

# GUIDE SPECIFICATION

## AHSP Aluminum Honeycomb Stone Panel System AHPP Aluminum Honeycomb Porcelain System

### Section 074243 Composite WALL PANELS

#### 1.0 PART 1 – GENERAL INSTRUCTIONS

Governed by the conditions of the Contract and Division 01

##### 1.1 Section Includes

1.1.1 This section includes the supply and installation of the AHSP (Aluminum Honeycomb Stone Panel) or AHPP (Aluminum Honeycomb Porcelain Panel) system to be mechanically fastened to the building, consisting of:

1.1.1.1 Natural Stone Facing or Porcelain Facing applied to an aluminum honeycomb back-up

1.1.1.2 Interlocking horizontal brackets and vertical channels

1.1.1.3 Shims, furring, fasteners, girts, flashing, adapters and moldings as required

##### 1.2 Related Sections

1.2.1 01353 LEED

1.2.2 03300 and 03400 Concrete

1.2.3 04200 Masonry

1.2.4 06100 Rough Carpentry

1.2.5 07100 and 07200 Vapour and Air membranes

1.2.6 07400 Metal Siding

1.2.7 07600 Metal Flashing and Trim

1.2.8 07900 Sealants

1.2.9 07950 Expansion control

### **1.3 Alternates**

1.3.1 Proposed alternates to meet the requirements of the specification

1.3.2 Alternate approvals will be at the discretion of the consultant

### **1.4 References**

1.4.1 ASTM E 84-08 Standard Test Method for Surface Burning Characteristics of Building Materials

1.4.2 ASTM E 330-02 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

1.4.3 ASTM E 1996-05b Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

1.4.4 ASTM E 1886-05 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

1.4.5 ASTM E 283-04 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

- 1.4.6 ASTM E331-00 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
- 1.4.7 ASTM C 666-03 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing - MODIFIED
- 1.4.8 ASTM C 880-93 Standard Test Method for Flexural Strength of Dimension Stone
- 1.4.9 ASTM D 1761-06 Standard Test Methods for Mechanical Fasteners in Wood
- 1.4.10 ASTM D 897-08 Standard Test Method for Tensile Properties of Adhesive Bonds

## **1.5 Pre-Installation Meetings**

- 1.5.1 Pre-Installation Meetings to be conducted to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements

## **1.6 Submittals**

- 1.6.1 Product data:

Submit manufacturer's product data sheets for each product specified in this section

- 1.6.2 Shop Drawings

- 1.6.2.1 Submit shop drawings complete with all dimensions, brackets spacing, anchorage details, layout, stop and return details
- 1.6.2.2 Allow 15mm joint for non progressive panel removal or 6-9mm joint for progressive panel removal
- 1.6.2.3 Shop drawings to be sealed by a qualified Professional Engineer licensed to practice in Ontario

1.6.3 Submit the following samples:

1.6.3.1 300x300mm showing specified colour, finish and fabrication workmanship.

1.6.3.2 Cut the panel into 4 sections and provide specified jointing material vertically and horizontally

1.6.4 Maintenance instructions

## **1.7 Quality Assurance**

1.7.1 Manufacturer Qualifications

1.7.1.1 Manufacturer to have wall panel experience on projects of a similar complexity as required for this Contract, and must provide independent test results as required in this section. Manufacturer to have ISO 9001 certification.

1.7.2 Installer Qualifications

1.7.2.1 Installer to demonstrate experience (as determined by the general contractor) to perform work of this section. For a list of installers contact the system supplier.

1.7.3 System Qualifications

1.7.3.1 Panel system to withstand 1.5kPa positive and negative pressures

1.7.3.2 Panel system to withstand ASTM 1996-05 Level D Impact Test as per Miami Dade Hurricane Standard, pass with no penetration

1.7.4 Professional Engineer who is registered in the province, to perform the following work

1.7.4.1 Design the wall cladding system based on the performance of the selected panel system

- 1.7.4.2 Review, stamp and sign the shop drawings
- 1.7.4.3 Provide site review and certification of components (may incur additional costs)
- 1.7.4.4 Provide cutting tickets
- 1.7.4.5 Certify in writing that Work has been installed in accordance with accepted shop and contract drawings
- 1.7.4.6 Provide on-site and/or off-site testing if required

## **1.8 Quality Control Mock-up**

- 1.8.1 Provide a mock-up if requested, to be taken from the order supply unless otherwise requested. Allow 5% or up to 100 sf of material for the mock-up. Mock-up to consist of a minimum of three panels in width and three panels in height and be complete with all installation attachments and finishing details demonstrating quality of workmanship. Mock-up may form part of the final work.

