A Unique Solution

EPS Geofoam

Brougham Way Seattle WA

InsulFoam® GF Geofoam

Roads, Runways, Utility Protection, Ramps, Retaining walls...


Unique Solutions
Light-weight
structural fill
Bothell, WA Levee

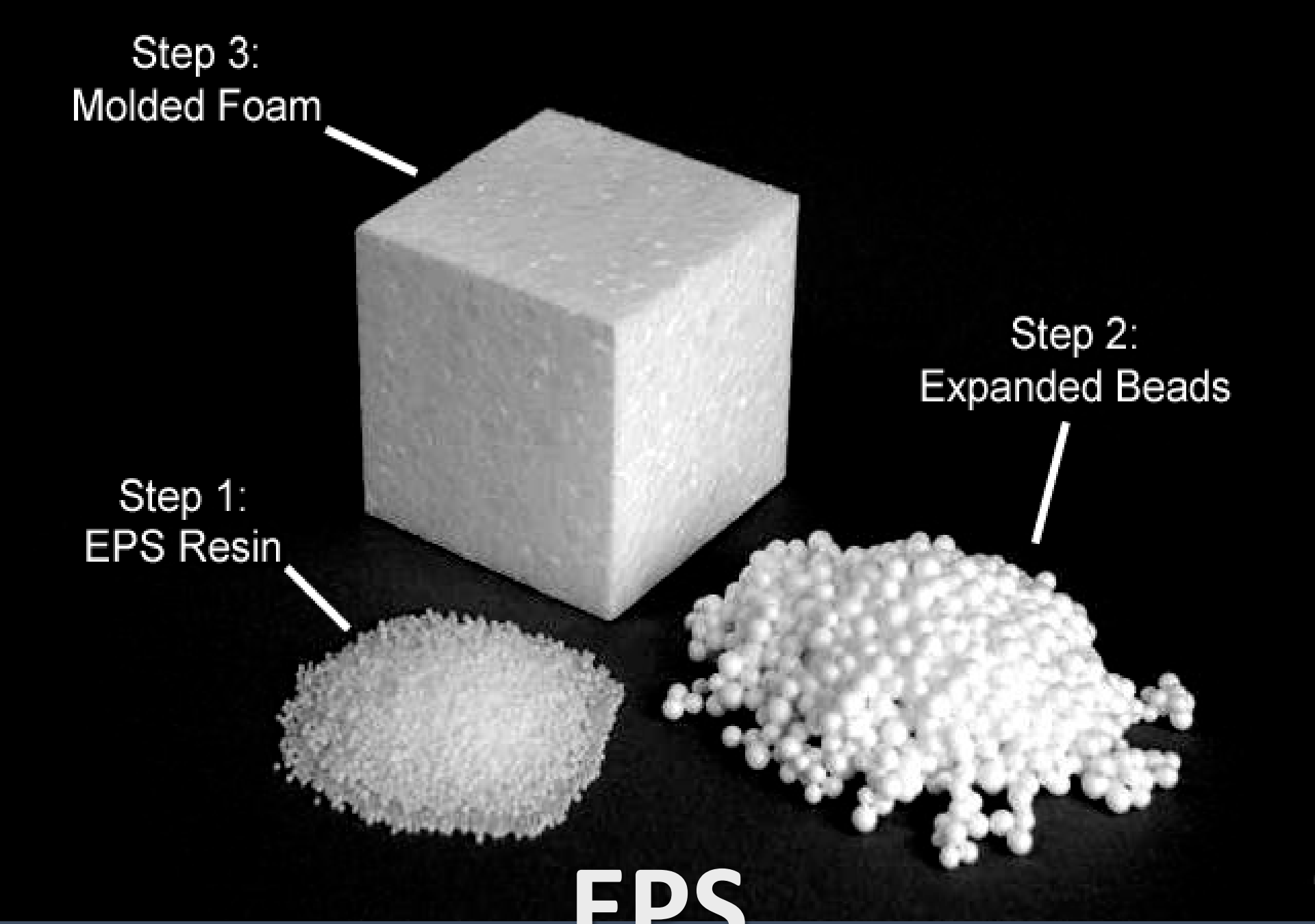
Geofoam…what is it?

A lightweight geo-synthetic structural fill

Closed-cell expanded polystyrene (EPS)

InsulFoam® GF Geofoam

Insulfoam EPS - Made In Alaska



EPS

EPS Environment

- 100% recyclable
- Contains no HCFCs, dyes or formaldehyde

Manufacturing option: resist insects and mold
Manufacturing option: can contain up to 25% recycled material

