Laboratory Report S13610.12.09

Simulated Uplift Testing
of
SofSurface Panels
in accordance with
FM Standard 4470

Prepared for:
SofSurfaces
4393 Discovery Lane
Petrolia, Ontario N0N1R0
Canada

Date of Issuance:
December 16, 2009
CLIENT INFORMATION: SofSurfaces
4393 Discovery Lane
Petrolia, Ontario N0N1R0
Canada
c/o: Jeromey Morningstar

REFERENCE: Project #2009.S13610SC

SAMPLES: • SofSurface Panels

SAMPLE DELIVERY: The named client arranged for shipment of said materials to TRINITY | ERD’s laboratory for testing. Materials were received on 03/16/2009 and 04/27/2009.


TRINITY|ERD STAFF: C. Phillips

PROPERTIES: Simulated Wind Uplift Resistance – 10 x 10 ft


EQUIPMENT: Simulated Wind Uplift Resistance – 10 x 10: TRINITY|ERD 10 X 10 feet Vacuum Apparatus
I. **SIMULATED WIND UPLIFT RESISTANCE – 10 x 10 ft WIND UPLIFT TEST**

1.1 Specimen Preparation:

1.1.1 Specimens measuring 10 ft x 10 ft were constructed for each of the following sample descriptions. The specimen was built atop the specified roof deck and allowed to cure.

1.1.2 19/32” Plywood deck was modified to incorporate 1-inch diameter holes, spaced 2 ft o.c., to allow the vacuum pressure vessel to deliver air pressure to the underside of the test specimen.

![View of Prepared Plywood Deck](image)

### Table 1A: Summary of 10 x 10 ft Specimen Constructions

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Deck</th>
<th>Waterproofing Layer</th>
<th>Insulation</th>
<th>Roof Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>19/32” plywood</td>
<td>Reinforced EPDM</td>
<td>2 layers of XPS with staggered joints</td>
<td>FilterCloth</td>
</tr>
</tbody>
</table>

1.1.3 Soft Surface Tiles were installed as per manufacturer’s instructions and adhered with Sika Adhesive at a rate of 20 lineal ft per tube.

1.2 Procedure:

1.2.1 The simulated wind uplift pressure tests utilize an inverted vacuum pressure vessel to apply air pressure from below the deck.

1.2.2 A net vacuum pressure of 30psf (1.4kPa) is applied to the test specimen and maintained for 1 min. The pressure is increased to 45psf (2.2kPa), then to 60psf (2.9kPa) and held for 1 min. after each increment. The pressure is increased 15psf (0.7kPa) every min. until failure occurs.
**Table 1B: Test Results, Sample A**

<table>
<thead>
<tr>
<th>Plywood / Reinforced EPDM / 2 layers of XPS / FilterCloth / SoftSurfaces Panels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample ID:</strong></td>
</tr>
<tr>
<td><strong>Failure Pressure (psf):</strong></td>
</tr>
<tr>
<td><strong>Failure Time (sec):</strong></td>
</tr>
<tr>
<td><strong>Failure Mode:</strong></td>
</tr>
<tr>
<td><strong>Passing Pressure (psf):</strong></td>
</tr>
<tr>
<td><strong>2:1 Safety Margin (psf):</strong></td>
</tr>
</tbody>
</table>

**Photo 1: Overview of Failure Mode**

### 2. CONCLUSIONS:

2.1 Trinity|ERD has tested SofSurface Panel systems, described in Table 1A in accordance with the procedures set forth in FM Standard 4470, resulting in the wind uplift resistance data noted in Tables 1B.

Please contact our offices with any questions.

Sincerely,

TRINITY | ERD

Charles Phillips

Reviewed by:

Robert Nieminen, P.E.

Vice President

**REVIEW HISTORY:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Notes</th>
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<tbody>
<tr>
<td>05/22/2009</td>
<td>Draft Report Issued</td>
<td>For Client Review</td>
<td>RN</td>
</tr>
<tr>
<td>12/16/2009</td>
<td>Final Report Issued</td>
<td>None</td>
<td>RN</td>
</tr>
</tbody>
</table>

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