

Part 1 General

1.1 SECTION INCLUDES

- .1 Latex modified concrete facing, bonded to rigid polystyrene foam insulation backing, for exterior application to low rise, and perimeter foundation walls, with related flashings and accessory components.
- .2 Above and below grade locations: Suitable air/vapour barriers site specific, as required over structural walls.

1.2 RELATED SECTIONS

- .1 Section 05 12 00: Structural [steel] [concrete] [_____] building frame.
- .2 Section [_____] – Structural Support Framing: Structural wall substrate and its framing assembly.
- .3 Section 07 26 00 - Vapour Retarders.
- .4 Section 07 27 00 - Air Barriers.
- .5 Section 07 62 00 - Sheet Metal Flashing And Trim.
- .6 Section 07 84 00 - Firestopping.
- .7 Section 13 34 23 - Fabricated Structures: Building framing assembly.

1.3 REFERENCES

- .1 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S701, Standard for Thermal Insulations, Polystyrene, Boards and Pipe Covering.
 - .2 CAN/ULC-S102, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A123/A123M, Zinc (Hot Dip Galvanized) Coatings on Iron or Steel Products.
 - .2 ASTM C518, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - .3 ASTM D1621, Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
 - .4 ASTM D2842, Standard Test Method for Water Absorption of Rigid Cellular Plastics.
 - .5 ASTM E96, Standard Test Methods for Water Vapor Transmission of Materials.
 - .6 ASTM D696, Standard Test Method for Determining Coefficient of Linear Thermal Expansion of Plastics between -30C and +30C.
 - .7 ASTM C203, Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.

- .8 ASTM D2126, Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED® Canada For New Construction and Major Renovations 2009 and LEED® Canada for Core and Shell Development 2009 Rating System.
- .4 Canadian Standards Association
 - .1 CSA S478-95 (R2007) – Guideline on Durability in Buildings.
- .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Visit www.tech-crete.com for a current copy of the Material Safety Data Sheet (MSDS)
- .6 Canadian Construction Materials Centre (CCMC) Evaluation Listing, published by the Institute for Research in Construction (IRC) of the National Research Center Canada (NRC/CNRC):
 - .1 Evaluation Listing CCMC 04888-L for STYROFOAM™ Tech-Crete Blanks

1.4 **SYSTEM DESCRIPTION**

- .1 Assembly of components includes purpose supplied, preformed panel mounting clips capable of securing factory bonded concrete faced insulated wall panels to structural supporting wall framing.
- .2 Comply with requirements for continuity of building air barriers, vapour retarders plus wind and suction loads as identified in the National Building Code and applicable local requirements.

1.5 **PERFORMANCE REQUIREMENTS**

- .1 Wall assembly: Design components to withstand flexing and physical distortion due to dead and live loads caused by positive and negative wind pressure acting normal to plane of wall cladding surfaces.
- .2 Maximum Allowable Deflection of Wall Assembly: Determined by supporting structure and imposed weather loads.
- .3 Movement: Accommodate thermal and wind loads within wall assembly without damage to components or deterioration of seals, movement within assembly and between components, when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.
- .4 Maximum Allowable Deflection of Wall Assembly: 1/280 of span.
- .5 Drainage: Provide positive drainage to water and condensate collectors within wall assembly.
- .6 Products: Provide continuity of thermal barrier at building enclosure elements in conjunction with other thermal insulating materials.
- .7 Vapour Retarder: Provide continuity of vapour retarder at building enclosure elements in conjunction with vapour retarders specified in Section 07 26 00.

- .8 Air Seal: Provide continuity of air barrier seal at building enclosure elements in conjunction with air seal materials specified in Section 07 27 00.
- .9 Vapour Retarder: Provide continuity of vapour retarder at building enclosure elements in conjunction with vapour retarders specified in Section 07 26 00.

