SECTION 07 22 00

CEMENTITIOUS ROOF INSULATION

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\*\* NOTE TO SPECIFIER \*\* FinPan; cementitious roof insulation.
This section is based on the products of FinPan which is located at:
3255 Symmes Rd.
Hamilton, OH 45015
Toll Free: 800-544-7398
Phone: 513-870-9200
Fax: 513-870-9606
Email: \_\_\_\_\_\_.
Web: www.finpan.com
click Herefor additional information
Since 1975 FinPan has led the industry with many innovative, cost effective building envelope products that focus on energy efficiency, sustainability and durability. FinPan focuses on concrete building envelope products that cover you from below grade up to where your building touches the sky. FinPan specializes in the lamination of thin concretes to polystyrene, both EPS and XPS to produce a variety of building envelope products that cover you from foundation walls to low slope roofing.
FinPan roof panels provide both insulation and ballast for protected membrane roof systems. Panels are composed of Dow Styrofoam and latex-modified concrete topping on a 2'x4' tongue-and-groove panel.

1. GENERAL
	1. SECTION INCLUDES
		1. Insulation board laminated to a concrete panel as ballast for protected membrane roof system.
	2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 21 26 - Blown Insulation.
		2. Section 07 51 13 - Built-Up Asphalt Roofing.
		3. Section 07 53 13 - Chlorinated-Polyethylene Roofing.
		4. Section 07 54 16 - Ethylene-Interpolymer Roofing.
		5. Section 07 52 00 - Modified Bituminous Membrane Roofing.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM C272 - Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
			2. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
			3. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
			4. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
			5. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's specifications and technical data.
		3. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories and finishes of system to be installed.
		4. Samples: Submit verification sample.
		5. Quality Assurance Submittals: Submit the following:
			1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
			2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
			3. Manufacturer's Instructions: Manufacturer's installation instructions. Include manufacturer's specifications, standard detail and installation instructions for specified materials.
				1. Field Reports: Submit reports of field inspections by the manufacturer's authorized representative.
			4. Marked Drawings: Submit 1 set of marked record drawings showing "as-built" conditions.

\*\* NOTE TO SPECIFIER \*\* Coordinate paragraph below with Part 3 Field Quality Requirements Article herein. Delete if not required.

* + - 1. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
		1. Closeout Submittals: Submit the following:
			1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
			2. Warranty: Warranty documents specified herein.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Minimum 5 years manufacturing similar products.
		2. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.
		3. Pre-Roofing Conference: Prior to commencement of work, conduct a meeting at project site to review contract requirements and procedures. Do not commence work prior to pre-roofing conference unless authorized by Architect.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
		2. Storage and Protection:
			1. Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
			2. Do not store or stack material on roof decks in concentrations in excess of design live loadings.
			3. Do not leave unprotected materials on the roof overnight.
			4. Protect insulation from exposure to sunlight and fire ignition.
			5. Remove and replace damaged materials as directed or as necessary.
	3. PROJECT CONDITIONS
		1. Environmental Requirements/Conditions:
			1. Substrate and ambient air temperature shall be in accordance with manufacturer's requirements.
			2. Proceed only when manufacturer and applicator are willing to guarantee the work as described herein without reservations or restrictions.

\*\* NOTE TO SPECIFIER \*\* Coordinate article below with Conditions of the Contract and with Division 1 Closeout Submittals (Warranty) Section.

* 1. WARRANTY
		1. Warranty: Submit manufacturer's standard limited warranty against product defects.
	2. MAINTENANCE
		1. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels.

\*\* NOTE TO SPECIFIER Revise paragraph below to specify size and percentage as required for project.

* + - 1. Quantity: Furnish 2 percent of amount installed.
			2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: T. Clear/FinPan, which is located at: 3255 Symmes Rd.; Hamilton, OH 45015; Toll Free Tel: 800-544-7398; Tel: 513-870-9200; Fax: 513-870-9606; Email: [request info (sconfer@tclear.net)](http://admin.arcat.com/users.pl?action=UserEmail&company=T.+Clear/FinPan&coid=35899&rep=&fax=513-870-9606&message=RE:%20Spec%20Question%20(07220tcr):%20%20&mf=); Web: [finpan.com](http://finpan.com) | [www.tclear.com](http://www.tclear.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. CEMENTITIOUS BOARD INSULATION

