*SPEC NOTE: This Master Specification Section includes MATT™ Concrete SPEC NOTES for information purposes and to assist the editor in making appropriate decisions. MATT™ Concrete SPEC NOTES always immediately precede the text to which it is referring. The Section serves as a guideline only and should be edited with deletions and additions to meet specific project requirements.*

*SPEC NOTE: This Specification Section follows the recommendations of the Construction Specifications Canada, Manual of Practice including MasterFormat, SectionFormat, and PageFormat. Optional text is indicated by square brackets [ ]; delete the optional text including the brackets in the final copy of the Specification. Delete all MATT™ Concrete SPEC NOTES in the final copy of the Specification.*

*SPEC NOTE: This Specification includes materials and installation procedures for MATT™ Concrete Panels, a mineral based, modular concrete panel, handcrafted in Canada. MATT™ Concrete Panels have ultra-thin concrete overlays that mimic a diverse range of concrete architectural styles and can be customized to your specific design needs.*

*SPEC NOTE: MATT™ Concrete Panels are intended for interior use, in both horizontal and vertical applications. It is recommended that if MATT™ Concrete Panels are intended to be installed in areas with water exposure, the panels should be sealed to aid in water resistance. This Specification should be adapted to suit the requirements of individual projects.*

*SPEC NOTE: This Section specifies environmentally responsible material choices. The inclusion of recycled content provides efficient use of natural resources and diverts materials from the waste system.*

*SPEC NOTE: The panel materials which compose MATT Concrete Panels are produced from a minimum of 5% "Pre-Consumer" waste materials, and 100% of the post-industrial waste from the manufacturing of the panel is recycled back into the manufacturing process.*

*SPEC NOTE: MATT Concrete Panels does not contain toxins, VOCs, glass fibers, or crystalline silica, which have been proven harmful when prolonged exposure to these elements were experienced.*

1. GENERAL
	1. general requirements
		1. The General Conditions, the Supplementary Conditions, the Instructions to Bidders and Division 1 General Requirements shall be read in conjunction with and govern this section.
		2. The Specification shall be read as a whole by all parties concerned. Each Section may contain more or less than the complete work of any trade. The Contractor is solely responsible to make clear to the Subcontractors the extent of their work.
	2. summary
		1. Supply and install the following:
			1. Mineral based, modular concrete panel, including joint sealant and adhesive as required for complete and proper installation.

*SPEC NOTE: Edit the following paragraph to reflect related requirements for this Section.*

* 1. RELATED requirements
		1. Section 05 50 00: Metal Fabrications
		2. Section 06 10 00: Rough Carpentry
		3. Section 06 20 23: Interior Finish Carpentry
		4. Section 07 92 00: Joint Sealants
		5. Section 09 29 00: Gypsum Board
		6. Section 09 91 23: Interior Painting
		7. Section 10 30 00: Fireplaces and Stoves
	2. REFERENCE Standards
		1. American Society for Testing and Materials (ASTM):
			1. ASTM E84-19b, Standard Test Method for Surface Burning Characteristics of Building Materials
		2. Canadian Standards Association (CSA):
			1. CSA A23.1-14/A23.2‑14, Concrete Materials and Methods of Concrete Construction
		3. Underwriter Laboratories of Canada (ULC):
			1. CAN/ULC S102-18, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies
	3. ADMINISTRATIve REQUIREMENTS
		1. Coordination: Coordinate site dimensions affecting work of other Sections and provide data, dimensions and components installed by other Sections in sufficient time for installation of products specified in this Section.
			1. Coordinate sizes and locations of framing, blocking, furring, and reinforcements provided by work that is specified in other Sections, ensuring their completeness before starting work of this Section.
		2. Pre-Construction Meeting: Arrange a preconstruction meeting in accordance with
		Section 01 31 19 Project Meetings, attended by [Contractors][Construction Manager], Consultant, and modular concrete panels [Subcontractor][Trade Contractor] to discuss:
			1. Installation requirements;
			2. Special surface effects and finishing;
			3. Coordination of work with adjacent finishes;
			4. Protection of finishes;
			5. Acceptability of substrates and quality of materials being used for the project.
	4. SUBMITTALS
		1. Provide submittals as indicated in Section 01 33 00 Submittal Procedures.
		2. Action Submittals: Provide the following submittals before starting work of this Section:
			1. Product Data: Manufacturer's data sheets on each product to be used, including:
				1. Detailed technical data for materials, fabrication, and installation, including anchors, hardware, fasteners, and accessories.
				2. Storage and handling requirements and recommendations.
				3. Installation instructions.
		3. Samples:
			1. Submit duplicate 150mm x 150mm (6” x 6”) samples of panel showing textured finish and colour on the front, and all four edges of the panel, for Consultant's approval.
			2. Thickness: Matching actual panel thickness specified in this Section.
		4. Verification Samples: For each finish product specified, provide two (2) samples, minimum size 150 mm (6”) square, representing actual product, colour, and textured finish.
		5. Manufacturer's Certificates and Testing:
			1. Hazardous Materials Testing:
				1. Crystalline Silica Bulk Test Results, dated November 9, 2018, preformed by Pinchin Ltd., and consisting of 6 pages.
		6. Closeout Submittals: Provide manufacturer's executed warranty and manufacturer's maintenance instructions that include recommendations for periodic cleaning and maintenance of all components.
			1. Provide specific warning of any maintenance practice or materials that may damage or disfigure the finished Work.
	5. QUALITY ASSURANCE
		1. Manufacturer / Supplier Qualifications:
			1. Having experience in manufacturing modular concrete panels specified for this Project for a minimum of five (5) years, and with a record of successful in service performance.
			2. Have adequate financing, equipment, plant and skilled personnel to detail, fabricate and erect the work of this Section as required by the Specification and Drawings.
		2. Erector Qualifications:
			1. Installers shall be certified by the manufacturer of the modular concrete panels being used on this project.
		3. Testing Agencies:
			1. Modular Concrete Panels: Test for surface burning characteristics of building materials and assemblies, in accordance with CAN/ULC S102-18, and
			ASTM E84-19b.

