

SECTION 07 21 13

CONTINUOUS INSULATION XCI FOIL WALL PANELS

This specification is based on the exterior continuous insulation products of Hunter Panels, located at:

15 Franklin Street Portland, Maine 04101 Phone: (207) 761-5678 Toll Free: (888) 746-1114 Fax: (717) 960-1611

E-mail: info@hpanels.com Internet: www.hunterXCl.com

As an industry leader in Polyiso Roof insulation panels for over <u>2045</u> years – Hunter is proud to present our line for Commercial Wall Applications – Hunter XCI products are designed for use in commercial wall applications to provide "ci" continuous insulation within the building envelope.

This specification includes XCI Foil, a high thermal resistive rigid insulation panel composed of a closed cell polyisocyanurate foam core bonded on-line during the manufacturing process to an impermeable foil facing material on both sides. It is designed for use as exterior continuous insulation in a wall assembly.

Follow the instructions listed in the SPECIFIER INSTRUCTIONS included throughout the specification. Edit carefully to suit project requirements. Modify as necessary and delete paragraphs that are not applicable. Note that the SPECIFIER INSTRUCTIONS are included as "Hidden Text" in MS-Word. Display hidden notes to specifier by using "Tools"/"Options"/ "View"/"Hidden Text".

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Continuous Insulation XCI Foil wall panels.

1.2 RELATED SECTIONS

- A. Section 03300 Cast In Place Concrete: Concrete base wall.
- B. Section 03400 Pre-Cast Concrete: Pre-cast concrete base wall.
- C. Section 04210 Clay Masonry: Brick facing.
- D. Section 04800 Masonry Assemblies: Masonry base wall.

- E. Section 04850 Stone Facing.
- F. Section 05400 Cold Formed Metal Framing.
- G. Section 07260 Vapor Retarders: Vapor retarder materials over insulation to adjacent insulation.
- H. Section 07270 Air Barriers: Air seal materials over insulation to adjacent insulation.
- I. Section 09110 Non-Structural Metal Framing.
- J. Section 09200 Plaster and Gypsum Board.
- K. Section 09220 Stucco.

1.3 REFERENCES

- A. ASTM C 209 Methods of Testing Insulating Board, Structural and Decorative.
- B. ASTM C 518 Steady State Thermal Transmission by Means of the Heat Flow Meter Apparatus (R Value)
- C. ASTM C 1289 Specifications for Faced Rigid Cellular Polyisocyanurate Thermal Insulating Board.
- D. ASTM D 1621 Test Methods for Compressive Properties of Rigid Cellular Plastics.
- E. ASTM D 2126 Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- F. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- G. ASTM E 84 (UL 723) Standard Test Method for Surface Burning Characteristics of Building Materials
- H. ASTM E 96 Test Method for Water Vapor Transmission of Materials.
- I. ASHRAE 90.1-2010 Energy Standard for Buildings Except Low-Rise Residential Buildings.
- J. IBC Chapter 26 Foam Plastic Insulation.
- K. Miami-Dade County FL NOA No: 14-0501.01.
- L. ICC-ES Evaluation Report ICC-ESR-3174
- M. DRJ Technical Evaluation Report #1402-02
- N. NFPA 285 Standard Fire Test Method For Evaluation Of Fire Propagation Characteristics Of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.
- O. UL 723 Test for Surface Burning Characteristics of Building Materials