\*\* NOTE TO SPECIFIER \*\* LIGHTGUARD provides insulation as well as ballast. It is used as the ballast component of a Protected Membrane Roof (PMR) assembly and is suited for new or reroofing use on commercial and industrial buildings. LIGHTGUARD consists of a concrete panel laminated to insulation board. The panels can be installed on top of most types and brands of roof membranes, offering protection from thermal shock, weathering forces and maintenance related foot traffic. LIGHTGUARD and HEAVYGUARD, as part of a PMR, are effective in controlling condensation and dew point location in industrial plants such as paper mills. By insulating the roof assembly and keeping dew point above roof membrane, LIGHTGUARD protects valuable machinery in pulp and paper mills, textile mills and other installations where moisture can cause damage to equipment. LIGHTGUARD is reusable in reroofing and vertical expansion situations. It is free of chlorofluorocarbons (CFCs). HEAVYGUARD is a heavier version of the LIGHTGUARD panel. It is used where high traffic and higher point loading require a thicker concrete-panel component. Delete type not required.

* + 1. LIGHTGUARD Cementitious Board Insulation: As manufactured by FinPan.
			1. Panels: 3/8 inch (9.5 mm) latex modified concrete panel laminated to Styrofoam closed-cell extruded polystyrene insulation board, ASTM C578, Type VI, (40 psi compressive strength).

\*\* NOTE TO SPECIFIER \*\* Available with 2 inch or 3 inch thick insulation. Delete thickness not required.

* + - 1. Size: 2 x 4 feet (610 x 1219 mm) by 2-3/8 inches (60 mm) thick.
			2. Size: 2 x 4 feet (610 x 1219 mm) by 3-3/8 inches (86 mm) thick.
			3. Weight: 4.5 psf (22 kg/sq.m.).

\*\* NOTE TO SPECIFIER \*\* Delete colors not required.

* + - 1. Color: Natural gray.
			2. Color: Red.
			3. Color: Green.
			4. Color: Tan.
			5. Color: Field applied, highly reflective white coating.
			6. Shape: Flat and rectangular, with tongue-and-groove edges allowing for interlocking construction.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. HEAVYGUARD Cementitious Board Insulation: As manufactured by FinPan.
			1. Panels: 15/16 inch (23.8 mm) latex modified concrete panel is laminated to Styrofoam closed-cell extruded polystyrene insulation board, ASTM C578, Type VI, 2 inches or 3 inches.

\*\* NOTE TO SPECIFIER \*\* Available with 2 inch or 3 inch thick insulation. Delete thickness not required.

* + - 1. Size: 2 x 4 feet (610 x 1219 mm) by 2-15/16 inches (75 mm) thick.
			2. Size: 2 x 4 feet (610 x 1219 mm) by 3-15/16 inches (100 mm) thick.
			3. Weight: 11 psf (54 kg/sq.m.).

\*\* NOTE TO SPECIFIER \*\* Delete colors not required.

* + - 1. Color: Natural gray.
			2. Color: Red.
			3. Color: Green.
			4. Color: Tan.
			5. Color: Field applied, highly reflective white coating.
			6. Shape: Flat and rectangular, with tongue-and-groove edges allowing for interlocking construction.
		1. Performance Requirements: Provide insulation board with the following properties:
			1. R-value: 5 ft2 x h x degreesF/Btu per inch (0.88 m2 x K/W per 25.4 mm) of foam.
			2. Thermal Conductivity (k-value): 0.2 Btu/(ft2 x h x degreesF) (0.35 W/(m x K).
			3. Compressive Strength of Insulation: 40 psi (276 kPa).

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. ACCESSORlES
		1. Metal Perimeter Securement and Metal Strapping:
			1. Products:

\*\* NOTE TO SPECIFIER \*\* Delete any products not allowed.

* + - * 1. Hickman "Edge-Guard" termination fascia and perimeter hold-down system.
				2. Metal Era, "Anchor-Tite PMR/Lock Version Fascia System".
				3. Other system approved by the manufacturer of cementitious surfaced extruded polystyrene.
			1. Metal Straps:

\*\* NOTE TO SPECIFIER \*\* Delete materials not required.

* + - * 1. Not less than 22 gauge Galvalume steel sheet straps.
				2. Not less than 22 gauge Zincalume steel sheet straps.
				3. Not less than 22 gauge Stainless steel sheet straps.
				4. Not less than 22 gauge Kynar coated steel sheet straps.
			1. Fasteners:
				1. For fastening metal perimeter securement to the perimeter of the roof structure, use the appropriate fastener for the substrate following the installation recommendations of the fastener manufacturer.
				2. For securing metal straps to cementitious surfaced extruded polystyrene insulation board:

\*\* NOTE TO SPECIFIER \*\* Delete any products not allowed.

"Fabco Fab-Lok 10- 12".

Olympic Fastening Systems, Inc., "Bulb Tite" blind rivet RV6604-8-10.

SFS Intec TPR or TPR2 for HG "Peel Rivet".