Where and Why?- InsulFoam GF

1. Retaining Structures

2. Soft Soil Remediation

3. Slope Stabilization

4. Utility Protection

5. Structural Void Fill

Geofoam as Insulation

A long history of success in Alaska


Ship Creek C Street

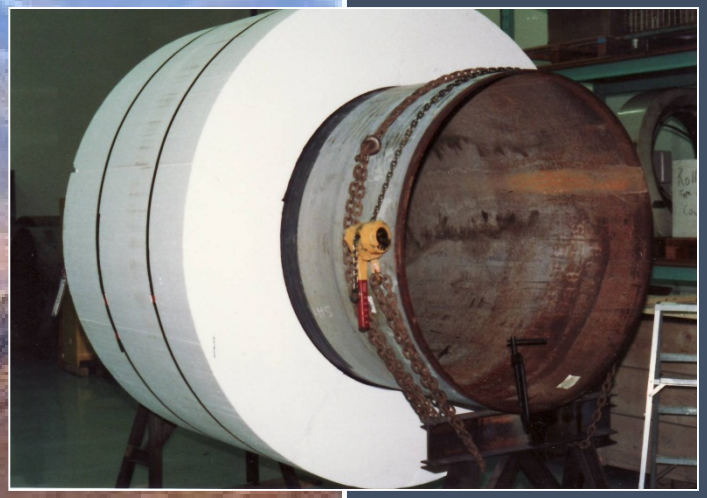
Thermal Protection

GOLD STREAM

Tunnels & Utilidors

Ted Stevens International Airport

Missile Defense



Mile 243 Atigun Pass

Structural Void Fill and Concrete

- Reduce separate concrete pours - vertical walls
- Reduce quantity of concrete or other heavy fill
- Reduce dead loads on underlying structures
- Easy fabrication of shapes and slope on site

Anchorage Museum Fill Over Garage

Bayshore Manhole Rehab

AWWU Utility, Anchorage AK

Reduce dead loads

Reduce lateral loads

Added protection during seismic activity

Freeze protection

Buried Utility Protection

InsulFoam GF Geofoam

Sliding Hillside

Alternative to other fill materials - soil, shredded tires, waste, cellular concrete, wood chips, pumice, basalt and porcelain chips

Crescent, CA – Slope Stabilization

US 101

Pacific Coast Highway
Land Slide Correction

InsulFoam® GF Physical Properties

ASTM D6817 Standard Specification for Rigid Cellular Polystyrene Geofoam.

Onramp, I-90, Issaquah, WA

I-15 Salt Lake Savings

Olympic preparation to expand traffic capacity.

Avoid costly utility relocation.

Minimize expanding footprint.

Earlier traffic restoration.

Decrease construction schedule risk.

"Cheaper than dirt?"

ASTM D 6817

TYPICAL PHYSICAL PROPERTIES OF INSULFOAM GF*								
TYPE - ASTM D6817	**UNITS**	**EPS12**	**EPS15**	**EPS19**	**EPS22**	**EPS29**	**EPS39**	**EPS46**
Density . Minimum	lb/ft^2 kg/m^2	0.70 (11.2)	0.90 (14.4)	1.15 (18.4)	1.35 (21.6)	1.80 (28.8)	2.40 (34.4)	2.85 (45.7)
Compressive Resistance min. @ 1% Deformation**	psf psi (kPa)	2.2 316.8 (15)	3.6 518.4 (25)	5.8 835.2 (40)	7.3 1051.2 (50)	10.9 1560.6 975)	15.0 2160.0 (103)	18.6 2678.4 (128)
Compressive Resistance min. @ 5% Deformation**	psf psi (kPa)	5.1 734.4 (35)	8.0 1152.0 (55)	13.1 1886.4 (90)	16.7 2404.8 (115)	24.7 3556.8 (170)	35.0 5040.0 (241)	43.5 6264.0 (300)
Compressive Resistance min. @ 10% Deformation**	psf psi (kPa)	5.8 835.2 (40)	10.2 1468.8 (70)	16.0 2304.0 (110)	19.6 2822.4 (135)	29.0 4176.0 (200)	40.0 5760.0 (276)	50.0 7200.0 (345)
Flexural Strength, min.	psi (kPa)	10.0 (59)	25.0 (172)	30.0 (207)	40.0 (276)	50.0 (345)	60.0 (414)	75.0 (517)
Oxygen Index, min.	volume %	24.0	24.0	24.0	24.0	24.0	24.0	24.0
Dimensional Stability	(max. %)	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%	< 2%
Buoyancy Force	lb/ft^2 kg/m^2	61.7 (990)	61.5 (980)	61.3 (980)	61.1 (980)	60.5 (970)	60.0 (960)	59.5 (950)
Poisons Ration	--	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Coefficient of Friction	--	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Absorption	volume %	< 4.0	< 4.1	< 3.0	< 3.1	< 2.0	< 2.0	< 2.0
Elastic Modulus, min.	psi (kPa)	220 (1500)	360 (2500)	580 (4000)	730 (5000)	1090 (7500)	1500 (10300)	1850 (12800)

* Properties are based on data provided by resin manufacturers, independent test agencies and Insulfoam.

** For Insulfoam GF applications the design load stress should not exceed 1% strain for combined live and dead loads.

Reduce Construction Traffic
Increase Jobsite Safety

1 = 12

1 truckload of Geofoam = 12 dump trucks of fill
≥3,500 pounds vs. 380,000 pounds for 120 yd³

