



# Farabaugh Engineering and Testing Inc.

Project No. T192-24 (Rev.1)  
Report Date: August 19, 2024

No. Pages: 15 (inclusive)

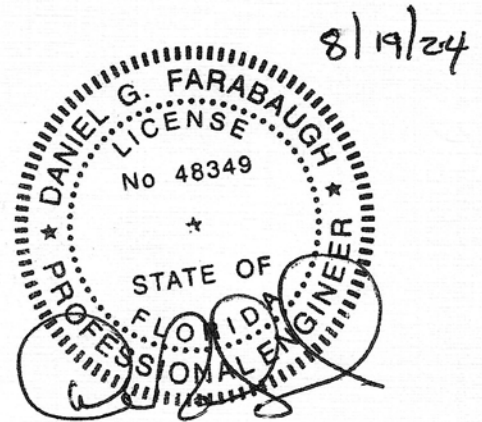
## PERFORMANCE TEST REPORT

CLAY ROOF TILE  
(CREATON VISIO INTERLOCKING)

FOR

LUDOWICI ROOF TILE, INC.  
4757 TILE PLANT ROAD  
NEW LEXINGTON, OHIO 43764

DANIEL G. FARABAUGH, P.E.  
255 Saunders Station Rd  
Trafford, PA 15085  
412-417-5153

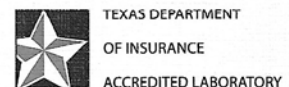


Prepared by:

Paul Medwig  
Director of Testing

Approved by:

Daniel Farabaugh, P.E.  
Reg. State of Florida #48349



## SCOPE OF SERVICES

### *General*

On March, 15 2024, Farabaugh Engineering and Testing Inc. (FET) received One Hundred (100) clay roof Tiles, identified below; from Ludowici Roof Tile, Inc. for compliance testing to ASTM C 1167-11. Testing was conducted between March 18, 2024 and June 21, 2024.

### **Test Specimen**

**Manufacturer:** Ludowici Roof Tile Inc.  
4757 Tile Plant Road  
New Lexington, Ohio 43764

**Tile Description:** Creaton Visio, Interlocking clay tile, Measuring, 10.51” wide X 17.83” long Clay Roof Tile (See Attached Photo’s).

**Tile Imprint:** CREATON VISIO, D-GUTTAU, 301123, (See Attached Photo’s).

**Tile Classification:** ASTM C 1167, Type III, Grade 1

### **Test Procedure**

Testing was performed in general accordance with the ASTM C 1167-11 “Standard Specification for Clay Roof Tile”

## **5.0 MATERIAL and FINISH**

### **5.1 Color and Texture**

Requirement: Color and Texture produced by application of inorganic coatings to the face of the tile are not prohibited provided that evidence satisfactory to the purchaser is furnished regarding the durability of the coating.

Results: The color was Natural Clay

## **5.2 Defects, Deficiencies, or Bloating**

Requirement: The Tile shall be free of defects, deficiencies, or bloating, that would interfere with the proper laying of the tile

Results: **Meets Requirement**, there was no visible defects, deficiencies, or bloating

### **5.2.1 Black Heart**

Requirement: Tiles that, when broken, have a dark area that has a steely appearance and is sharply delineated from the surrounding normal color of the tile is not prohibited as long as it meets the physical performance requirements of this standard.

Results: **Meets Requirement**, there was no visible signs of black heart when the Five tiles used in the breaking strength test were inspected.

## **5.3 Tile Surface**

Requirement: The exposed tile surface shall be free of chippage or other imperfections detracting from the appearance of the designated sample tile when viewed from a distance of 40 feet under an illumination of not less than 50 fc by an observer with normal vision.

Results: **Meets Requirement**, there was no chippage or other imperfections detracting from the appearance of the designated sample tile when viewed at a distance of 40 feet under an illumination of not less than 50 fc.

