

## 1 PART 1 - GENERAL

### 1.1 SECTION INCLUDES

- 1.1.1 Design, labor, products, equipment and services necessary for large format interior/ exterior Sintered Compact Surface (SCS) Façade Panel System work, in accordance with the Contract Documents.

### 1.2 SYSTEM DESCRIPTION

- 1.2.1 Have work of this Section designed by a Professional Engineer registered in State/ Province of location of project.
- 1.2.2 Design, fabricate and erect work to meet the following design requirements.
- 1.2.3 Design system based on rainscreen principle.
- 1.2.4 Structural and Thermal Movements: Accommodate movement of building structure and movement caused by thermal expansion and contraction of system component parts without causing bowing, buckling, cracking, oil canning, failure of joint seals, excessive stress on fasteners or any other detrimental effects.
- 1.2.5 *Dead Loads:* Support self-weight of system components.
- 1.2.6 *Panel Removal:* Design system to allow removal of any individual panel.
- 1.2.7 Design panel joint system in conformance with Ceramitex™ Sintered Compact Surface Panel System, without any components behind the panel system to be visible. Panel joint system to be free of extruded trim returning on the face of the SCS.
- 1.2.8 All outside panel corners to be reinforced, mitred and chaffered where detailed.

*\*Note: 6mm+ is required for outside mitred corners.*

### 1.3 QUALITY ASSURANCE

- 1.3.1 *Installer Qualification:* Trained and approved by the manufacturer, and having the necessary experience, staff, and training to install manufacturer's products. Manufacturer's willingness to sell its products to installers does not in itself confer qualification on installer. Provide letter of certification from manufacturer stating installer is a certified applicator of its products and is familiar with proper procedures and installation requirements required by the manufacturer. Installer shall have proven experience in exterior façade systems for a minimum of ten (10) years and to have completed at least ten (10) major wall facade projects.
- 1.3.2 *Pre-Installation Meeting:* Two weeks prior to commencing work of this Section, arrange for manufacturer's technical representative to visit the site and review preparatory and installation procedures to be followed, conditions under which the work will be done, and inspect the surfaces to receive the work of this Section. Consultant is responsible for scheduling the date and time of the meeting
- 1.3.3 *Manufacturer's Site Inspection:* Have the manufacturer's technical representative inspect the Work at suitable intervals during application and at conclusion of the work of this section, to ensure the work is correctly installed. Submit manufacturer's inspection reports and verification that the work of this Section is correctly installed
- 1.3.4 *Source Limitations:* Obtain each type of product from a single manufacturer.
- 1.3.5 Panel Lines, breaks and angles: Sharp and true.

## 1.4 PERFORMANCE REQUIREMENTS

- 1.4.1 ASTM C-67 Section 8 Freeze – Thaw: 290 psi flat wide tension bond following 100 cycles freeze thaw consisting of 20 hours freezing at -18 degrees (C) and 4 hours thawing in water 24 degrees (C)
- 1.4.2 ASTM C794 Adhesion-in-Peel of Elastomeric Structural Silicone: 28 psi minimum
- 1.4.3 ASTM C1026 – Measuring Resistance to Freeze-Thaw Cycling.
- 1.4.4 ASTM D-2015 Potential Heat of Combustion: 1150 BTU/lb. maximum.
- 1.4.5 ASTM D3330 90 Degree Peel Adhesion: 35 psi minimum.
- 1.4.6 ASTM E-84 Flame Spread: 1, Smoke Development: 0, Fuel Contribution: 0
- 1.4.7 ASTM E-108 (Modified) Fire Evaluation: Resist 30 minutes fire exposure.
- 1.4.8 ASTM E119 Fire Tests of Building Construction and Materials.
- 1.4.9 ASTM E283 - Rate of Air Leakage under Specified Pressure Difference across the Specimen.
- 1.4.10 ASTM E330 - Structural Performance Doors by Uniform Static Air Pressure Difference
- 1.4.11 ASTM E330-14 - Wind Load Resistance – Pass.
- 1.4.12 ASTM E331 - Water Penetration by Static Uniform Static Air Pressure Difference.
- 1.4.13 ASTM E695-2003 (R2009) – Standard Test Method of Measuring Relative Resistance of Wall Construction to Impact Loading.
- 1.4.14 ASTM E1233 - Structural Performance by Cycling Air Pressure Differential.
- 1.4.15 NFPA 285 – Evaluation of Fire Propagation Characteristics of Exterior Non-Load Bearing Wall Assemblies Containing Combustible Components, 2012 Edition.
- 1.4.16 CAN/ULC S134 – Standard Method of Fire Test of Exterior Wall Assemblies.
- 1.4.17 CAN/ULC S102.2 – Standard Method of Test for Surface Burning Characteristics of building Materials and Assemblies.
- 1.4.18 CAN/ULC S114 - Determination of Non-Combustibility.
- 1.4.19 AAMA 508-07 - Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems - Pressure Equalization Behavior & Water Penetration Resistance.
- 1.4.20 ASTM 507-07 Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems - Pressure Equalization Behavior & Systems - Pressure Equalization Behavior & Water Penetration Resistance.
- 1.4.21 BS EN 14019-2004 Curtain walling – Impact resistance – Performance requirements standards specification.
- 1.4.22 LEED ISO 14021:1999

