Metal

Faced Honeycomb Panel

240408 - V1

CLADIFY Spec Note: This master specification is written to include SPEC NOTES noted as "CLADIFY Spec Note" in order 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.

This specification section is written to follow the recommendations of the Construction Specifications Institute/Construction Specifications Canada (CSI/CSC) such as MasterFormat™, SectionFormat™, and PageFormat™. It is also written with metric and imperial units of measurement.

CLADIFY manufactures and sells building envelope materials. CLADIFY does not practice architecture or engineering. Therefore, the design responsibility remains with the architect, engineer, or consultant. We hope the information given here will of some 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 CLADIFY can be held legally responsible. CLADIFY does not assume any responsibility for any misinterpretation or assumptions the reader may formulate.

This Specification specifies the following CLADIFY Faced honeycomb composite panel systems.

PART 1 - GENERAL

1.1 SUMMARY

1. Provide labour, materials, products, equipment and services to complete the faced honeycomb composite panels work specified herein. This includes, but is not necessarily limited, to:
    1. Faced honeycomb composite, **metal** panel assemblies
    2. Auxiliary materials required for a complete installation.

1.2 RELATED REQUIREMENTS

1. Specifications throughout all Divisions of the Project shall be read as a whole, and may be directly applicable to this Section.

2. Related requirements provided below are for convenience purposes only.

CLADIFY Spec Note: Limit section listings to only those sections containing specific information that would directly affect the work of this section. Do not include Division 01 sections in this listing

1. Section 05 41 00, Structural Metal Stud Framing: for secondary support framing supporting metal wall panels.

2. Section 07 21 00, Insulation: for provision of thermal insulation.

3. Section 07 27 00, Air Barriers: for provision of air barrier assemblies.

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.

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

1.3 REFERENCES

1. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

2. All reference amendments adopted prior to the Bid Closing date of this Project shall be applicable to this Project.

3. All materials, installation and workmanship shall comply with all applicable requirements and standards.

CLADIFY Spec Note: Verify list of reference standards below and edit to suit standards listed in the Section after edits have been performed.

4. ASTM International

    1. ASTM B117-16: Standard Practice for Operating Salt Spray (Fog) Apparatus

    2. ASTM B221M: Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric)

    3. ASTM C97 / C97M-15: Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone

    4. ASTM C170 / C170M-17: Standard Test Method for Compressive Strength of Dimension Stone

    5. ASTM C271/C271M-16: Standard Test Method for Density of Sandwich Core Materials

    6. ASTM C273/C273M-18: Standard Test Method for Shear Properties of Sandwich Core Materials

    7. ASTM C297/C297M-16: Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions

    8. ASTM C364/C364M-16: Standard Test Method for Edgewise Compressive Strength of Sandwich Constructions

9. ASTM C365: Standard Test Method for Flatwise Compressive Properties of Sandwich Cores

10. ASTM C393/C393M-16: Standard Test Method for Core Shear Properties of Sandwich Constructions by Beam Flexure

11. ASTM C480/C480M-16: Standard Test Method for Flexure Creep of Sandwich Constructions

12. ASTM C481-99 (Reapproved 2016): Standard Test Method for Laboratory Aging of Sandwich Constructions

13. ASTM C568/C568M: Standard Specification for Limestone Dimension Stone

14. ASTM C615/C615M: Standard Specification for Granite Dimension Stone

15. ASTM C666/C666M-15: Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

16. ASTM C754: Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products

17. ASTM C880/C880M-15: Standard Test Method for Flexural Strength of Dimension Stone

18. ASTM C897: Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters

19. ASTM C920: Standard Specification for Elastomeric Joint Sealants

20. ASTM C1527/C1527M: Standard Specification for Travertine Dimension Stone

21. ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood

22. ASTM D7766/D7766M-16: Standard Practice for Damage Resistance Testing of Sandwich Constructions

23. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials

24. ASTM E283/E283M-04 (2012): Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

25. ASTM E330/E330M-02: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

26. ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

27. ASTM E1886-13a: Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials

28. ASTM E1996: Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

29. ASTM G154: Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

5. 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-134: Standard Method of Fire Test of Exterior Wall Assemblies

6. International Organization for Standardization (ISO)

    1. ISO 10545-8: Ceramic tiles — Part 8: Determination of linear thermal expansion

1.4 ADMINISTRATIVE REQUIREMENTS

1. Preinstallation Meeting: Conduct Meeting at Project site.

CLADIFY Spec Note: Retain subparagraphs below if additional requirements are necessary; revise to include more specific information about Meeting.

