

SECTION 07 42 00 – High Pressure Compact Laminate (HPL) Wall Panels

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Exterior high pressure compact laminate cladding panel system and accessories as required for a complete drained and back-ventilated rainscreen system.
 - 1. Exterior Facade Panels
 - 2. Fascia.
 - 3. Horizontal soffits.
 - 4. Storefront panels

1.2 RELATED SECTIONS

- A. Section 05 50 00 - Metal Fabrications
- B. Section 07 20 00 - Thermal Protection
- C. Section 08 40 00 - Entrances and Storefronts.
- D. Section 08 44 00 - Glazed Curtain Walls.

1.3 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
 - 2. ASTM D 635 - Standard Test Method for Small Scale Burning.
 - 3. ASTM D 1929 - Standard Test Method for Ignition Temperature.
 - 4. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
 - 5. ASTM D 2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
 - 6. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 7. ASTM E 119 - Standard Test Method for Fire Rated or Fire Resistive Construction.
 - 8. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors Under the Influence of Wind Loads.
 - 9. ASTM D790-07 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
 - 10. ASTM D638-08 – Standard Test Method for Tensile Properties of Plastics
 - 11. ASTM G23 or G 26 (G 152 or G 155) – Standard for operating arc light apparatus (carbon flame or xenon) for exposure of nonmetallic materials.
 - 12. ASTM C297 – Bond strength testing (post weathering)
- B. European Standards (EN):
 - 1. EN 438-2 - Decorative High Pressure Laminate (HPL) Sheets Based on Thermosetting Resins - Determination of Properties.
 - 2. EN 12524 - Building Materials and Products, Hygrothermal Properties, Tabulated Design Values.
- C. Forest Stewardship Council (FSC):
 - 1. COC – Chain of Custody Certification per FSC-STD-40-004v2.1

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- D. International Code Council (ICC):
 - 1. ESR (AC 92) – Evaluation Services Report per ICC Acceptance Criteria 92 for polymer-based and polymer-modified exterior and interior wall cladding
- E. International Organization for Standardization (ISO):
 - 1. ISO 105 A02-93 - Tests for Color Fastness -- Part A02: Grey scale for assessing change in color.
 - 2. ISO 9001 – Quality Management System
 - 3. ISO 14001 – Environmental Management System
 - 4. ISO 14025 – Environmental Labels and Declarations
- F. National Fire Protection Association (NFPA):
 - 1. NFPA 268 - Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.
 - 2. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Manufacturer's information on each product to be used, including:
 - 1. Machining guidelines.
 - 2. Storage and handling guidelines
 - 3. Cleaning & Maintenance guidelines
 - 4. Two (2) copies of Manufacturer's product brochure.
- C. Shop Drawings: Submit plan, section, elevation and perspective drawings necessary to describe and convey the layout, profiles and product components, including edge conditions, panel joints, fixture location, anchorage, accessories, finish colors, patterns and textures.
- D. Code Compliance: Documents showing product compliance with local building code shall be submitted prior to the bid. These documents shall include, but not be limited to, appropriate Independent Evaluation Reports compliant with current 2015 State or Commonwealth IBC Code and/or test reports supporting the use of the product. Alternate materials must be approved by the architect of record prior to the bid date.
- E. Engineering Calculations: Submit engineering calculations as required by the local building code, showing that the installed panels and attachments system meets the wind load requirements for the project.
- F. Manufacturers Certifications for ISO 9001, 14001 and FSC CoC (FSC when specified below).
- G. Verification Samples: For each finish product specified, two samples a minimum of 3.5 inches by 3.5 inches (89 mm by 89 mm) representing actual product, color, and patterns. Sample edges may vary from field panel edges.
- H. Fabricator Certification: Fabricator Training Certificate provided by panel Manufacturer.
- I. Environmental Product Declaration (EPD) in accordance with ISO 14025

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1.5 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** All primary panel products specified in this section will be supplied by a single manufacturer with a minimum of twenty five (25) years' experience.
 - 1. Products covered under the Work listed in this section are to be manufactured in an ISO 9001 certified facility.
 - 2. Products covered under the Work listed in this section are to be manufactured in an ISO 14001 certified facility.
- B. **Installer Qualifications:** All products listed in this section are to be installed by a single installer trained by the manufacturer or representative.
- C. **Fabricator Qualifications:** Fabricator shall be trained in accordance with Manufacturer's guidelines within 2 years prior to work being performed.
- D. **Manufacturer's Field Services:** Upon Owner's request, provide Manufacturer's field service consisting of periodic site visits during installation.
- E. **Mock-Up:** Provide a mock-up for evaluation of the product and application workmanship.
 - 1. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
- F. **Pre-installation Meetings:** Conduct pre-installation conference to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.
- G. Panels shall utilize the Electron Beam Curing (EBC) process during the manufacturing process.
- H. Alternate materials must meet product requirements set within this specification to be approved by the architect of record prior to the bid date.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. **Delivery:**
 - 1. During transportation, use stable, flat pallets that are at least the same dimension as the sheets.
 - 2. Materials shall be packaged to minimize or eliminate the possibility of damage during shipping. Items such as wooden side boards, wooden lid, and spacers or protective sheeting between panels shall be used to protect the panels from surface and/or edge damage.
- B. **Storage:**
 - 1. Store products in an enclosed area protected from direct sunlight, moisture and heat. Maintain a consistent temperature and humidity.
 - 2. Store products in manufacturer's unopened packaging until ready for installation.
 - 3. Stack panels using protective dividers to avoid damage to decorative surface.
 - 4. For horizontal storage, store sheets on pallets of equal or greater size as the sheets with a protective layer between the pallet and sheet and on top of the uppermost sheet.
 - 5. Do not store sheets, or fabricated panels vertically.
- C. **Handling:**
 - 1. Remove protective film within 24 hours of the panels being removed from the

