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SPEC NOTE: This master specification includes SPEC NOTES to assist designers in their decision-making process. SPEC NOTES precede the text to which they apply. This section should serve as a guideline only and should be edited by a knowledgeable person to meet the requirements of each specific Project.

Text indicated in bold and by square brackets is optional. Make appropriate decisions and delete the optional text as well as the brackets in the final copy of the specification. Delete or hide the SPEC NOTES in the final version of the document.

It is important to note that the manufacturer specified in this Specification does not practice architecture or engineering. Therefore, the design responsibility remains with the Consultant, engineer, or Consultant. We hope the information given here will be of assistance. It is based upon data considered to be true and accurate and is offered solely for the user's consideration, investigation, and verification. Nothing contained herein is representative of a warranty or guarantee for which Etex SA/NV dba EQUITONE can be held legally responsible and does not assume any responsibility for any misinterpretation or assumptions the reader may formulate.

This specification was developed with the assumption that it will be used with an industry standard Contract, as amended by any supplementary conditions. As a result, some words have been capitalized in keeping with standard contractual definitions. Please change the defined terms and capitalization if this Specification to match the contractual definitions.

Part 1 GENERAL

1.1 SECTION INCLUDES

1.1.1 Labour, material, Product, equipment, and services to complete cementitious wall panels specified herein.

SPEC NOTE: Edit the list below to reflect the items affected by this Project. Only include in this Paragraph those sections and documents that directly affect the work of this section. If a reader could reasonably expect to find a product or component specified in this section, but it is specified elsewhere, then list the related section number(s) in the Paragraph below. Do not include Division 00 Documents or Division 01 Sections since it is assumed that technical sections are all related to Division 00 Documents and Division 01 Sections to some degree.

1.1.2 Related Requirements: Specifications throughout all Divisions of the Project shall be read as a whole and may be directly applicable to this Section.

1.1.2.1 Related requirements provided below are for convenience purposes only.

1.1.2.2 Section 04 20 00, Unit Masonry: for masonry support for cementitious wall panel assemblies.

1.1.2.3 Section 05 41 00, Structural Metal Stud Framing: for steel stud support framing for cementitious wall panel assemblies.

1.1.2.4 Section 07 62 00, Sheet Metal Flashing and Trim: for miscellaneous copings, flashings and other sheet metal work not part of work of this Section.

1.1.2.5 Section 07 65 00, Flexible Flashing: for miscellaneous flashing membranes and other through wall flashing work not part of work of this Section.

1.1.2.6 Section 07 92 00, Joint Sealants: for field-applied sealants not otherwise specified in this Section.

1.2 REFERENCES

1.2.1 Reference Standards: Unless otherwise indicated in this Section or the Building Code, the latest published editions of reference standards as of the Project's Bid Closing deadline apply.

SPEC NOTE: Pare down the paragraphs below to only include references that appear in the final version of the Specification.

1.2.1.1 Fenestration and Glazing Industry Alliance (FGIA), previously AAMA:

.1 AAMA 501.1: Standard Test Method for Water Penetration of Windows, Curtain Walls, and Doors Using Dynamic Pressure

1.2.1.2 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

.1 ANSI/ASHRAE 90.1: Energy Standard for Buildings Except Low-Rise Residential Buildings.

1.2.1.3 ASTM International

.1 ASTM C518: Standard Test Method for Steady-Province Thermal Transmission Properties by Means of the Heat Flow Metre Apparatus

.2 ASTM C1363: Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.

.3 ASTM D 2244: Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.

.4 ASTM D 4541: Standard Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers.

.5 ASTM E 783: Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.

.6 ASTM G 115: Standard Practice for operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

1.2.1.4 Cradle to Cradle Product Innovation Institute (C2CPII)

.1 Certificate Program Version 3.1

1.2.1.5 CSA Group

.1 CSA Z5010: Thermal Bridging Calculation Methodology

1.2.1.6 European Committee for Standardization

.1 EN 12467: Fiber Cement Flat Sheets Production Specification and Test Methods

.2 EN 13501: Fire Classification of Construction Products and Building Elements

1.2.1.7 International Organization for Standardization (ISO)

.1 ISO 9001: Quality Management Systems – Requirements

.2 ISO 10211: Thermal Bridges in Building Construction Heat Flows and Surface Temperatures Detailed Calculations.

.3 ISO 14025: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

1.2.1.8 Underwriters Laboratories of Canada

.1 CAN/ULC S102: Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

.2 CAN/ULC S114: Standard method of test for determination of non-combustibility in building materials.

.3 CAN/ULC S134: Standard Method of Fire Test of Exterior Wall Assemblies

1.3 DEFINITIONS

1.3.1 Rainscreen: a rainscreen is defined as an assembly applied to an exterior wall which consists of, at minimum, an outer layer, an inner layer, and a cavity between them sufficient for the passive removal of liquid water and water vapour.

1.3.2 Drained / back-ventilated rainscreen cladding (D/BV): Rainscreen system that deflects and drains off the majority of rain water using the outermost surface of the wall. Joints are intended to withstand the kinetic action of wind-driven rain wind. However, no attempt is made to minimize leakage using pressure equalization or other methods.

1.4 PREINSTALLATION MEETINGS

1.4.1 General Requirements and Procedures for Project Meetings: in accordance with **[Section 01 31 19, Project Meetings]**.

1.4.2 Pre-installation Meetings: Schedule and hold a pre-installation meeting at the Project site at least one week before beginning work on this Section to coordinate activities with related Subcontractors.

1.4.2.1 Ensure attendance of Subcontractor performing work of this Section, as well as representatives from manufacturer and fabricators involved in or affected by installation. Notify Consultant and Owner of scheduled meeting dates in advance.

1.4.2.2 Agenda:

.1 Review progress of related construction activities and preparations for particular activity under consideration.

.2 Make note of required sequencing and coordination with materials and activities that have preceded or will follow.

.3 Review procedures necessary for cementitious wall panels installation, including manufacturer's written instructions.

.4 Verify condition of sub-framing and supports, including alignment and connection to structural elements, and confirm that such framing meets manufacturer's acceptance criteria.

.5 Conduct a review of flashing, penetrations, openings and other special details that may impact cementitious wall panels installation.

.6 Review regulations and requirements pertaining to insurance, certificates, as well as requirements for testing and inspections.

.7 Confirm requirements for temporary protection of cementitious wall panel assemblies during and after installation.

.8 Review and establish procedures for repairing panels that have been damaged during or after installation.

.9 Maintain records of proceedings, including remedial measures and action items. Provide copy of meeting records to each participant.

1.4.2.3 Record significant discussions, agreements, and disagreements, including required corrective measures and actions.

1.4.2.4 Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information not more than 72 hours after meeting.

1.5 COORDINATION

1.5.1 Coordinate cementitious wall panel assemblies' installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, weather-tight, secure, and noncorrosive installation.

1.5.2 Material Compatibility: Before installation, review and confirm compatibility of material types, including insulation, adhesives, and substrates.

1.5.3 Scheduling:

1.5.3.1 Include provisions for preinstallation meetings, mock-ups, reviews, testing, and inspections in construction schedule.

1.5.3.2 Ensure activities are properly timed and coordinated with related sections.

1.5.3.3 Schedule all reviews and inspections to align with relevant milestones to avoid delays.

1.5.3.4 Allow sufficient time for mock-ups to be approved and accepted before proceeding with related work.

1.5.3.5 Ensure that testing activities do not interrupt critical path and are planned in conjunction with material delivery or installation phases.