    1. Meet with Owner, Consultant, Subcontractor, manufacturer's representative, structural-support Subcontractor, and Subcontractors whose work interfaces with or affects faced honeycomb composite panels, including installers of doors, windows, and louvers. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.

    2. Review flashings, special panels details, wall penetrations, openings, and condition of other construction that affect faced honeycomb composite panels.

    3. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.

    4. Review temporary protection requirements for faced honeycomb composite panels during and after installation.

    5. Review procedures for repair of panels damaged after installation.

    6. Document proceedings, including corrective measures and actions required, and Supply copy of record to each participant.

    7. Agenda: review progress of other construction activities and preparations for the particular activity under consideration.

    8. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

2. Scheduling: Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

3. Sequencing: Sequence work to permit installation of materials in conjunction with related materials and seals.

1.5 SUBMITTALS

1. Product Data: Submit in accordance with Division 01 for the following:
    1. Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
    2. Submit WHMIS Safety Data Sheets (SDS) in accordance with requirements of Division 01.
    3. Submit material manufacturer's Product Data, instructions for temperature and other limitations of installation conditions, technical data supplied by the manufacturer.

2. [Sustainable Design Submittals:

1. **Comply with project requirements intended to achieve sustainable design, measured and documented according to the LEED Green Building Rating System of the Canadian Green Building Council. Provide submittals as required by Consultant.]**

3. Shop Drawings: Submit in accordance with Division 01 for faced honeycomb composite panel assemblies' work. Include plans, elevations, sections, full-size details, anchorage, locations of accessory items and attachments to other work. Include fabrication and installation layouts of faced honeycomb composite panel assemblies; details of edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trim, flashings, closures, and accessories; and special details.
    3. Accessories: Include details of the flashing, trim and anchorage. Indicate field measurements on Shop Drawings.

4. Initial Selection Samples: Submit in accordance with Division 01 for each type of faced metal cladding panel component requiring finish selection.
    1. Include representative Samples of available finishes.

5. Verification Samples: Upon initial selection of samples, submit verification samples in accordance with Division 01 for each type of faced cladding panel showing each component and with the required finishes as follows:
    1. Submit 300 mm (12 inches) square sample of each type of faced metal cladding panels illustrating typical exterior panel assembly.

6. Professional Engineer's Stamped Shop Drawings and Submittals: Submit engineered and stamped shop drawings for faced honeycomb composite panels, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation in accordance with Division 01.

7. Warranties: Submit sample of extended warranties specified in this Section for Consultant's review.

8. Quality Assurance Submittals: submit the following in accordance with Division 01.
    1. Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, and cleaning procedures.

1.6 CLOSEOUT SUBMITTALS

1. Maintenance Data: Submit operation and maintenance data for each type of faced honeycomb composite panel assembly to include in maintenance manuals.

1.7 QUALITY ASSURANCE

CLADIFY Spec Note: CLADIFY installation must be performed by a trained and authorized CLADIFY installer. Contact info@Cladify.com for the authorized CLADIFY installer near you.

1. Subcontractor Qualifications: Installation must be performed by an installer who has been trained or otherwise authorized by manufacturer.

2. Manufacturer Qualifications: Provide Products from a manufacturer with minimum 10 years of experience and capable of providing glazed faced honeycomb composite panel assemblies that meet or exceed performance requirements indicated.

3. Mock-ups: Build mock-ups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

    1. Build mockup of typical faced honeycomb composite panel assembly including corner, supports, attachments, and accessories.

    2. Subject to compliance with requirements, reviewed mock-ups may become part of the completed Work if undisturbed at time of Substantial Performance of the Work.

