

CSI Form 1.5C

SUBSTITUTION REQUEST (During the Bid Period)

Project: Patient Safety Upgradation Substitution Request Number: _____
 From: Brent Tanimoto – ACH Foam Technologies
 To: Megan Barr-VA Reno Date: _____
 A/E Project Number: 640-15-532
 Re: Rigid Insulation Contract For: _____
 Specification Title: Preparation for Re-Roofing Description: Recover Board
 Section: 070150 Page: 5 Article/Paragraph: 2.3/C Fan-folded XPS 3/8"

Proposed Substitution: Polar Board Roofing Recover Board
 Manufacturer: ACH Foam Technologies Address: McCarren, NV Phone: 775-355-7655
 Trade Name: Foam Control Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: Brent Tanimoto
 Signed by: Brent Tanimoto
 Firm: ACH Foam Technologies
 Address: 775 Waltham Way, Suite 105
McCarren, NV 89434
 Telephone: 916-597-7517 Fax: 775-355-7615

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
☒ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

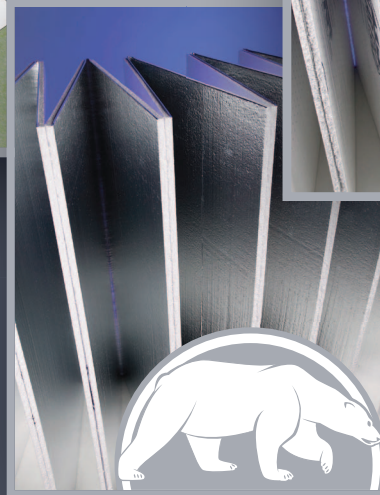
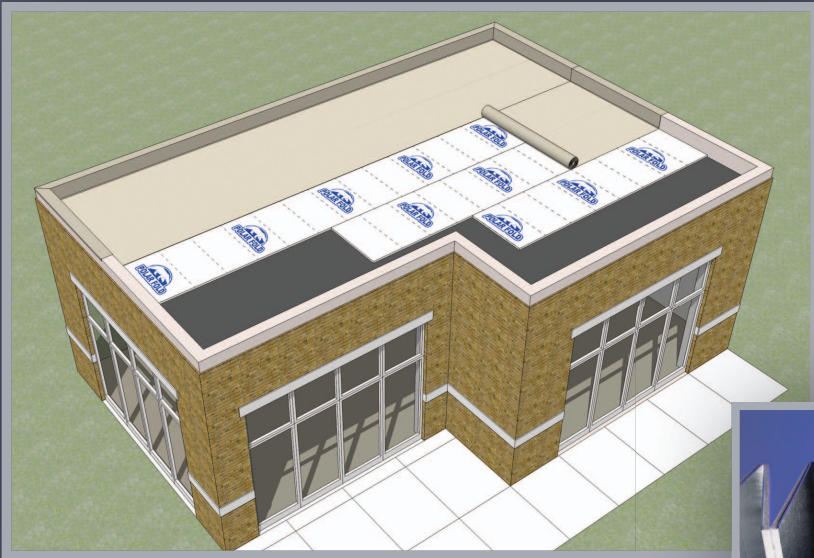
Signed by: _____ Date: 03.07.2016

Supporting Data Attached: ☐ Drawings ☒ Product Data ☐ Samples ☒ Tests ☐ Reports ☐ _____

Polar Fold®

ROOFING RECOVER BOARD

Insulation



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Polar Fold®

ROOFING RECOVER BOARD



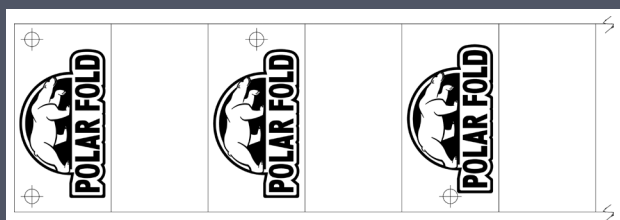
Polar Fold® is a high performance Roofing ReCover Board consisting of light weight, energy efficient, expanded polystyrene (EPS) laminated between strong foil facers. Polar Fold® Roofing ReCover Board is the preferred solution for re-roofing applications among architects and contractors and is compatible with single ply, ballasted, and mechanically attached roof systems.

