Farabaugh Engineering and Testing Inc.

Project No. T253-17
Report Date: October 31, 2017

No. Pages: 5 (inclusive)

PERFORMANCE TEST REPORT

CLAY ROOF TILE
Barrel Tile, (Red color)

FOR

LUDOWICI ROOF TILE
4757 TILE PLANT ROAD
PO BOX 69
NEW LEXINGTON, OH 43764

Prepared by:

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Approved by:

Paul Farabaugh
Director of Operations

SCOPE OF SERVICES

General

On June 22, 2017, Farabaugh Engineering and Testing Inc. (FET) received Ten (10) clay roof Tiles, identified below; from Ludowici Roof Tile, for compliance testing to ASTM C1167-11.Testing was conducted between June 28, 2017 and October 20, 2017.

Test Specimen

Manufacturer: UNKNOWN

Tile Description: Barrel Tile, 19.73" Long X 8.44" Wide X 0.48" thick Clay Roof tile, (See Attached Photo's).

Tile Imprint: Verea Spain CE 13/12/28M 1

Test Procedure

Testing was performed in general accordance with ASTM C1167-11 "Standard Specification for Clay Roof Tile", section 6.0 Cold Water Absorption, 6.2 Freezing and Thawing.

6.0 Water Absorption

Test Procedure

The test was conducted in general accordance with ASTM C1167-11 "Standard Specification for Clay Roof Tile", section 6.0 Absorption as provided herein.
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Barrel	1	2	3	4	5	Average
Absorption (%) (24 Hr. Cold Water)	6.76	6.86	6.68	6.75	6.78	6.77

Average Cold Water Absorption= 6.77 %

Results: As a result of the testing on each specimen, the Average 24 Hour Cold Water Absorption was calculated as listed above.