1.6 ACTION SUBMITTALS

1.6.1 General Requirements and Procedures for Submittals: in accordance with Section **[01 33 00, Submittal Procedures]**.

1.6.2 Product Data: Submit manufacturer's product characteristics, catalogue cuts, installation instructions and other relevant information for each material and product used for cementitious wall panel assemblies work specified in this Section.

1.6.3 Samples:

1.6.3.1 Initial Selection Samples: Submit initial selection samples for Products requiring colour, texture, or design selection. Submit manufacturer's list of finishes or colour swatches for Consultant's selection.

1.6.3.2 Verification Samples: Submit verification samples confirming colour and finish selections for each exposed element in minimum A4 11 11/16" x 8 17/64" (297 mm x 210 mm) size.

1.6.4 Embodied Carbon / Environmental Product Declarations (EPDs):

1.6.4.1 For cementitious panels, submit Type III EPDs conforming to ISO 14025 or other recognized environmental Product declaration framework meeting following criteria:

.1 EPD Scope: must cover Cradle-to-Gate (A1 to A3) as a minimum.

.2 EPD Impact Categories: must report Global Warming Potential (GWP) in form of unit of kgCO2e/declared unit as a minimum.

.3 Product Options: Give preference to Products with compliant documentation when choice is at Contractor's option.

1.6.5 Material Ingredient Disclosure:

1.6.5.1 Submit documentation disclosing chemical inventory of materials to at least 0.01% (100ppm) meeting following criteria:

.1 Standard: Health Product Declaration (HPD) Open Standard, Cradle to Cradle v3 (Bronze level), International Living Future Institute (ILFI) Declare, or other approved material ingredient declaration framework.

.2 Product Options: Give preference to Products with compliant documentation when choice is at Contractor's option.

1.6.6 Shop Drawings: Submit Shop Drawings indicating material layouts, details of construction, connections, and relationship with adjacent construction. As a minimum indicate following:

1.6.6.1 Include plans, elevations, sections and details as applicable.

1.6.6.2 Include installation details, including edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trims, flashings, closures, and accessories.

1.6.6.3 Indicate field-measured dimensions on Shop Drawings.

1.6.7 Delegated Design Submittals:

1.6.7.1 Engineering design completion of cementitious wall panel assemblies work is delegated to Contractor based on structural design criteria indicated in Contract Documents.

SPEC NOTE: Retain the following paragraph below if stamped drawings sets are required for the projects delegated design.

1.6.7.2 Submit Shop Drawings for work of this Section [that bear the stamp of a Professional Engineer registered in the province of **[Ontario] [Insert Province]**.

1.6.7.3 Submit copy of structural calculations that bear the stamp of a Professional Engineer registered in the province of **[Ontario] [Insert Province]**.

SPEC NOTE: Text below is optional. This report is recommended for projects pursuing high performance goals (e.g., LEED certification, Passive House) or projects with complex facade designs where thermal bridging is a significant concern.

1.6.8 Thermal Bridging and Condensation Risk Analysis Report.: Submit analysis report produced by third-party engineering firm demonstrating that enclosure assemblies, including framing components, as proposed, meet thermal performance requirements established by **[Specify Energy Code] [Model National Energy Code of Canada]** and validated through computer modeling and thermal bridging analysis performed in accordance with in accordance with industry-accepted methods.

1.6.8.1 As a minimum, report must include the following:

.1 Each wall's nominal R-value, clear wall U-value and effective R-value.

.2 Rainscreen cladding support spacing (vertical and horizontal).

.3 Maximum allowable wind loads.

.4 Cladding dead loads.

.5 Fastener type.

1.6.8.2 Simulations must be carried out by a qualified simulator, and summary reports must bear the seal of a Professional Engineer licensed to practice in the jurisdiction of the project.

1.7 INFORMATIONAL SUBMITTALS

1.7.1 Test and Evaluation Reports: Submit copies of fire testing (ULC S134, ULC S102, and ULC S114), engineering judgment, or evaluation reports prepared by independent testing agencies acceptable to authorities having jurisdiction attesting to the conformity of cementitious wall panels with fire performance requirements stipulated in this Section.

1.7.2 Contractor's Quality Control Plan: submit quality control plan describing approach to maintaining material and installation quality including the following:

1.7.2.1 Lists of third-party standards, guidelines or reference documents forming part of proposed construction best-practices used to achieve specified performance requirements;

1.7.2.2 Substrate preparation and installation instructions of each material specified in this Section;

1.7.2.3 Treatment of transitions between building enclosure components and their penetrations (including doors, frames, glazing, flashings, louvers and other penetrations);

1.7.2.4 Confirmation of compatibility between building enclosure components;

1.7.2.5 Proposed list of observations and tests forming a part of Contractor's quality assurance and quality control activities;

1.7.2.6 Methods for addressing corrective action plans and addressing deficient or incompatible installation procedures;

1.7.2.7 Format and frequency of reports, records of pre-construction meetings and site modifications; and

1.7.2.8 Proposed construction schedule indicating stages of building enclosure construction and potential dates for Consultant's, and Third-Party Inspection and Testing company's review activities.

1.8 CLOSEOUT SUBMITTALS

1.8.1 General Requirements and Procedures for Closeout Submittals: in accordance with Section **[01 78 00, Closeout Submittals]**.

1.8.2 Warranty Documentation: Submit copy of special warranties specified in this Section.

1.9 QUALITY ASSURANCE

1.9.1 Manufacturer Qualifications:

1.9.1.1 Provide Products for work of this Section by manufacturers having minimum of 20 years' experience in manufacturing Products for projects of similar size and scope.

1.9.1.2 Certifications: manufacturer must be ISO 9001 certified. Submit proof of certification upon request by Consultant.

1.9.1.3 Installer Qualifications: Engage an entity with at least five years' experience installing, erecting, or assembling work similar in material, design, and extent to that shown on Drawings and Schedules, and whose work has resulted in construction with a track record of successful in-service performance.

SPEC NOTE: Include the requirement below on projects where a higher level of workmanship is desired.

1.9.1.4 Certification: Installer must be trained by manufacturer or authorized partner/distributor.

1.9.2 Professional Engineer's Qualifications: Employ a Professional Engineer licensed to practice in **[Insert province of the project]** who has sufficient experience providing engineering services of similar kind, scope, and complexity.

1.9.2.1 Professional Engineer's Responsibility:

.1 production and review of Shop Drawings,

.2 structural and hygrothermal design and certification of cementitious wall panel assemblies, including attachments for building construction, in accordance with applicable codes and regulations.

SPEC NOTE: Some jurisdictions require shop drawings to also be submitted with a professional stamp. In cases where this is not a requirement delete the following option.

.3 Stamping and certifying of each **[Shop Drawing]** and associated calculations.

SPEC NOTE: Retain paragraph below if overall U-value is being specified in this section in lieu of specifying R-values for individual materials in other sections. Refer to code requirements for continuous insulation, which generally limits thermal bridges to fastener and service penetrations.

1.9.1 [Thermal Design Engineer Qualifications: Qualified engineer, design professional, or individual with sufficient experience providing engineering services of similar kind, scope, and complexity].