Polar Fold® offers energy efficiency, water resistance and durability. Polar Fold® is easy to handle and install, saving time and labor. The innovative fan fold design ensures Polar Fold™ lays flat during installation and provides a level surface for roof membranes.

Polar-R® is also available for roof applications and comes in 4' x 8' sheets in 1/2" to 4" thicknesses and is manufactured with the same quality materials as Polar Fold®.

Installation Instructions

- 1** The substrate should be flat, dry and free of any foreign materials that would damage the Polar Fold® insulation board. The beginning of installation indicates that the contractor has accepted the condition of the existing substrate.
- 2** Some membrane manufacturers will require a higher concentration of fasteners. Consult membrane manufacturer for installation instructions.
- 3** One fastener is placed at each corner of the leading and trailing edges of Polar Fold®. One fastener is placed every 12 square feet on alternating sides of the sheet thereafter. (See Illustration).
- 4** When used with dark colored membranes, Polar Fold® is available with foil facers and should be installed with the silver or foil side up.



Physical Properties*

Property	3/8"	Type I	Type VIII	Type II	Type IX
R-Value	40° mean temp	1.56	1.59	1.71	1.78
Compressive Strength	psi	10.0	13.0	15.0	25.0
Water Absorption	volume %	<1.0	<1.0	<1.0	<1.0

Caution: EPS contains a flame retardant; however, it should be considered combustible and not exposed to sources of ignition.

*See manufacturers recommendations or tech data brochure for more information.

Property	1/2"	Type I	Type VIII	Type II	Type IX
R-Value	40° mean temp	2.09	2.13	2.28	2.38
Compressive Strength	psi	10.0	13.0	15.0	25.0
Water Absorption	volume %	<1.0	<1.0	<1.0	<1.0

EPS cores are manufactured to meet the requirements of ASTM C-578 and is listed under ICC 1006. Polar is listed under ICC ESR-1504. Consult ACH Foam Technologies for current code compliance. Other sizes and densities are available to suit project requirements.

Labor Savings & User Friendly

Polar Fold® is available in 4' x 50' fan fold sheets that arrive in compact, light weight bundles, making it easy to handle and install. The 50' length of Polar Fold® reduces installation time. Polar Fold® is designed to lay flat during installation, eliminating seam welding problems experienced with other fan fold insulations.

Durable & Water Resistant

Polar Fold's high performance EPS is wrapped in tough film, making it durable and water resistant. Polar Fold® has a low water absorption and rate of permeability which makes it a superior product for re-roof applications. The film facers allow single ply membranes, including PVC, to be installed directly over Polar Fold® without additional slip sheets.

Cost Effective Precision Performance

Polar Fold® is less expensive than other re-cover products and provides more R-Value for less money. High performance EPS insulation also has a consistent long-term R-Value that does not experience thermal drift. EPS has a 35 year history of proven performance in the roofing industry.

Environmentally Friendly

Polar Fold® improves the thermal performance of recover applications. Contains no ozone depleting agents, is made with recycled materials and is used as a component in LEED certified projects. Polar Fold® is available with a 20 year R-value warranty.