4. Source Limitations for panels: Obtain primary components of faced honeycomb composite panel assemblies, from single manufacturer. Obtain secondary components and accessories from sources acceptable to manufacturer of primary materials.

1.8 DELIVERY, STORAGE AND HANDLING

1. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Inspect components for damage upon delivery.

2. Storage: Store products in a secure enclosed area protected from the elements, in manufacturer’s packaging until ready for installation.

3. Handling: Handle materials with care and avoid dents, scratches or damage to products. Remove labels, stickers or protection after installation.

1.9 PROJECT CONDITIONS

1. Field Measurements: Verify actual panel locations by field measurements performed by the installer prior to commencement of fabrication. Ensure recorded measurements provided by the installer are indicated on Shop Drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

2. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of faced honeycomb composite panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

1. Coordinate faced honeycomb composite panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

1. Extended Warranty: Provide manufacturer's standard warranty which covers Products specified in this Section that fail in materials or workmanship within specified warranty period.

CLADIFY Spec Note: Edit paragraph below to reflect warranty required for the project.

1. Warranty Period - Materials:

    1. Panel performance: 25 years from date of Substantial Performance of the Work.
    2. Delamination: lifetime of Products.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

1. Materials specified in this Section are based on "Cladify Cladding Systems" as supplied by Cladify Inc.;41 Racine Road, Toronto, ON M9W 2Z4; T: (416) 874-7473 ; E: info@cladify.com; web: www.cladify.com

CLADIFY Spec Note: Retain one of the two options below to either permit or preclude other manufacturers from bidding on the Work of this Section.

2. **[Substitution Limitations: No further substitutions are acceptable.]**

3. **[Substitution Limitations: Conforming to requirements of Section 01 25 00, Substitution Procedures and as follows:**

    1. **Consultant will consider requests for substitution if received [10] days before Bid Closing Deadline. Requests received after that time will be rejected. Consultant will consider requests for substitution when following conditions are satisfied:**

        1. **Requests for substitution include a list of at least five similar projects of equivalent size where products have been installed for a minimum of five years.**
        2. **Requested substitution does not require extensive revisions to the Contract Documents.**
        3. **Requested substitution is consistent with the Contract Documents and will produce indicated results.**
        4. **Requested substitution will not adversely affect construction schedule.**
        5. **Requested substitution provides specified warranty.]**

2.2 REGULATORY REQUIREMENTS

CLADIFY Spec Note: Specify the regulation(s) that is (are) applicable to the Project.

1. Comply with applicable provisions in the **[Ontario Building Code,]** and requirements of authorities having jurisdiction.

2.3 DESIGN AND PERFORMANCE REQUIREMENTS

CLADIFY Spec Note: Specify the regulation(s) that is (are) applicable to the Project.

1. Professional Engineer's Design and Certification: Employ the services of a Professional Engineer licensed to practice in the Province of **[Ontario]** carrying professional liability insurance, and who is experienced in providing engineering services of similar kind, scope and complexity; to design and certify aluminum composite material wall panel assemblies.

2. Provide panels with following physical characteristics:

    1. Salt Spray Resistance: No deleterious effects after 1000 Hours of exposure in accordance with ASTM B117

    2. Specific Gravity: 0.992 at 23 deg C (73 deg F) when tested in accordance with ASTM C97/C97M (based on limestone testing)

    3. Water Absorption: Not more than 0.4% when tested in accordance with ASTM C97/C97M (based on limestone testing)

    4. Density of Sandwich Core: Not less than 327 kg/m3 (20.42 lb/ft3) for 305 mm x 305 mm x 15 mm (12 inch x 12 inch x 0.6 inch) when tested in accordance with ASTM C271/C271M.