1.6 ADMINISTRATIVE REQUIREMENTS

- .1 Section 01 31 00: Project management and coordination procedures.
- .2 Coordination
 - .1 Coordinate with other work having a direct bearing on work of this section.
 - .2 Coordinate the Work for installation of vapour retarder and air barrier seals.
 - .3 Coordinate the Work with installation of windows, louvres, and components or materials

1.7 SUBMITTALS FOR REVIEW

- .1 Submission procedures as specified in Section 01 33 00.
- .2 Shop Drawings: Indicate dimensions, layout, construction and expansion joints, construction details, methods of anchorage.
- .3 Samples: Submit two (2) samples of full size wall siding, 200 x 200 mm (8 x 8 inch) in size illustrating manner of fitment devices with adjacent panels, with specified finishes and surface texture.

1.8 SUBMITTALS FOR INFORMATION

- .1 Submission procedures as specified in Section 01 33 00.
- .2 Installation Data: Manufacturer's special installation requirements.

1.9 SUSTAINABILITY

- .1 Minimal Packaging
- .2 Materials and manufacturing within a 800 km (500 mile) radius by truck or 2400 km (1500 mile) radius by rail of the project site. (Confirm locations with manufacturer.)
- .3 Manufacturing process includes a comprehensive recycling program.
- .4 For potential contribution of Tech-Crete Insulated Roof Panels towards the LEED® certification of the building project, review the sustainability information at www.tech-crete.com . For additional information, call Tech-Crete Processors Ltd at 250-832-9705.

1.10 QUALITY ASSURANCE

- .1 Installer Qualifications: Company specializing in performing the work of this section with training and experience.
- .2 Product Identification: Each pallet of insulated roof panels shall be labelled with product name; manufacturers name or trademark; insulation conforming to ULC S701 Type 4; number of panels per pallet; insulation thickness, and thermal resistance per unit of thickness.
- .3 Insulation must conform to CCMC – Evaluation Listing #04888-L, for NBC compliance.

1.11 MOCK-UP

- .1 Requirements for mock-up as specified in Section 01 45 00.
- .2 Provide [_____] m ([_____] feet) long by [_____] m ([_____] feet) wide mock-up, which includes structural supports for siding [and soffit] components, panels, attachments to building frame, associated vapour retarder and air seal materials, weep drainage system, sealants and seals, and related insulation.
- .3 Locate where directed by [Consultant.] [_____].
- .4 Approved mock-up may [not] remain as part of the Work.

1.12 DELIVERY, STORAGE, AND PROTECTION

- .1 Transport, handle, store, and protect delivered products as specified in Section 01 61 00.
- .2 Store concrete faced insulated wall panels under cover, and in original packaging until ready to install. Store opened packages under cover until installed. Schedule installation to minimize open package time
- .3 Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation.
- .4 Prevent contact with materials which may cause electrolysis, discolouration or staining.

1.13 WARRANTY

- .1 Provide warranties as specified in Section 01 78 00: Closeout Procedures.
- .2 Provide manufacturers five (5) year limited warranty to include panel replacement for delamination of concrete facing.

Part 2 Products

2.1 MANUFACTURERS

- .1 Tech-Crete Processors Ltd., CFI®Wall Panel, in modular sections, website: www.tech-crete.com, Telephone: 250-832-9705
- .2 Substitutions: Not permitted.

2.2 WALL PANEL ATTACHMENT

- .1 Galvanized Steel: ASTM A123/A123M-08 - Zinc-Coated (Galvanized), Z275 to G90 coating designation, preformed as supplied by manufacturer, complete with corrosion proof masonry fasteners.

2.3 INSULATION

- .1 STYROFOAM™ Tech-Crete Blanks by DOW Chemical, extruded polystyrene, conforming to code requirements, in accordance with CAN/ULC S701 type 4.
- .2 Thermal resistance: RSI 0.87/25mm to ASTM C518.
- .3 Foam Compressive Strength: 240 kPa (35 PSI) in accordance with ASTM D1621.
- .4 Water Absorption: ASTM D2842: <0.7 % by volume.
- .5 Water Vapour Permeance: 0.8 perms in accordance with ASTM E96.
- .6 Insulation Thickness: [2][3][4] inches ([51][76][102] mm).

