THE STONE LAMINA CLADDING SYSTEM

Stone Lamina Composite Panel product is a precision made and engineered cladding system designed to revolutionize the way stone can be used as cladding. With Stone Lamina product engineering and design capabilities, there are virtually no applications in which one would choose conventional cladding over Stone Lamina composite panels.

Stone Lamina is a new, highly integrated, laminated cladding system designed to lower costs, improve performance, and increase design/application versatility for new construction, renovations, and retrofits. Ideally suited for both exterior and interior applications, this high quality, "natural" stone cladding system allows architects, designers, builders, and contractors to improve design aesthetics and marketability of their commercial, institutional, residential, or multi-residential projects.

In a seamless, highly engineered and integrated system. Each panel can be attached in one of four ways (Interlocking Channels, Z-Clips, Anchor Plates, or Adhesive) depending on the application and underlying material (drywall, metal or wood studs, concrete, pre-existing stone, or other materials).

These panels are strong, light-weight, low cost, easy-to-install, impact and crack resistant, fire and heat resistant, waterproof, environmentally sustainable, and can be made from several different facing materials ranging from natural stone materials (and their derivatives), Porcelain, Nano glass, crystal glass, to artificial marbles in virtually any pattern, shape, or size imagined. Complete with an exceptional warranty, this composite panel is the cladding system of choice for transformational design, as well as tight construction budgets.

MATERIAL SPECIFICATION

Facing Material
High grade Epoxy
Aluminium Sheet
Adhesive
Aluminium Honeycomb Core
Adhesive
Aluminium Sheet
PRODUCT DATA

Average Weight: 3.8 pounds / Sq.Ft. (18.5 kg/Sq.M) Var. based on Facing
Standard panel dimensions: 4’ x 8’ (1219 x 2438mm)
Maximum panel dimensions: 5’ x 10’ (1524 x 2845mm) Ltd. Availability
Overall panel thickness: 1 in. +/- 1/16 in. (25.4mm +/- 1.6mm)
Aluminum honeycomb thickness: 3/4 in. (19mm) Depend on Application
Tolerances (length, width & squareness): +/- 1/16 in. (+/- 1.6mm) Refer to SLTS for more information

PANEL STRENGTH

Buildings encapsulated in an envelop of flexible and ductile Stone Lamina Composite Honeycomb Panels, are thoroughly protected from multiple hazards. Stone Lamina performs very well against all five of what the American FEMA Agency considers as “extreme hazards”.

1- Salt Spray Resistance (ASTM B117-16): 1000 hours of exposure, No deleterious effects
2- Specific Gravity and Water Absorption (ASTM C97/C97M-15): 0.992 @ 23 oC and 0.4 % respectively
3- Compressive strength of Dimensional Stone (ASTM C170/ C170M-17): 1.57 MPa (228 psi)
4- Density of Sandwich Core (ASTM C271/C271M-16): 327 kg/m3 (20.42 lbm/ft3)
5- Shear stress and shear modulus (ASTM C273/C273M-18): Ultimate Core Shear Strength = 1.01 MPa (147 psi) -Core Shear Modulus = 10.9 MPa (1583 psi)
6- Flatwise Tensile bond Strength (ASTM C297/297M-16): 1.52 MPa (220 psi)
7- Edgewise Compressive strength (ASTM C364/C364M-16) Compressive load was applied at a rate of 0.02 in/min, Ultimate Compressive Strength = 37.85 MPa (5490 psi)
8- Flatwise Compressive Strength (ASTM C365): 1.92 MPa (278 psi)
9- Shear Strength by Beam Flexure (ASTM C393/C393M-16): Maximum Core shear Strength = 0.94 MPa (137 psi), Facing Bending Stress-Stone = 8.14 MPa (1180 psi)
10- Flexure Creep Evaluation (ASTM C480/C480M-16): Net Creep (in/day) stone facing - 0.029
11- Laboratory Aging of Sandwich Construction (ASTM C481-99) :ASTM C273; C297; C364; C393 tests were reconduted after aging: the variation was +1.36 %, -5.90%; +2.55%; -7.95%, Note: +ve variation indicates no decrease in strength after aging.
12- Resistance to Rapid Freezing and Thawing (ASTM C666/C666M-15): 200 cycles of rapid freeze and thaw (4oC to -18 oC), No visible change to stone, aluminum, or adhesive
13- Flexural strength (ASTM C880/C880M-15): 18.13 MPa (2630 psi)
14- Tensile properties of adhesive bond (ASTM D897-08 (2016)): The adhesive bond never failed
15- Screw withdrawal test (ASTM D1761): 2046 N
16- Damage resistance testing of sandwich constructions (ASTM D7766/ D7766M-16): No panel deformation
17- Air leakage resistance (ASTM E283 -04): Passed the test
18- Static Pressure (ASTM E330-00): All the panels tested met or exceeded requirements
19- Uniform Static Deflection (ASTM E330-02): No failure or permanent damage
20- Water penetration Resistance (ASTM E331-00): No water leakage
21- Cyclic Pressure Loading (ASTM E1886-13a): Passed the test  
22- Large Missile Impact Test (ASTM E1996-14a): No damage to panel at 50 fps 
23- Fluorescent Ultraviolet Radiation Exposure (ASTM G154 -16): 2000 hours of UV exposure 
24- Thermal Resistance (ASTM 1363-11): 0.20 m^2 oC/W (1.12 hr·ft^2·oF/BTU) 
25- Linear Thermal Expansion (ISO 10545-8): 12.53 × 10^-6 per oC  

**Note:** Please refer to Stone Lamina General testing for more information.

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**LATERAL LOAD CAPACITY**

Based upon 15/16 in. panel thickness & L/240 deflection limit (ASTM C393)

<table>
<thead>
<tr>
<th>UNIFORM LOAD (psf)</th>
<th>25</th>
<th>44</th>
<th>52</th>
<th>68</th>
<th>102</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN (inches)</td>
<td>48</td>
<td>36</td>
<td>32</td>
<td>24</td>
<td>16</td>
</tr>
</tbody>
</table>

For SL: 1 inch = 25.4 mm, 1 psf = 47.99 Pa. 

Maximum vertical spacing of panel attachments to the supporting is 24 inches

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**PANEL PROPERTIES**

- $E_{\text{panel}} = 10,000,000$ psi [young’s modules of elasticity] 
- $S_{x+} = 0.1074$ in^3 [positive section modulus] 
- $S_{x-} = 0.1021$ in^3 [negative section modulus] 
- $I_{\text{panel}} = 0.0813$ in^4 [moment of inertia]

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**Honeycomb Wall Thickness:** 0.003" [0.0762mm]

- Pullout: 1601 lbs 
- Lateral Shear: 2241 lbs 

**SL Interlocking Channel:** Alum. Alloy 6063 T3 

**TYP. Wall Thickness:** 0.094 in [2.4mm]