SPEC NOTE: Whenever project-specific wall assemblies do not exactly match an assembly tested per ULC S134, a third-party engineering judgement may be required. Final determination on the acceptance of an engineering judgement is to be made by the authority having jurisdiction. Retain paragraph below if requirements are being specified in this section in lieu of specifying for individual materials in other sections.

1.9.2 Fire Judgement Engineer Qualifications: Qualified engineer, design professional, or individual with experience in preparing engineering judgements for deviations in ULC S134 tested assemblies **[who is acceptable to the authorities having jurisdiction]**.

SPEC NOTE: Specify the following when the primary requirement of the mock-up is to establish a benchmark for the esthetics of the project. Use VMUs when the intent is to demonstrate the visual aspects of the assembly, such as materials, finishes, and colors. VMUs are usually not subjected to performance tests but may demonstrate installation techniques. Keep the paragraph below when appearance is the primary focus of the mock-up and performance testing is not required. These mockups are GENERAL less costly due to the lack of testing requirements. They are used for architectural review and remain in place to guide construction.

1.9.3 Visual Mock-Ups (VMU): Construct mock-ups to verify selections made under submittals, demonstrate esthetic effects of cementitious wall panel assemblies, and to set quality standards for fabrication and installation.

1.9.3.1 Location: **[In-situ (i.e. first installation)] [separate assembly mockup]**, as directed on site by Consultant.

1.9.3.2 Extent: Build mockup of typical cementitious wall panel assemblies including sheathing, insulation, vapour-permeable **[air barriers] [water-resistive barriers,]** at penetrations, flashings, and transitions; flashings, thermally-broken supports, attachments, cementitious wall panels, and accessories. Ensure cementitious wall panels are pulled from different productions to view variability in colour.

1.9.3.3 Stage each component within the mock-up so that each construction layer can be approved and tested before applying succeeding layers.

1.9.3.4 Include junctures, transitions and interfaces to establish baseline quality for installation and workmanship and to evaluate enclosure-related constructability and performance, with a specific emphasis on required coordination of Subcontractors and sequencing necessary to ensure that performance of cementitious wall panel assemblies including materials, components, systems, and interfaces meet or exceed requirements of Contract Documents.

1.9.3.5 Demonstrate typical wall conditions, transitions, and interfaces with adjacent systems such as windows, doors, and penetrations.

1.9.3.6 Incorporation of Feedback: Integrate lessons learned from observations and testing into the Contractor's quality control plan.

1.9.3.7 Modifications to Mock-Up: Adjust the mock-up as necessary to account for site conditions and compatibility between adjacent materials and assemblies. Provide corrective actions as required to obtain acceptance.

1.9.3.8 Size: Mock-ups must be **[minimum of 10 sq. m (100 sq. ft.)] [as indicated on Drawings]** and extend one full structural bay wide by one full story high plus additional height as required to connect to assemblies below and above.

1.9.3.9 Purpose: To set benchmarks for installation and to judge subsequent work. Maintain mock-ups during construction in undisturbed condition.

1.9.3.10 Approved mock-ups: may become part of the completed work if undisturbed at the time of Substantial Performance of the Work. Repair mock-ups that will remain part of the final construction if they have been damaged or failed testing.

SPEC NOTE: Specify performance mockups (PMUs) when the project requires validation of system performance under environmental conditions. PMUs are important for evaluating the system's air-tightness, water resistance, and other in-service elements. Keep the following when the project's building enclosure performance requires real-world confirmation. PMUs can be significantly more expensive than VMUs as they often involve large-scale laboratory testing or on-site testing under controlled conditions. This cost includes not only construction but also testing, monitoring, and potential rebuilding if failures occur.

1.9.4 Performance Mock-Ups (PMU):

1.9.4.1 Construct mock-ups of cementitious wall panels assembly **[in-situ] [in laboratory]** including junctures, transitions, and interfaces for the purposes of performing in-situ testing.

1.9.4.2 Include full assembly, including **[air barriers] [water-resistive barriers]**, insulation, and support materials.

1.9.4.3 Minimum Mockup Testing Requirements:

1.9.4.4 Air Leakage Testing:

.1 Test **[air barriers] [and] [water-resistive barriers]**

.2 Test Method: Pressurized chamber testing in accordance with ASTM E783.

.3 Acceptance Criteria: Air leakage not to exceed **[0.2 L/s·m² (0.04cfm/ft2)]** at 75 Pa.

1.9.4.5 Water Penetration Testing:

.1 Test cementitious wall panels wall assemblies at transitions with openings and similar components such as louvers.

.2 Test Method: Water-spray test in accordance with AAMA 501.2 at locations determined by the Consultant.

.3 Acceptance Criteria: No leakage observed.

1.9.4.6 **[Air Barriers] [and] [Water-Resistive Barriers]** Adhesion Testing:

.1 Perform pull-off testing on self-adhesive water-resistive barrier in accordance with ASTM D4541.

.2 Acceptance Criteria: Pull-off strength must meet or exceed the manufacturer's published data.

1.9.4.7 Incorporation of Feedback: Integrate lessons learned from observations and testing into the Contractor's quality control plan.

1.9.4.8 Modifications to Mock-Up: Adjust the mock-up as necessary to account for site conditions and compatibility between adjacent materials and assemblies. Provide corrective actions as required to obtain acceptance.

1.9.4.9 Purpose: To set benchmarks for performance and to judge subsequent work. Maintain mock-ups during construction in undisturbed condition.

1.9.4.10 Tested mock-ups: may become part of the completed work if undisturbed at the time of Substantial Performance of the Work. Repair mock-ups that will remain part of the final construction if they have been damaged or failed testing.

1.10 DELIVERY, STORAGE AND HANDLING

1.10.1 Delivery and Acceptance Requirements

1.10.1.1 General Product Requirements: In accordance with Section **[01 61 00, Common Product Requirements]**.

1.10.1.2 Delivery: Deliver panels on stable, flat pallets with packaging that protects surfaces and edges. Ensure panels arrive separated by protective covers and are covered with waterproof material during transport.

1.10.1.3 Packaging: Deliver materials to site in original factory packaging, labelled with the manufacturer’s name and address.

1.10.1.4 Damage Prevention: Prevent contact with other materials to avoid staining, denting, or other damage to cementitious panels.

1.10.1.5 Replace defective or damaged materials with new panels.

1.10.2 Storage and Handling Requirements

1.10.2.1 Transportation: Use forklifts or cranes for moving stacked panels; provide secure transport under a waterproof cover.

1.10.2.2 On-Site Storage: Store panels flat on pallets, stacked no more than five panels high. Protect panels from weather, direct sunlight, and moisture. Use breathable waterproof tarps with cross-ventilation when storing panels outdoors; remove plastic wrappings that may cause condensation on panels.

1.10.2.3 Handling During Installation: Lift panels to avoid scratching. Carry panels upright; protect decorative face at all times.

1.10.2.4 Staging: Panels removed from pallets must be stored flat or upright for short periods (maximum 1 hour). Protect edges and surfaces with spacers when stacking.

1.10.2.5 Protection: Store materials in a dry location, protecting them from damage and deterioration.

1.11 FIELD CONDITIONS

1.11.1 Weather Conditions: Begin installation only when current and anticipated weather conditions allow for proper assembly of cementitious wall panels in accordance with manufacturers' written instructions and warranty requirements.

1.11.2 Field Measurements: Verify actual dimensions of construction contiguous with cementitious wall panel assemblies by field measurements before fabrication. Verified measurements must be documented on Shop Drawings. Coordinate timing of field measurements and fabrication with the construction schedule to prevent delays.