**6.0 PERFORMANCE REQUIREMENTS**

**6.1 Durability**

Requirement: The tiles shall conform to the physical requirements for the grade specified as prescribed in table 2 of ASTM C1116. The cold-water absorption Requirements for a grade 2 tile is an average of 5 tile to be 11% or less, and no individual tile to be greater than 13%.

Results: **Meets Requirement**, for a Grade 2 Tile. The average cold water Absorption of 5 tiles was 7.11%.

**6.1.1 Water Absorption / Saturation Coefficient**

Requirement: The physical requirements in table 2 of ASTM C1167 shall be achieved as a result of the firing process.

Results: **Meets Requirement**, for a Grade 2 Tile. The average cold water Absorption of 5 tiles was 7.11%.

Specimen #	1	2	3	4	5	Average	Specified
Absorption (%)	7.58	6.82	7.16	7.01	6.98	7.11	≤ 11 % - Average of 5 ≤ 13 % - Individual

**6.2 Freezing and Thawing**

Requirement: No breakage, no crack development that exceeds the minimum dimension of the specimen, and not greater than 0.5% loss in dry weight when 5 tiles are subjected to 50 cycles of freezing -and -thawing test of test method ASTM C 67 modified in accordance with ASTM C 1167

Results: **Meets Requirement**

SAMPLE ID.	INITIAL DRY WEIGHT (LBS)	FINAL DRY WEIGHT (LBS)	% WEIGHT LOSS	VISUAL OBSERVATIONTS	FREEZE THAW CYCLES
Visio Tile #1	7.720	7.717	0.039	no breakage, no crack development	50 Cycles
Visio Tile #2	7.940	7.931	0.113	no breakage, no crack development	50 Cycles
Visio Tile #3	7.928	7.917	0.139	no breakage, no crack development	50 Cycles
Visio Tile #4	7.780	7.768	0.154	no breakage, no crack development	50 Cycles
Visio Tile #5	7.788	7.775	0.167	no breakage, no crack development	50 Cycles

**6.3 Transverse Breaking Strength**

Requirement: Five tile shall be tested wet after 24 hours submersion in water at a temperature of 75+/- 10 F, or Five tiles shall be tested dry after heating in a ventilated oven for 24 hours at a temperature of 230F to 239F. Tiles shall be considered to comply with the standard when they pass the requirements of either the wet or the dry transverse strength listed in table 3 of ASTM C 1167.

Results: **Meets Requirement**, For a Type III tile. The average breaking strength of Five tile was 610 Lbs., and the minimum individual breaking strength Was 560 Lbs. (See Below)

Specimen #	1	2	3	4	5	Average	Specified
Transverse Strength (lbs.) Tested Dry	600	560	630	620	640	610	≥ 300 Lbs -Average of 5 ≥ 250 Lbs -Individual

**6.4 Efflorescence**

Requirement: The rating for efflorescence shall be “not effloresced” when tested in accordance with ASTM C 67, modified in accordance with section 6.4.1 of ASTM C1167.

Results: **Meets Requirement,**

Specimen #	1	2	3	4	5	Average	Specified
Efflorescence	None	None	None	None	None	None	None

**6.5 Reactive Particulates**

Requirement: Reactive particulates shall not be used in the composition of the if they result in a visible imperfection when viewed from a distance of 10 feet under a illumination of not less than 50 Fc by an observer with normal vision.

Results: **Meets Requirement,** no visible imperfection were found, when five tile were viewed from a distance of 10 feet under a illumination of not less than 50 Fc

**6.6 Permeability**

Requirement: The tiles shall show no signs of free water formed on the underside of the tiles, and not more than 25% of the visible underside of any one tile shall show dampness, after 2 hours of exposure.

Results: **Meets Requirement,** no visible signs of free water, or dampness was detected on the underside of the tiles.

**7.0 TEXTURE and COLOR****7.2.1 Glazed Adherence**

Requirement: The adherence of the ceramic glaze shall be evaluated by the thermal shock method in accordance with sections 2, 3, and 4 of ASTM C554 with the exceptions listed in ASTM C1167, section 7.2.1.