InsulFoam® GF Geofoam

Restoring Access

Soft Soil Remediation

Net Zero Load Design

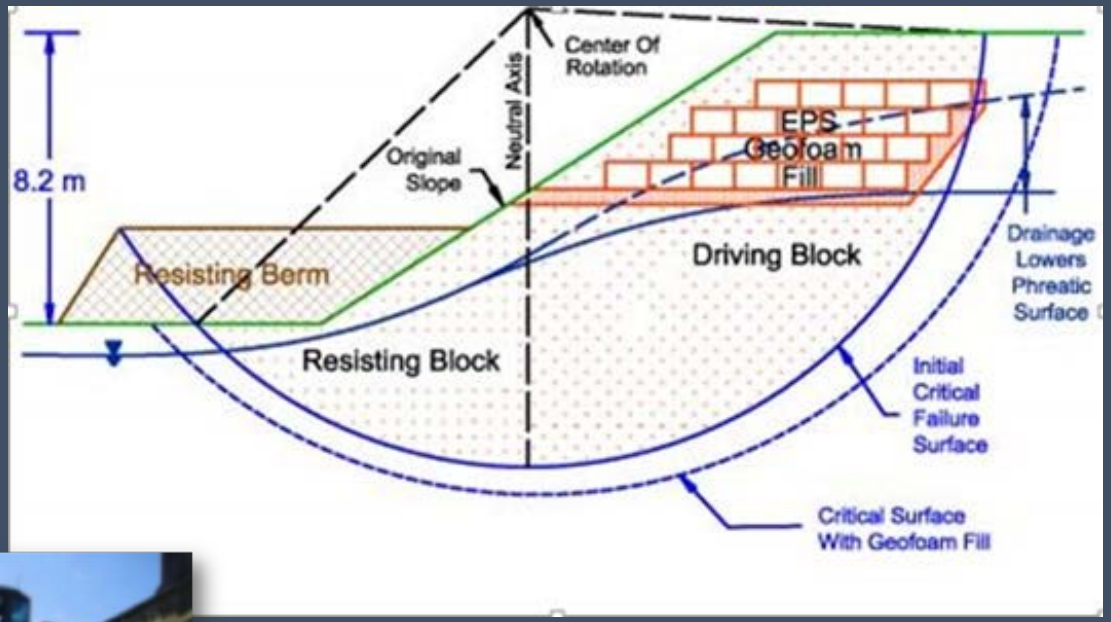
- Continual settlement?
- Remove existing weight
- Replace with Geofoam
- Goal: Net ZERO loading

Decrease Bridge Spans

I80/148th St., Waverly, NE

- Build over soft soil
- Retaining Structures
- Slope Stabilization
- Buried Utility Protection
- Structural Lightweight Void Fill

Slope Stabilization



Slope Stabilization

Create space for additional traffic

Decrease landslide/erosion issues

Retaining Structures

- Reduce structural steel, concrete & forming costs
- Less geo-grid and mechanical tie-backs
- Increase wall height in narrow rights-of-way
- Speed construction

InsulFoam® GF Geofoam

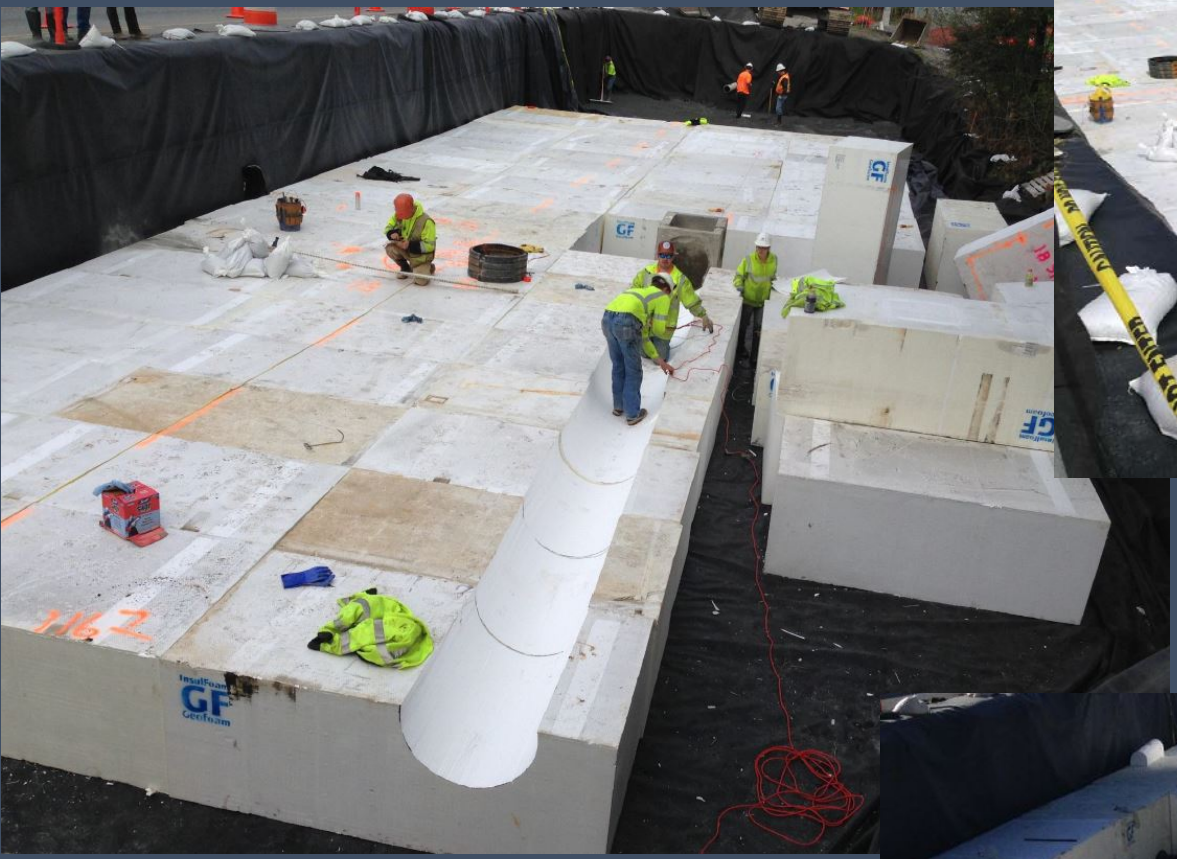
Children's Hospital - Seattle, WA

GEOFOAM PROJECTS

On Site Fabrication

Sitka, AK

Where and Why??