- pallet.
- 2. When moving sheets, lift evenly to avoid dragging panels across each other and scratching the decorative surface.
- 3. Remove all labels and stickers immediately after installation.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Building dimensions: Verify actual measurements/openings by field measurements performed by the installer prior to release for fabrication. Recorded measurements to be indicated on shop drawings based on field measurements provided by the installer. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

- A. Warranty: At project closeout, provide Manufacturer's limited ten year warranty covering defects in materials from date of shipment to fabricator. Warranty only available when material is fabricated and installed by companies trained by the Manufacturer or Manufacturer's representative. Warranty coverage is based on the Manufacturer's Material Property Datasheet to include, but not limited to, ASTM D5420-04 Impact Resistance and Resistance to artificial weathering, Florida cycle 3000 hours with a grey scale of 4-5. Warranty to be adjudicated in North America.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Trespa International B.V.; P.O. Box 110, 6000 AC Weert Wetering 20, 6002 SM Weert, The Netherlands; www.trespa.com.
- B. Acceptable Manufacturer's Representative:

Allied Technical Services. 885 Milner Ave. Toronto, Ontario. Canada. M1B 5V8.

1-855-444-0588
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00 and must meet requirements outlined in section 1 and 2 of this specification.

2.2 WALL PANELS

- A. Exterior High Pressure Compact Laminate Panels: Trespa® Meteon® by Trespa International as represented by Trespa North America, LTD.
 - 1. Material: 70% wood-based solid panel manufactured using a combination of high pressure and temperature to create a flat panel created from thermosetting resins, homogenously reinforced with fibers and an integrated decorative surface or printed décor.
 - 2. Panel Core: Fire retardant (FR) black core classified as Class A materials when tested per ASTM-E84.
 - 3. Color/Finish: [Insert color number here] or [As selected by the Architect from Manufacturer's Delivery Program] or [Custom colors available upon request]. [Single sided] or [Double sided]. Finishes: [Satin] or [Rock] or [Matt] or

[Oblique] or [Specular] or [Diffuse] or
[Panel 1: Color _____ . Finish _____ .
Panel 2: Color _____ . Finish _____ .
Panel 3: Color _____ . Finish _____ .]

(Consult with your Trespa Sales Agent for availability of Colors/Finishes). Any related directional layouts to be identified on architectural drawings.

4. Panel Thickness: [5/16 inch (8 mm)] or [3/8 inch (10 mm)] or [1/2 inch (13 mm)] or
[Panel 1 Thickness: _____
Panel 2 Thickness: _____
Panel 3 Thickness: _____]
Consult with your Trespa Sales Agent for panel thickness limitation
5. Sustainability resource: Architect to choose if FSC sourced panels will be a necessary part of this specification. (Consult local Trespa Sales Agent if FSC sourced material is applicable).
6. Physical Properties:
 - a. Modulus of Elasticity: 1,300,000 psi (9000 N/mm²) minimum, ASTM D638-08.
 - b. Tensile Strength: 10,100 psi (70 N/mm²) minimum, ASTM D638-08.
 - c. Flexural Strength: 17,500psi (120 N/mm²) minimum, ASTM D790-07.
 - d. Thermal Conductivity: 2.1 BTU/inch/ft².hr.°F, EN 12524.
 - e. Structural Performance (ASTM E330):
 1. Panels shall be designed to withstand the Design Wind Load based upon the local building code, but in no case less than 15 pounds per square foot (psf). Wind load testing shall be done in accordance with this standard to obtain the following results:
 2. Normal to the plane of the wall, the maximum panel deflection shall not exceed L/175
 3. If system tests are not available, mock ups shall be constructed and tests performed under the direction of an independent third party laboratory which show compliance to the minimum standards listed above.
7. Fire Performance:
 - a. Flame Spread: Class A, ASTM E 84.
 - b. Smoke Development: Class A, ASTM E 84.
 - c. Ignition Temperature: Greater than 650 degree F (350 degree C) above ambient, ASTM D1929.
 - d. Burning Classification:CC1 or CC2, ASTM D635.
 - e. When required for compliance with local building codes, the wall cladding assembly shall show no degradation of the rating of Fire Resistant Assemblies, ASTM E119.
 - f. When required for compliance with local building codes, the wall cladding assembly shall meet the performance requirements for Multi Story construction, NFPA 285.
 - g. When required for compliance with local building codes, the wall cladding assembly shall not ignite when exposed to a radiant heat energy source, NFPA 268.
8. Finish Performance: Electron Beam Cure process in conformance with the following general requirements:
 - a. Color: As selected by the architect/engineer from manufacturer's standard colors or a custom color to be matched by the panel supplier.
 - b. Water Resistance: At the completion of 14 days testing to ASTM D 2247, results indicate no deleterious effects as defined by the test standard.
 - c. Salt Spray Resistance: Corrosion creepage from scribe line (1/16 inch (1.6 mm) max.) and minimum blister rating of 8 within the test specimen