Results: **Not Applicable,** this tile was not glazed.

**8.0 TOLERANCE on DIMENSION and WEIGHT**

**8.1 Dimensions**

Requirement: The total variation in dimensions of individual tiles, when measured in accordance with test method ASTM C67, shall not be more than +5% or - 5% from the nominal dimension specified by the supplier. The average dimensions measured shall not be less than the nominal dimensions specified by the supplier

Results: **Meets Requirement**, Manufacture specified 10.437 wide X 17.750” long.  
(See attached Century Shake Physical Characteristics Data Sheet)

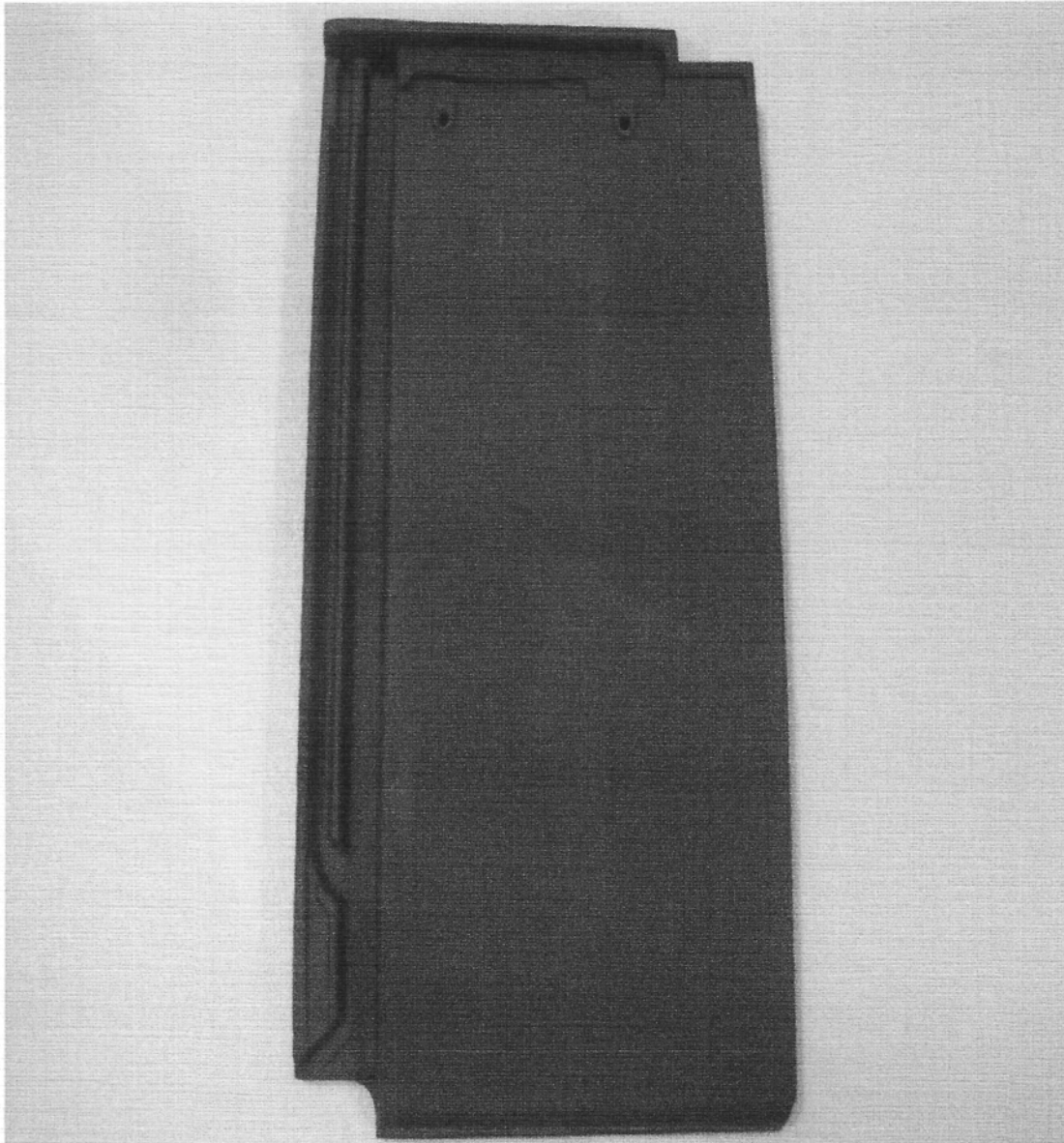
Specimen #	1	2	3	4	5	Average	Specified
Length (in.)	17.82	17.80	17.86	17.83	17.82	17.83	16.85-18.64
Width (in.)	10.58	10.47	10.50	10.51	10.49	10.51	9.91-10.96