1. *Retaining Structures*
2. *Soft Soil Remediation*
3. *Utility Protection*

Sitka Moller Field Rehab

Juneau AK Wharf Rehab

Wrap and Cover InsulFoam GF

Juneau, AK

Geofoam Fosters Alaska Tourism

South Anchorage Home

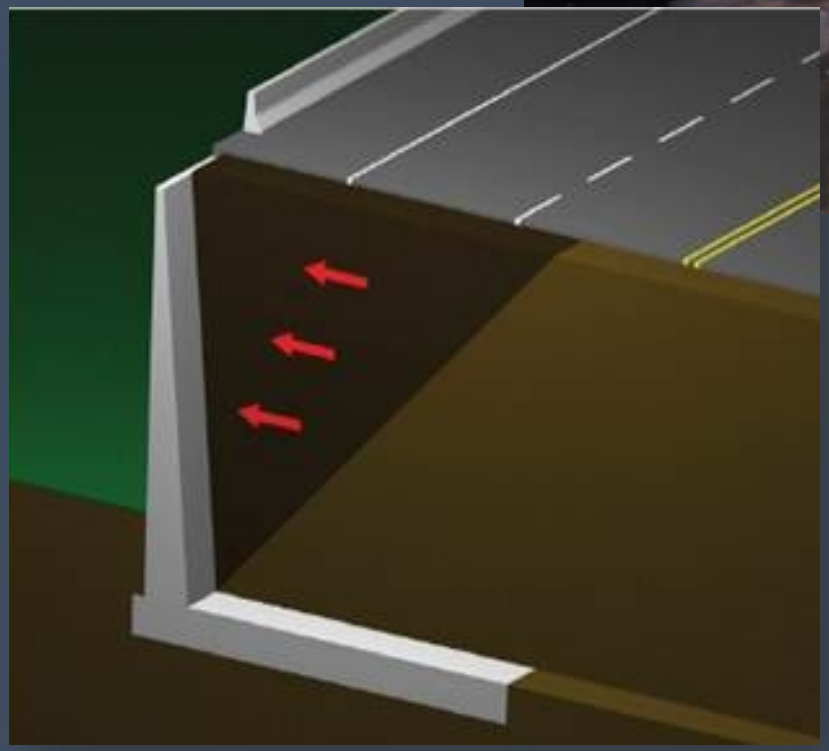
Retaining Structures

Eliminate or Reduce Lateral Loads

Excavated to angle of repose

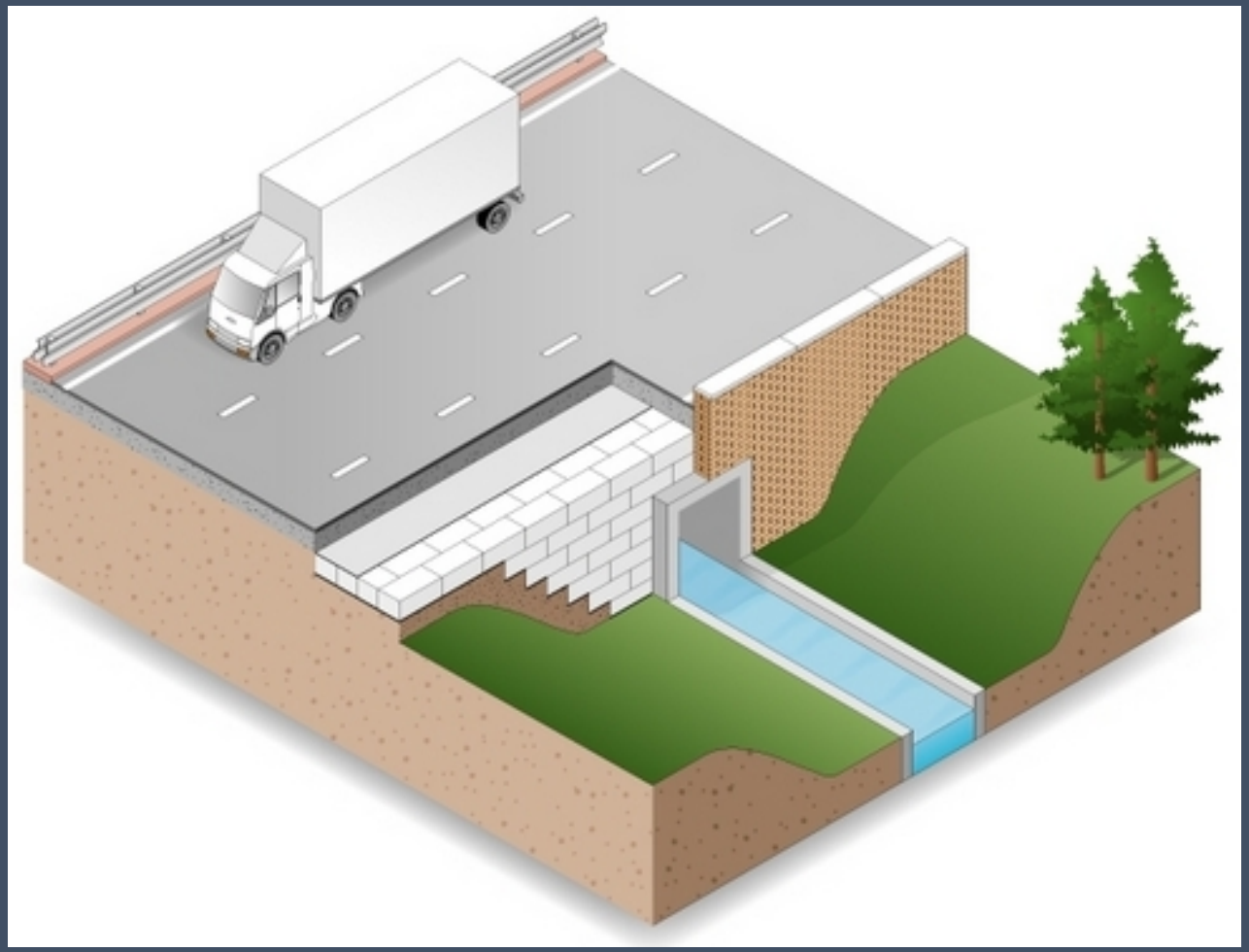
Replace concentional fill with self supporting Geofoam