1.4 SYSTEM DESCRIPTION

- A. NFPA 285 Exterior Wall Assembly Concrete Masonry:
 - 1. Base Wall System: Concrete Masonry Wall.
 - 2. Approved Exterior Finish:
 - a. Masonry: Brick veneer anchors, standard types, installed maximum 24 inches (610 mm) o.c. vertically. Maximum 2 inch (51 mm) air gap between exterior insulation and brick. Standard nominal 4 inches (102 mm) thick or greater, clay brick.
 - b. Stucco: Minimum 3/4 inch (19 mm) thick, Exterior Cement Plaster and Lath.
 - c. Limestone or Natural Stone: Minimum 2 inch (51 mm) thick, Limestone or Natural Stone Veneer or minimum 1-1/2 inches (38 mm) thick Cast Artificial Stone Veneer. Any standard installation technique, including shiplap can be used.
 - d. Terra Cotta Cladding: Use any Terra Cotta Cladding System in which Terra Cotta is minimum 9/16 inch (14 mm). Any standard installation technique, including shiplap can be used.
 - 3. Panel Thickness: 3.5 inches (89 mm) maximum.
 - 4. Stud Cavity: Not Applicable.
 - 5. Exterior Sheathing: 1/2 inch (12.5 mm) or 5/8 inch (16 mm) thick exterior type gypsum sheathing.
 - 6. Floorline Firestopping: 4 lb/cu ft mineral fiber based safing Insulation at each floor line, attached with Z Clips or equivalent.
 - 7. Weather Resistive Membrane Applied to Base Wall: Acceptable products are:
 - a. Carlisle:
 - 1) Fire Resist Barritech VP or VP LT
 - 2) Fire Resist Barritech NP
 - 3) Fire Resist 705 FR-A
 - 4) Fire Resist 705 VP
 - b. DuPont:
 - 1)—Tyvec ComercialWrap or Commercial Wrap D
 - 2)1) Tyvec Fluid Applied WB
 - c. GE:
 - 1) Momentive SEC 2500 SilShield
 - d. Henry:
 - 1) Air Bloc 17
 - 2) Air Bloc 21S
 - 3) Air Bloc 31
 - 4) Air Bloc 33
 - e. PolyGuard:
 - 1) Air Lok Flex VP
 - 2) Flexguard
 - 3) Air Lok Flex (Please contact Hunter XCI for cladding options)
 - f. Prosoco:
 - 1) R Guard Spray Wrap
 - 2) R Guard MVP
 - 3) R Guard CAT-5
 - 4) R Guard VB
 - g. StoCorp:
 - 1) EmeraldCoat
 - 2) GoldCoat
 - 3) StoGuard Vapor Shield
 - h. VaproShield:
 - 1) Wrap Shield SA
 - 2) Reveal Shield SA
 - i. WR Grace:
 - 1) Perm-a-barrier VPS
 - 2) Perm-a-barrier NPL

- 3) Perm-a-barrier VPL
- 4) Perm-a-barrier NP 20
- 5) Perm-a-barrier Aluminum Wall Membrane
- j. 3M:
 - 1) 3015 (with Hold Fast adhesive at a 6 mil thickness)
- k. None
- 8. Weather Resistive Membrane Applied to Exterior Insulation: Acceptable products are:
 - a. Carlisle:
 - 1) Fire Resist Barritech VP or VP LT
 - 2) Fire Resist Barritech NP
 - 3) Fire Resist 705 FR-A
 - 4) Fire Resist 705 VP
 - b. DuPont:
 - Tyvec ComercialWrap or Commercial Wrap D
 - c. GE:
 - 1) Momentive SEC 2500 SilShield
 - d. Henry:
 - 1) Air Bloc 17
 - 2) Air Bloc 21S
 - 3) Air Bloc 31
 - 4) Air Bloc 33
 - e. PolyGuard
 - 1) Air Lok Flex VP
 - 2) Flexguard
 - 3) Air Lok Flex (Please contact Hunter XCI for cladding options)
 - f. Prosoco:
 - 1) R Guard Spray Wrap
 - 2) R Guard MVP
 - 3) R Guard CAT-5
 - 4) R Guard VB
 - g. VaproShield:
 - 1) Wrap Shield SA
 - 2) Reveal Shield SA
 - h. WR Grace:
 - 1) Perm-a-barrier NPL
 - 2) Perm-a-barrier VPL
 - 3) Perm-a-barrier NP 20
 - 4) Perm-a-barrier Aluminum Wall Membrane
 - i. None.
- B. NFPA 285 Exterior Wall Assembly Cast-in-Place or Precast Concrete:
 - 1. Base Wall System: Concrete Masonry Wall.
 - 2. Approved Exterior Finish:
 - a. Masonry: Brick veneer anchors, standard types, installed maximum 24 inches (610 mm) o.c. vertically. Maximum 2 inch (51 mm) air gap between exterior insulation and brick. Standard nominal 4 inch (102 mm) thick or greater, clay brick
 - b. Stucco: Minimum 3/4 inch (19 mm) thick, Exterior Cement Plaster and Lath.
 - c. Limestone or Natural Stone: Minimum 2 inches (51 mm) thick Limestone or Natural Stone Veneer or minimum 1-1/2 inches (38 mm) thick Cast Artificial Stone Veneer. Any standard installation technique, including shiplap can be used.
 - d. Terra Cotta Cladding: Use any Terra Cotta Cladding System in which Terra Cotta is minimum 9/16 inches (14 mm). Any standard installation technique, including shiplap can be used.
 - 3. Panel Thickness: 3.5 inches (89 mm) maximum.