*SPEC NOTE: Mock-ups establish quality of the work for the materials indicated in this Section. Delete the following paragraph if the scope of work in this Section is minimal and a mock-up is not required.*

* 1. Mock-Up:
		1. Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
		2. Finish areas designated by Consultant.
		3. Do not proceed with remaining work until workmanship, colour, and texture are approved by Consultant.
		4. Refinish mock-up area as required to produce acceptable work.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Delivery: At the time of delivery, visually inspect all materials for damage. Note any damaged to materials on the receiving ticket and immediately report to the shipping company and the material manufacturer.
			1. Remove damaged materials from the site immediately.
		2. Storage:
			1. Store materials as recommended by manufacturer and conforming to applicable safety regulatory agencies. Refer to all applicable data including but not limited to Safe Use Instruction Sheets, Product Data sheets, product labels, and specific instructions for personal protection.
			2. Store materials in original packaging.
			3. Store adhesives and sealants at temperatures of 5 deg C (41 deg F) and above to facilitate handling.
		3. Handling: Material shall be handled in accordance with sound material handling practices and in accordance with manufacturer's written instructions.
	3. SEQUENCING
		1. Ensure that locating templates and other information required for installation of products of this Section are furnished to affected trades in time to prevent interruption of construction progress.
		2. Ensure that products of this Section are supplied to affected trades in time to prevent interruption of construction progress.
	4. site CONDITIONS
		1. Field Measurements:
			1. Verify dimensions for installation by field measurements prior to fabrication and indicate measurements on Shop Drawings.
			2. If field measurements cannot be made without delaying the Work, establish dimensions and fabricate units without field measurements. Coordinate supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.
		2. 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 recommended limits.
		3. Substrate Conditions: Install materials outlined in this Section after completion of work by other Sections is complete; to provide adequate dry, clean, level, and plumb surfaces for installation and adhesion.
	5. WARRANTY
		1. Provide manufacturer's standard one (1) year written limited warranty against breakage, and defects in workmanship and material. Warranties are to be signed by an authorized manufacturer representative.
		2. Defects shall include but not be limited to, cracking, shrinkage, warpage, and fading of specified finishes.
		3. Panels showing such defects indicated above will be replaced and made good, together with all work of other trades damaged during removal of modular concrete panels at no expense to the Owner.
1. PRODUCTS
	1. MANUFACTURER
		1. Basis-of-Design Products: Products named in this Section were used as the basis-of-design for the project; additional manufacturers offering similar products may be incorporated into the work of this Section provided they meet the performance requirements established by the named products and provided they submit requests for substitution in accordance with Section 01 33 00 Submittal Procedures.
		2. Acceptable Materials Manufacturers: Subject to compliance with requirements specified in this Section and as established by the Basis-of-Design Materials, manufacturers offering products that may be incorporated into the Work include; but are not limited to, the following:
			1. MATT™ Concrete: Unit 14-7355 72 Street, Delta, BC V4L 1S3
			Phone: 604-739-8447
			Email: info@mattconcrete.com