## 1.5 SUBMITTALS

- 1.5.1 Submit samples in accordance with Section [01 33 23].
- 1.5.2 *Samples:* Duplicate samples of the following:
- 1.5.3 [(6"-24")] [150-600] mm long of support framing, trims and corners
- 1.5.4 [(6" or 12")] [150 or 300] mm x [(6" or 12")] [150mm or 300] mm samples of each color selected by Consultant
- 1.5.5 [(6" or 12")] [150 or 300] mm x [(6" or 12")] [150 or 300] mm mounted samples of four equal sized panels showing four-way joint.
- 1.5.6 Identify samples with project number, date and name of contractor.

- 1.5.7 *Shop Drawings*: Bearing seal and signature of the Professional Engineer who is registered in the State/Province of location of project, and who is responsible for the engineering design of work of this Section. Clearly indicate finish, type and thicknesses of system components, size, spacing and location of support framing, sub-girts, connections, types and locations of fastenings. Indicate provisions for structural and thermal movement between panel system and adjacent materials.

### 1.6 MAINTENANCE DATA

- 1.6.1 Provide maintenance data for cleaning and maintenance of panel finishes for incorporation into manual specified in Section [01 78 23 16]  
1.6.2 Submit instructions for repair and removal of panels.

### 1.7 PRODUCT DELIVERY, HANDLING AND STORAGE

- 1.7.1 Store sintered compact surface panels and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination. The sintered compact surface panels can be stored both upright and horizontal. If panels are placed on top of each other, ensure that each panel is clean and that the surface of the panels are resting flat. If panels are stored in their vertical position, rest them on their long side. This side must be protected by means of wooden crating, cardboard or polystyrene.

### 1.8 MOCK-UP

- 1.8.1 Submit mock-up in accordance with Section [01 43 39]  
1.8.2 Erect mock-up of the Ceramitex™ Sintered Compact Surface Panel System approximately [ ] long x [ ] high in location directed by Consultant.  
1.8.3 Mock-up of the Ceramitex™ Sintered Compact Surface Panel System shall include all components of the wall system and if approved by Consultant may be incorporated in to finished work.  
1.8.4 Notify 72 hours before installation of mock-up for inspection by Consultant. Do not proceed with panel system work until mock-up has been approved.

*\*Note: Above section to be deleted if a mock-up is not required.*

### 1.9 COORDINATION

- 1.9.1 Coordinate with installers of wall mounted items, equipment, mechanical, and electrical work so installation will not subvert the integrity of the cladding system.  
1.9.2 Panel penetrations must be pre-approved by manufacturer before on-site work can commence.  
1.9.3 Coordinate interface, transition, lapping, flashings and compatibility of membranes with other trades.

### 1.10 WARRANTY

- 1.10.1 For work in this section, warranty by manufacturer and installer against defects or deficiencies in materials or workmanship shall be for a period of one (1) year from date of substantial completion.
- 1.10.2 For product finish, warranty from [Neolith] against staining, color fades or product deterioration shall be for a period of ten (10) years from date of substantial completion.
- 1.10.3 For standard structural component warranty from [Dow Chemical] for product performance, shall be for a period of ten (10) years, relating to job specific adhesion, compatibility testing and formal cure review from date of substantial completion.

## 2 PART 2 – PRODUCTS

### 2.1 MANUFACTURER

- 2.1.1 *Specified Products:* Work of this Section is based on the Ceramitex™ Sintered Compact Surface Panel System, to meet this system’s function, design, performance, and construction process, complying with requirements set forth in this Section and subject to the consultant’s acceptance.
- 2.1.2 All requests for equivalency to be submitted for review no later than 10 days before tender closing. No alternates will be reviewed post tender.