2.4 CONCRETE FACED INSULATED WALL PANELS

- .1 Concrete: Latex modified concrete mix, 8 mm (5/16") thick, with control joint score at mid-length.
- .2 Edge Treatment: Tongue and groove along longitudinal foam edges, butt joints on lateral edges.
- .3 Surface Finish: Textured Broom finish; Grey colour, may be coated.

2.5 ACCESSORIES

- .1 Gaskets to Adjacent Substrates: Standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant; colour to match adjacent colour.
- .2 Sealants to Adjacent Substrates: Standard type suitable for use with installation of system; non-staining, non-skinning, non-shrinking and non-sagging; ultraviolet and ozone resistant; colour as selected.
- .3 Clips and Fasteners: Manufacturer's standard type to suit application; as supplied.
- .4 Field Repair and Touch-up: As recommended by panel manufacturer.
- .5 Wall panel coloured coating (if required): Exterior grade, latex based, concrete or masonry paint or stain.
- .6 Building Paper Over Surface of Supporting Wall Structure: [Cellulose fibre] [_____]
building paper, water repellent breather type.

- .7 Perimeter Insulation Flashings 24 gauge minimum: Coordinate supply of end closures and flashings for perimeter insulation system with Section 07 62 00.

2.6 COMPONENTS

- .1 Exterior concrete faced insulated wall panel sizes:
 - .1 Width: 610 mm (24 inches).
 - .2 Length: 1220 mm (48 inches).
 - .3 Thickness: [50] [76] [100] mm ([2] [3] [4] inches)
- .2 Internal and External Corners:
 - .1 Manufacturers installation guidelines provide corner details (see CFI Installation at www.tech-crete.com). Diagrams are also provided in each fastener package.
 - .2 Metal profiles to suit assembly, brake formed to required profiles
 - .3 Trim, Closure Pieces, Caps, Flashings, Facias, Soffits and Infills: Brake formed to required profiles.

2.7 FABRICATION

- .1 Form sections true to shape, accurate in size, square, and free from distortion or defects.
- .2 Form custom pieces in longest practicable lengths.
- .3 Fabricate corners in one continuous piece.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify existing conditions and substrates before starting work as specified in Section 01 71 00.
- .2 Verify that building framing members are ready to receive panel assembly.
- .3 Remove substrate surface irregularities before installing wall panels. Sweep and clear debris clear of surfaces to receive panels.
- .4 Ensure existing [damp proofing] [water proofing] below grade is cured and dry.
- .5 If the lowest substrate surface is not level to receive panels, create a level surface with a galvanized steel ledger angle, and secure level.

3.2 INSTALLATION

- .1 Install [one (1) layer] [two (2) layers] of [building paper] [dampproofing] [air/vapour barrier] horizontally on walls to receive concrete faced insulated wall panels.
- .2 Weather lap barriers, stagger vertical joints of each course. Repair incidental tears.
- .3 Seal securely to achieve air and moisture tightness.
- .4 Ensure snug fit between panel tongue and grooves, and lateral butt joints.
- .5 Fasten concrete faced insulated panels to structural supports; aligned level and plumb.

- .6 Install panels with vertical joints and panel control joints in alignment.
- .7 Use manufacturer's fasteners. Maintain neat appearance.
- .8 Cover exposed insulation at corners and top of perimeter insulation with prefinished flashing as specified in Section 07 62 00.
- .9 Where concrete flatwork or asphalt is to be laid adjacent to CFI Wall Panels, an isolation joint should be provided to protect the CFI mortar surface from differential movement

3.3 CLEANING

- .1 Clean installed work as specified in Section 01 74 11 - Cleaning.
- .2 Remove and collect site cuttings, foam bits and packaging for re-cycling.

END OF SECTION