



Architectural Testing

**TEST REPORT**

Rendered to:

AVENERE CLADDING LLC  
2801 Sisson Street  
Baltimore, Maryland 21211

Report No.: B2405.01-119-16  
Test Date: 08/17/11  
Report Date: 09/23/11

**Product:** *NeaCera*<sup>®</sup> Terra-Cotta Rainscreen Cladding System

**Project Summary:** Architectural Testing was contracted by Avenere Cladding LLC to perform seismic performance testing on three specimens of a *NeaCera*<sup>®</sup> Terra-cotta Rainscreen Cladding System. The purpose of the testing was to determine the dynamic seismic drift causing fallout from the rainscreen system in accordance with AAMA 501.6.

This report includes comprehensive written and photographic documentation of testing performed and a copy of "As-Tested" drawings.

**Drawing Reference:** Avenere Cladding LLC's "As-Tested" drawings for their *NeaCera*<sup>®</sup> Terra-cotta Rainscreen Cladding System. Drawing Nos. SK-1, SK-2, SK-3, SK-4, SK-5, SK-6, SK-7 and Component Drawings. Refer to Appendix B for all drawings.

**Witnessing:** The following representatives were present on 08/17/11 to witness testing reported herein:

David Swirnow  
George Nash  
Russell Boellner  
Joseph Cole  
John D. Miller  
Adam J. Schrum  
Travis A. Hoover

Avenere Cladding LLC  
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Architectural Testing, Inc.  
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### Test Specimen Description:

**Product Type:** *NeaCera*<sup>®</sup> Terra-Cotta Rainscreen Cladding System

**Unit Size:** 10' wide by 8' -1" high

**Typical Construction:** The cladding assembly was comprised of extruded aluminum members. The aluminum members were pre-drilled for 1/4" fasteners. Bolts, washers and nuts were used to secure the *NeaCera*<sup>®</sup> Terra-cotta Rainscreen to the test fixture and also in every connection of the system.

**Installation:** Three 7' -11" *NeaCera*<sup>®</sup> vertical Support Profiles with two rows of supporting hooks were attached to the continuous 4x4 steel test frame angles, approximately 48" apart horizontally and approximately 7' -9" apart vertically at the head and the sill of the testing apparatus, by a 1/4-20 x 3/4" hex head bolt, washer, and nut. The test apparatus consisted of 4x4 steel angles welded to 8x6 tube steel at the head and sill of the frame. An additional 7' -11" *NeaCera*<sup>®</sup> vertical Support Profile with one row of supporting hooks was attached to the 4x4 angle approximately 6" from the right hand side of the wall and approximately 7' -9" apart vertically at the head and the sill of the testing apparatus by a 1/4-20 x 3/4" hex head bolt, washer, and nut. Behind the supports were four horizontal "I" frames (0.080") which were attached to the vertical profiles using a single 1/4-20 x 3/4" hex head bolt, washer, and nut (refer to drawings in Appendix B for spacing of horizontal "I" frame members). On the right side attached at the end of the "I" frames by 1/4-20 x 3/4" hex head bolts, washer, and nut was a continuous jamb profile angle. Inserted into the far left *NeaCera*<sup>®</sup> vertical Support Profile with two rows of supporting hooks was a *NeaCera*<sup>®</sup> ADS Blank Insert. Inserted in the other two *NeaCera*<sup>®</sup> vertical Support Profiles with two rows of supporting hooks were *NeaCera*<sup>®</sup>'s closed Joint Inserts. *NeaCera*<sup>®</sup> Terra-cotta Panels, with dimensions of 4' long by 1' high, were then hung off the supporting hook profiles on the left hand side and in the middle. *NeaCera*<sup>®</sup> Terra-cotta Panels, with dimensions of 2' long by 1' high, were hung off the right side of the wall. The backside of the panels utilized five continuous horizontal rows of terra-cotta male interlocks / strengthening ribs. Panels were hung by starting at the bottom and hanging the first one and working up the wall using a continuous ship lap design along the top and bottom edges. Installation was performed by representatives of Avenere Cladding LLC at Architectural Testing's facility.

### Test Method:

**Dynamic Seismic Drift:** AAMA 501.6-09, *Recommended Dynamic Test Method for Determining the Seismic Drift Causing Glass Fallout from a Wall System*

*The test method provides means for determining the drift causing glass fallout from a curtain wall, storefront or partition but the intent of the testing described herein was to establish the drift causing fallout of the *NeaCera*<sup>®</sup> Terra-cotta Panels.*

**Test Results:** Refer to Appendix C for displacement time history graphs.

Test Nos. 1- 3 Test Date: 08/17/11		
Test No.	Non-Glass Fallout	Additional Observations
1	None	No fallout or cracking of the terra-cotta panels or other wall system components occurred during the duration on the test.
2	None	
3	None	
<i>Note #1: These units were installed as shown in the attached drawings. All units reached 6" of dynamic racking displacement without any fallout.</i>		

**Summary and Conclusions:**

Based on the results of the dynamic racking tests for the three test specimens, the overall  $\Delta_{fallout}$  for the NeaCera® Terra-cotta Rainscreen Cladding System is 6".