*SPEC NOTE: For projects located in Ontario, please keep the following paragraph. Delete the following paragraph for projects located outside of Ontario.*

* + - 1. Distributed in Ontario by Sound Solutions Inc.;
			progers@soundsolutions.ca
			416-740-0303
	1. MATERIALS
		1. Concrete Panels: Mineral based, modular concrete panel, individually handcrafted to suit site requirements, and as follows:
			1. Panel Characteristics:
				1. Flexural Strength (psi): 900 psi.
				2. Gypsum free.
				3. Contains no toxins, chemicals or glass fibers.
				4. Zero VOC’s or Crystalline Silica are present in the panel pre and post application of textured finish or colour.
			2. Panel Size: 914mm (3’) wide x 1524mm (5’) long.
			3. Corners:

*SPEC NOTE: Select one of the following options, and delete items not required on this Project.*

* + - * 1. Butt-end.
				2. Mitered.
			1. Panel Thickness:

*SPEC NOTE: Select one of the following options, and delete items not required on this Project.*

*SPEC NOTE: Manufacturers standard thickness is 6mm (1/4”), but 12mm (1/2”) thick boards are available. 6mm (1/4”) boards offer additional weight reduction and allow ease of handling and cutting.*

* + - * 1. Standard: 6mm (¼”)
				2. 12mm (1/2”)
			1. Panel Weight: 1.25 lbs/sqft.

*SPEC NOTE: Select one of the following options, and delete items not required on this Project. Edit the following to match selections made above.*

* + - * 1. 6mm (¼”) Thick Panel: 20lbs (9kg) +/-
				2. 12mm (½”) Thick Panel: 40lbs (18kg) +/-
			1. Fire Testing:
				1. In accordance with CAN/ULC S102-18:

Flame Spread: 0

Smoke Development: 5

* + - * 1. In accordance with ASTM E84-19b:

Flame Spread: 0

Smoke Development: 0

* + - 1. Basis of Design Materials: MATT Concrete Panels
	1. PANEL FABRICATION
		1. General: Provide factory finished and textured, modular concrete panels, complete with adhesive and trim accessories required for a complete installation.
		2. Form Liners: Units of face design, texture, arrangement, and configuration indicated.
		3. Place ultra-thin concrete face mix to the surface of the engineered backer board, and apply textured finish. Colouring is added during the process, built up in the various layers.
		4. Fabrication Tolerances:
			1. Length: ±6mm (1/4")
			2. Width: ±6mm (1/4")
			3. Depth (overall): ±6mm (1/4")
			4. Warp: ±1.5mm per 305mm (1/16" per 12")
	2. finishing
		1. Textured Finishes:

*SPEC NOTE: Select one of the following options, and delete items not required on this Project.*

* + - 1. Straight Up
			2. Cone Tie
			3. Polished
			4. Boardformed - Wood Grain
			5. Ply Form
		1. Standard Colours:

*SPEC NOTE: Select one of the following two options. Custom colours are not currently available.*

* + - 1. Matt Grey
			2. Matt Black
			3. Matt White
	1. accessories
		1. Fasteners onto Wood Strapping:
			1. Brad Nail; 18 gauge or 23 guage Pin Nailer
				1. 1”, 1 ½” length
		2. Adhesive:
			1. Acceptable Materials:
				1. Fuze-It; Liquid Nails
				2. PL Premium; PL Fast Grab Premium

*SPEC NOTE: Manufacturer recommends the use of a sealer if MATT Concrete Panels are intended to be located in a wet area, such as a backsplash or in a washroom.*

*SPEC NOTE: Manufacturer does not recommend the use of MATT Concrete Panels within a shower. Consult your local technical representative if you have any questions regarding interior applications.*

* + 1. Sealer: Penetrating sealers, as recommended by modular concrete panel manufacturer.
			1. Basis of Design Materials: Aqua Mix [Sealer’s Choice Gold][Enrich and Seal] by Custom Building Products.