**8.2 Weight**

Requirement: The total variation in weight of individual tiles, when measured in accordance with test method ASTM C67, shall not be more than +10% or - 10% from the nominal weight specified by the supplier. The average weight measured shall not be greater than + 10% of the nominal weight.

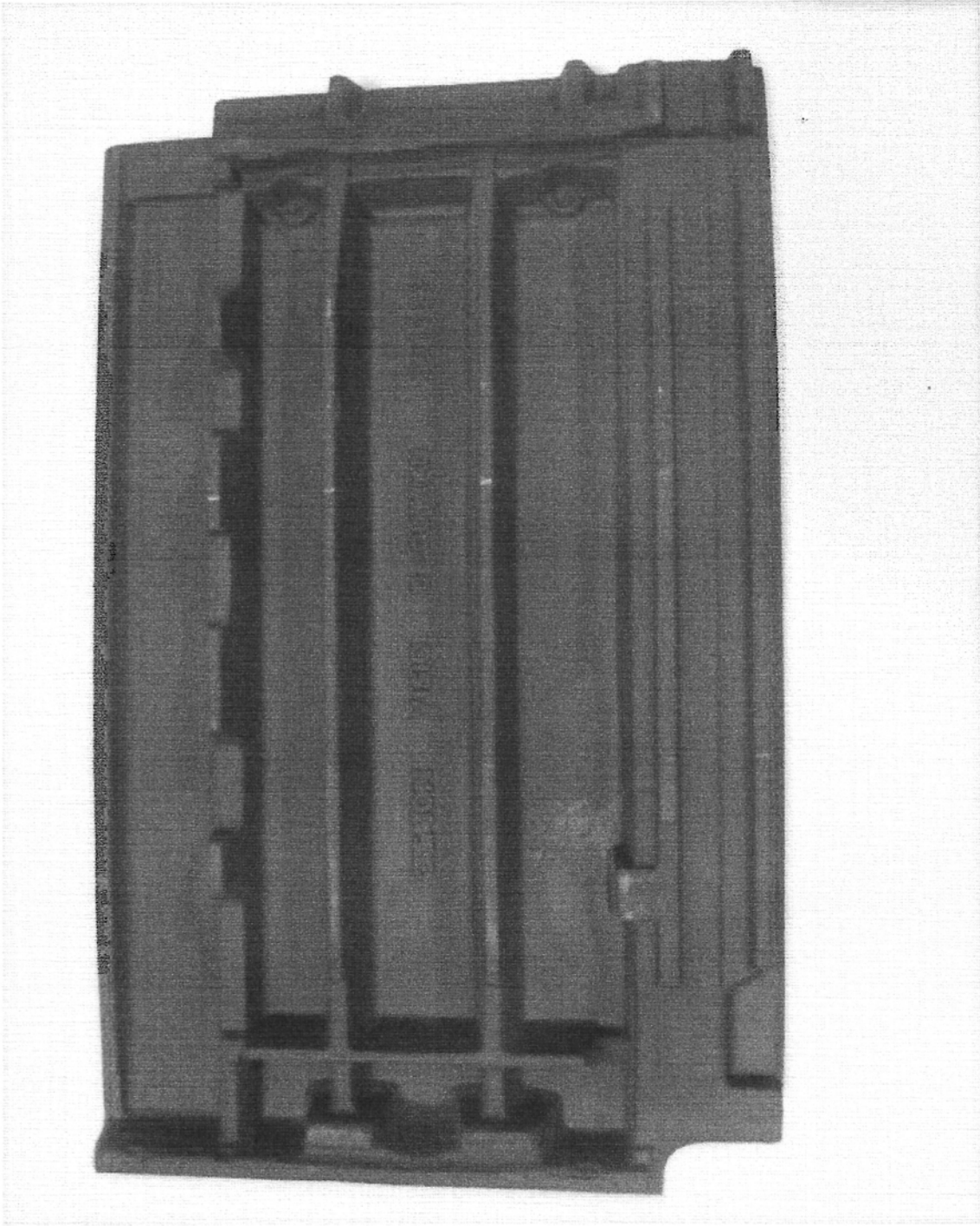
Results: **Meets Requirement**, Manufacture specified 7.96 lbs.  
(See attached Visio Interlocking Tile Characteristics Data Sheet)

