1 PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Design, labour, Products, equipment and services necessary for large format interior/ exterior ceramic tile panel system Work in accordance with the Contract Documents.

1.2 SYSTEM DESCRIPTION

.1 Have work of this Section designed by a Professional Engineer registered in [Province/State] of [Location of Project]
.2 Design, fabricate and erect work to meet the following design requirements.
.3 Design system based on Rainscreen principle.
.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.
.5 Dead Loads: Support self-weight of system components.
.6 Panel Removal: Design system to allow removal of any individual panel.

1.3 QUALITY ASSURANCE

.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 that installer is certified applicator of its products, and is familiar with proper procedures and installation requirements required by the manufacturer. Installer shall have a minimum [ten (10)] years proven experience and must have completed at least [ten (10)] major wall panel projects.

.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.

.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.

.4 Source Limitations: Obtain each type of product from a single manufacturer.

.5 Panel Lines, Breaks and Angles: Sharp and true.
1.4 PERFORMANCE REQUIREMENTS

.1 ASTM E-84 Flame Spread: 1, Smoke Development: 0, Fuel Contribution: 0
.3 ASTM S-134 Multi-Storey Fire Evaluation: Meet Acceptable Criteria
.4 Modified ASTM E-108 Fire Evaluation: Resist 30 minutes fire exposure
.5 NFPA-285 Multi-Storey Fire Evaluation: Meet Acceptable Criteria
.6 ASTM D3330 90 Degree Peel Adhesion: 35 psi minimum.
.7 ASTM C794 Adhesion-in-Peel of Elastomeric Structural Silicone: 28 psi minimum
.8 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 at 24 degrees (C)
.9 Air Infiltration: Test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft2 at a static air pressure differential of 6.24 psf.
.10 Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 10 psf.

1.5 SUBMITTALS

.1 Submit samples in accordance with Section [01 33 23]
.2 Samples: Duplicate samples of the following:
   .1 [150-600] mm [(6-24'')] long of support framing, trims and corners
   .2 [150 or 300] mm x [150 or 300] mm samples of each colour selected by Consultant
   .3 [150 or 300] mm x [150 or 300] mm mounted samples of four equal sized panels showing four-way joint.
   .4 Identify samples with project number, date and name of contractor

.3 Shop Drawings: Bearing seal and signature of the Professional Engineer who is registered in the [Province/State] 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
1.7 PRODUCT DELIVERY, HANDLING AND STORAGE

.1 Store porcelain panels and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination. Porcelain 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, cardboard, polystyrene or rubber cement.

1.8 MOCK-UP

.1 Submit mock-up in accordance with Section [01 43 39]
.2 Erect mock-up panel approximately [_____] long x [_____] high in location directed by Consultant.
.3 Mock-up panel shall include all components of the wall system and if approved by Consultant may be incorporated into finished work.
.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 Coordinate with installers of wall mounted items, equipment, mechanical, and electrical work so that installation will not subvert the integrity of the cladding system.
.2 Panel penetrations must be pre-approved by manufacturer before on-site work can commence.
.3 Coordinate interface, transition, lapping, flashings and compatibility of membranes with other trades.

1.10 WARRANTY

.1 For work in this section, warranty by installer against defects or deficiencies in materials or workmanship shall be for a period of [one (1)] year from date of substantial completion.
.2 For product finish, warranty against staining, color fades or product deterioration shall be for a period of [twenty (20)] years from date of substantial completion.

2 PART 2 - PRODUCTS

2.1 MANUFACTURER

.1 Specified Products: Work of this Section is based on the Ceramitex Rear Ventilated Rainscreen (RVR) System by Ceramitex. Products by other manufacturers must meet...
Ceramitex’s function, design, performance, and construction process, complying with requirements set forth in this Section and subject to the Consultant’s acceptance.

For additional information on the Ceramitex RVR System and questions regarding other manufacturer’s system equivalencies please contact us at info@ceramitex.com or by telephone at 1(855)929-9994

2.2 MATERIALS

.1 Porcelain Ceramic Panel:

.1 3.5mm (5/32”) thick Fibre Mesh Reinforced Sintered Porcelain Ceramic

*Note: 3.5mm Porcelain Ceramic is recommended for application above ground level. Used in conjunction with Ceramitex Pre-Engineered Framing System.

.2 5.5mm (3/16”) thick Fibre Mesh Reinforced Sintered Porcelain Ceramic

*Note: 5.5mm Porcelain Ceramitex is recommended for application at ground level or where increased impact strength is deemed necessary. Used in conjunction with Ceramitex Pre-Engineered Framing System.

*Note: Please select one of the following products to best suit project and delete all unused thicknesses. For questions or concerns, please contact Ceramitex at info@ceramitex.com or by telephone at 1.855.929.9994.

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

.4 Maximum Dimensional Sizes: 1500 mm (~60 in.) x 3000 mm (~120 in.), 1200 mm (~48 in.) x 3600 mm (~144 in.)

.5 Ceramic Colour #: Tile #1[__________], Tile #2[__________], Tile #3[__________],


.1 Ceramitex Pre-engineered Framing System;

.1 Finish: [ anodized / painted ]

.2 Colour Frame # [__________]

.3 Aluminum Infill Treatment

.1 Alcotex FR-Core ACM;

.1 Colour: [ To match Extrusions ]

.4 Aluminium Plate: ASTM B209M, Alloy 6061-T6.