- 4. Stud Cavity: Not Applicable.
- 5. Exterior Sheathing: 1/2 inch (12.5 mm) or 5/8 inch (16 mm) thick exterior type gypsum sheathing.
- 6. Floorline Firestopping: 4 lb/cu ft mineral fiber based safing insulation at each floor line, attached with Z Clips or equivalent.
- 7. Weather Resistive Membrane Applied to Base Wall: Acceptable products are:
 - a. Carlisle:
 - 1) Fire Resist Barritech VP or VP LT
 - 2) Fire Resist Barritech NP
 - 3) Fire Resist 705 FR-A
 - 4) Fire Resist 705 VP
 - b. DuPont:
 - Tyvek ComercialWrap or Commercial Wrap D
 - 2) Tyvek Fluid Applied WB
 - c. GE:
 - 1) Momentive SEC 2500 SilShield
 - d. Henry:
 - 1) Air Bloc 17
 - 2) Air Bloc 21S
 - 3) Air Bloc 31
 - 4) Air Bloc 33
 - e. PolyGuard:
 - 1) Air Lok Flex VP
 - 2) Flexguard
 - Air Lok Flex (Please contact Hunter XCI for cladding options)
 - 3) Airf. Prosoco:
 - 1) R Guard Spray Wrap
 - 2) R Guard MVP
 - 3) R Guard CAT-5
 - 4) R Guard VB
 - g. StoCorp:
 - 1) EmeraldCoat
 - 2) GoldCoat
 - 3) StoGuard Vapor Shield
 - h. VaproShield:
 - 1) Wrap Shield SA
 - 2) Reveal Shield SA
 - i. WR Grace:
 - Perm-a-barrier VPS
 - 2) Perm-a-barrier NPL
 - 3) Perm-a-barrier VPL
 - 4) Perm-a-barrier NP 20
 - 5) Perm-a-barrier Aluminum Wall Membrane
 - j. 3M:
 - 1) 3015 (with Hold Fast adhesive at a 6 mil thickness)
 - k. None
- 8. Weather Resistive Membrane Applied to Exterior Insulation: Acceptable products are:
 - a. Carlisle:
 - 1) Fire Resist Barritech VP or VP LT
 - 2) Fire Resist Barritech NP
 - 3) Fire Resist 705 FR-A
 - 4) Fire Resist 705 VP
 - b. DuPont:
 - 1) Tyvek Comercial Wrap D
 - c. GE:
 - 1) Momentive SEC 2500 SilShield