1.12 WARRANTY

1.12.1 Submit for Owner’s review and acceptance, manufacturers’ standard limited warranties as follows:

SPEC NOTE: EQUITONE can offer an extended warranty on some select installations. Contact an EQUITONE representative for additional information.

1.12.1.1 High-density, through-color cementitious panels: Standard limited 20-year material and 10-year finish warranty in accordance with manufacturer’s terms and conditions.

1.12.1.2 Fabricator: Provide fabricator’s warranty executed by authorized company official. The fabricator will warrant the panel and attachment system will be free from defects in materials and workmanship for a period of **[Specify]** year**[s]**.

1.12.1.3 Installer: Provide installer’s warranty to include, but not limited to, defective materials and workmanship, labor, and removal of materials to effect repairs and restore to watertight conditions for a period of **[Specify]** year**[s]**.

Part 2 PRODUCTS

2.1 MANUFACTURERS

2.1.1 Basis-of-Design: Materials specified in this Section are based on following manufacturers to form a complete high-performance building enclosure system:

2.1.1.1 Etex SA/NV EQUITONE; 1731 Fred Lawson Drive, Maryville, TN 37801; Tel: +1 865-268-2705; URL: http://www.equitone.com

2.1.2 Substitution Limitations: **[No substitutions are permitted] [Per section 01 25 13 - Product Substitution Procedures]**

2.2 PERFORMANCE / DESIGN CRITERIA

2.2.1 Engineering Design: For cementitious wall panel assemblies, including attachment to building construction, engage a qualified professional engineer, as defined in **[Section 01 40 00, Quality Requirements]**, to provide engineering design and certification.

SPEC NOTE: Span tables for EQUITONE materials are available to assist in the design and estimation process. Contact an EQUITONE representative for additional information.

2.2.2 Structural Performance: Cementitious wall panel assemblies must be designed to withstand project-specific design loads and their effects within constraints specified in this Section and **[Specify Building Code]** without defects, damage, or failure, including but not limited to the following:

2.2.2.1 Dead Loads: **[As indicated on Drawings]** [**Specify]**

2.2.2.2 Environmental Loads:

.1 Wind Loads: [As indicated on Drawings] [Specify]

.2 Seismic Loads: **[As indicated on Drawings] [Specify]**

.3 Snow Loads: **[As indicated on Drawings]** [**Specify]**

2.2.2.3 Live Loads: **[As indicated on Drawings] [Specify]** including those arising from use and occupancy.

2.2.2.4 Loads from Temperature and Moisture Loads: Including expansion, contraction, deflection, deformation, creep, shrinkage, settlement, and differential movement.

2.2.2.5 Cladding Deflection Limits: L/300

2.2.2.6 Restrictions: cementitious wall panels must not have a limitation on installation height.

2.2.3 Moisture Control and Weathertightness:

2.2.3.1 Building Enclosure Design Principle: Exterior enclosure construction for this Project is based on. “Rainscreen Principle” as defined by RAINA. Face sealed assemblies are not permitted.

2.2.3.2 Continuity: Maintain integrity and continuity of building enclosure’s thermal, air, and vapour control layers always by using appropriate insulation, **[air barriers] [water-resistive barriers]** to tie work of this Section with adjacent construction.

2.2.3.3 System must be a drained, back ventilated system. Incorporate means of draining moisture to exterior. Drainage system must provide clear, paths of drainage of trapped moisture within cementitious panel assemblies to exterior of wall assemblies.

SPEC NOTE: Cementitious panel ventilation requirements vary significantly based on façade height and panel joint treatment. Specifying a minimum air outlet size alone does not guarantee adequate system ventilation due to potential installation tolerances.

2.2.4 Ventilation and Drying

2.2.4.1 Air Space Inlets and Outlets: Provide air inlets and outlets at the top and bottom of building and at wall terminations. Size air outlets above based on vertical distance between lower inlets. For air outlets at top of building or at wall terminations, do not exceed twice the size of air inlets. Air outlets are permitted to be up to 3mm (1/8 in.) less than inlets. Maintain unobstructed vertical airflow near windows, doors, eaves, and building bases.

SPEC NOTE: Edit the following to reflect the continuous height of your facade and whether the panel joints are designed as open or closed. Contact your local EQUITONE representative for additional guidance, especially regarding specifications for closed-joint systems.

.1 Minimum sizes for air inlets and outlets (based on building height):
- .1 0 to 16 ft (0 to 5 m): Minimum air inlets and outlets 3/8 inch (10 mm).
- .2 >16 ft to 33 ft (5 to 10 m): Minimum air inlets and outlets 1/2 inch (13 mm).
- .3 >33 ft to 66 ft (10 to 20 m): Minimum air inlets 3/4 inch (19 mm).
- .4 >66 ft to 99 ft (20 to 30 m): Minimum air inlets 1 inch (25 mm).
- .5 >99 ft to 134 ft (30 to 41m): Minimum air inlets 1 1/4 inches (32 mm).
- .6 >134 to 165 ft (41 to 50m): Minimum air inlets 1 1/2 inches (38 mm).

2.2.4.2 Minimum Air Space: Maintain vertical continuity of airflow behind the cementitious panels from the air inlets to the outlets. Provide a minimum vertical air gap based on the building height to ensure the performance of the rainscreen system.

SPEC NOTE: Edit the following to reflect the continuous height of your facade and whether the panel joints are designed as open or closed. Contact your local EQUITONE representative for additional guidance, especially regarding specifications for closed-joint systems.

.1 Minimum size for air space for an open jointed system (based on building height):
- .1 0 to 44 ft (0 to 13m): Minimum 3/4 inch (19 mm) vertical air space.
- .2 >44 ft to 99 ft (13 to 30m): Minimum 1 inch (25 mm) vertical air space.
- .3 >99 ft to 134 ft (30 to 41m): Minimum 1 1/4 inches (32 mm) vertical air space.
- .4 >134 to 165 ft (41 to 50m): Minimum 1 1/2 inches (38 mm) vertical air space.

2.2.5 Thermal Movements: fabricate and install cementitious wall panel assemblies to prevent buckling, opening up of joints and overstressing of fasteners under the following temperature conditions:

2.2.5.1 Temperature Change: ambient temperature cycling of - 20 deg C (-4 deg F) to 80 deg C (176 deg F).

2.2.5.2 Account for thermal stresses, drilling impacts, or other causes before or during cementitious panel installation. Implement handling and storage methods for cementitious wall panel assemblies to reduce such stresses.

SPEC NOTE: If a requirement of the project, leave the following paragraph.

2.2.1 Thermal Performance: Design cementitious wall panel assemblies to meet the maximum effective U value **[of insert value] [defined in section 01 83 23] [when tested in accordance with ASTM C1363] [as prescriptively defined in the adopted code] [as defined in ASHRAE 90.1] [as follows]**.

2.2.1.1 Account for thermal bridging in accordance with **[CSA Z5010] [ISO 10200]**
2.2.1.2 Provide **[2D] [3D]** thermal modeling

2.2.2 System Fire Propagation Characteristics: Wall assemblies containing cementitious wall panel assemblies must meet requirements of CAN/ULC S134 and other requirements specified by **[Specify Building Code]**.