*SPEC NOTE: Manufacturer recommends the use of a corner trim if the MATT Concrete Panels have mitred external corners, and the panels are located in high traffic areas.*

* + 1. Corner Trim: Finishing and edge-protection profile for the external edges of modular concrete panels with mitred edges.
			1. Finish: As selected by the Consultant from the manufacturers standard product line.
			2. Basis of Design Material: Schluter®-FINEC.
1. EXECUTION
	1. EXAMINATION
		1. Verification of Conditions:
			1. Examine substrates to receive work and surrounding adjacent surfaces for conditions affecting installation. Coordinate with related sections to ensure proper dimensions are maintained.
			2. Verify site dimensions by accurate field measurements, true and level, so that work will be accurately designed, fabricated and fitted to the structure.
			3. Verify that concrete or masonry structure has attained minimum design compressive strength.
			4. Provide strapping onto concrete or masonry substrates, prior to application of the modular concrete panels.
		2. Notify Contractor in writing of any conditions that are not acceptable.
		3. Proceed with installation after verification and correction of surface conditions acceptable to manufacturer.
	2. PREPARATION
		1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
		2. Perform additional preparation procedures as required by manufacturer's instructions.
	3. INSTALLATION
		1. Install modular concrete panels onto one of the following substrates, in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.
			1. Plywood;
			2. MDF;
			3. Prime painted gypsum board;
			4. Cement board, if around high-heat areas, such as fireplace;
			5. Strapping on concrete or masonry substrate.
		2. Cut panels on site when required, using a new blade with any of the following equipment:
			1. Skill saw;
			2. Table saw;
			3. Track saw;
			4. Chop saw;
			5. Jig saw.

*SPEC NOTE: Select one of the following options, and delete items not required on this Project.*

* + 1. Corners: [Butt-end][Mitred].
			1. For the Butt-end Corners: Apply touch up mix provided by modular concrete panel manufacturer, to exposed edges using a putty knife and light sand method.
			2. Mitred Edges: Mitred to create 90 degree edges.
				1. Apply corner trim to mitred exterior corners in high traffic areas or commercial spaces.
		2. Seams:

*SPEC NOTE: Select one of the following options, and delete items not required on this Project.*

* + - 1. For Installations with No Reveal: Butt seams together tight, allowing for 1/8” gap between panels.
			2. Reveal Applications: Space panes 3mm (1/8”) apart to create a reveal, as indicated on the Drawings.
		1. Apply adhesive to backside of modular concrete panels in a snake pattern, 400mm (8”) O.C.
		2. Starting from the bottom, adhere modular concrete panel to substrate, applying panels on top of each other.
		3. Fasten installed panels with brad nailer to reinforce bond to substrate.

*SPEC NOTE: Select the following paragraph if seams are sealed together, and no reveal is used on this Project.*

* + 1. Apply a bead of adhesive along the edge of the panel to accept next panel and seal the seams. Apply silicone sealant to seam joints, providing a finished installation. Sealant Colour: As selected by the Consultant.
		2. Install the remaining panels, including corner trim where indicated on the Drawings, to complete the installation.
		3. Allow twenty-four (24) hours for adhesive to dry and panels to set.
		4. Apply sealer to panels, using tools as recommended by the sealer manufacturer.
			1. Apply sealer to modular concrete panels, for panels installed in areas that anticipate exposure to water.
	1. REPAIRS
		1. Repair exposed exterior surface to match adjacent modular concrete panels colour and texture, as approved by the Consultant.
		2. Repair damaged modular concrete panels prior to final cleaning and sealing, and as recommended by modular concrete panels manufacturer.
		3. Remove and replace damaged modular concrete panels if results of restoration are unsuccessful and evidence remains of corrective work, at no additional cost to the Owner.
	2. CLEANING
		1. Progress Cleaning: Leave work area clean at the end of each work day, ensuring safe movement of passing pedestrians.
		2. Final Cleaning: At completion of installation, clean all surfaces so they are free of foreign matter using cleaners recommended by modular concrete panel manufacturer. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes.
		3. Waste Management: Coordinate recycling of waste materials and packaging at appropriate facility, diverting waste from landfill. Certified installer shall be responsible for ensuring waste management efforts are practiced.
	3. PROTECTION
		1. Protect installed products until completion of project.
		2. Clean all exposed surfaces of modular concrete panels and touch-up, repair or replace damaged products before Substantial Completion. Do not use abrasive cleaners.

END OF SECTION