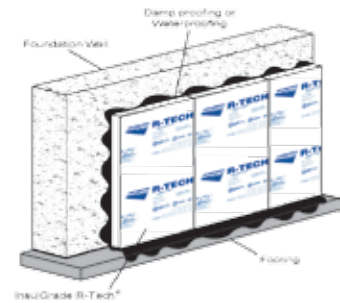
EPS vs. XPS

- Both EPS and XPS are closed-cell insulations
- EPS and XPS below grade insulations are covered under the same standard - ASTM C578
- EPS has a more stable R-value and less long-term moisture retention than XPS
- XPS is 20-40% more expensive for the same compressive strength

Installation Considerations

In below grade applications on vertical walls, InsulGrade insulation is typically applied over damp proofing or waterproofing using a polystyrene compatible adhesive or mechanical fasteners. Apply a bead of polystyrene compatible caulk to the top of the InsulGrade board to minimize water infiltration. Waterproofing or damp proofing must be cured before the insulation is installed.

For under slab on vertical wall applications, insulation is typically installed on a granular base with vapor diffusion retarder between the base and insulation. Additional insulation is applied along the slab edge as this is the primary area for heat loss.



INSULATION ENGINEERED TO MAKE A DIFFERENCE



INSULFOAM®

A **CARLISLE** COMPANY

ENGINEERED EPS INSULATION
Versatile • Durable • Sustainable

www.Insulfoam.com

Tel 800-248-5995

Manufacturing in: Alaska - Arizona - California - Colorado
Florida - Nebraska - Pennsylvania - Utah - Washington

Beyond Manufacturing Insulfoam Consultants provide:

- Design Support
- Project Submittals
- Job Start-up Assistance
- Extensive 3rd Party Testing Documentation
- 10 State-of-the-Art Manufacturing Facilities

More than 50 years in Insulation

Insulfoam remains the most respected name in polystyrene based construction products. With a full technical service center. The largest manufacturer of block molded EPS in North America.