

specifier's note: when specifying Engineered architecturals ™ products, specifiers are responsible to determine the applicability of each paragraph within the context of individual projects, and edit them accordingly. Engineered Architecturals ™, LTD does not warrant that each statement in its unedited form is applicable to any and all project conditions.

**1 GENERAL**

1. GENERAL REQUIREMENTS
	1. Comply with the following:
		1. General Conditions of the Contract,
		2. Supplementary Conditions, and
		3. General Requirements of Division 1.
2. SECTION INCLUDES
	1. Provision of all labour, materials, equipment and incidental services necessary to engineer, fabricate supply and install the composite panels including:
		1. composite cladding panels,
		2. support framing system,
		3. necessary accessories, fasteners, and hardware to complete the installation.
	2. Panels specified herein comprise the following applications:
		1. Wall cladding panels.
		2. Soffits.
		3. Fascia.
		4. Column covers.
		5. Entrance Features (Porte Cochere).
3. RELATED SECTIONS
	1. Section 05 12 00; Structural Steel Supports
	2. Section 05 41 00; Cold Formed Metal Framing
	3. Section 06 10 00; Backup Walls
	4. Section 07 21 00; Thermal Insulation
	5. Section 07 27 00; Air Barriers
	6. Section 07 62 00; Metal Flashing & Trim
	7. Section 07 92 00; Sealants
4. REFERENCES
	1. American Society for Testing of Materials
		1. ASTM E84; Standard Method of Test for the Determination of Combustibility of Building Materials.
		2. ASTM D792; Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
		3. E283 Rate of Leakage through Exterior Windows, Curtain Walls and Doors
		4. E330 Structural Performance of Exterior Windows, Curtain Walls and Doors under the influence of Wind Loads
		5. E331 Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Difference
		6. D1781 Climbing Drum Peel Test for Adhesives
		7. E84 Surface Burning Characteristics of Building Materials
		8. D3363 Method for Film Hardness by Pencil Test
		9. D2794 Resistance of Organic Coatings to the Effects of Rapid Deformation(Impact)
		10. D3359 Method for Measuring Adhesion by Tape Test
		11. D2247 Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
		12. B117 Method of Salt Spray (Fog) Testing
		13. D822 Practice for Testing Water Exposure Apparatus (Carbon-Arc Type) for Testing Paint, Varnish, Lacquer and Related Products
		14. D1308 Effect of Household Chemicals on Clear and Pigment Organic Finishes
		15. D1735 Method for Water Fog Testing of Organic Coatings
		16. D1929 Standard Test Method for Determining Ignition Temperatures of Plastics
		17. D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
	2. American Architectural Manufacturers Association
		1. AAMA 2605 - 98: Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels
		2. AAMA 508 - 07: Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems
	3. Canadian Standards Association
		1. CAN/CSA-G164-M92 (R1998); Hot Dip Galvanizing of Irregularly Shaped Articles.
		2. CSA-S136-94; Cold Formed Steel Structural Members.
		3. CSA-W47.1-92(R1998); Certification of Companies for Fusion welding of Steel Structures.
		4. CSA-W55.3-1965 (R1998); Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
		5. CSA-W59-1989 (R1998); Welded Steel Construction (Metal Arc Welding).
	4. Canadian Sheet Steel Building Institute
		1. CSSBI-50M-1987, Lightweight Steel Framing Manual.
	5. Underwriters Laboratories Canada
		1. CAN/ULC S134-92 (R1998); Standard Method of Fire Test of Exterior Wall Assemblies.
	6. International Organization For Standards (ISO)
		1. ISO 9001:2000 Quality Management Systems
5. QUALITY ASSURANCE
	1. Installer Qualifications
		1. Work of this section shall be performed by BC Industry Training Authority (ITC) trade certified journeyman installer for the installation of prefabricated cladding wall panel systems.
	2. Installation
		1. Work shall be performed in strict accordance with manufacturer's printed instructions, and in accordance with all warranty requirements.
	3. Pre-installation Meeting
		1. Convene a pre-installation meeting for the Products specified in this section. Attendees must include, as a minimum, representatives of the following:
			1. Contractor (Site Superintendent & Project Manager),
			2. Installation Subcontractor (Site Foreman & Project Manager),
			3. Product Manufacturer and/or Fabricator (Tech. Representatives),
			4. Related Subcontractors, and
			5. Consultant.
	4. Test Results
		1. Submit to the Consultant, certified test results from an independent testing laboratory confirming that the panel system meets or exceeds the specified performance characteristics, physical properties, and required fire testing.
		2. Fire Testing: Submit certification that the product has been tested and meets the requirements of [ASTM E84] [or CAN/ULC-S114]. Testing must be performed by an independent testing laboratory, [accredited by the Standards Council of Canada].
6. PERFORMANCE REQUIREMENTS
	1. Wind Load:
		1. Design, fabricate and install composite panels to conform to the requirements of local building codes for Wind Load data and as indicated on drawings.
	2. Seismic:
		1. Aluminum composite material wall panels shall withstand the effects of earthquake motions determined according to ASCE/SEI7.
	3. Air Infiltration:
		1. When tested in accordance with ASTM E283, confirm that the air barrier leakage / air infiltration at 1.57 psf is not to exceed 0.12 cmf/ft2
	4. Water Penetration under static pressure:
		1. System shall allow 0.0% water penetration (mist or droplets) to the air/water barrier under static pressure differential when tested according to ASTE E283 at 6.24 PSF (300 Pa)
	5. Water Penetration under dynamic pressure:
		1. System shall allow 0.0% water penetration (mist or droplets) to the air/water barrier under static pressure differential when tested according to AAMA 508-14, Section 5.7, Referencing AAMA 501.1-05 at 6.24 PSF (300 Pa)
	6. [Non-combustibility:]
		1. Construct composite panel system as a non-combustible system in accordance with [ASTM E84] or [ CAN/ULC-S114]
	7. Pressure Equalization:
		1. Construct composite panel system as a non-combustible system in accordance with [ASTM E84][CAN/ULC S-134] system as tested to AAMA 508-17, incorporating an integral drainage plane, to collect and direct moisture to the exterior. Panel Fabricator must provide an official test report from independent testing agency that plots the performance of the panel system (see sample below) [System shall be compartmentalized for pressure equalization.]]