## **1.9 Panel Description**

- 1.9.1 Aluminum Honeycomb Stone Panel comprised of 6mm natural stone with mesh, aluminum honeycomb and fiberglass mesh back-sheet for a total thickness of 25mm

**OR**

Aluminum Honeycomb Stone Panel comprised of 8mm natural stone with mesh, aluminum honeycomb and fiberglass mesh back-sheet for a total thickness of 25mm

**OR**

Aluminum Honeycomb Porcelain Panel comprised of a thin porcelain sheet (3 or 5mm) with mesh, aluminum honeycomb and fiberglass mesh back-sheet for a total thickness of 25mm.

- 1.9.2 Interlocking channels to be 35mm deep for a total system thickness of 60mm

## **1.10 System Performance Requirements**

- 1.10.1 ASTM E 84-08 Surfaces Burning Characteristics – tested to FSI (flame spread index) 10 and DSI (smoke developed index) 155
- 1.10.2 ASTM E 330-02 Uniform Load Test – no damage
- 1.10.3 ASTM E 1996-05b Impact Resistance – passed
- 1.10.4 ASTM E 1886-05 Cyclic Performance – no penetration
- 1.10.5 ASTM E 283-04 Air Infiltration – passed (<.5L/5m2)
- 1.10.6 ASTM E 331-00 Water Resistance – no penetration

## **1.11 Additional Material**

- 1.11.1 Provide \_\_\_\_\_ % additional material (manufacturer suggested minimum 5%) for owner upon completion

## **1.12 Delivery and Handling**

- 1.12.1 Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays
- 1.12.2 Handle and store materials in compliance with manufacturer's recommendations and to avoid damage
- 1.12.3 Protect material from damage from the elements, construction activities or other hazards, before, during and after installation
- 1.12.4 Store materials protected from exposure to harmful weather conditions
- 1.12.5 Co-ordinate deliveries to conform to the construction schedule

- 1.12.6 Do not rest panels on corners and handle with appropriate equipment that will not damage the face, edge or backing
- 1.12.7 Provide safe and appropriate equipment to offload, store and install the material including scaffolding or staging material if required
- 1.12.8 Protect work of other trades or make good all damage
- 1.12.9 Be responsible for any damage until the work in this section is accepted by the consultant

### **1.13 Warranty**

- 1.13.1 Provide a 5-year installer replacement warranty for the work and materials in this section
- 1.13.2 Provide a 10-year manufacturers' warranty for the panel against delamination

## **2.0 PART 2 – PRODUCTS**

Products and manufacturers' specified in this section are to be provided for in-tender pricing. If alternates are carried and not approved, the specified products will be supplied at no additional cost to the Contract.

### **2.1 Suppliers**

- 2.1.1 Acceptable supplier for the system is OSI HARD SURFACES – 8 Kenview Blvd Brampton, Ontario, Canada, L6T 5E4; 416-679-9100; [info@osihardsurfaces.com](mailto:info@osihardsurfaces.com) [www.osihardsurfaces.com](http://www.osihardsurfaces.com) / [www.stonelite.ca](http://www.stonelite.ca) / [www.claddingsystems.ca](http://www.claddingsystems.ca)

### **2.2 Materials**

- 2.2.1 Aluminum Honeycomb Stone Panel (AHSP) OR Aluminum Honeycomb Porcelain Panel (AHPP) having honeycomb reinforced backing as distributed by OSI Hard Surfaces; 416-679-9100; [info@osihardsurfaces.com](mailto:info@osihardsurfaces.com)

2.2.1.1 Facing to be \_\_\_\_\_ (identify stone/porcelain) with thickness of \_\_\_\_\_ (confirm veneer thickness) and \_\_\_\_\_ finish (list vein orientation (vein or fleury), hone or polish (grit) or other finish)

2.2.1.2 Back of panel to consist of fiberglass mesh (1mm), aluminum honeycomb \_\_\_\_\_ mm (confirm honeycomb thickness) and solid backsheet (1mm), for a total panel thickness of 25mm

2.2.1.3 Panel edges to be \_\_\_\_\_ (straight cut or rebated)

2.2.1.4 Panels size tolerance to be +/-1.5mm on the face length, width, diagonal and thickness.

2.2.1.5 Corners and returns to pre-assembled at the factory (10cm standard up to 15cm when returning into building) or may be ordered mitered and installed onsite with a caulked joint.. Distributed by OSI Hard Surfaces 416-679-9100; [info@osihardsurfaces.com](mailto:info@osihardsurfaces.com)

2.2.1.6 Factory applied protective film on stone panel face (if required)

2.2.2 Continuous channel attached to the building structure to be interlocking with matching intermittent brackets pre-attached to the panel or Stacking Rail system of brackets where lower panel sets up the next panel and only starter rails re required to be pre-installed on the building.

