

BARROW ACCESS ROAD AND MAINTENANCE BUILDING PAD

BARROW, AK

FOAMULAR® GEO



Owens Corning understands the importance of maintaining infrastructure in isolated communities. An embankment design using extruded polystyrene will not only extend life, but can result in substantially decreased capital and life cycle costs, especially when gravel is sourced far from the construction site.

With the Arctic warming and creating new challenges for construction, engineers are taking special care to design road and building embankments that consider thaw penetration depth and heat moving from the surface of the ground down to the ice-rich subgrade. Combined soil and insulation in the embankment serves as an ideal way to protect roads and building foundations from challenges associated with frozen ground.

In the Summer of 2017, ASRC SKW ESKIMOS started the construction of a new roadway and building pad in America's northernmost city, Barrow, Alaska. The embankments for the maintenance facility and road are located just south of Wiley Post-Will Rogers Memorial Airport and establish a permanent access route that connects and enhances a link between the airport and multiple facilities in the community.

FOAMULAR®

Products Used:

60 and 40 PSI FOAMULAR® GEO
Extruded Polystyrene

Project Type:

Combined Airport Access Road
and Building Pad Embankments

Technical Details:

Volume:

950,206 Board Feet

Foam Thickness:

Road: 4 inches;

2 layers of 2-inch FOAMULAR® GEO

Maintenance Building Foundation: 8 inches;

4 layers of 2-inch FOAMULAR® GEO

Foam Area Covered:

Road: 1/3 mile in length and 56 feet in width

Maintenance Building Pad: 325 square feet

Design & Construction:

Design and Terrain:

Embankment over Permafrost

Geotechnical Designer:

Golder Associates

Owner:

AKDOT; Federal Aviation Administration

Contractor:

ASRC SKW Eskimos

Completion:

Expected 2018

Features:

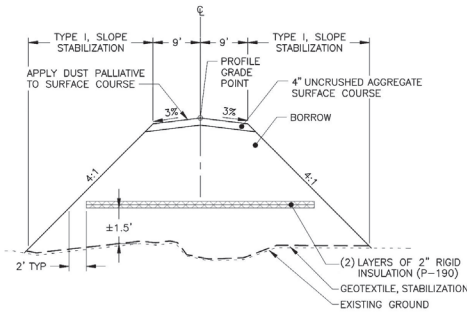
- High compressive strength helps resist damage from heavy loads. Available in 40, 60, and 100 psi compressive strengths
- Excellent long-term stable insulating performance with a lifetime limited R-value warranty¹
- Exceptional moisture resistance, long-term durability
- Certified by SCS Global Services to contain an average of 20% pre-consumer recycled content²
- Will not corrode, rot, or support mold growth
- Durable rigid foam panels are easy to handle and install
- Easy to saw, cut or score
- Custom thicknesses from 1" to 4" per R-value required
- Does NOT contain CFCs, HCFCs, or HBCD Flame Retardant

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The Alaska Department of Transportation and Public Facilities specified polystyrene foam insulation to create a thermal boundary between the ground surface and the project site's underlying ice-wedge filled, thaw unstable permafrost. Especially considering long daylight hours and heat generated by solar radiation in the summertime, using an extruded polystyrene insulation barrier is an effective way to prevent damage to the structures by permafrost melt and subsequent subsidence.

Commonly, designers require the use of finer material, known as the sand blanket, to protect the foam from damage during construction. However, in this case project designers deemed the sand blanket unnecessary due to the consistency of the local borrow source designated for construction. According to project design personnel, the borrow material is estimated to be about 75% sand, 15% fine gravel and 10% fines.

The first layer of the road structure was geotextile placed directly over the arctic tundra. As a leveling course, about 1.5 feet of borrow was placed, followed by 2 layers of 40 psi 2-inch thick FOAMULAR® extruded polystyrene, and then topped with another 6 to 8 feet of borrow before the road structure was completed with the surface course. The maintenance building was designed with 60 psi, 8-inch thick FOAMULAR® XPS placed above the thermosiphon system and within the building pad.

Sheets of 8 feet by 4 feet FOAMULAR® Geo 40 and 60 psi extruded polystyrene insulation were manufactured in the Owens Corning Gresham, Oregon Plant and barged from Seattle to Alaska's north tip in the North Slope Borough. When needed, ASRC used utility knives to score and break the sheets into smaller sizes on site.

Description

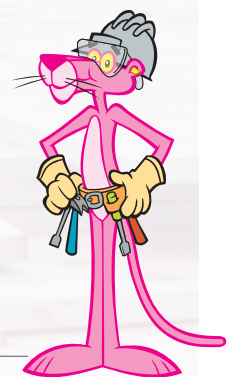
Owens Corning® FOAMULAR® Geo 40, 60, 100 are high strength durable Extruded Polystyrene (XPS) Insulation products designed for use in engineered applications requiring additional load-bearing capability such as:

- Road and Highway
- Railroad
- Airport Runway
- Drill/Ice Pad
- Frost/Permafrost Protection
- Buried Utilities
- Light Weight Fill

The unique closed-cell structure of FOAMULAR® Geo XPS Insulation helps to make it highly resistant to moisture, retaining its excellent R-value year after year – even following prolonged exposure to moisture and freeze/thaw cycling.

For more information

on the Owens Corning family of products, call **1-800-GET-PINK®** or visit www.owenscorning.com.



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¹ For more information on the limited warranty contact Owens Corning World Headquarters at 1-800-GET-PINK.

² SCS Global Services provides independent verification of recycled content in building materials and verifies recycled content claims made by manufacturers. For more information, visit www.SCSglobalservices.com.