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Polar

TECHNICAL DATA & PHYSICAL PROPERTIES

Tech Data

Property	Type XI	Type I	Type VIII	Type II	Type IX
Nominal Density, lb/ft ³ (kg/m ³)	0.75 (12)	1.00 (16)	1.25 (20)	1.50 (24)	2.00 (32)
Density ¹ , min., lb/ft ³ (kg/m ³)	0.70 (12)	0.90 (15)	1.15 (18)	1.35 (22)	1.80 (29)
Design Thermal Resistance ¹ 75° Per 1.0 thickness 40° °F: ft ² h/Btu (°K:m ² /W)	3.2 (0.57) 3.4 (0.60)	3.9 (0.68) 4.2 (0.73)	3.9 (0.69) 4.3 (0.75)	4.2 (0.73) 4.6 (0.80)	4.4 (0.77) 4.8 (0.84)
Thermal Resistance, min ¹ 75° Per 1.0 thickness 40° °F: ft ² h/Btu (°K:m ² /W)	3.1 (0.55) 3.3 (0.58)	3.6 (0.63) 4.0 (0.70)	3.8 (0.67) 4.2 (0.74)	4.0 (0.70) 4.4 (0.77)	4.2 (0.74) 4.6 (0.81)
Compressive Strength ¹ @ 10% def. min. ¹ psi (kPa)	5.0 (35)	10.0 (69)	13.0 (90)	15.0 (104)	25.0 (173)
Flexural Strength ¹ min. psi (kPa)	10.0 (69)	25.0 (173)	30.0 (208)	35.0 (242)	50.0 (345)
Water Vapor Permeance ¹ of 1.0 in. thickness, max perm	<1.0	<1.0	<1.0	<1.0	<1.0
Water Absorption ¹ by total immersion, max, volume%	<1.0	<1.0	<1.0	<1.0	<1.0
Oxygen Index ¹ , min, volume%	24.0	24.0	24.0	24.0	24.0

¹See ASTM C578 Standard for test methods and complete information.

Caution: EPS contains flame retardant; however, it should be considered combustible and not exposed to sources of ignition. Polar-R® and Polar Fold® has a flame spread index of less than 25 and a smoke-developed index of less than 450 when tested in accordance with ASTM E84 / UL 723 for densities from 0.70 - 3.0 lb/ft³. Refer to UL certificate for complete information.



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TECHNICAL DATA & PHYSICAL PROPERTIES

Tech Data

Polar-R® and Polar Fold® are manufactured with a rigid Foam-Control® EPS insulation core and wrapped with tough facers which create a durable water resistant board. EPS is a closed cell foam which is highly resistant to heat flow and moisture penetration. The standard film facers are available in white opaque on one side and a metalized film on the opposite side.

Termite Resistant

Foam insulation has been shown to become termite infested under certain exposure conditions. Polar-R® and Polar Fold® can be treated to resist the infestation of termites with the Perform Guard® treatment. Perform Guard® is made by a process that incorporates a termite resistant additive into the insulation during the manufacturing process. This safe EPS regulated additive is thoroughly tested and nontoxic. Consult with ACH Foam Technologies for more information.

Weathering

Long-term exposure to sunlight causes yellowing and a slight oxidizing of the surface due to ultraviolet light. This has little effect on mechanical properties. If stored outdoors, cover EPS with light-colored, polyethylene film tarps.

Adhesives, Coatings, and Chemicals

Solvents, which attack EPS, include esters, ketones, ethers, aromatic and aliphatic hydrocarbons and their emulsions. If EPS is to be placed in contact with materials (or other vapors) of unknown composition, pretest for compatibility at maximum exposure temperature.

Flame Retardance/Performance

Although flame-retardants used in the manufacturing process of Polar EPS cores provide important margins of safety, all EPS products must be considered combustible and should not be exposed to open flame and other sources of ignition. Tests have demonstrated that the primary products of combustion for EPS are carbon monoxide and carbon dioxide, at concentrations far less than those given off by equal volumes of wood products. Polar-R® and Polar Fold® should not be exposed to temperatures in excess of 165 degrees F.

Environmental Advantages

Inert, non-nutritive, and highly stable. Contains no CFCs, HCFCs, HFCs or formaldehyde.

Applications

Below Grade
Underslab
Protection Board
Siding Underlayment
Exterior Sheathing
Masonry Cavity Wall
Roofing Re-cover Board
Weather Resistive Barrier

Quality Assurance

All Polar products are made to the exacting standards of our industry leading Quality Control Program monitored by Underwriters Laboratories Inc (UL) and recognized by national code and regulatory agencies. ICC ES recognizes Polar for building code compliance. See ICC ES ESR-1006 (EPS core) and ESR-1504 (Polar).

Warranty

ACH Foam Technologies offers a 50-year R-Value warranty. For complete details, please contact ACH Foam Technologies.

Thermal Barrier

A thermal barrier refers to a fire resistive covering or coating which separates Polar-R® or Polar Fold® from the building interior. Model building codes often specify thermal barriers which provide 15 minutes of protection. Design and installation should comply with the current code requirements.



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