    5. Laboratory Aging of Sandwich Construction:

        1. Based on Procedure A per ASTM C481 for six repetitions of following load cycle:
            1. Immerse in water at 50 deg C (122 deg F) for 1 hour
            2. Spray with steam at 95 deg C (203 deg F) for 3 hours
            3. Store at -12 deg C (10 deg F) for 20 hours
            4. Heat at 100 deg C (212 deg F) for 3 hours
            5. Spray with steam at 95 deg C (203 deg F) for 3 hours
            6. Heat in dry air at 100 deg C (212 deg F) for 18 hours

        2. Results: ASTM C273; ASTM C297; ASTM C364; ASTM C393 tests were reconducted after aging; variation as follows: +1.1 %, -5.60%; +2.05%; -7.05% (Positive variation indicates no decrease in strength after aging)

    6. Linear Thermal Expansion: 12.53×10^{-6} per deg C when tested from room temperature to 100 deg C in accordance with ISO 10545-8.

    7. Fluorescent Ultraviolet Radiation Exposure: No visible change to facing or adhesive after 2000 hours of UV exposure when tested in accordance with ASTM G154.

    8. Rapid Freeze-Thaw Cycling Resistance: No visible change to facing or adhesive after 200 cycles of rapid freeze and thaw ranging from 4 deg C (39 deg F) to -18 deg C (-0.4 deg F) when tested in accordance with ASTM C666/C666M

    9. Uniform Static Pressure/Deflection under loading: Provide faced honeycomb composite panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E330:

        1. Maximum permanent deflection of 0.10 mm at 5.76 kPa (positive) and -5.006 kPa (negative) based on static pressure and uniform static deflection testing.
        2. Deflection Limits: Limit deflection under design wind loads to no greater than L/180 of the span.

3. Ensure stress on panel skin does not exceed manufacturer's recommended maximum value to avoid permanent deformation.

10. Compressive Strength: Not less than1.57 MPa (228 psi) when tested in accordance with ASTM C170/C170M (based on limestone testing)

11. Shear Stress and Shear Modulus: Ultimate Core strength of not less than 1.01 MPa (147 psi) and core shear modulus of not less than 10.9 MPa (1,583 psi) based on testing per ASTM C273/C273M (Compressive force applied until rupture)

12. Flatwise Tensile Bond Strength: Not less than 1.52 MPa (220 psi) when tested in accordance with ASTM C297/C297M based on load applied to the top and bottom layers of the panel.

13. Edgewise Compressive Strength: Not less than 37.85 MPa (5490 psi) when tested in accordance with ASTM C364/C364M based on compressive load applied at a rate 0.508 mm / min (0.02 in/min)

14. Flatwise Tensile Bond Strength: Not less than 1.92 MPa (278 psi) when tested in accordance with ASTM C365 based on compressive load applied at a rate 2 mm / min (0.079 in/min)

15. Shear Strength by Beam Flexure: Not less than the following based on testing in accordance with ASTM C393/C393M (loaded in flexure with stone facing side in tension at a cross head speed of 0.635 mm / min (0.025 in/min.):

    1. Maximum Core Shear Strength of not less than 0.94 MPa (137 psi)
    2. Facing Bending Stress of not less than 8.14 MPa (1180 psi)

16. Flexure Creep: Net creep of 0.74 mm per day (0.029 inch per day) based on testing in accordance with ASTM C480/C480M (based on midspan loading with stone-facing side in tension at a cross head speed of 0.635 mm / min (0.025 in/min.)

17. Flexural Strength (composite panel): not less than 18.13 MPa (2630 psi) based on testing per ASTM C880/C880M.

18. Tensile Properties of adhesive bond: No Failure of adhesive bond based on testing per ASTM C897

19. Screw withdrawal test: Not less than 2.124 kN (477.5 lbs-f) when tested at a rate of 2.5 mm/min (0.098 in / min) in accordance with ASTM D1761

20. Damage resistance testing of sandwich constructions: No panel deformation in accordance with ASTM D7766/D7766M based on loading applied at midpoint of panel using 13 mm (1/2 inch) diameter hemispherical steel indenter at a rate of 0.254 mm / min (0.01 in/min) until a drop-in load was observed.