Hillside Residence, Anchorage AK



Eielson Visitors Ctr, Denali Park

Buried Utility Protection



Build over utilities

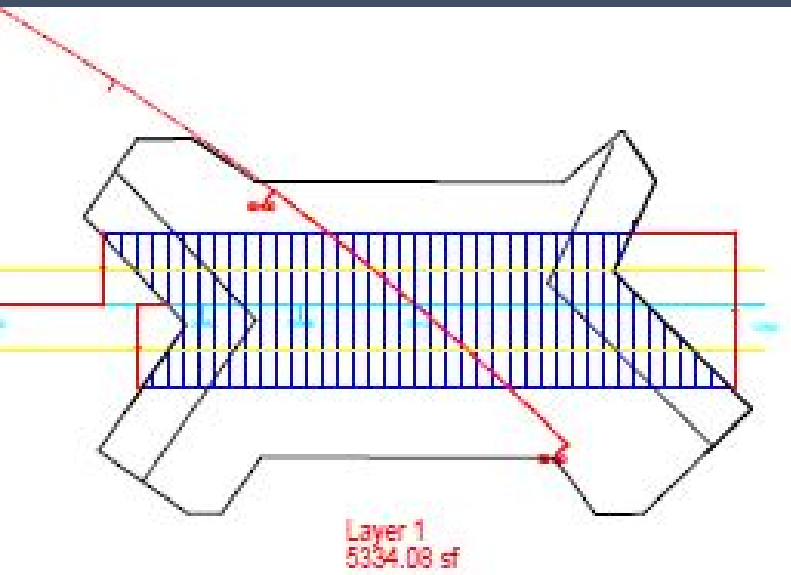
Avoid relocation cost to move utility

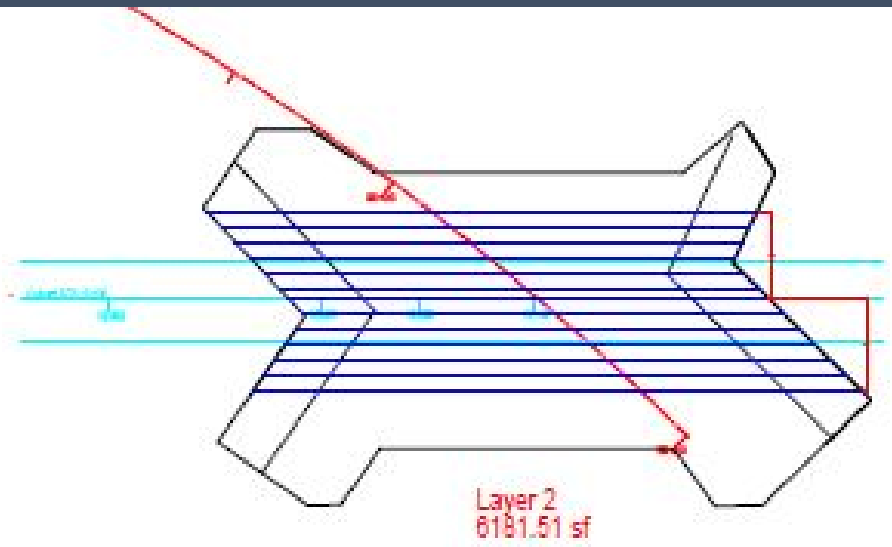
Save on structural cost-box culverts and pipes