Other fasteners approved by the cementitious surfaced extruded polystyrene insulation manufacturer.

* + - * 1. Furnish fasteners required for a complete installation in required quantities and varieties.
1. EXECUTION
	1. EXAMINATION
		1. Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
		2. Do not proceed until unsatisfactory conditions have been corrected.
	2. INSTALLATION
		1. Comply with manufacturer's recommendations and approved submittals and the following.
		2. Cementitious Surfaced Extruded Polystyrene Insulation (Over Roof Membrane):
			1. Make long joints (length of board) continuous. Stagger side joints.
			2. Fit boards carefully to avoid cracks or openings. Sides of boards shall be tightly butted to adjacent board.
			3. Extend boards to within 1/4 inch - 1/2 inch (6.4 - 12.7 mm) of projections.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Perimeter Securement and Metal Strapping (Securement):
			1. General: Install perimeter securement and interior metal straps in strict accordance with cementitious surfaced insulation manufacturer's printed instructions for the particular conditions of installation.
				1. If conditions are encountered where no such written instructions clearly apply, obtain direction from the manufacturer before proceeding.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Installing Sheet Metal Perimeter Securement: Install perimeter securement continuously around roof penetrations in sections not exceeding 12 feet (4 m) in length.
				1. Allow for expansion and contraction.
				2. Attach edge securement using corrosion resistant screws spaced not more than 12 inches (305 mm) on center.
				3. Attach edge securement to the first perimeter insulation board that has tongue-and-groove integrity and is not less than 1 foot (304.8 mm) in width.
				4. Extend perimeter securement not less than 6 inches (152 mm) onto the surfaced insulation board and attach with specified fasteners spaced not more than 18 inches (457 mm) on centers.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Installing Concrete Paver Perimeter Securement:
				1. Adhered Membranes: For roofs in 90 mph (145 kph) wind range only, securement shall be a single row of nominal 2 inch x 8 inch x 16 inch (51 x 203 x 406 mm) pavers laid with their long edge perpendicular to the roof perimeter.
				2. Loose-Laid Membranes and Multiple Layer Foam Installations: For roofs in 90 mph (145 kph) wind range only, securement shall be a single row of nominal 2 inch x 2 foot x 2 foot (51 x 610 x 610 mm) or two rows of nominal 2 inch x 8 inch x 16 inch (51 x 203 x 406 mm) pavers laid with their long edge perpendicular to the roof perimeter.
				3. Paver Placement:

The height of gravel stop or parapet shall extend above the paver in all cases.

Pavers shall be placed in continuous rows butted together at all perimeters and openings or penetrations greater than 4 feet (1219 mm) long.

When the 4 foot (1219 mm) long direction of the board runs parallel to the perimeter, pavers shall be placed with their outside edge centered on the perimeter board (covering the first board joint). When the 2 foot (610 mm) long direction of the board runs parallel to the perimeter, pavers shall be placed in from the perimeter at least 12 inches (305 mm).

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Locating Interior Metal Straps (Required for Range 2 Securement):
				1. Place straps running in the long direction of the insulation boards on the second and third row of whole boards in from the perimeter.
				2. Place straps running in the short direction of the insulation boards starting at 3 feet (914 mm) from the perimeter and running every 10 feet (3 m) thereafter along the entire roof to attach the interior straps running in the long direction of the board to the metal perimeter securement. Only the first strap at the perimeter, running in the short direction of the boards, needs to go across the entire roof. The other straps proceed only as far as the innermost straps running in the long direction.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Locating Corner Straps (Required for Range 2 Securement): Place corner cross braces at each corner.
				1. Fastening Straps to Cementitious Surfaced Extruded Polystyrene Insulation Board: Use tools recommended by the manufacturer to ensure proper fastener installation. Place fasteners in predrilled holes in the insulation board. Drive fasteners perpendicular to the appropriate plane; do not overdrive. Locate fasteners not more than 18 inches (457 mm) on centers and not less than 3 inches (76 mm) from any of the insulation board edges.

\*\* NOTE TO SPECIFIER \*\* Consult with manufacturer for services required. Delete if manufacturer's field service is not required.

* 1. FIELD QUALITY REQUIREMENTS
		1. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

\*\* NOTE TO SPECIFIER \*\* Establish number and duration of periodic site visits with Owner and manufacturer, and specify below.

* + - 1. Site Visits: \_\_\_\_
	1. CLEANING
		1. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.
			1. At the end of the construction period, remove debris and excess materials from the Owner's property. Repair or replace deteriorated, damaged or defective work.
	2. PROTECTION
		1. Protect installed product and finish surfaces from damage during construction.

END OF SECTION