21. Cyclic Pressure Loading: Pass per ASTM E1886. Not less than 3,500 positive and negative pressure cycles applied at a pressure of ± 2880 Pa (60 psf)

22. Air Infiltration: Air leakage (infiltration and exfiltration) of not more than 0.01 L/s per sq. m (0.002 cfm/sq. ft.) when tested according to ASTM E283 at test-pressure difference of 75 Pa (1.57 lbs/sq.ft)

23. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E331 at 720 Pa (15 lbf/sq. ft)

24. Windborne-Debris Impact Resistance: Passes ASTM E1886 missile-impact and cyclic-pressure tests in accordance with ASTM E1996 in accordance with the following:

    1. Large-Missile Test: Pass; a weighted 2×4 projectile fired at the panel at 15.24 m/s (50 ft/s).

25. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

3. Fire Performance:

    1. System Fire Propagation Characteristics: pass per CAN/ULC-S134;

    2. Non-combustibility: pass per CAN/ULC S114;

    3. Panel Fire Performance:

CLADIFY Spec Note: Generally, first paragraph below is recognized in Canada. Paragraph in square brackets generally applies to Projects outside of Canada.

    1. Flame spread less than 25 and smoke developed less than 40, in accordance with CAN/ULC S102.
    2. **[Flame spread less than 25 and smoke developed less than 0, in accordance with ASTM E84]**

4. Rain Screen Principle:

    1. Design exterior envelope cladding systems based on Rain Screen Principle advocated by NRCC and Provide for drainage of water entering building envelope wall systems.

    2. Design for compartments at corners to achieve appropriate pressure equalization in exterior cladding system.

    3. Provide gaskets, baffles, overlaps, seals where required to achieve appropriate pressure equalization in exterior envelope cavity wall design. Maintain integrity of continuous air/vapour barrier system with adjacent surrounding air/vapour barrier.

    4. Incorporate means of draining moisture to exterior. Design drainage system to provide clear, internal paths of drainage of any trapped moisture within construction to exterior. Ensure weep water discharges in a manner that avoids staining of architectural finishes, collecting in puddles or formation of icicles.

2.4 MATERIALS

1. Aluminum alloy and temper for type and use, and with strength and durability properties for each application, and in accordance with following standards:

    1. Plate and Sheet: ASTM B 209, Alloy 6061-T6.

    2. Extruded Bars and Shapes: ASTM B 221, alloy 6063-T6.

CLADIFY Spec Note: Edit square brackets below to reflect project conditions. Cladify can generally customize all aspects of its panels. If in doubt, contact Cladify at info@cladify.com

2.5 COMPOSITE PANEL

1. Provide minimum 13 mm (1/2 inch) thick honeycomb-backed composite panel consisting of honeycomb core and aluminum facing as follows:

    1. Honeycomb core: Not less than 12 mm (1/2 inch), aerospace-grade lightweight aluminum honeycomb core with **[3000] [4000] [6000]** series aluminum with following characteristics:

        1. Typical Cell Size: 10 mm (3/8 inch)
        2. Density: Manufacturer's standard as required for application.
        3. Foil: 0.6 mm (0.024 inch)
        4. Core Type: [Type A – Fire-resistant core with adhesive] [Type B - Non-combustible welded core].
        5. Top and bottom sheet: Not less than 0.8 mm thick.
        6. Adhesive system: Manufacturer’s recommended epoxy resin adhesive system with following performance characteristics specified in this Section.

    2. Aluminum Facing Thickness: Not less than 1 mm (3/64 inch)

    3. Finish: High-Performance Organic fluoropolymer thermocured system with fluoropolymer coats containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with **[AAMA 2604] [AAMA 2605]**.

        1. System: **[Two] [Three] [Four]** coat.
        2. Color and Gloss: **[As selected from manufacturer's full range] [Insert colour and gloss]**.

2.6 SUBFRAMING

1. Provide manufacturer's standard interlocking sections manufactured from ASTM B221, extruded aluminum alloy 6063 T3 and as required for support and alignment of faced honeycomb composite panel system.

    1. Minimum wall thickness of sections: 2.4 mm (0.094 inch)

    2. Air space: Not less than 25 mm (1 inch)

    3. Basis-of-Design: “CL Interlocking Channel/CL Anchor plate system” by Cladify.

2. **[Thermally-Broken Sub-framing: Provide low-conductivity thermally-broken, intermittent structural attachment insulation clips designed maintain insulation effectiveness, with adjustable depth and suitable for vertical and horizontal sub-girts.]**

2.7 PANEL ACCESSORIES

1. Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of panels unless otherwise indicated.