Reduced loads prolong life of structure

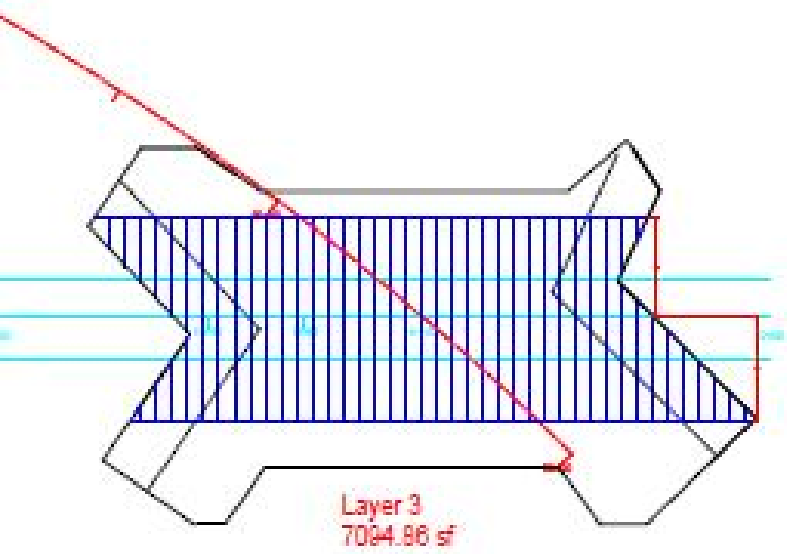
Glacier Highway - Auke Creek

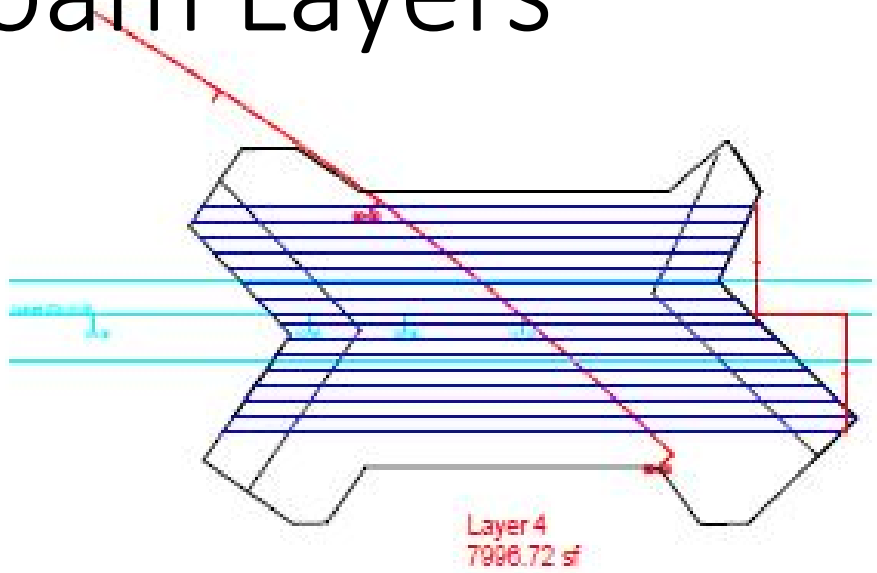
Geofoam Protects Salmon





Auke Creek Geofoam Layers



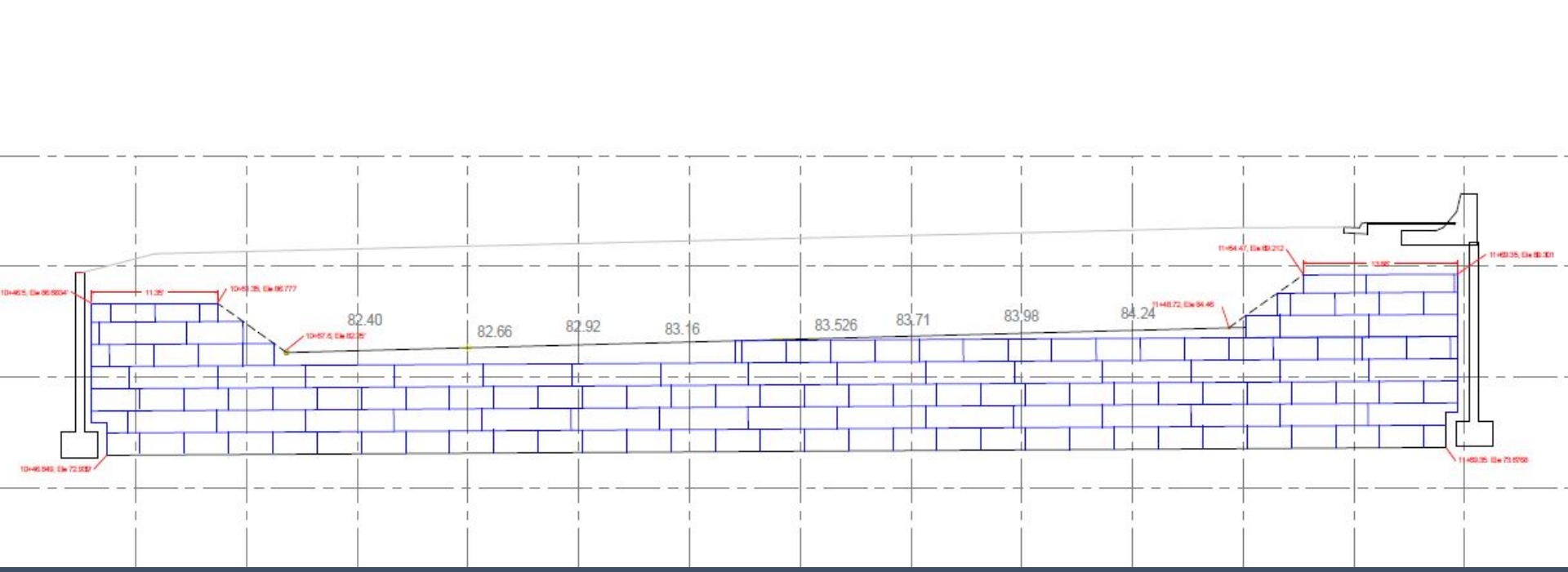


Auke Creek, Juneau Alaska


Glacier Highway at Auke Creek- Juneau, Alaska


Auke Creek-Juneau Alaska


CAT



Auke Creek Geofoam Elevation

Glacier Highway at Auke Creek- Juneau, Alaska

Benefits

- Cost-effective –
  - Reduces other structural costs
- Labor Savings –
  - Less surcharging or staged construction
  - Less utility relocation
  - Installation not weather-dependent
  - Less heavy equipment needed
  - Ease of installation and jobsite fabrication
- Product attributes –
  - Project-specific block sizes
  - Project-specific strengths of engineered EPS