- d. field, ASTM B117.
 - d. Weather Exposure: Tested to two standards using a Xenon Arc Light and water to simulate weather exposure.
 - 1. Florida test cycle of 3000 hours=10 years (vertical application)
 - 2. EN 438-2:29 Western European test cycle of 1000 hours=10 years (vertical application)
 - e. Color Stability: The decorative surface comply with, classification, 4 - 5 measured with the grey scale according to ISO 105 A02-93 according to test method EN 438-2:29.
 - f. Microbial Characteristics: Will not support micro-organic growth (ISO 846).
- B. Mounting System (Select one, or more where applicable):
- 1. **TS-210-285** - Concealed fastening over fixed depth aluminum sub-framing tested and meeting the performance requirements of NFPA-285.
- C. Aluminum Sub Structure: Aluminum sub-structure designed to withstand structural loading due to wind load and the dead load of the panel, painted as required to conceal behind the open joinery of the attachment system.
- 1. Extrusions, including corner closures, joint closures and vent screens, formed members, sheet, and plate shall conform to the recommendations of the manufacturer.
- D. Extruded Aluminum Trim: Color as specified in the finish schedule.
- E. Fixings (Concealed/Exposed): Fixings shall be non-corrosive and as recommended by panel manufacturer. Exposed fasteners shall be colored to match panels where required by the architect:
- F. Exposed Fastener Detail: Color match or Stainless.

2.3 FABRICATION

- A. Panels fabricated by a Trespa trained fabricator in accordance with Manufacturer's standard guidelines.
- B. Panel Dimensions: All fabrication should be done under controlled shop conditions when possible. Field fabrication shall be allowed where necessary, but shall be kept to an absolute minimum.
- C. Appearance: Panel lines, breaks, and angles shall be true, and surfaces free from warp and buckle.
- D. Each edge should be chamfered to a minimum of 1 mm (1/32") deep at a 45 degree angle.
- E. Panels that require treatment at post production cuts, holes or penetrations shall not be permitted as equals or substitutes.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.

- B. Surfaces to receive panels shall be even, smooth, dry, and free from defects detrimental to the installation of the panel system. Notify Contractor in writing of conditions detrimental to proper and timely completion of the work.
- C. Confirm load bearing wall surface is plumb and level, with no deviations greater than 1/4 inch (6 mm) in 20 feet (6096 mm).
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install exterior high pressure compact laminate panels and sub-frame system in accordance with Manufacturer's guidelines.
- B. Install exterior high pressure compact laminate panels plumb and level and accurately spaced with a minimum of 10 mm (3/8") from the adjoining panel in accordance with manufacturer's recommendations and approved submittals and drawings.
- C. Anchor panels and sub-framing securely per engineering recommendations and in accordance with approved shop drawings to allow for necessary movement and structural support.
- D. Fasten exterior high pressure compact laminate panels with fasteners approved for use with supporting substrate.
- E. Do not install panels or component parts which are observed to be defective or damaged including, but not limited to: warped, bowed, abraded, scratched, and broken members.
- F. Do not cut or trim component parts during installation in a manner that would damage the finish, decrease the strength, or result in visual imperfection or a failure in performance. Return component parts with require alteration to the shop for re-fabrication or replacement.

3.4 ADJUSTING AND CLEANING

- A. Remove masking or panel protection as soon as possible after installation. Any masking intentionally left in place after panel installation on an elevation, shall become the responsibility of the General Contractor to remove.
- B. Adjust final panel installation so that all joints are true and even throughout the installation. Panels out of plane shall be adjusted with the surrounding panels to minimize any imperfection.
- C. Repair panels with minor damage. Remove and replace panels damaged beyond repair as a direct result of the panel installation. After installation, panel repair and

replacement shall become the responsibility of the General Contractor.

- D. Clean finished surfaces as recommended by panel manufacturer. After installation cleaning, cleaning during construction shall become the responsibility of the General Contractor.

END OF SECTION