Lag time between cavity and cyclic wind pressure (5 PSF to 25 PSF) shall not exceed 0.08 seconds. The maximum differential between the cavity pressure and the external wind pressure shall not exceed 8%.

Specifier Note: determine leed reQuirements for the project. insert the appropriate clauses associated with the required leed credits.

1. [LEED™ REQUIREMENTS]
	1. [TBD]
2. SUBMITTALS
	1. Product Data: in accordance with Section 01 33 23, submit the following:
		1. Manufacturer's data sheets on each product to be used including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
	2. Shop Drawings: in accordance with Section 01 33 23, submit the following:
		1. Complete shop drawings of panel assembly showing layout, profiles and product components, including anchorage, accessories, finish colours, patterns and textures.
			1. Each shop drawing submitted shall bear the stamp and signature of a qualified Professional Engineer registered in the Place of the Work [who has liability insurance coverage of minimum $5,000,000].
		2. Copies of engineering calculations and/or certified data verifying the capacity of members, connectors, connections, and the ability of assemblies to meet the design requirements, signed and sealed by the panel subcontractor's Engineer.
	3. Samples: in accordance with Section 01 33 23, submit the following:
		1. Two complete sets of colour swatches representing manufacturer's full range of available colours, patterns and materials for each panel finish specified.
	4. Quality Assurance Submittals: Submit the following:
		1. Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
		2. Certificates:
			1. Qualification Certificates: certificates indicating compliance with qualification requirements in Quality Assurance article.
			2. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
			3. Manufacturer's Instructions: Manufacturer's installation instructions.
			4. Manufacturer's Field Reports: Manufacturer's field reports specified herein.
	5. Closeout Submittals: Submit the following:
		1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Section 01 78 00 - Closeout Submittals (Operation and Maintenance Data). Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
	6. Maintenance Materials:

Specifier Note: Specify panel size and number required. keep in mind storage requirements.

* + 1. Provide [\_\_] panels of [\_\_\_ x \_\_\_] [most common size supplied to this Project], for maintenance and replacement purposes, fabricated from same production run as panels installed on the Project. Store where directed by Consultant.
	1. Do not fabricate or install panel assemblies until submittals are reviewed and approved by the Consultant.
1. MOCK-UP

Specifier Note: Specify mock-up size required.