- d. Henry:
 - 1) Air Bloc 17
 - 2) Air Bloc 21S
 - 3) Air Bloc 31
 - 4) Air Bloc 33
- e. PolyGuard
 - 1) Air Lok Flex VP
 - 2) Flexguard
 - 3) Air Lok Flex (Please contact Hunter XCI for cladding options)
- f. Prosoco:
 - 1) R Guard Spray Wrap
 - 2) R Guard MVP
 - 3) R Guard CAT-5
 - 4) R Guard VB
- g. VaproShield:
 - 1) Wrap Shield SA
 - 2) Reveal Shield SA
- h. WR Grace:
 - 1) Perm-a-barrier NPL
 - 2) Perm-a-barrier VPL
 - 3) Perm-a-barrier NP 20
 - 4) Perm-a-barrier Aluminum Wall Membrane
- i. None.
- C. NFPA 285 Exterior Wall Assembly Steel Stud:
 - Base Wall System: Steel Stud, 1 layer 5/8 inch (16 mm) thick Type X or 1/2 inch (12.5 mm) thick Type X Gypsum wallboard on interior, installed over steel studs: minimum 3-5/8 inches (92 mm) depth, minimum 22 gauge at a maximum of 24 inches (610 mm) o.c. with lateral bracing every 4 foot (1220 mm) vertically.
 - 2. Approved Exterior Finish:
 - a. Masonry: Brick veneer anchors, standard types, installed maximum 24 inches (610 mm) o.c. vertically on each stud. Maximum 2 inch (51 mm) air gap between exterior insulation and brick. Standard nominal 4 inches (102 mm) thick or greater, clay brick.
 - b. Stucco: Minimum 3/4 inch (19 mm) thick, Exterior Cement Plaster and Lath.
 - c. Limestone or Natural Stone: Minimum 2 inch (51 mm) thick Limestone or Natural Stone Veneer or minimum 1-1/2 inches (38 mm) thick Cast Artificial Stone Veneer. Any standard installation technique, including shiplap can be used.
 - d. Terra Cotta Cladding: Use any Terra Cotta Cladding System in which Terra Cotta is minimum 9/16 inches (14 mm). Any standard installation technique, including shiplap can be used.
 - 3. Panel Thickness: 3.5 inches (89 mm) maximum.
 - 4. Stud Cavity: Any non-combustible insulation or none.
 - 5. Exterior Sheathing: 1/2 inch (12.5 mm) or 5/8 inch (16 mm) thick exterior type gypsum sheathing.
 - 6. Floorline Firestopping: 4 lb/cu ft mineral fiber based safing insulation in each stud cavity and at each floor line, attached with Z Clips or equivalent.
 - 7. Weather Resistive Membrane Applied to Base Wall: Acceptable products are:
 - a. Carlisle:
 - Fire Resist Barritech VP or VP LT
 - 2) Fire Resist Barritech NP
 - 3) Fire Resist 705 FR-A
 - 4) Fire Resist 705 VP
 - b. DuPont:
 - 1) Tyvek ComercialWrap or Commercial Wrap D