EPS Geofoam solutions

1. Retaining Structures
2. Soft Soil Remediation
3. Slope Stabilization
4. Buried Utility Protection
5. Structural Void Fill

EPS and Environment

- 100% recyclable
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- Up to 25% recycled content

InsulFoam® GF Geofoam

InsulFoam® GF Physical Properties

ASTM D 6817

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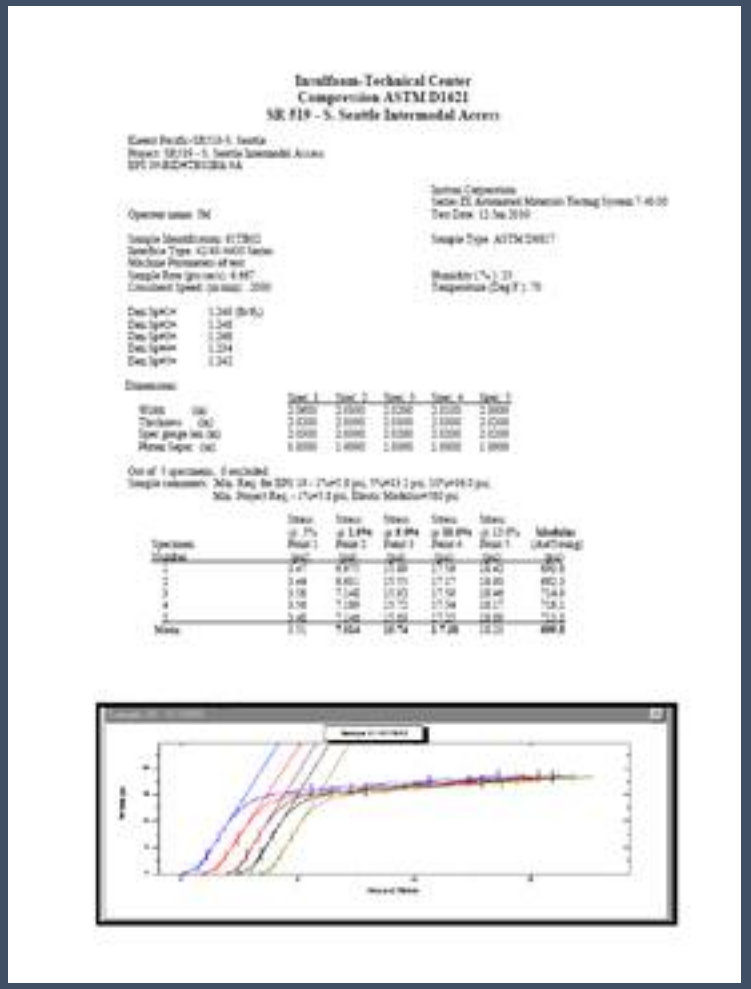
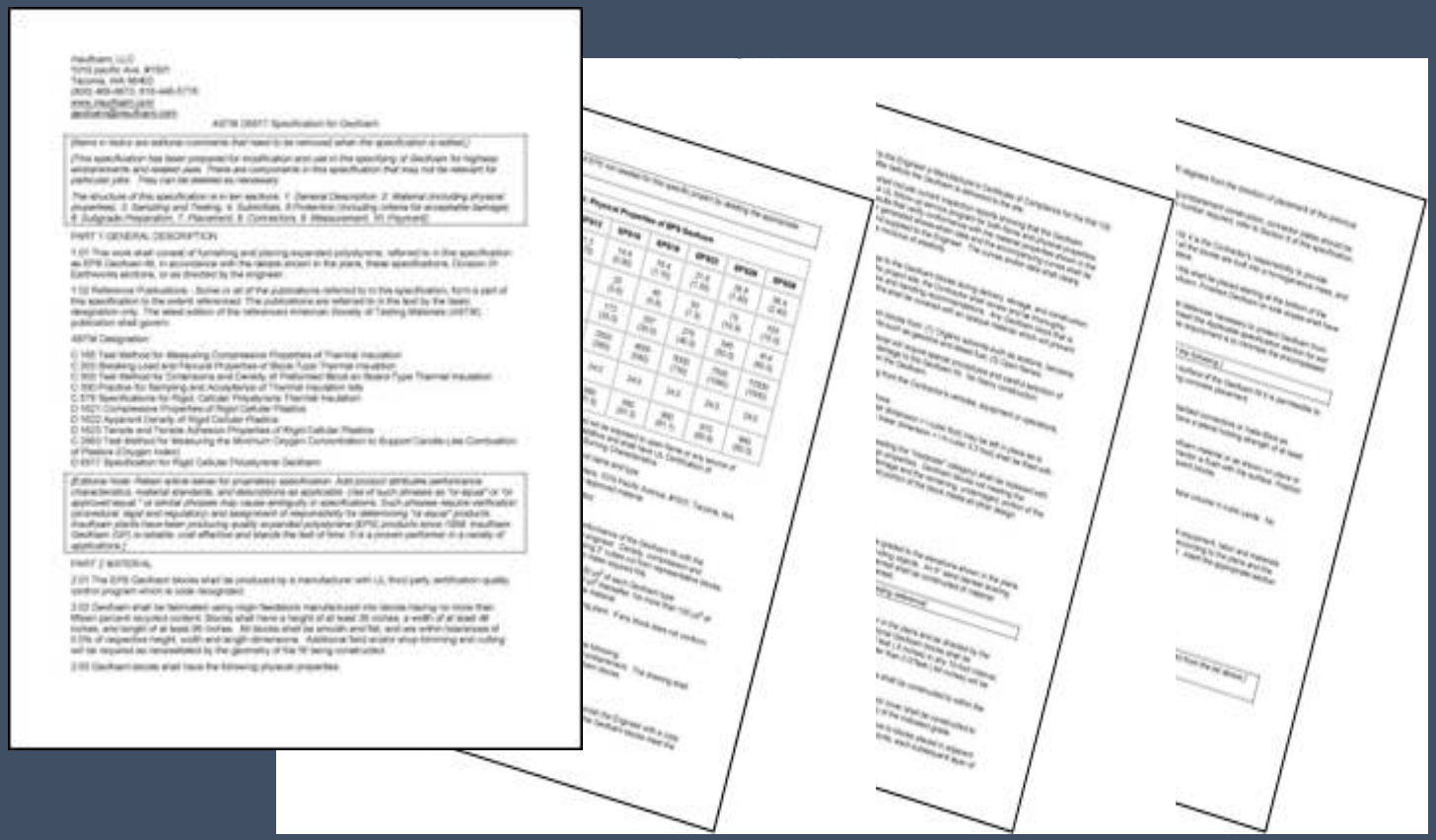
QC & Testing