.5 Stainless Steel Sheet and Plate: ASTM A666, Type 304.

.6 Stainless Steel Shapes: ASTM A276, Type 304.

This specification was created by Ceramitex to assist designers. It should be reviewed and modified as required to suit individual project conditions. CA Patent D144,015; US Patent 662,805. Other patents and designs are pending, including CA 2,812,108; CA 2,775,275; US Pat. Publ. No. 2012/0085042; 2012/0186170.
.7 Compression Gaskets: Continuous extruded EPDM of 80 Durometer, A hardness. [Colour of Insert Gasket to match Ceramitex Pre-engineered framing system.]

.8 Porcelain Adhesive:

.9 Isolation Coating: Best grade, quick drying non-staining alkali resistant bituminous paint.

.10 Bond beaker tape or gasket.

.11 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.]

.12 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.

.13 Air/Vapour Barrier: Blueskin SA by Bakor Inc. with Bakor Primer

.14 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 25.4mm

.2 Thickness: [__________]

.3 Acceptable material:
.1 Roxul Inc. Metal Building Plus
.2 Roxul Inc. RXL 40

*Note: Select one of the listed acceptable materials and others if required.

.15 Concealed Fastening Clip System; Conforms to the voluntary AAMA 508 pressure equalized rain screen test. Fastening system must be completed concealed without face capturing the porcelain slab.

2.3 FABRICATION

.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 Cut tiles in a multi-axies wet bridge saw method with smooth edges. Fabricate tile panels square to difference of diagonal measurements of not more than 0.25mm.

Score & crack tiles in a dry rail tile scorer method with rough edges. Fabricate tile panels square to the difference of diagonal measurements of not more than 0.25mm.

*Note: Please selection one of the following fabrication methods to best suit project. For questions or concerns, please contact Ceramitex at info@ceramitex.com or by telephone at 1.855.929.9994.

.2 Panels to be factory fabricated in controlled environment.
.3 Fabricate exterior corner panels in a [chamfer/quirk] mitre continuous and bonded method where noted on architectural drawings. If architectural drawings do not note locations, assume all corners are continuous and bonded.

.4 Fabricate window jamb panels in a [chamfer/quirk] mitre continuous and bonded method where noted on architectural drawings. If architectural drawings do not note locations, assume all window jams are continuous and bonded.

*Note: Delete fabrication sections (.3) and (.4) if mitred corners/jambs are cost prohibitive on project. For questions or concerns, please contact Ceramitex at info@ceramitex.com or by telephone at 1.855.929.9994.

.5 Fabricate work to profiles and sizes indicated complete with rabbets, interlocks, cappings, trim, filler sections as required to interface with work of other Sections. Make provisions for thermal and structural movements.

.6 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 300mm x 300mm (12” x 12”) to be reinforced to details as indicated or to the manufacturer’s standard.

.7 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

.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 Aluminum, Exposed to View: AAMA 2605, high performance fluoropolymer, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer colour coat, and clear fluoropolymer topcoat, with both colour coat and clear topcoat containing not less than 70% polyvinylidene fluoride resin by weight, custom metallic colour.

.3 Stainless Steel, Concealed: Unpolished, 2 B finish.

.4 Stainless Steel, Exposed to View: Factory finish bright satin directional polish finish. Grind and polish surfaces to produce uniform, directionally textured, polished finish, free of cross scratches. Run grain with long dimension of each piece. XL Blend-S by Excelsior.

3 PART 3 - EXECUTION

3.1 EXAMINATION

.1 Examine work of other Sections upon which work of this Section depends.

.2 Report any unsatisfactory conditions to Consultant in writing. Do not start work until unsatisfactory conditions are rectified.

3.2 INSTALLATION – GENERAL

.1 Install supporting framing required to support work of this Section.
.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 Apply heavy coat of isolation coating to concealed surfaces of dissimilar metals and metals in direct contact with concrete or masonry.

3.3 INSTALLATION

.1 Complete Installation: Provide mounting hardware compatible with ceramic panels, manufacturer’s standard profiles, joint closures and perimeter trim as required for a complete installation.

.2 Fasten Z members and girts through to building structure with self-tapping screws at 300 mm centres and to suit design requirements.

.3 Fasten mounting rails to subgirts at spacings to suit design requirements.

.4 Align tile panels end-to-end to provide accurate fit with adjacent panels parallel and straight in hairline joints.

3.4 INSTALLATION TOLERANCES

.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.

.2 Variation in Plumb Over Entire Area: Vertical lines, external corners and other vertical conspicuous lines, do not exceed 1:1000.

.3 Variation in Level, Panel to Panel: Horizontal bands, horizontal grooves, and other horizontal conspicuous lines, do not exceed 1:1000.

.4 Variation in Panel Joint Width: Do not exceed 1 mm.

.5 Variation in Plane Between Adjacent Panels (Lipping or Step-in-Face): Do not exceed 1 mm difference between planes of adjacent panels.

.6 Jog in Alignment of Edge of Adjacent Panels: Do not exceed 1 mm.

3.5 CLEAN-UP

.1 Remove protective film from panels.

.2 Clean exposed panel surfaces in accordance with manufacturer’s instructions.

.3 Replace damaged panels and components that, in opinion of the Consultant, cannot be satisfactorily repaired.