SPEC NOTE: All EQUITONE air-cured panels are suitable for use on interior and exterior walls, soffits, angled or pitched facades, curved facades, open or closed joint systems (with necessary adjustments for ventilation).

Air-cured panels are naturally cured over approximately 28 days in a controlled environment. This curing process allows for a gradual chemical bonding, reducing internal stress in the panels and resulting in a stable material. Air-cured panels perform especially well in specialized conditions, such as “sky-facing” roof applications and designs incorporating perforations, such as in front of vapour exhaust outlets or screen walls. In addition, they can provide good resistance to graffiti and impacts.

Edit the text below to reflect the types used on your project. Delete if they are not used on your project.

2.3 AIR-CURED HIGH-DENSITY CEMENTITIOUS PANELS (GRADE III), GENERAL

SPEC NOTE: The following characteristics are common to EQUITONE [natura], [natura] PRO, and [pictura] panels.

2.3.1 Panel Physical Characteristics (EN 12467 & ASTM C518):

2.3.1.1 Strength Classification: Class IV.

2.3.1.2 Mean Density (dry): ≥1700 kg/m³ (106 lb/ft³).

2.3.1.3 Mean Bending Strength (dry): ≥16 MPa (2320 psi).

2.3.1.4 Mean Bending Strength (wet): ≥18 MPa (2610 psi).

2.3.1.5 Moisture Content: ≤ 6%.

2.3.1.6 Moisture Movement: ≤ 0.1%.

2.3.1.7 Water Tightness: Pass.

2.3.1.8 Freeze-Thaw Resistance: Pass.

2.3.1.9 Warm Water Resistance: Pass.

2.3.1.10 Thermal Conductivity: ≤ 0.43 W/m·K (0.25 BTU/h·ft·°F).

2.3.2 Panel Fire Performance

2.3.2.1 Flame Spread Index: 0 to CAN/ULC S102.

2.3.2.2 Smoke Development Index: 0 to CAN/ULC S102.

2.3.2.3 Material Combustibility: Non-combustible to CAN/ULC S114.

2.3.2.4 Fire Classification: A2-S1-do to EN 13501

SPEC NOTE: The following characteristics are to be used for EQUITONE [inspires]

2.3.3 Panel Physical Characteristics (EN 12467 & ASTM C518):

2.3.3.1 Strength Classification: Class IV.

2.3.3.2 Mean Density (dry): ≥1700 kg/m³ (106 lb/ft³).

2.3.3.3 Mean Bending Strength (dry): ≥16 MPa (2320 psi).

2.3.3.4 Mean Bending Strength (wet): ≥18 MPa (2610 psi).

2.3.3.5 Moisture Content: ≤ 10%.

2.3.3.6 Moisture Movement: ≤ 0.1%.

2.3.3.7 Water Tightness: Pass.

2.3.3.8 Freeze-Thaw Resistance: Pass.

2.3.3.9 Warm Water Resistance: Pass.

2.3.3.10 Thermal Conductivity: ≤ 0.43 W/m·K (0.25 BTU/h·ft·°F).

2.3.4 Panel Fire Performance

2.3.4.1 Fire Classification: A2-S1-do to EN 13501

SPEC NOTE: The following specifies EQUITONE **[natura]**.

EQUITONE **[natura]** is a high-quality, through-colored fibre cement cladding panel designed for modern building facades. This innovative material offers a unique combination of esthetics and performance, making it a popular choice among architects and designers.

The **[natura]** panels feature a smooth, tactile surface with a semi-transparent double-layer acrylic coating that allows the natural texture of the fibre cement to be visible.

The finish results in a hard, dirt-resistant surface. The panel fibers do not remain visible. Some shade differences and manufacturing traces are inherent to the material.

Delete the following paragraph if you're not using this product on the project.

2.4 AIR-CURED HIGH-DENSITY CEMENTITIOUS PANELS (CLASS IV) – SEMI-TRANSPARENT FINISH

2.4.1 Basis-of-Design Product: **[natura]** by EQUITONE

2.4.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.4.3 Nominal Thickness: **[8 mm (5/16 in.)] [12 mm (1/2 in.)]**.

2.4.4 Panel Sizes: **[2500 mm x 1250 mm (98-7/16 in. x 49-1/4 in.)] [3100 mm x 1250 mm (122-1/16 in. x 49-1/4 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.4.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.4.6 Exposed Finish: Manufacturer's standard semi-transparent, double-layer acrylic finish that allows for panel fibers to remain visible.

2.4.7 Panel Colour:: **[N073 – Charcoal] [N074 – Obsidian] [N154 – Cream White] [N161 – Pale Mist] [N162 – Chalk Grey] [N163 – Soft Grey] [N164 – White] [N211 – Classic Grey] [N250 – Natural Grey] [N251 – Anthracite] [N252 – Ash Grey] [N281 – Nimbus] [N294 – Portland] [N331 – Agate Red] [N359 – Ruby] [N411 – Sea Mist] [N412 – Blue Grey] [N593 – Green Mist] [N594 – Jadeite Green] [N661 – Muted Yellow] [N662 – Summer Haze] [N861 – Tawny Hue] [N891 – Beach Stone] [N891 – Fossil Grey] [N961 – Ecru]**
[N972 – Sepia] [N991 – Autumn Dusk] [To be selected by consultant from manufacturer standard offering]

2.4.8 Concealed Finish: back side to be sealed with transparent coating.

SPEC NOTE: The following specifies EQUITONE **[natura]** PRO.

EQUITONE **[natura]** PRO is an enhanced version of the standard EQUITONE **[natura]** fibre cement cladding panel. EQUITONE **[natura]** PRO features a UV-hardened PU top coat that provides extra protection against staining and environmental factors. This coating also offers graffiti -resistant properties and will have a more matte finish when compared to **[natura]**.

The finish results in a hard, dirt-resistant surface with high abrasion resistance and durable graffiti protection. The panel fibers remain visible, and the finish allows for irregularities, shade differences, and natural characteristics of the material to be visible. Natural variations, shade differences, and manufacturing traces are inherent to the material.

Delete the following paragraph if you're not using this product on the project.

2.5 AIR-CURED HIGH-DENSITY CEMENTITIOUS PANELS (CLASS IV) – PREMIUM SEMI-TRANSPARENT / GRAFITTI RESISTANT FINISH

2.5.1 Basis-of-Design Product: **[natura]** PRO by EQUITONE

2.5.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.5.3 Nominal Thickness: **[8 mm (5/16 in.)]** [12 mm **(1/2 in.)**].

2.5.4 Panel Sizes: **[2500 mm x 1250 mm (98-7/16 in. x 49-1/4 in) [3100 mm x 1250 mm (122-1/16 in. x 49-1/4 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.5.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.5.6 Exposed Finish: Manufacturer's standard semi-transparent, double-layer acrylic finish with a matte UV-hardened polyurethane (PU) topcoat that allows for panel fibers to remain visible.