*For additional information on the Ceramitex Sintered Compact Surface Panel System please contact Ceramitex-A Division of Elemex Inc. at [info@elemex.com](mailto:info@elemex.com), telephone 1(844)435-3639.*

### 2.2 MATERIALS

- 2.2.1 Sintered Compact Surface (SCS) Panel:

[ 1/4” (6 mm+) thick Fibre Mesh Reinforced Sintered Compact Surface (SCS) ]

*\*Note: 6 mm+ Sintered Compact Surface is recommended for application above ground level. To be used in conjunction with Ceramitex Proprietary Framing System.*

*\* Note: 6mm+ is required for outside mitred corners.*

[ 1/2” (12 mm+) thick Fibre Mesh Reinforced Sintered Compact Surface (SCS) ]

*\*Note: The 12 mm+ Sintered Compact Surface is recommended for applications at ground level or where increased impact strength is deemed necessary. To be used in conjunction with Ceramitex Proprietary Framing System.*

*\* For questions or concerns, please contact Ceramitex-A Division of Elemex Inc. at [info@elemex.com](mailto:info@elemex.com), telephone 1(844)435-3639.*

- 2.2.2 Reinforced fiberglass back layer, complete with resin and fiber mat, conforming to manufacturer’s recommendations.

- 2.2.3 Maximum Dimensional Sizes: ~ 59 in. (1500 mm) x ~125 in. (3200 mm),  
~47 in. (1200 mm) x ~141 in. (3600 mm)

- 2.2.4 SCS Color #: Tile #1 [ \_\_\_\_\_ ], Tile #2 [ \_\_\_\_\_ ], Tile #3 [ \_\_\_\_\_ ],

- 2.2.5 Ceramitex™ Sintered Compact Surface Panel System complete with closure trim (no substitution or alternative systems will be allowed).
- 2.2.6 Aluminum Infill; Treatment Alumitex™ FR-Core infill strip;
  - .1 Color: [ To match Extrusions ]
- 2.2.7 *Enviroclip™ by Elemex™*: Load bearing, thermal break clip, manufactured from [Z-275] galvanized steel with a bonded thermal retardant membrane.
- 2.2.8 Compression Gaskets: Continuous extruded EPDM of 80 Durometer, A hardness. Insert Gasket to integrate with Ceramitex™ Pre-engineered framing system.
- 2.2.9 SCS Adhesive:
  - .1 *Dow Corning 983 Structural Silicone*: Project requires a batch specific modified ASTM C794 Adhesion-in-Peel of Elastomeric Joint Sealants Test Report with Dow Corning Adhesion Performance Warrantee Report.
- 2.2.10 *Isolation Coating*: Best grade, quick drying non-staining alkali resistant bituminous paint.
- 2.2.11 Bond breaker tape or gasket.
- 2.2.12 *Trims and Closures*: Inside corners, outside corners, control joints, wall fixtures and termination trims. Stainless steel, Type 304 or mill/ anodized/painted finish aluminum, Alloy 6061-T6.
- 2.2.13 *Supporting Framing*: Adjustable angles, Z-bars and channel subgirts: manufactured from [Z-275] galvanized steel and shall be designed to accommodate expansion and contraction, dynamic movements and design load requirements.
- 2.2.14 *Air/Vapor Barrier*: Use approved material as required by local building code i.e, Blueskin SA by Bakor Inc.
- 2.2.15 Semi-rigid insulation:
  - .1 Mineral wool board insulation conforming to requirements of CAN/CGSB S1.10-92, Mineral Fibre Board Thermal Insulation and ASTM C-612-83, Class 1, Type 1, unfaced, minimum RSI value of 0.70 per 25.4 mm.
  - .2 *Thickness*: [ \_\_\_\_\_ ]
  - .3 *Acceptable material*:
    - .1 [ Roxul Cavity Rock DD ]
- 2.2.16 Concealed Mechanically Fastened Clip System as manufactured by Ceramitex™ Inc.; Conforms to the voluntary AAMA 508 pressure equalized rain screen test. Fastening system must be completed concealed without face capturing the SCS slab. Use Ceramitex™ Proprietary Framing System (3<sup>rd</sup> and 4<sup>th</sup> Generation, known as G3 and G4 respectively) .

## 2.3 FABRICATION

- 2.3.1 Co-ordinate and verify at job site dimensions affecting work of this Section. Ensure suitability of adjacent building components in relation to work of this section.
- 2.3.2 Sintered Compact Surface panels to be fabricated with a multi-axis wet bridge saw to ensure cutting accuracy and smooth edge quality. Fabricate tile panels square to difference of diagonal measurements of not more than <0.2%.