ASTM D1621 on 2”cube



InsulFoam® GF Specifications



FHWA Approved
ASTM D 6817

Insulfoam GF Geofoam

Made In Alaska

Insulfoam
628 Western Drive
Anchorage, Alaska

907-279-9407
www.insulfoam.com

Thoroughly Tested!

Insulfoam
907-279-9407

Steve Francis
Steve.francis@insulfoam.com

www.Insulfoam.com

40 Years in Alaska

Solving Below Grade Problems

Trans-Alaska Pipeline - Atigun Pass:
Original below grade design boxed with Extruded (XPS)

Harbor Flotation

2008 Winners of AGC's Excellence in Construction Awards

Contractors that won 2008 AGC Excellence in Construction Awards are Davis Constructors and Engineers Inc. of Anchorage, Unit Company of Anchorage, Roger Hickel Contracting Inc. of Anchorage, Brice Inc. of Fairbanks, American Marine Corp., Anchorage and The Superior Group Inc. of Anchorage.

Davis Constructors and Engineers Inc. and Roger Hickel Contracting Inc. each won two 2008 AGC Excellence in Construction Awards.

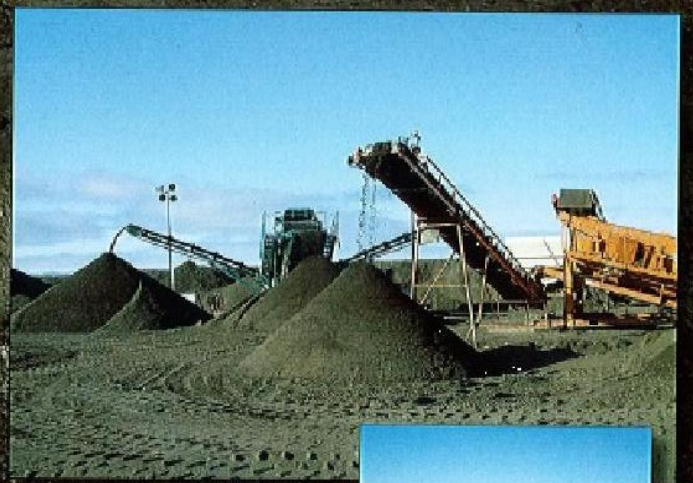
These are the final four winning projects. The first four winning projects were featured in The Alaska Contractor's Winter 2009 issue.

AGC members' projects

Point Lay Airport Improvement

Alaska Transportation, Marine, Heavy, Earthmoving more than $5 million
Contractor: Brice Inc. of Fairbanks

Brice was awarded North Slope Borough Point Lay Airport Improvement Project the fall of 2006. The project was finished in August of 2008. Brice provided the community of Point Lay an improved airport by overcoming a difficult mobilization of equipment and materials, producing a quality product with limited locally available resources, and using local hire to complete the project. The result was a fully functional airport for the needs of the village of Point Lay. The community and North Slope Borough can be proud of their newly created civil project.



Photos courtesy of Brice Inc.

Point Lay Airport

Cold Climate Performance of EPS

SUBJECT: INSULFOAM EPS in COLD TEMPERATURE APPLICATIONS

Insulfoam EPS is used in many different environments including very cold applications. Insulfoam EPS does not become brittle in subzero applications and unlike some other insulating materials the insulative value (R-Value) increases as the temperature decreases. The following chart is provided as an R-Value guide for Insulfoam EPS used in below 55° F applications:

Design R-Values*

Type Insulfoam EPS	Temperatures						
	-100° F (-73.3° C)	-75° F (-59.4° C)	-50° F (-45.6° C)	-25° F (-31.7° C)	0° F (-17.8° C)	20° F (-6.66° C)	55° F (12.77°C)
I	5.9	5.3	5	4.8	4.5	4.4	4.15
VIII	6.0	5.6	5.3	5.0	4.7	4.6	4.25
II	6.3	5.9	5.4	5.1	4.85	4.8	4.5
IX	6.7	6.3	5.6	5.3	5.1	4.9	4.7
XIV	6.9	6.5	5.8	5.6	5.25	4.95	4.75
XV	7.0	6.6	5.9	5.75	5.3	5.05	4.85

*Values based on "ASHRAE Handbook Fundamentals 2001" and resin supplier data

Further questions pertaining to the R-Value of Insulfoam EPS can be made to Insulfoam-Technical Center at 1/800-469-8870.