2.5.7 Panel Colour:: **[NU073 – Charcoal] [NU074 – Obsidian] [NU154 – Cream White] [NU161 – Pale Mist] [NU162 – Chalk Grey] [NU163 – Soft Grey] [NU164 – White] [NU211 – Classic Grey] [NU250 – Natural Grey] [NU251 – Anthracite] [NU252 – Ash Grey] [NU281 – Nimbus] [NU294 – Portland] [NU331 – Agate Red] [NU359 – Ruby] [NU411 – Sea Mist] [NU412 – Blue Grey] [NU593 – Green Mist] [NU594 – Jadeite Green] [NU661 – Muted Yellow] [NU662 – Summer Haze] [NU861 – Tawny Hue] [NU891 – Beach Stone] [NU892 – Fossil Grey] [NU961 – Ecru] [NU972 – Sepia] [NU991 – Autumn Dusk] [To be selected by consultant from manufacturer's standard offering].**

2.5.8 Concealed Finish: back side to be sealed with transparent coating.

SPEC NOTE: The following specifies EQUITONE **[pictura]**.
EQUITONE **[pictura]** is a high-performance through-colored fibre cement board with a double-layer acrylic coating and UV-hardened PU topcoat. The panel's finish is smooth, matte, scratch-resistant and provides graffiti-resistance.

The finish results in a hard, dirt-resistant surface with high abrasion resistance and durable graffiti protection. The panel fibers do not remain visible; Some shade differences and manufacturing traces are inherent to the material.

Delete the following paragraph if you're not using this product on the project.

2.6 AIR-CURED HIGH-DENSITY CEMENTITIOUS PANELS (CLASS IV) – OPAQUE / GRAFITTI RESISTANT FINISH

2.6.1 Basis-of-Design Product: **[pictura]** by EQUITONE

2.6.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.6.3 Nominal Thickness: **[8 mm (5/16 in.)] [12 mm (1/2 in.)]**.

2.6.4 Panel Sizes: **[2500 mm x 1250 mm (98-7/16 in. x 49-1/4 in.)] [3100 mm x 1250 mm (122-1/16 in. x 49-1/4 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.6.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.6.6 Exposed Finish: Manufacturer's standard opaque, double-layer acrylic finish, with a matte UV-hardened polyurethane (PU) topcoat.

2.6.7 Panel Colour: **[PA041 – Matte Black] [PA944 – Espresso] [PG241 – Gunmetal Grey] [PG243 – Moonstone] [PG341 – Volcanic Red] [PG342 – Deep Purple] [PG442 – Sky Blue] [PG443 – Regency Blue] [PG444 – Navy Blue] [PG542 – Olive] [PG544 – Bright Green] [PG545 – Autumn Green] [PG546 – Teal] [PG641 – Powder Yellow] [PG642 – Antique Yellow] [PG742 – Pale Orange] [PG843 – Fawn Grey] [PG844 – Mocha] [PW141 – Porcelain] [PW841 – Parchment] [To be selected by consultant from manufacturer standard offering].**

2.6.8 Concealed Finish: Back side to be sealed with a transparent coating.

SPEC NOTE: The following specifies EQUITONE **[inspires]**.

EQUITONE **[inspires]** is a high-performance, colored facade panel. EQUITONE **[inspires]** features a digitally printed surface and double-layer UV-hardened topcoat, on top of a light grey fibre cement base board, which boasts a matte finish. The printed surface is available in a wide range of designs inspired by nature (i.e. wood, stone, metal) as well as the option to create custom images and designs. The panel's finish is smooth, scratch-resistant and provides graffiti-resistance.

This finish results in a hard, dirt-resistant surface with high abrasion resistance and durable graffiti protection. The panel fibers do not remain visible, some shade differences and manufacturing traces are inherent to the material.

Delete the following paragraph if you're not using this product on the project.

2.7 AIR-CURED HIGH-DENSITY CEMENTITIOUS PANELS (CLASS IV) – OPAQUE / PRINT / GRAFITTI RESISTANT FINISH

2.7.1 Basis-of-Design Product: **[inspires]** by EQUITONE

2.7.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.7.3 Nominal Thickness: **[8 mm (5/16 in.)]**

2.7.4 Panel Sizes: **[2500 mm x 1250 mm (98 in. x 49 in.)] [3100 mm x 1250 mm (122 in. x 49 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.7.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.7.6 Exposed Finish: Manufacturer's standard opaque, digitally printed, finish with a double layer, matte, UV-hardened topcoat

2.7.7 Panel Colour: **[To be selected by consultant from manufacturer standard offering].**

2.7.8 Concealed Finish: Back side to be sealed with a UV coating.

SPEC NOTE: Autoclaved panels are cured in an industrial autoclave under high temperatures and pressure. Both air-cured and autoclaved panels are suitable for ventilated facade applications. Autoclaved panels are particularly well suited for engraving due to the absorption of the water-repellent throughout the material's thickness. These panels provide the most natural textures and colors. Moreover, as they do not rely on an exterior coating, scratches are a lot less noticeable.

2.8 AUTOCLAVED HIGH-DENSITY CEMENTITIOUS PANELS (GRADE IV), GENERAL

The following characteristics are common to all EQUITONE autoclaved high-density panels.

2.8.1 Panel Physical Characteristics (EN 12467 & ASTM C518):

2.8.1.1 Strength Classification: Class IV.

2.8.1.2 Mean Density (dry): ≥1600 kg/m³ (100 lb/ft³)

2.8.1.3 Mean Bending Strength (dry): ≥16 MPa (2320 psi).

2.8.1.4 Mean Bending Strength (wet): ≥18 MPa (2610 psi).

2.8.1.5 Moisture Content: ≤ 6%.

2.8.1.6 Moisture Movement: ≤ 0.08%.

2.8.1.7 Water Tightness: Pass.

2.8.1.8 Freeze-Thaw Resistance: Pass.

2.8.1.9 Warm Water Resistance: Pass.

2.8.1.10 Thermal Conductivity: ≤ 0.43 W/m·K (0.25 BTU/h·ft·°F).

2.8.2 Panel Fire Performance

2.8.2.1 Flame Spread Index: 0 to CAN/ULC S102

2.8.2.2 Smoke Development Index: 5 to CAN/ULC S102.

2.8.2.3 Material Combustibility: Non-combustible to CAN/ULC S114.

2.8.2.4 Fire Classification: A2-S1-do to EN 13501

2.9 AUTOCLAVED HIGH-DENSITY CEMENTITIOUS PANELS (CLASS IV) – SANDED FINISH

SPEC NOTE: The following specifies EQUITONE **[tectiva]**.

EQUITONE **[tectiva]** is a premium fibre cement facade panel with a distinct texture and appearance. It is a through-colored panel that does not require any additional surface coating. The material has a raw, honest look, characterized by its fine sanding lines and occasional white spots. The result is a facade that appears dry, lively, and dynamic, offering architects and designers a versatile and durable solution.

Natural colour variations, shade differences, and manufacturing inclusions are inherent to the material. Panels are considered to be non-directional and are typically fabricated and installed in any orientation, enhancing the façade's natural look. If alignment of the sanding lines is a requirement of the project, please indicate the direction of the grains in the drawings and modify the below exposed finish text. Furthermore, please reach out to an EQUITONE representative to determine if the projects design is capable of such constraint.

Each panel is distinctive due to its production process, and no two panels are identical. Panels are water-repellent due to hydrophobation treatment.

Delete the following paragraph if you're not using this product on the project.

2.9.1 Basis-of-Design Product: **[tectiva]** by EQUITONE

2.9.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.9.3 Nominal Thickness: **[8 mm (5/16 in)]**.

2.9.4 Panel Sizes: **[2500 mm x 1220 mm (98-7/16 in. x 48 in.)] [3050 mm x 1220 mm (120 in. x 48 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.9.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.9.6 Exposed Finish: through-colored core with no additional surface coating; final panel appearance to be natural with visible fine sanding lines in longitudinal direction of the stock sheet. Coated or painted finishes are not acceptable. Panel to be naturally water-repellent due to hydrophobation treatment.