Specimen #	1	2	3	4	5	Average	Specified
Dry Wt.(lb.)	7.806	7.970	7.684	7.928	8.018	7.881	7.164-8.756

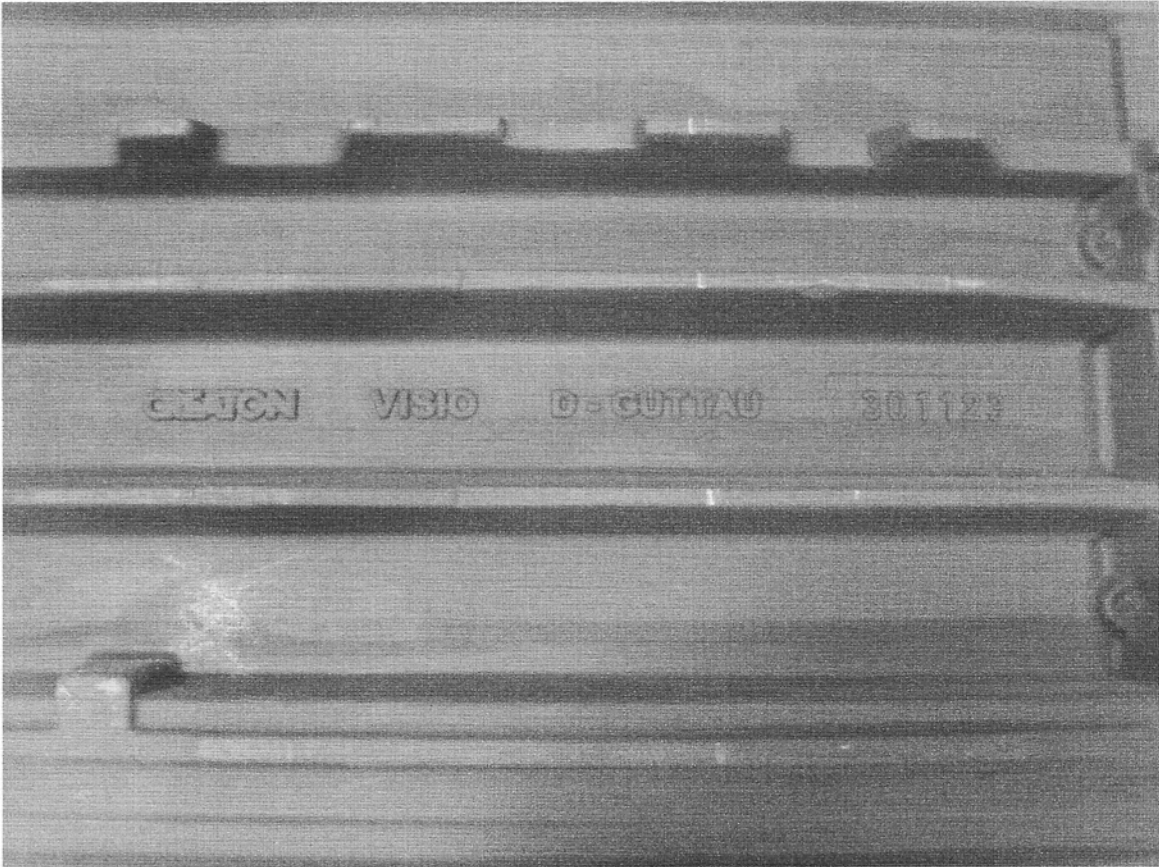


VISIO INTERLOCKING TILE  
(Front View)





VISIO INTERLOCKING TILE  
(Rear View)



VISIO INTERLOCKING TILE  
(Tile Imprint)

**VISIO INTERLOCKING**  
Physical Characteristics Data Sheet



Introducing Visio: A precision-engineered, flat interlocking tile crafted in Europe. Its sleek, smooth surface boasts clean lines, enhanced by a double sidelock on the left vertical edge for added strength and optimal water shedding. With two factory-formed attachment holes, Visio ensures easy mechanical installation. The tile's backside features strategic stiffening ribs, reducing weight, fortifying structure, and maintains an installed weight of under 1,000 lbs. per square.

## PHYSICAL CHARACTERISTICS

CHARACTERISTIC	VISIO INTERLOCKING TILE	PROFILE
Weight Per Square	890 lbs.	
Pieces Per Square	113 pcs.	
Weight Per Pallet	2,400 lbs.	
Pieces Per Pallet	300 pcs. (2.65 SQ/pallet)	
Overall Size	10 7/16" w. x 17 3/4" ht. x 1 3/8" thickness	
Exposure	8 11/16" w. x 14 3/4" ht. x 1 3/8" thickness	
Minimum Slope	3:12**	
Color Blends	Matte White	
Base Texture	Smooth	

\*\*In considering slopes less than our recommended minimum, please see Ludowici's Roof Slope Whitepaper available from your local sales representative.

### APPROVALS & CERTIFICATIONS

- ◆ Miami-Dade County (in progress)
- ◆ State of Florida Approval No: (in progress)
- ◆ ASTM C1167 Grade 1 Roof Tile

### LUDOWICI WARRANTY

Ludowici imported tiles carry a limited 50-year material warranty. Contact Ludowici for warranty information on imported tiles. Imported tile warranties differ from Ludowici's 75-year material warranty for products produced in New Lexington, Ohio.

