

Part 1 General

1.1 SUMMARY

- .1 Composite insulated wall panels with latex modified concrete facing bonded to rigid polystyrene rigid foam insulation. For exterior application to low rise, and perimeter foundation walls, with related flashings and accessory components.

1.2 RELATED REQUIREMENTS

- .1 Section 03 30 00 – Cast-in-Place Concrete.
- .2 Section 05 12 00 – Structural Steel Framing.
- .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.

1.3 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A123/A123M-15, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - .2 ASTM C203-05a(2012), Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
 - .3 ASTM C518-15, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - .4 ASTM D696-16, Standard Test Method for Determining Coefficient of Linear Thermal Expansion of Plastics between -30C and +30C with a Vitreous Silica Dilatometer.
 - .5 ASTM D1621-16, Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
 - .6 ASTM D2126-15, Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
 - .7 ASTM D2842-12, Standard Test Method for Water Absorption of Rigid Cellular Plastics.
 - .8 ASTM E96/E96M-16, Standard Test Methods for Water Vapor Transmission of Materials.
- .2 Canadian Construction Materials Centre (CCMC)
 - .1 Evaluation Listing CCMC 04888-L for STYROFOAM™ Tech-Crete Blanks.
- .3 Canada Green Building Council (CaGBC)
 - .1 LEED® Canada for New Construction and Major Renovations – v4.
 - .2 LEED® Canada for Core and Shell Development – v4.

- .4 Canadian Standards Association
 - .1 CSA S478-95 (R2007), Guideline on Durability in Buildings.
- .5 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-10, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
 - .2 CAN/ULC-S701-11, Standard for Thermal Insulations, Polystyrene, Boards and Pipe Covering.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Refer to Section 01 31 00 – Project Managing and Coordination Procedures.
- .2 Coordination:
 - .1 Convene a pre-installation meeting one week prior to the start of work of this Section. Discuss installation methods, include review of special details and flashing.
 - .2 Coordinate the work of this Section with the work of related Sections.
 - .3 Coordinate the work for installation of adjacent vapour retarder and air barrier seals.

1.5 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Action Submittals: Submit when requested by Consultant:
 - .1 Shop Drawings: Indicate dimensions, layout, construction and expansion joints, construction details, corner details, and methods of anchorage.
 - .2 Samples: Submit two (2) samples of full size wall siding, 200 x 200 mm (8 x 8 in.) in size illustrating manner of fitment devices with adjacent panels, with specified finishes and surface texture.
- .3 Information Submittals:
 - .1 Product Data: Manufacturer's current technical data sheets, MSDS sheets, and recommended installation requirements and procedures.
- .4 Sustainable Design Submittals: Submit when requested by Consultant:
 - .1 Sustainable Design Submittals: [For potential contribution of Tech-Crete Insulated Wall Panels towards the LEED® certification, review the sustainability information at www.tech-crete.com.]
- .5 Closeout Submittals:
 - .1 Maintenance Data: Submit manufacturer's maintenance procedures, including precautions and warnings to prevent damage to wall panels.

1.6 QUALITY ASSURANCE

- .1 Installer Qualifications: Installer shall have a minimum of five (5) years experience in performing the work of this Section, and be certified by manufacturer.

.2 Mock-Up:

- .1 Provide [____] m ([____] ft.) long by [____] m ([____] ft.) wide mock-up at location indicated by Consultant. Include structural supports for siding [and soffit] components, panels, attachments to building frame, associated vapour retarder and air barrier materials, weep drainage system, sealants, seals, related insulation, and work of related Sections.
- .2 Location as selected by Consultant.
- .3 Mock-up may be incorporated into finished work upon Consultant's review.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Transport, handle, store, and protect delivered Products in accordance with manufacturer's instructions.
- .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.

1.8 WARRANTY

- .1 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, www.tech-crete.com, 250-832-9705.

2.2 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.

2.3 PERFORMANCE CRITERIA

- .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 Barrier: Provide continuity of air barrier at building enclosure elements in conjunction with air barrier 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.

2.4 MATERIALS AND COMPONENTS

- .1 Concrete Faced Insulated Wall Panels
 - .1 Panel Design:
 - .1 Width: 610 mm (24 in.).
 - .2 Length: 1220 mm (48 in.).
 - .3 Thickness: [50] [76] [100] mm ([2] [3] [4] in.)
 - .4 Edge Treatment: Tongue and groove along longitudinal foam edges, butt joints on lateral edges.
 - .5 Internal and External Corners: Metal profiles to suit assembly, brake formed to required profiles.
 - .6 Trim, Closure Pieces, Caps, Flashings, Facias, Soffits and Infills: Brake formed to required profiles.
 - .2 Concrete Topping:
 - .1 Latex modified concrete mix, 8 mm (5/16 in.) thick, with control joint score at mid-length.
 - .2 Surface Finish: Textured Broom finish.
 - .3 Colour: Grey colour (may be coated). Where coloured coating is required an exterior grade, latex based, concrete or masonry paint or stain may be used.
 - .3 Insulation:
 - .1 Extruded polystyrene to CAN/ULC-S701 Type 4.
 - .2 Thermal resistance: RSI 0.87/25mm, to ASTM C518.
 - .3 Compressive Strength: 240 kPa (35 PSI), to ASTM D1621.
 - .4 Water Absorption: <0.7 % by volume, to ASTM D2842.
 - .5 Water Vapour Permeance: 0.8 perms, to ASTM E96.
 - .6 Insulation Thickness: [51][76][102] mm ([2][3][4] in.).

2.5 ACCESSORIES

- .1 Wall Panel Fasteners: Preformed and supplied by manufacturer. Galvanized Steel to ASTM A123/A123M - Zinc-Coated (Galvanized), Z275 to G90 coating designation, complete with corrosion proof masonry fasteners.
- .2 Gaskets to Adjacent Substrates: Standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant; colour to match adjacent colour.
- .3 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 by Consultant.
- .4 Perimeter Insulation Flashings: 0.607 mm (24 gauge) minimum.

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 REPAIR

- .1 As recommended by panel manufacturer.

3.4 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