- 2) Tyvek Fluid Applied WB
- c. GE:
 - 1) Momentive SEC 2500 SilShield
- d. Henry:
 - 1) Air Bloc 17
 - 2) Air Bloc 21S
 - 3) Air Bloc 31
 - 4) Air Bloc 33
- e. PolyGuard:
 - 1) Air Lok Flex VP
 - 2) Flexguard
 - 3) Air Lok Flex (Please contact Hunter XCI for cladding options)
- f. Prosoco:
 - 1) R Guard Spray Wrap
 - 2) R Guard MVP
 - 3) R Guard CAT-5
 - 4) R Guard VB
- g. StoCorp:
 - 1) EmeraldCoat
 - 2) GoldCoat
 - 3) StoGuard Vapor Shield
- h. VaproShield:
 - 1) Wrap Shield SA
 - 2) Reveal Shield SA
- WR Grace:
 - 1) Perm-a-barrier VPS
 - 2) Perm-a-barrier NPL
 - 3) Perm-a-barrier VPL
 - 4) Perm-a-barrier NP 20
 - 5) Perm-a-barrier Aluminum Wall Membrane
- j. 3M:
 - 1) 3015 (with Hold Fast adhesive at a 6 mil thickness)
- k. None
- 8. Weather Resistive Membrane Applied to Exterior Insulation: Acceptable products are:
 - a. Carlisle:
 - Fire Resist Barritech VP or VP LT
 - 2) Fire Resist Barritech NP
 - 3) Fire Resist 705 FR-A
 - 4) Fire Resist 705 VP
 - b. DuPont:
 - 1) Tyvek ComercialWrap or Commercial Wrap D
 - c. GE:
 - 1) Momentive SEC 2500 SilShield
 - d. Henry:
 - 1) Air Bloc 17
 - 2) Air Bloc 21S
 - 3) Air Bloc 31
 - 4) Air Bloc 33
 - e. PolyGuard
 - 1) Air Lok Flex VP
 - 2) Flexguard
 - 3) Air Lok Flex (Please contact Hunter XCI for cladding options)
 - f. Prosoco:
 - 1) R Guard Spray Wrap
 - 2) R Guard MVP
 - 3) R Guard CAT-5

- 4) R Guard VB
- g. VaproShield:
 - 1) Wrap Shield SA
 - 2) Reveal Shield SA
- h. WR Grace:
 - 1) Perm-a-barrier NPL
 - 2) Perm-a-barrier VPL
 - 3) Perm-a-barrier NP 20
 - 4) Perm-a-barrier Aluminum Wall Membrane
- i. None.

1.5 DESIGN REQUIREMENTS

- A. Perform work in accordance with all federal, state and local codes.
- B. Physical properties (Foam Core):
 - 1. Water Absorption: ASTM C 209, less than 0.05 percent by volume.
 - 2. Compressive Strength: ASTM D 1621; Type I; Grade 1. 16 psi (110 kPa) minimum; Grade 2, 20 psi (138 kPa) minimum and Grade 3, 25 psi (172 kPa).
 - 3. Dimensional Stability: ASTM D 2126, 2 percent linear change (7 days).
 - 4. Moisture Vapor Permeance: ASTM E 96, less than 0.05 perm (2.875ng/(Pa•s•m2)).
 - 5. Service Temperature: Minus 100 degrees to 250 degrees F (Minus 73 degrees C to 122 degrees C).
- C. Continuous Insulation XCI Foil wall panels shall meet the continuous insulation standards of ASHRAE 90.1-2010, IECC 2012 and IBC Chapter 26.
- D. Hunter Panels XCI Foil evaluated and listed under ESR-3174. Tests includes the following:
 - 1. Foam core flame spread index of 75 or less and smoke developed of 450 or less when tested in accordance with ASTM E 84 or UL 723.
 - 2. Classified as Type I , Class 2 in accordance with ASTM C 1289.
 - 3. DRJ Technical Evaluation Report #1402-02.
- E. Hunter Panels XCI Foil evaluated and listed under Miami Dade Product Control Notice of Acceptance NOA No. 14-0501.01

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on wall panels and fasteners to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 - Product data and certification letter indicating percentages by weight of postconsumer and pre-consumer recycled content for products having recycled content. Environmental Product Declaration which conforms to ISO 14025
- D. Manufacturer's Certificate: Certify panels will conform to specified performance requirements.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall be a company that regularly manufactures and assembles specified insulation in house with no outside fabrication operations.
- B. Pre-Installation Meeting: Convene minimum one week prior to commencing Work of this section. Review installation procedures and coordination required with Related Work and include the following:
 - Participants: Authorized representatives of the Contractor, Architect, Installer, and Manufacturer.
 - 2. Review wall assemblies for potential interference and conflicts and coordinate layout and support provisions for interfacing work.
 - 3. Review continuous insulation wall panels installation methods and procedures related to application, including manufacturer's installation guidelines.
 - 4. Review firestopping requirements and weather resistive membrane requirements and placement locations.
 - 5. Review field quality control procedures.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Good construction practice dictates that all insulations should be protected from moisture and direct sunlight during job-site storage. Pallets of Hunter Panels Xci CG are double packaged in a UV resistant polyethylene bag. This moisture resistant package is designed for protection from the elements during flatbed shipment from our factories to the job-site. Outdoor storage for extended periods of time requires waterproof tarpaulins and elevated storage above ground level a minimum of 2". Additionally, we recommend slitting the bundle packaging vertically down the center of the two short sides to prevent moisture accumulation within the package.
- Store products off the ground a minimum of 2.0"and cover with a waterproof tarpaulin to protect from moisture and UV
- A. Store products off the ground, in dry conditions, under cover and in manufacturer's unopened packaging until ready for installation.