### 2.2.3 System Back up Materials

2.2.3.1 Brackets to be interlocking channels, brackets made of AA 6060 T6 aluminum alloy

2.2.3.2 Vertical support system (if required) to be fabricated from anodized AA 6060 T6 aluminum alloy and to be vertically and horizontally adjustable



2.2.3.3 Shims, furring, fasteners, girts, flashing, adapters and moldings as required

2.2.3.4 Caulking to be Dow Corning 735 tested to not stain panel face, or approved alternate

#### 2.2.4 System Accessories

2.2.4.1 Membranes

2.2.4.2 Girts

2.2.4.3 Fasteners

2.2.4.4 Di-electric separator

2.2.4.5 Washers

2.2.4.6 Shims

2.2.4.7 Bug screen

2.2.4.8 Spacers

2.2.4.9 Flashing

2.2.4.10 Pre-manufactured trims

2.2.4.11 Tape

2.2.4.12 Sealant

#### 2.2.5 Fabrication

2.2.5.1 Fabricate the panels at the factory ready to be installed on site

2.2.5.2 Panels to be fabricated from approved shop drawings

2.2.5.3 Fabricate components on the building to receive the panels with minimal clearances and shim spacing

## **2.3 Source Quality Control**

2.3.1 Provide AHSP (Aluminum Honeycomb Stone Panels) or AHPP (Aluminum Honeycomb Porcelain Panels) system and all facing materials from a single source for the entire project

## **3.0 PART 3 – EXECUTION**

### **3.1 Examination**

3.1.1 Site Verification of Conditions: Verify substrate conditions are acceptable for product installation in accordance with manufacturer's instructions. Verify modules are sized to receive AHSP/AHPP system in accordance with manufacturer's acceptable tolerances. Report any discrepancies that might be detrimental to the installation, prior to commencing installation.

3.1.2 Field Measurements: Verify actual measurements/openings by field measurements before fabrication. Confirm recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

3.1.3 Preparation: Commencing installation indicates acceptance of site conditions

### **3.2 Installation**

General: Install AHSP (Aluminum Honeycomb Stone Panels) or AHPP (Aluminum Honeycomb Porcelain Panels) plumb, level, and true to line with manufacturer's prescribed tolerances and installation instructions. Provide supports and anchor in place.

3.2.1.1 Inspect material prior to installation to ensure it is of suitable quality. Do not install any mechanically or visually defective pieces.

- 3.2.1.2 Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points
- 3.2.1.3 Weather Tight Construction: Refer to drawings & consult sealant manufacturer for project specific application. Coordinate installation with wall flashings and other components of construction.
- 3.2.1.4 Install plumb and true with joints as indicated on drawings
- 3.2.1.5 Respect control joints as indicated on shop drawings
- 3.2.1.6 Joint size to be \_\_\_\_\_ mm (minimum joint size 6mm, standard range for progressive panel replacement is 6mm – 9mm; for non progressive replacement allow 15mm joint)
- 3.2.1.7 Leave joints \_\_\_\_\_ (open or caulked)
- 3.2.1.8 Remove any protective film
- 3.2.1.9 Coordinate work with other trades

### 3.2.2 Related products installation requirements

- 3.2.2.1 Girts
- 3.2.2.2 Insulation
- 3.2.2.3 Membranes
- 3.2.2.4 Expansion joints
- 3.2.2.5 Flashing
- 3.2.2.6 Trims
- 3.2.2.7 Sealants

### **3.3 Protection & Cleaning**

3.3.1 Protection: Protect installed product's finish surfaces from damage during construction. Protect stone/porcelain facing from damage from harmful contaminants.

3.3.2 Remove debris and superfluous material and equipment from site

3.3.3 Dispose of debris legally

3.3.4 Repair or replace damaged installed products

3.3.5 Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance

### **DISCLAIMER STATEMENT**

This guide specification is intended for use by a qualified construction Specifier and is not complete. The guide specification is not intended to be verbatim as a project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.

### **END OF SECTION**