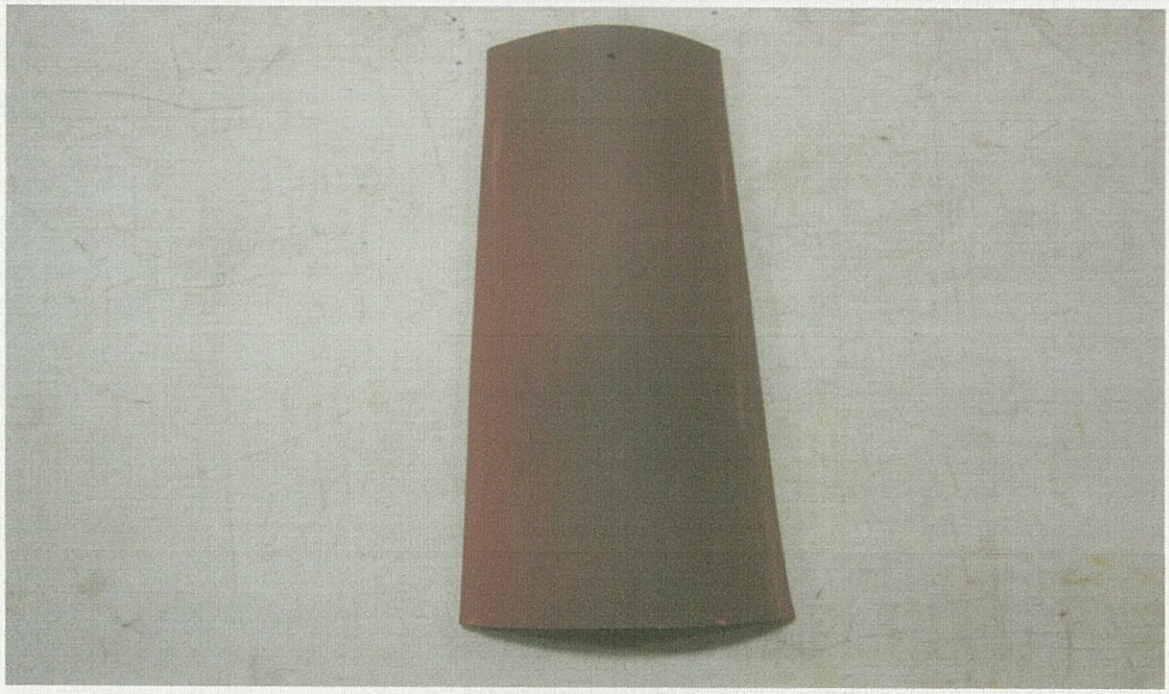
9.0 Freezing and Thawing

Test Procedure

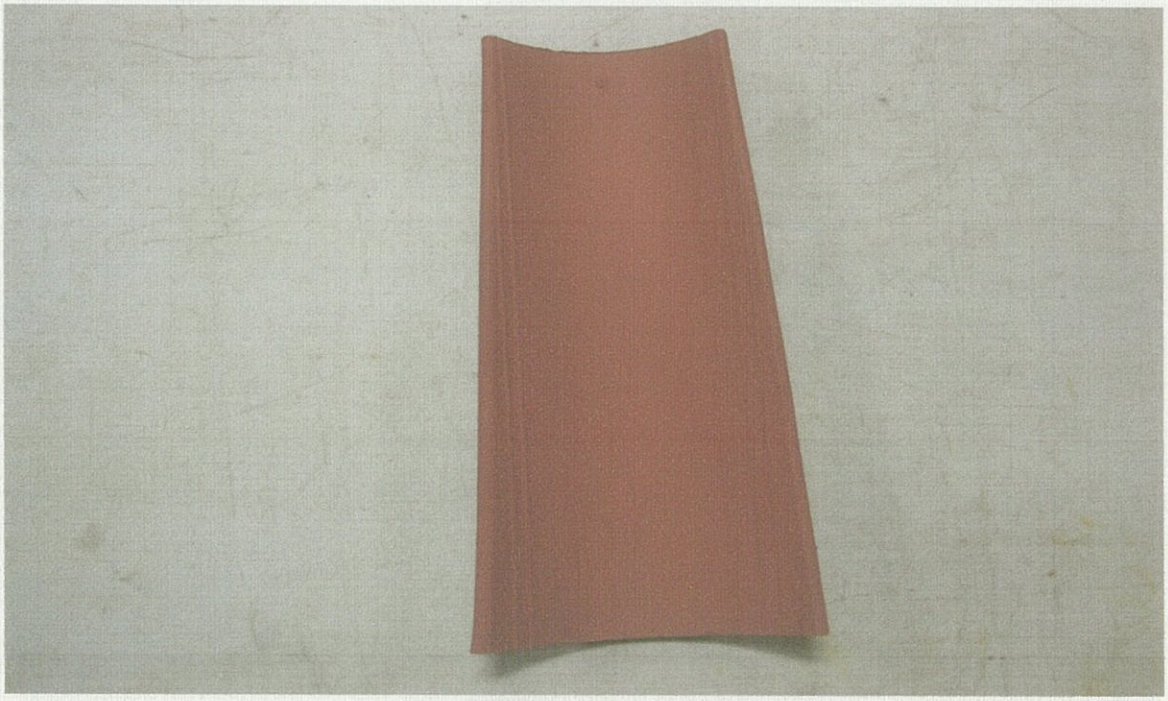
The test was conducted in general accordance with ASTM C 1167-11 "Standard Specification for Clay Roof Tile", section 6.2 Freezing and Thawing. One (1) sample of Roof tile measuring 14 " in Length by the width of the tile was cut out of five (5) individual full length tile. These tiles were subjected to 50 freeze thaw cycles, which consisted of 4 hours completely immersed in room temperature water and then placed in a freezer for 20 hours at -20 C with the tile completely submerged in water. At the conclusion of the 50 cycles the tiles were thawed and then dried in an oven and examined. Test data was recorded and the results are as follows:

SAMPLE ID.	INITIAL DRY WEIGHT (LBS)	FINAL DRY WEIGHT (LBS)	% WEIGHT LOSS	VISUAL OBSERVATIONTS	FREEZE THAW CYCLES
Barrel Roof Tile #1	3.950	3.938	0.30	no breakage, no crack development	50 Cycles
Barrel Roof Tile #2	3.900	3.860	1.03	no breakage, no crack development	50 Cycles
Barrel Roof Tile #3	3.946	3.938	0.20	no breakage, no crack development	50 Cycles
Barrel Roof Tile #4	3..940	3.918	0.56	no breakage, no crack development	50 Cycles
Barrel Roof Tile #5	3.948	3.924	0.61	no breakage, no crack development	50 Cycles