**Closing Statement:**

The "As-Tested" drawings and a copy of this report will be retained by Architectural Testing for a period of four years from the original test date. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory. This report may not be reproduced, except in full, without approval of Architectural Testing.

For ARCHITECTURAL TESTING:



Digitally Signed by: John D. Miller

John D. Miller  
Project Engineer  
Structural Systems Testing



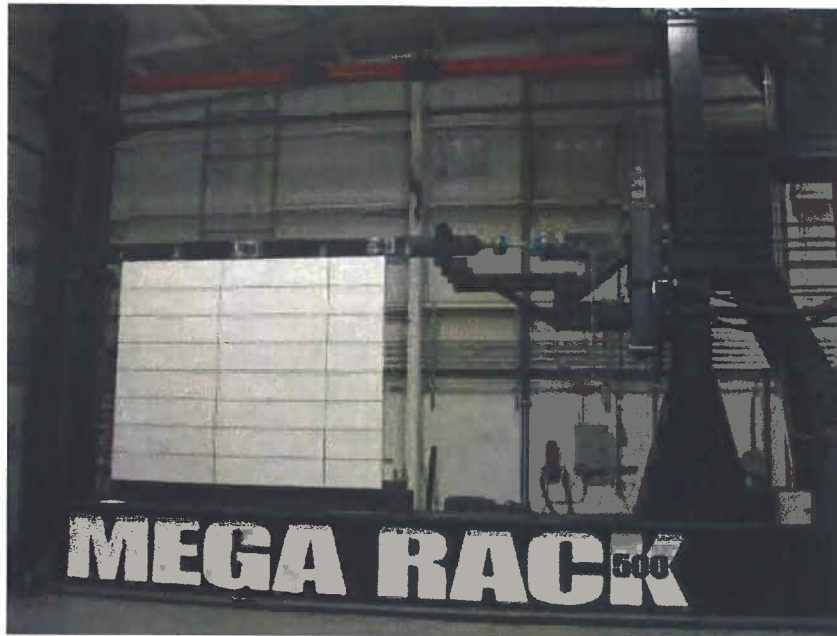
Digitally Signed by: Travis Hoover

Travis Hoover  
Program Manager  
Structural Systems Testing

JDM:jdm

Attachments (pages): This report is complete only when all attachments listed are included.

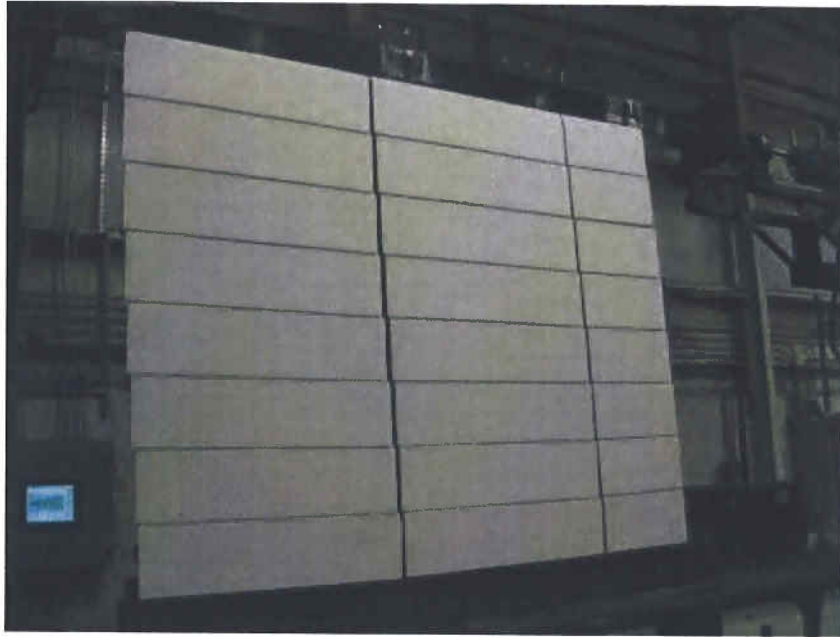
- Appendix A: Photographs (2)
- Appendix B: Drawings (12)
- Appendix C: Graphs (1)



**Photo No. 1**  
**AAMA 501.6 Test Fixture with *NeaCera*<sup>®</sup> Terra-cotta Rainscreen Cladding System Installed**



**Photo No. 2**  
**Interior Framework of the *NeaCera*<sup>®</sup> Terra-cotta Rainscreen Cladding System**



**Photo No. 3**  
**Dynamic Racking Test of the *NeaCera*<sup>®</sup> Terra-cotta Rainscreen Cladding System**