2. Panel Fasteners: Manufacturer's recommended fasteners and screws designed to withstand design loads. Where exposed fasteners are unavoidable, Provide with heads matching colour of panels.

3. Sealants: ASTM C920; elastomeric silicone sealant of type, grade, class, and use classifications required to seal joints, and as recommended in writing by panel manufacturer.

2.8 FABRICATION

1. Provide factory-formed and -assembled, honeycomb wall panels fabricated from lightweight (aircraft quality) aluminum honeycomb bonded having epoxy impregnated aluminum panel skins. Provide panels formed into profile for installation method indicated. Include attachment assembly components, panel stiffeners, and accessories required for weathertight system.

2. Fabricate and finish faced honeycomb composite panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

3. Fabrication Tolerances:

    1. Nominal Thickness:

        1. More than 13 mm (1/2 inch) up to and including 50 mm (2 inches): ± 3 mm (1/8 inch)
        2. More than 50 mm (2 inches) up to and including 125 mm (5 inches): ± 6 mm (1/4 inch)
        3. More than 125 mm (5 inches): ± 13 mm (1/2 inch)

    2. Flatness: deviation from flatness of surface must not exceed 0.2" % of panel length, but never more than 6 mm (1/4 inch).

    3. Length and Width for sawn edges 50 mm (2 inches) or less:

        1. Less than 610 mm (24 inches): ± 1.5 mm (1/16 inch)
        2. More than or equal to 610 mm (24 inches): ± 3 mm (1/8 inch)
        3. Maximum angle tolerance: ± 0.2%

    4. Holes (porosities) in panel: Not more than 1.5 mm (1/16 inch)

2.9 FINISHES

1. Carry out surface finishing uniformly to edges of the cladding panel. Where surface finishing of panels involves use of patching, fillers or similar products for natural holes, faults or cracks, it shall be considered as part of normal finish process.

2. Surfaces must have a regular appearance as function of finishing process and worked to meet specified finish on exposed surfaces.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

1. Compliance: comply with manufacturer's latest written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 EXAMINATION

1. Examine substrates, areas, and conditions, with Subcontractor present, for compliance with requirements required for installation tolerances, supports, and other conditions affecting performance of the Work.
    1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by faced honeycomb composite panel manufacturer.
    2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by faced honeycomb composite panel manufacturer.
    3. Verify that air-barriers/vapour-retarders have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
2. Examine roughing-in for components and assemblies penetrating faced honeycomb composite panels to verify actual locations of penetrations relative to seam locations of faced honeycomb composite panels before installation.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

1. Miscellaneous Supports: Install subframing, furring, **[thermally-broken subframing]** and other miscellaneous panel support members and anchorages according to ASTM C754 and faced honeycomb composite panel manufacturer's written recommendations.

3.4 PANEL INSTALLATION

1. Install faced honeycomb composite panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to supports unless otherwise indicated. Anchor faced honeycomb composite panels and other components of the Work securely in place, with provisions for thermal and structural movement.
2. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by **metal**-faced honeycomb material panel manufacturer.
3. Install attachment assembly required to support faced honeycomb composite panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels. Do not apply sealants to panel joints unless otherwise indicated.

1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.
2. Install support assembly at locations, spacings, and with fasteners recommended by fabricator. Use Fabricator's standard horizontal tracks and vertical tracks that provide support and secondary drainage assembly, and draining to the exterior.

4. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

5. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

3.5 ADJUSTING, CLEANING, AND PROTECTION

1. Remove temporary protective coverings and strippable films, if any, as faced honeycomb composite panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of faced honeycomb composite panel installation, clean finished surfaces as recommended by faced honeycomb composite panel manufacturer. Maintain in a clean condition during construction.

2. After faced honeycomb composite panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

3. Replace faced honeycomb composite panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

4. Protect finished work in accordance with Product Requirements specified in Division 01.

5. Do not permit adjacent work to damage work of this Section.

END OF SECTION

- **Toll Free**

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- **Learn More**

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