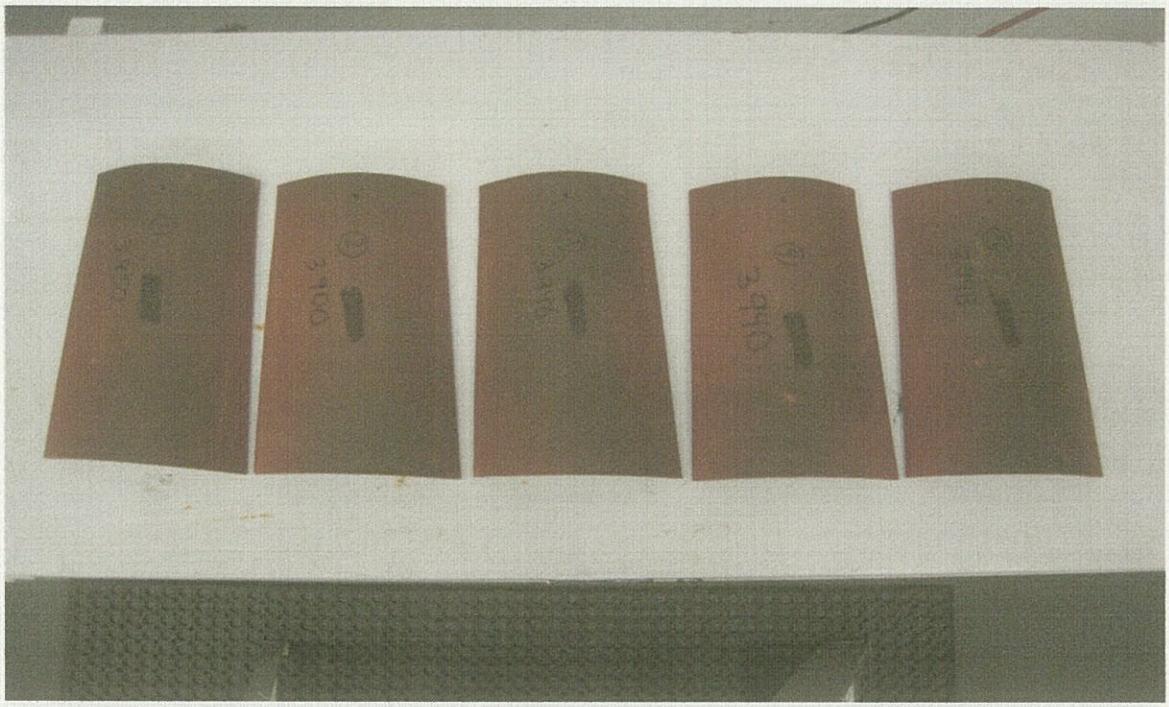
Results: As a result of the testing on each specimen, No breaking, or cracking was Observed. The Individual dry weight loss was calculated as listed above.



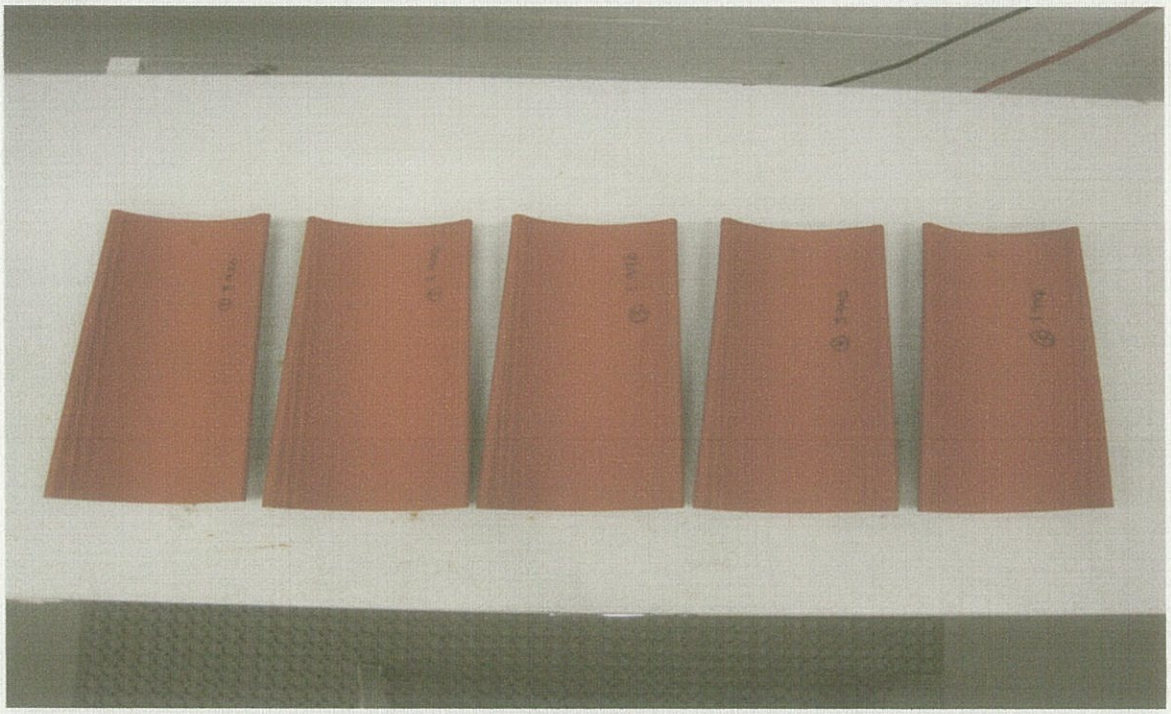
BARREL TILE
(Top View Water Absorption sample)



BARREL TILE
(Bottom View Water Absorption sample)



BARREL TILE
(Top View Freeze Thaw samples)



BARREL TILE
(Bottom View Freeze Thaw samples)