*\*Note: Scoring & cracking the SCS slab using the dry rail tile scorer method, creating, rough edges, will not be accepted.*

*\*Note: Please select one of the following products to best suit project and delete all unused thicknesses. For questions or concerns, please contact Ceramitex-A Division of Elemex Inc. at [info@elemex.com](mailto:info@elemex.com), telephone 1(844)435-3639.*

- 2.3.3 Fabricate exterior corner panels in a continuous mitred and chamfer method where noted on architectural drawings. Use Ceramitex Proprietary Framing System to maintain the panel's design integrity and squareness.
- 2.3.4 Fabricate window sill, jamb and header conditions in a continuous mitred with chamfer details where noted on the architectural drawings. Use Ceramitex Proprietary Framing System.
- 2.3.5 Fabricate the parapet cap with three-sided SCS material with two continuous parallel mitred and chamfered corners, Aluminum Pre-finished 24 Ga. Cap Flashing to locations noted on the architectural drawings. Use Ceramitex Proprietary Framing System.
- 2.3.6 Panels to be factory fabricated in controlled environment.
- 2.3.7 Fabricate work to profiles and sizes as indicated on the architectural drawings, as defined in this section's scope of work, to complete with trims, flashings and filler components as required to interface with work of other Sections. Make provisions for thermal and structural movements.
- 2.3.8 Provide openings and coordinate with the work of other trade installers. Holes to accommodate the work of other sections to be provided in the panel prior to finishing whenever possible. The perimeter of holes greater than 12" x 12" (300mm x 300mm) to be reinforced to details as indicated or to the manufacturer's standard.
- 2.3.9 Fabricate all devices required for erection and adequate anchorage and attachment required to be built into or attached to substrate and framing members for proper support.

## 2.4 METAL FINISHES

- 2.4.1 *Aluminum, Concealed:* Mill finish, AA-M10, as fabricated mechanical finish, no other applied finish unless buffing is required to remove scratches, welding, or grinding produced in fabrication process.
- 2.4.2 *Aluminum, Exposed to View:* AAMA 2605, high performance fluoropolymer, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70% polyvinylidene fluoride resin by weight.

## 3 PART 3 - EXECUTION

### 3.1 EXAMINATION

- 3.1.1 Examine work of other Sections upon which work of this Section depends.
- 3.1.2 Report any unsatisfactory conditions to consultant in writing. Do not start work until unsatisfactory conditions are rectified.

### 3.2 INSTALLATION – GENERAL

- 3.2.1 Install supporting framing required to support work of this section.

- 3.2.2 Install work in accordance with manufacturer's written instructions, plumb with intersecting parts joined together to provide accurately fitted joints with adjoining surfaces in true planes. Attach components in manner not restricting thermal movement.
- 3.2.3 Apply isolation coating to concealed surfaces of dissimilar metals and metals in direct contact with concrete or masonry.

### 3.3 INSTALLATION

- 3.3.1 *Complete Installation:* Provide mounting hardware compatible with the Ceramitex™ Sintered Compact Surface Panel System, manufacturer's standard profiles, joint closures and perimeter trim as required for a complete installation.
- 3.3.2 When thermal break is required and/or desired, attach Enviroclip™ to the given substrate with the appropriate fasteners as per type of the substrate. Confirm spacing and type of fastener with local Engineers to determine the appropriate attachment method.
- 3.3.3 Mechanically fasten sub-girts to Enviroclip™; following manufacturer's installation guidelines.
- 3.3.4 Align Ceramitex™ panels end-to-end to provide accurate fit with adjacent panels. Ensure adjacent panels are parallel and straight at joints.

### 3.4 INSTALLATION TOLERANCES

- 3.4.1 Variation in Line Over Entire Area: For positions shown in plan and continuous lines, do not exceed 1:1000 or 10 mm, whichever is less.
- 3.4.2 Variation in Plumb Over Entire Area: Vertical lines, external corners and other vertical conspicuous lines, do not exceed 1:1000.
- 3.4.3 Variation in Level, Panel to Panel: Horizontal bands, horizontal grooves, and other horizontal conspicuous lines, do not exceed 1:1000.
- 3.4.4 Variation in panel joint width: Do not exceed 1 mm.
- 3.4.5 Variation in plane between adjacent panels (Lipping or Step-in-Face): Do not exceed 1 mm difference between planes of adjacent panels.
- 3.4.6 Jog in Alignment of edge of adjacent panels: Do not exceed 1 mm.

### 3.5 CLEAN-UP

- 3.5.1 Remove protective film from Ceramitex™ panels.
- 3.5.2 Clean exposed panel surfaces in accordance with manufacturer's instructions.
- 3.5.3 Replace damaged panels and components that, in opinion of the Consultant, cannot be satisfactorily repaired.

END OF SECTION