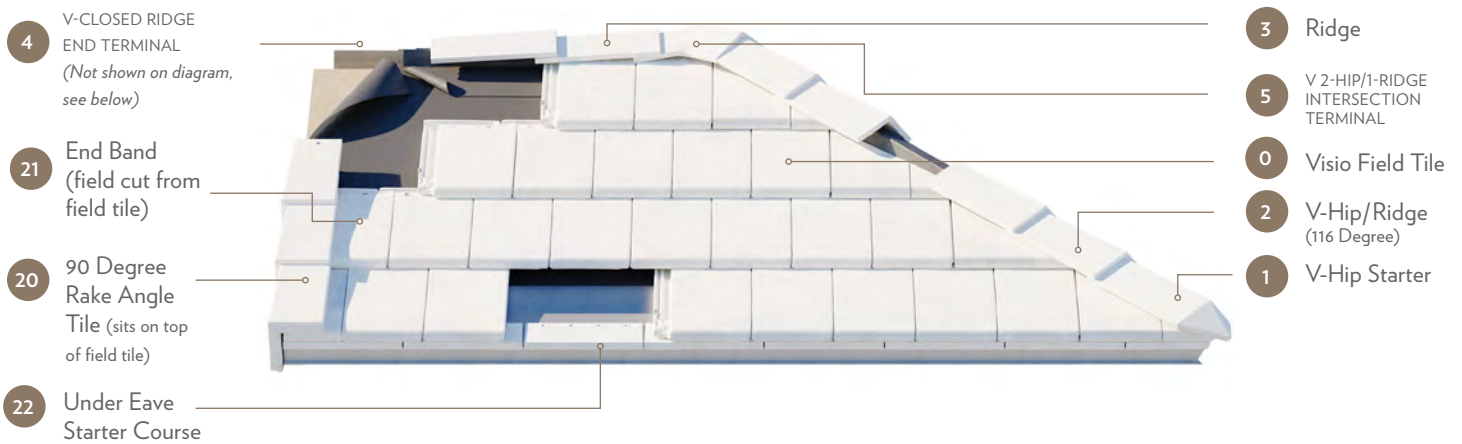


### DESIGN ATTRIBUTES

- ◆ Terra cotta: energy efficient, green and sustainable
- ◆ Double sidelocks designed to ensure proper water shedding
- ◆ (2) factory formed nail holes for mechanical attachment
- ◆ No lugs on tile back allow for easy direct to deck attachment (no battens required)
- ◆ 1-1/8" Deep stiffening ribs remove overall tile weight while increasing tile strength (breaking strength of 520 LBS on average)

Photos are for representation purposes only and should not be used for final product selection. Tiles ordered should be chosen from actual samples available at the time of order. Ludowici reserves the right to alter and adjust products, colors and finishes at any time. Please contact a sales representative for more information.