2.9.7 Panel Colour: **[TE00 – Calico] [TE10 – Linen] [TE15 – Argent Grey] [TE20 – Pebble] [TE30 – Sandstorm] [TE40 – Sahara] [TE60 – Hessian] [TE85 – Graphite] [TE90 – Chalk] [To be selected by consultant from manufacturer's standard offering].**

SPEC NOTE: The following specifies EQUITONE **[linea]**.

EQUITONE **[linea]** is a 3D-shaped fibre cement facade panel, made from through-colored material. It features a linear surface texture composed of ribs and grooves, which produce varying light and shadow effects depending on the angle of light.

Natural colour variations, shade differences, and manufacturing inclusions are inherent to the material. Panels are considered non-directional and may be installed in any orientation to enhance the façade's natural look. If a particular alignment of the ribs is a requirement of the project, please indicate the direction of the ribs in the drawings and modify the below exposed finish text. Please contact an EQUITONE representative to determine if the project's design is in alignment with allowable panel sizes.

Each panel is distinctive due to its production process, and no two panels are identical. Panels are water-repellent due to hydrophobation treatment.

Delete if you're not using this product on the project.

2.10 AUTOCLAVED HIGH-DENSITY CEMENTITIOUS PANELS (GRADE IV) – 3D GROOVED FINISH

2.10.1 Basis-of-Design Product: **[linea]** by EQUITONE

2.10.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.10.3 Nominal Thickness: 10 mm (3/8 in)

2.10.4 Panel Sizes: **[2500 mm x 1220 mm (98-7/16 in. x 48 in.)] [3050 mm x 1220 mm (120 in. x 48 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.10.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.10.6 Exposed Finish: Through-colored core with no additional surface coating; the panel to have 12mm wide and 2mm deep grooves and 8,4mm wide ridges on the front face to produce a 3D effect. Coated or painted finishes are not acceptable. Grooves of adjacent panels should be fabricated to align. Panel to be naturally water-repellent due to hydrophobation treatment.

2.10.7 Panel Colour: **[LT00 – Calico] [LT10 – Linen] [LT15 – Argent Grey] [LT20 – Pebble] [LT30 – Sandstorm] [LT40 – Sahara] [LT60 – Hessian] [LT85 – Graphite] [LT90 – Chalk] [To be selected by consultant from manufacturer's standard offering].**

SPEC NOTE: The following specifies EQUITONE **[lunara]**.

EQUITONE **[lunara]** is a fibre cement facade panel designed with a surface that mimics the irregular elevations and depressions reminiscent of the Moon's landscape. The panel is through-colored, with no surface coating, allowing the natural fibre cement material to remain visible. It's rough, unpolished surface has a subtle linen-like texture. The structure of the panel is visually distinctive, creating a natural and expressive look. Each panel varies slightly in colour, texture, and surface due to its unique production process, ensuring that no two panels are identical.

Natural colour variations, shade differences, and manufacturing inclusions are inherent to the material. Panels are considered non-directional and are typically fabricated and installed in any orientation enhancing the façade's natural look.

Each panel is distinctive due to its production process, and no two panels are identical. Panels are water-repellent due to hydrophobation treatment.

Delete if you're not using this product on the project.

2.11 AUTOCLAVED HIGH-DENSITY CEMENTITIOUS PANELS (GRADE IV) – RANDOM TEXTURE FINISH

2.11.1 Basis-of-Design Product: **[lunara]** by EQUITONE

2.11.2 Material Tag: This item is noted as **["CEM-#"]** on Drawings and Schedules.

2.11.3 Nominal Thickness: 10 mm (3/8 in)

2.11.4 Panel Sizes: **[2500 mm x 1220 mm (98-7/16 in. x 48 in.)] [3050 mm x 1220 mm (120 in. x 48 in.)] [As noted on Drawings]**

SPEC NOTE: For exposed fastening onto metal framing specify either the UNI-Rivet or UNI-Metal Screw. For exposed fastening onto wood framing specify UNI-Wood Screw. For concealed fastening specify either UNI-Anchor, TUF-S, or Tergo+.

2.11.5 Panel Fastening Method: **[exposed] [concealed]** using **[UNI-Metal Screw] [UNI-Wood Screw] [UNI-Anchor] [fasteners indicated per drawings and schedules]** or approved alternatives per manufacturer.

2.11.6 Exposed Finish: Through-colored core with no additional surface coating; the panel surface texture to be random and non-repeating, with irregular elevations and depressions, to provide each panel with a unique appearance. Panel to be naturally water-repellent due to hydrophobation treatment.

2.11.7 Panel Colour: **[LA20 – Pebble] [LA60 – Hessian] [To be selected by consultant from manufacturer's standard offering].**

2.12 RAINSCREEN CLADDING SUPPORT SYSTEM

SPEC NOTE: Select vertical rail or double rail framing systems from the options below.

Single Vertical Rail Framing Systems: These systems are suitable for installations on concrete or CMU, structural insulated sheathing, structural plywood, or strapping when used between

stud frames. These systems are useful when the placement of vertical members is not constrained by the building structure. They also generally used for horizontally oriented panel layouts, except running bonds, as well as larger format panels sizes. If a single vertical rail framing system is being used delete secondary rail system section below.

Double Rail Framing Systems: These systems should be specified when installing over typical steel stud or wood stud construction. These systems can take the form of a vertical rail over horizontal framing members or vice versa. Specifying the vertical rail directly behind the fibre cement is the best way to ensure the proper flow of air, however there are limitations in design as identified in the above paragraph When a horizontal rail is directly behind EQUITONE, extra care must be taken into the design of the system to ensure a continuous vertical air cavity exists. Contact an EQUITONE representative for additional guidance. EQUITONE does not recommend the use of purely horizontal framing systems due to the significant reduction in airflow. The lack of continuous air circulation can compromise the performance of the materials. Lack of adequate ventilation can cause elevated cavity temperatures, leading to increased expansion and contraction of the panel material, ultimately raising the risk of material failure. Additionally, moisture trapping, which can result in efflorescence is another potential issue.

Both primary and secondary rail systems should be of similar metals as to not cause galvanic corrosion.

2.12.1 Primary rail system (in contact with backup wall)

2.12.1.1 Basis-of-Design Product: **[Nvelope by SFS] [MFI by Knightwall] [Green Girt by Smart CI] [minimum 18ga galvanized steel] [minimum1.8mm 6063-T5 aluminum] [As indicated on drawings]**

2.12.1.2 Direction: **[vertical] [horizontal] [As indicated in drawings]**

2.12.2 Secondary rail system (in contact with cementitious wall panel)

2.12.2.1 **[minimum 18ga galvanized steel] [minimum1.8mm 6063-T5 aluminum] [As indicated on drawings]**

2.12.2.2 Rail Finish: **[galvanized] [anodized] [powder coated] [Per manufacturer's standard]**.

2.12.2.3 Rail Color: **[Black] [Per manufacturer's standard]**.

2.12.2.4 Direction: **[vertical] [horizontal] [As indicated in drawings]**.

SPEC NOTE: If a thermally broken system is not required, remove the following paragraph.

2.12.3 Thermally Broken Systems:

2.12.3.1 Manufacturer's standard thermally-broken support system for rainscreen cladding consisting of horizontal and vertical framing elements, designed to minimize thermal bridging and securely support cladding assembly.