1.9 SEQUENCING

- A. Coordinate with the installation of vapor retarders and air seal materials specified is Section 07260 and Section 07270.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.10 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Insulating panels shall be XCI products produced by Hunter Panels, 15 Franklin Street, Portland, Maine 04101. Phone: (207) 761-5678 or (888) 746-1114. Fax: (717) 960-1611. E-mail: info@hpanels.com.
- B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 BOARD INSULATION

- A. Board Insulation with Foil Facer: Hunter Panels XCI Foil complies with ASTM C 1289. Panels are a high thermal resistive rigid insulation panel composed of a closed cell polyisocyanurate foam core bonded to an impermeable foil facer.
 - 1. Type: ASTM C 1289, Type_I-I, Class 1:
 - a. Grade 1 (16 psi).
 - b. Grade 2 (20 psi).
 - c. Grade 3 (25 psi).
 - 2. Panel Size:
 - a. 4 feet by 8 feet (1220 mm by 2440 mm).
 - 3. Thickness / R Value: ASTM C 518 at 75 degrees F (23.9 degrees C).
 - a. 1.0 inches (25 mm) / R Value 6.5
 - b. 1.5 inches (38 mm) / R Value 10.0
 - c. 2.0 inches (51 mm) / R Value 13.3
 - d. 2.5 inches (64 mm) / R Value 17.0
 - e. 3.0 inches (76 mm) / R Value 20.3
 - f. 3.5 inches (89 mm) / R Value 24.0
 - g. Provide to the thickness indicated on the Drawings.

2.3 PANEL FASTENERS

A. Panel fasteners shall be corrosion resistant type as approved Hunter Panel fasteners. Length of fasteners shall be as recommended by the panel manufacturer

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until exterior walls have been properly prepared.
- B. Verify that all exterior wall assembly construction has been completed to the point where the insulation may correctly be installed.
- C. Verify that mechanical and electrical services in walls have been installed and tested and, if appropriate, verify that adjacent materials and finishes are dry and ready to receive insulation.
- D. If wall assembly preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

- B. Install in exterior spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within plane of insulation.
- E. Fasten insulation as recommended by the Hunter Panel Installation Guide. Provide base support for the insulation panels as required for the exterior cladding to be installed over the panels.
- F. Exposed insulation must be protected from open flame and kept dry at all times.
- G. Install vapor retarders over insulation panels as specified in Section 07260.
- H. Install air barriers over insulation panels as specified in Section 07270.
- Exterior wall insulation is not intended to be left exposed for extended periods of time in excess of 45-60 days without adequate protection. If extended exposure is anticipated all exposed foam surfaces including corners, window and door openings, should be taped with a compatible waterproof tape.
- J. Install exterior cladding as recommended by the cladding manufacturer and as specified in other sections of this specification.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Cover the top and edges of unfinished roof panel work to protect it from the weather and to prevent accumulation of water in the cores of the panels.
- C. Do not leave panels exposed to moisture. Wet panels shall be removed or allowed to completely dry prior to application of vapor barrier and/or roof covering.
- D. Repair or replace damaged products before Substantial Completion.

END OF SECTION