# VISIO INTERLOCKING TILE



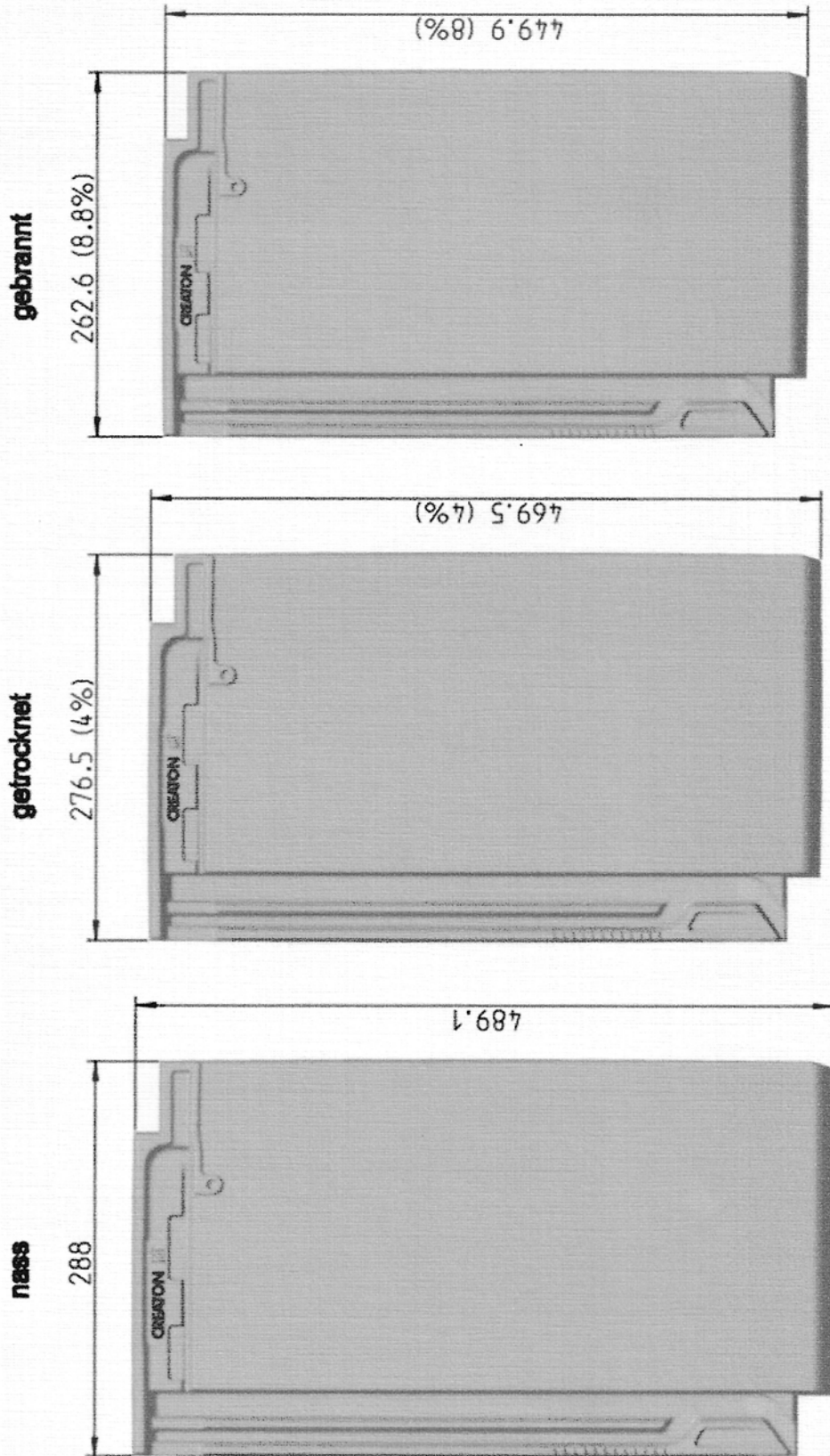
CREATON VISIO INTERLOCKING TILE SYSTEM (WITH LUDOWICI ACCESSORIES)							
PROFILE	0 VISIO FIELD TILE	1 V-HIP STARTER	2 3 V-HIP/RIDGE (116 DEGREE)	4 V-CLOSED RIDGE END TERMINAL	5 V 2-HIP/1-RIDGE INTERSECTION TERMINAL	20 90 DEGREE RAKE ANGLE TILE	22 UNDER EAVE STARTER COURSE
Image							
Item Number	CRE299971	021417	000172	Starter: 021421 Finisher: 047038	210199: V 2-Hip/ 1-Ridge Terminal – A Pitch (4:12, 5:12, 6:12) Starter 210200: V 2-Hip/ 1-Ridge Terminal – A Pitch (4:12, 5:12, 6:12) Finisher 011937: V 2-Hip/ 1-Ridge Terminal – B Pitch (7:12, 8:12, 9:12) Starter 021457: V 2-Hip/ 1-Ridge Terminal – B Pitch (7:12, 8:12, 9:12) Finisher	255813	014749
Overall Size	10-7/16" x 17-3/4" x 1-3/8"	15-1/2" L.	14-1/2" L.	14-1/2" L.	N/A	17-3/4" L.	12"
Exposure	8-11/16" x 14-3/4" x 1-3/8"	12"	12"	12"	N/A	14-3/4"	12"
Pieces Per Square	113	N/A	N/A	N/A	N/A	N/A	N/A
Weight Per Piece	7.96 LBS	8.00 LBS	7.40 LBS	8.00 LBS	15.00 LBS	8.4 LBS	2.30 LBS
Weight Per Square	890 LBS	N/A	N/A	N/A	N/A	N/A	N/A
Pieces Per Box/Pallet	240 PCS	4.00 PCS	38.00 PCS	4.00 PCS	2.00 PCS	36 PCS	150 PCS



2-1/4" Sidelock Windclip  
(Item #C2.25)

**VISIO INTERLOCKING**  
DRAWING

**CREATON / Guttau  
Visio Flächenziegel**



D. Seuter - 20.01.2022