2.12.3.2 Components: proprietary profiles and brackets suitable for exterior cladding applications. Components must allow for thermal isolation between cladding and building structure.

2.12.3.3 Thermal Isolation: Incorporate thermal break elements into system to reduce heat transfer. Thermal isolators must be compatible with structural components and sized appropriately to meet system performance requirements.

2.12.4 Adjustability: Ensure system allows for adjustable cavity depth to accommodate insulation and align cladding.

2.12.5 Fasteners: Provide mechanical fasteners suitable for substrate encountered. Ensure fasteners are corrosion-resistant and capable of long-term performance in exterior conditions.

2.12.6 Bracing and Reinforcement: Include necessary bracing, furring, and support elements to ensure system stability and accommodate special conditions, such as complex geometries or variations in cladding plane.

2.13 AUXILIARY MATERIALS

SPEC NOTE: The following text is optional. EQUITONE recommends using perforated insect/vermin screens at inlet and outlet openings that are 19 mm (¾") or larger. Modify or remove this section as needed.

2.13.1 Perforated Insect/Vermin Screen: Provide perforated screen with perforation pattern that permits airflow equivalent to the continuous inlet/outlet gap as specified in this Section.

2.13.1.1 Minimum open area: minimum 1025 mm² / ft (4.75 in² open area per linear metre) of open area.

2.13.1.2 Screen thickness: not to exceed 0.79 mm (1/32 in./ 21ga) when installed between the cementitious panel and sub-framing elements.

SPEC NOTE: Remove the paragraph below if designing an open joint rainscreen system and do not wish to use decorative corner profiles. Contact your local EQUITONE representative for additional guidance, especially regarding specifications for closed-joint systems.

2.13.2 **[Aluminum joint closures] [and] [decorative corner profiles]**: Provide products as detailed on Drawings. Maximum thickness of nonstructural finishing profile to be 0.79 mm (1/32 in./ 21ga) between cementitious panel and sub-framing elements.

2.13.3 Galvanic Protection: Provide tapes and other methods as necessary to separate and prevent contact between dissimilar metals.

Part 3 Execution

3.1 EXAMINATION

3.1.1 Verify actual site conditions and location of adjacent materials prior to commencing work. Notify Consultant in writing of any conditions which would be detrimental to the installation. Commencement of work implies acceptance of previously completed work.

3.1.2 Construction tolerances: Prior to installation, verify acceptable construction tolerances for applicable materials, including back-up structure and cementitious wall panels assembly. Confirm compatibility of tolerances between material types to ensure proper alignment and fit during assembly.

3.2 PREPARATION

3.2.1 Install sub framing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and cementitious panel manufacturer's written recommendations.

3.2.2 Ensure step flashings and kick-out flashings are installed before beginning installation of **[air] [and] [water-resistive]** membrane.

3.2.3 Ensure protrusions that may penetrate **[air] [and] [water-resistive]** barrier membrane are removed before beginning installation.

3.3 INSTALLATION, GENERAL

3.3.1 Install work of this Section in strict accordance with manufacturer's written installation instructions and approved Shop Drawings. Supplement manufacturer's installation instructions with additional installation requirements specified in this Section to produce specified work results.

3.3.2 Install components in plumb, level and square. Maintain dimensional tolerances and alignment with surrounding construction.

3.4 WATER-RESISTIVE BARRIER

SPEC NOTE: Refer to the MEMBRANE manufacturer’s current installation guide for detailed information regarding specific details and integration of auxiliary materials.

3.4.1 Install in accordance with manufacturer's instructions and requirements of **[Section 07 25 00] [Section 07 27 00]**

3.5 RAINSCREEN CLADDING SUPPORT SYSTEM

SPEC NOTE: Refer to the thermally broken rainscreen support manufacturer’s current installation guide for detailed information regarding specific details and integration of auxiliary materials.

3.5.1 Install cladding support system according to manufacturer's written instructions approved Shop Drawings. Anchor brackets, rails, and other components of the Work securely in place, with provisions for thermal and structural movement.

3.5.2 Set components plumb, square, and true to line, and with connections securely fastened.

3.5.3 Locate mechanical fasteners in compliance with requirements for spacing, edge distances, and screw penetration.

3.5.4 Touch-up shop-applied protective coatings damaged during handling and installation.

3.6 INSULATION

3.6.1 Install insulation in accordance with insulation manufacturer's written instructions and as shown on Drawings and requirements of **[Section 07 21 00]**.

3.7 HIGH-DENSITY, THROUGH-COLOUR CEMENTITIOUS PANELS

SPEC NOTE: Refer to the cementitious cladding manufacturer's current installation guide for detailed information regarding specific details and integration of auxiliary materials.

3.7.1 Install high-density, through-colour cementitious panels in accordance with manufacturer's written instructions, in orientations, sizes, and locations indicated on approved Shop Drawings.

3.7.2 Use manufacturer-specified tools and accessories where applicable.

3.7.3 Sequence: As far as practical, begin panel installation at top of building and proceed downward, and start installations at inside corners or centre of elevations, and proceed outward.

3.7.4 Securely fasten high-density, through-colour cementitious panels and other components to structure, while allowing for thermal and structural movements. Comply with manufacturer's requirements on placement of fixed and sliding connections.

3.7.5 Install accessories with positive attachment to building, and with weathertight mounting. Coordinate installation with flashings and other components.

3.7.6 Do not obstruct vents, screens, trims, and similar elements where such are required behind panels.

3.7.7 Control Joints: Provide control joints in sub-framing system as required by manufacturer's instructions. Do not fasten panels across sub-framing joints or building control joints.

3.8 FIELD QUALITY CONTROL

3.8.1 Manufacturer's Services:

SPEC NOTE: Use the following Paragraphs only when manufacture's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Consult manufacturer for services required. Delete if field services are not required.

3.8.1.1 Coordinate manufacturer's services with Section **[01 45 00 - Quality Control]**.

3.8.1.2 Have manufacturer review work involved in handling, installation, protection, and cleaning of cementitious wall panel assemblies and components, and submit written reports in acceptable format to verify compliance of Work with Contract conditions.

3.8.1.3 Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.

.1 Report any inconsistencies from manufacturer's recommendations immediately to Consultant.

.2 Schedule site visits to review work at stages listed:

.1 As required by Consultant.

3.9 PROTECTION

3.9.1 Protect cementitious wall panel assemblies from damage, soiling and contaminating substances resulting from construction activities or caused by work of other trades. Protect panels from damage during the removal of spacers and shims. Do not apply adhesives or tapes to finished surfaces of panels.

3.9.2 Where soiling or spills have occurred, remove spills and soiling from adjacent surfaces using cleaning procedures recommended in writing by affected material's manufacturer. Do not use materials or process that can damage finishes, surfaces, or construction.

3.9.3 Promptly replace cementitious wall panel assemblies work damaged during construction that cannot be satisfactorily repaired.

3.10 CLEANING AND WASTE MANAGEMENT

3.10.1 Cleaning: Maintain clean construction area at the end of each day. When activities of this Section are complete, remove materials, tools, equipment and rubbish.

3.10.2 Waste Management and Disposal: sort waste for reuse, recycling, or disposal, as specified. Remove recycling bins and containers from site and dispose of contents at the appropriate waste disposal facilities.

END OF SECTION