* 1. Construct a [\_\_\_] x [\_\_\_] mock-up of the wall panel assembly on site, where directed by the Consultant. Construct mock-up to include all aspects of panel assembly including panels, support framing, joint treatment, fastening methods, flashing and trim.
	2. Allow minimum [5] working days for review by the Consultant. Correct deficiencies and request subsequent review. Approved mock-up shall serve as the minimum standard of work for the balance of the panel assembly installation.
	3. Approved mock-up may [not] remain as part of the finished Work.
1. DELIVERY, STORAGE AND HANDLING
	1. Deliver Products to site in manufacturer's original crating or packaging, with labels clearly identifying materials and installation locations.
	2. Store materials in accordance with the manufacturer's instruction until ready for installation. Store materials in a covered area, away from water, on a flat, level surface with adequate support to prevent sagging.
	3. Protect materials during handling to prevent damage.
	4. Acclimatization: All components shall be removed from the packaging and stacked flat with spacers between the pieces in their final environment for a minimum 3-4 days prior to installation.
2. PROJECT CONDITIONS
	1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
3. ENVIRONMENTAL CONDITIONS
	1. Maintain material and ambient temperature minimum 10°C during installation and for at least 24 hours after installation.
4. EXTENDED WARRANTY
	1. Provide a standard warranty certificate from the composite panel system manufacturer shall stating that the cladding panels are warranted against defects in material or manufacture including cracking, delamination, warpage greater than 6mm out of plane in any direction, and colour fade for a minimum period of five (5) years from Date of Substantial Performance.

**2 PRODUCTS**

1. ACCEPTABLE SUPPLIERS:
	1. Engineered Architecturals Ltd.

**Tel. 800-737-5811**

Web [www.engineeredarchitecturals.com](http://www.engineeredarchitecturals.com)

Email: info@engineeredarchitecturals.com

1. COMPOSITE WALL PANELS
	1. Aluminum Composite Panels: Subject to compliance with requirements, and as follows:
		1. System:
			1. Engineered Architecturals ™ 500 Series ACM Dry Joint Pressure Equal Rainscreen System – Fabricated by [\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_].
		2. Panel Type:
			1. Mitsubishi Plastics Composites America, Inc ; Alpolic.
		3. Panel Core: 4mm FR

Specifier Note: Select fire performance below based upon selection of standard or fire resistant (FR) panel:

* + 1. Fire Performance: Maximum Flame Spread Index of 5 per ASTM E84 [(Type I, Class A)].
		2. Smoke Development Index: 5.
	1. Finish
		1. Exterior Finish: AAMA2605 - FEVE fluoropolymer
		2. Colours: [\_\_\_\_\_][as selected by Consultant from Alpolics standard 30 year finish warranty range of colours and patterns].
1. Thermally Broken Façade Substructure: [Select Thermal Clip] sub structure system, and as follows :
	* + - 1. Requirements:

Meet non-combustible requirements of the building code.

Meet requirements of ASHRAE 90.1 for project location.

Adjustable to permit façade alignment to meet installation tolerances.

Suitable for rear ventilated rain screen façade design.

Z-girt and sub-girts: Galvalume girts

* + - * 1. Acceptable product:

Thermal Clip

No alternates permitted without approval of Consultant by way of addendum

**3 EXECUTION**

1. MANUFACTURER.S INSTRUCTIONS
	1. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalogue installation instructions and product carton instructions for installation.
2. EXAMINATION
	1. Do not begin installation until substrates have been properly prepared.
	2. If substrate preparation is the responsibility of another installer, notify Consultant of unsatisfactory preparation before proceeding.
	3. Verify compatibility of different surfaces in contact with each other to protect against electro-chemical corrosion.
3. PREPARATION
	1. Walls should be flat and plumb to within the tolerances set for those materials and systems.
	2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. Protect metal surfaces in contact with concrete, masonry mortar, plaster or other cementitious surface with isolation coating.
4. INSTALLATION
	1. Install wall panels’ plumb and level and accurately spaced in accordance with manufacturer's recommendations and approved submittals.
	2. Fasten wall panels to supporting substrate with fasteners [and adhesive] approved for use with adjoining construction.
	3. Accessory Items: Install corner profiles, gaskets and trim with fasteners and adhesive appropriate for use with adjoining construction as indicated on drawings and as recommended by manufacturer.
5. FIELD QUALITY REQUIREMENTS

Specifier Note: Establish number of periodic site visits from manufacturer and specify below. Consult with manufacturer for services required. Coordinate with Division 1 Quality control Section and Part 1 - Quality Assurance Submittals herein. Delete if manufacturer's field service not required.

* 1. Manufacturer's Field Services: Provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
	2. Site Visits: manufacturer's representative shall visit the site at the following milestones:
		1. Pre-construction meeting.
		2. Commencement of sub-frame system installation.
		3. Commencement of cladding panel installation.
		4. Completion of each type of panel installation.
		5. Contractor's final inspection prior to Substantial Performance.
1. CLEANING
	1. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner acceptance. Remove construction debris from project site and recycle and/or legally dispose of debris.
2. PROTECTION
	1. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION