



PERFORMANCE TEST REPORT SUMMARY

Rendered to:

AVENERE CLADDING LLC
2801 Sisson Street
Baltimore, Maryland 21211

Report No: 81239.01-106-31
ASTM C 67-07a

Product: NeaCera® Terra-cotta Wall Panels

Project Summary: Architectural Testing, Inc. was contracted by Avenere Cladding LLC to evaluate their NeaCera terra-cotta wall tile. The product description, test procedures, and test results are reported herein.

Test Method: The terra-cotta wall tile was evaluated in accordance with ASTM C 67-07a, *Standard Test Method for Sampling and Testing Brick and Structural Clay Tile*. Any deviation from the method is noted in the Test Procedures and Test Results section of this report.

Modulus of Rupture

Photo No. 2 in Appendix A shows a typical set up of the test, and Photo No. 3 shows the planes of failure.

Modulus of Rupture at Plane of Failure (lb/in²)
Average: 2869

Compressive Strength

Photo No. 4 in Appendix A shows a typical set up of the test, and Photo Nos. 5 and 6 show a test specimen after the test.

Maximum Load* (lb)	Minimum Compressive Strength (lb/in²)
50021	Average: 2133

* *The maximum load for all of the test specimens is the maximum capability of the machine.*

Absorption

Dry, 6" by the width and depth of the tile test specimens were submerged in cold or boiling water for a specified amount of time. The percent absorptions for each test and the saturation coefficients were determined.

Duration	Parameter	Average
0 Hours	Dry Weight (g)	--
24 Hour Cold Submersion	Final Weight (g)	--
	Absorption (%)	3.3
1 Hour Boiling Test	Final Weight (g)	--
	Absorption (%)	3.4
2 Hour Boiling Test	Final Weight (g)	--
	Absorption (%)	3.5
5 Hour Boiling Test	Final Weight (g)	--
	Absorption (%)	3.6
Saturation Coefficient*		0.92

* The saturation coefficient is equal to:

$$\frac{24 \text{ hour cold submersion final weight} - \text{dry weight}}{5 \text{ hour boiling test final weight} - \text{dry weight}}$$

Freezing and Thawing

Dry, full size tiles were subjected to 50 freeze/thaw cycles which consisted of 4 hours with the tiles completely immersed in room temperature water and then 20 hours at -20°C with the main faces of the tiles immersed in water. The tiles were thawed in the room temperature water and set in the lab to dry for weekends and holidays. At the conclusion of the 50 cycles, the tiles were thawed in room temperature water, dried in an oven, and examined.

Observations:	No breaking, cracking or weight loss
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Efflorescence

A dry, full size tile was cut in half across the width. One half of the tile was partially immersed, cut end down, in 1 inch of water for seven days while the other half was stored at room temperature without contact with water. At the conclusion of the seven days, the pair of tiles was dried in an oven for 24 hours and then examined and rated.

Condition of Partially Immersed Tiles Before Drying	Comparison of Tile Pairs After Drying
No unusual spots or degradation	Not effloresced

Measurement of Size

The length, width and height of a dry, full size tile were measured four times each and then averaged.

Test Specimen	Average Measurements*		
	Length (in)	Width (in)	Height (in)
1	15.37	6.21	0.876
2	15.37	6.22	0.880
3	15.37	6.22	0.877
4	15.37	6.22	0.877
5	15.37	6.19	0.871
6	15.37	6.20	0.873
7	15.37	6.20	0.873
8	15.37	6.20	0.874
9	15.37	6.20	0.875
10	15.37	6.19	0.870

**Since all measurements were performed digitally, they were not reported to the nearest 1/32".*

Measurement of Warpage

The main face and the two adjacent sides seen when the product is installed of a full size tile were examined for signs of warpage and then measured to the nearest 1/32".

Test Specimen	Observations
1	No warpage $\geq 1/32"$
2	Main face: One short edge 1/32" lower than middle of tile
3	No warpage $\geq 1/32"$
4	Main face: One corner 1/32" lower than middle of tile
5	No warpage $\geq 1/32"$
6	Main face: One corner 1/32" lower than middle of tile
7	Smallest adjacent side: One end 1/32" lower than highest point of face
8	No warpage $\geq 1/32"$
9	No warpage $\geq 1/32"$
10	No warpage $\geq 1/32"$



Photo No. 1
NeaCera® Terra-cotta Wall Tiles
As-received Pictorial Representation



Photo No. 2
Modulus of Rupture
Typical Set Up of Test



Photo No. 3
Modulus of Rupture
Planes of Failure

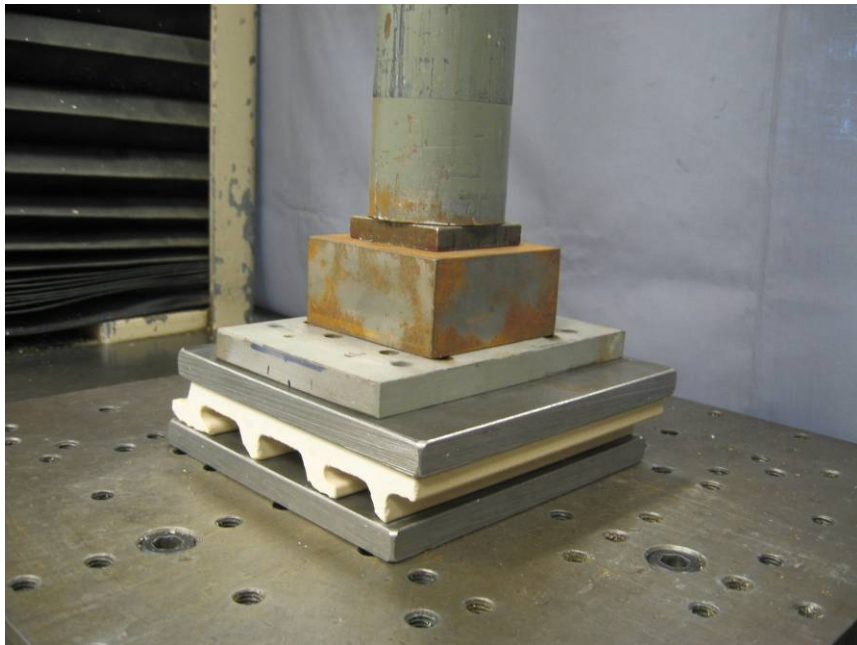


Photo No. 4
Compressive Strength
Typical Set Up of Test

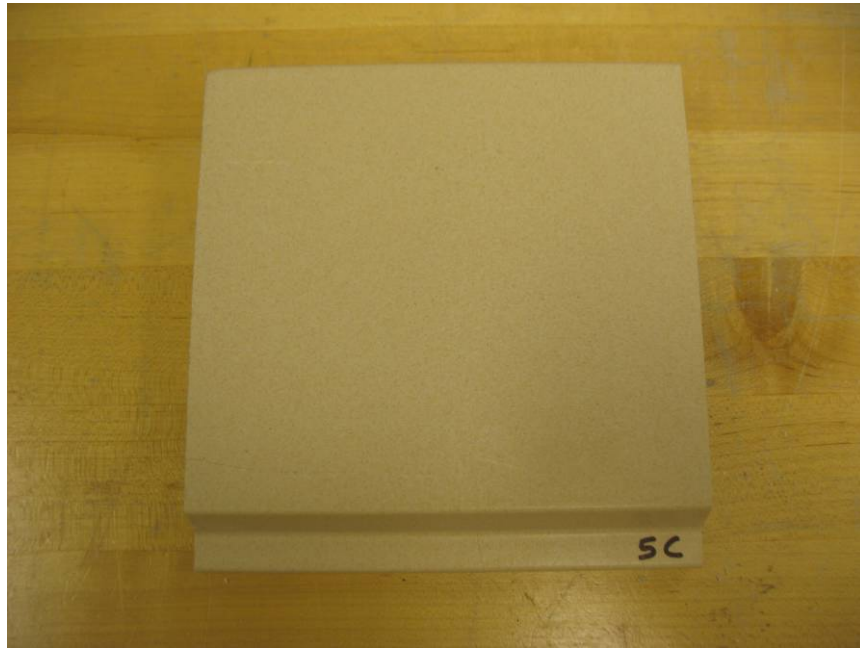


Photo No. 5
Compressive Strength
Test Specimen After Test



Photo No. 6
Compressive Strength
Same Test Specimen Separated at Cracks