



PRI Construction Materials Technologies LLC

6412 Badger Drive

Tampa, FL 33610

813.621.5777

<https://www.pri-group.com/>

Laboratory Test Report

Report for: Michelle Stander
Lifetime Roofing Specialists, Inc.
3546 E Apple Rd.
Cortland, NE 68331

Product Name: Mosaic Sicily Tile
Project No.: 2581T0006
Dates Tested: December 14, 2023
Test Methods: FBC (HVHZ) TAS 100-95
Results Summary: Pass

Purpose: Determine the wind and wind-driven rain resistance for the specified roof covering in accordance with **Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 100: Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems.**

Test Methods: Testing was conducted as described in Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 100-95: *Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems.*

Sampling: The following materials were received by PRI.

<u>Product</u>	<u>Source</u>	<u>Date</u>	<u>Sampling</u>
26 ga. Mosaic Sicily Tile	Client drop-off	Nov. 03, 2023	Lifetime
#10-15 x 2" Wood Grip screw	Client drop-off	Nov. 03, 2023	Lifetime
#12 x 2.5" WoodZIP screw	Client drop-off	Nov. 03, 2023	Lifetime
Preformed, drip metal	Client drop-off	Nov. 03, 2023	Lifetime
Preformed, valley	Client drop-off	Nov. 03, 2023	Lifetime
Gable end shingle	Client drop-off	Nov. 03, 2023	Lifetime
#9 x 4-1/2" Structural Wood Screw	Client drop-off	Nov. 03, 2023	Lifetime

All other roofing components were procured by PRI Construction Materials Technologies LLC through local distribution.

Conditioning: The prepared test deck was conditioned for 16h at 135-140°F. After conditioning, test deck was allowed to equilibrate to ambient conditions.

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Product Description: Mosaic Sicily Tile: 26ga. stone-coated steel panels; Coverage is 49.2" (1250mm) x 14.6" (370mm);

Result: Testing was performed at ambient conditions. Requisite manufacturer's drawings are contained in Appendix A. Requisite photograph(s) are contained in Appendix B. Requisite calibration documentation is provided in Appendix C.

Component:	Description	Additional Detail	TAS 100 Result [Pass/Fail]
Deck:	15/32-inch thick plywood APA Span-Rated over nominal No. 2 wood trusses at 24" o.c.	8d x 2-1/2" ring shank nails fastened 6" o.c. at ends 12" o.c. along intermediates	Pass
Underlayment:	ASTM D226 Type II roofing felt with 4" wide side laps	32 ga. x 1-5/8" Ø tin caps with 12 ga. x 1-1/4" ring shank nails installed 6" o.c. in laps and 12" o.c. in two, staggered rows in the field of the roll. At the valley, the underlayment was woven by extending 12" past valley centerline.	
Battens:	No. 2 SYP, nominal 2x2 dimensional lumber	No. 2 SYP 2" x 2" wood battens installed approximately 14-5/8" o.c. parallel to the eave; Fastened using two (2) #9 x 4-1/2" Flat Head HeadLok Structural Wood Screws at each rafter intersection, and 24" o.c. between rafters.	
Roof Covering:	Mosaic Sicily Tile	Panels fastened along the back shelf starting at 1" from the edge of the panel and continuing for 28" and 10" o.c. for a total of 3 fasteners through the back shelf. The nose of the panel was attached using 10 at #10-15 x 2" " Woodgrip Hilo, fasteners, placed in a pattern of 4"-5"-4"...o.c for a total of 10 fasteners per panel into the nose of the panel. 13 fasteners total.	
Eave Detail:	26ga. steel drip edge & 26ga. stone coated steel Eaves Flashing	Batten installed 1" from eave and drip metal installed over batten and fastened with #10 x 3.5" bugle head fasteners. Eaves Flashing placed over fascia and fastened 9" o.c. with #12 x 2.5" WoodZIP SCAMP – 5/16 CHWH 304SS, Hi-Lo threads, TP-17 point screws. Panels installed over eaves flashing and fastened with two (2) #12 x 2.5" WoodZIP SCAMP – 5/16 CHWH 304SS, Hi-Lo threads, TP-17 point screws placed into each pan at the nose of the panel for a total of 10 fasteners per panel.	
Valley Metal:	26ga. Stone coated valley metal	#10-15 x 2" Woodgrip Hilo, fasteners, installed 1" from the valley edge and 8" o.c. along the valley.	
Rake Detail:	26ga. stone coated gable flashing square trim	#10-15 x 2" Woodgrip Hilo, fasteners, installed 4 per piece. Placed 1" from edges.	

Note(s) None.

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Observations:

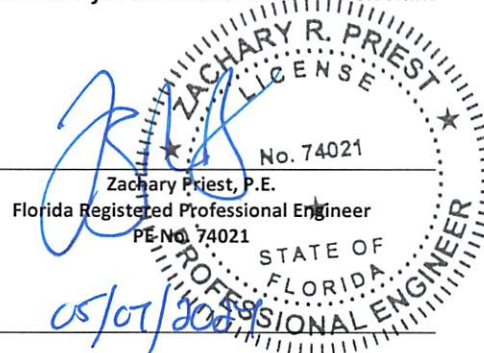
Interval	Test Condition	Result
1	Wind Speed: 35 mph Water Spray: 8.8in/h Duration: 15 min	Wind Speed: No panel displacement Water Spray: No Water infiltration
2	Wind Speed: 0 mph Water Spray: Off Duration: 10 min	Wind Speed: No panel displacement Water Spray: No Water infiltration
3	Wind Speed: 70 mph Water Spray: 8.8in/h Duration: 15 min	Wind Speed: No panel displacement Water Spray: No Water infiltration
4	Wind Speed: 0 mph Water Spray: Off Duration: 10 min	Wind Speed: No panel displacement Water Spray: No Water infiltration
5	Wind Speed: 90 mph Water Spray: 8.8in/h Duration: 15 min	Wind Speed: No panel displacement Water Spray: No Water infiltration
6	Wind Speed: 0 mph Water Spray: Off Duration: 10 min	Wind Speed: No panel displacement Water Spray: No Water infiltration
7	Wind Speed: 110 mph Water Spray: 8.8in/h Duration: 5min	Wind Speed: No panel displacement Water Spray: No Water infiltration
8	Wind Speed: 0 mph Water Spray: Off Duration: 10 min	Wind Speed: No panel displacement Water Spray: No Water infiltration

Statement of Compliance: The test deck constructed complies with all the requirements of **Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 100: Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems.**

Signed: _____

Bill Runkle

Signed: _____



Date: _____

04/02/2024

Date: _____

05/07/2024

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	04/02/2024	11	NA

APPENDIX FOLLOWS

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Appendix A: Test Lab "Marked" Drawings

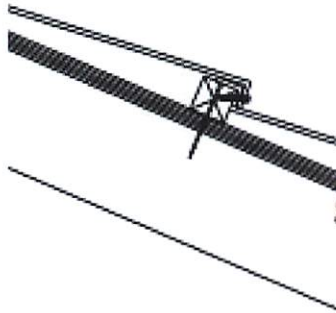


MOSAIC SICILY TILE		
Thickness of steel (mm)	0.45	0.0177"
Length of sheet (mm)	1340 ± 10	52.8"
Cover length (mm)	1250	49.2"
Width of sheet (mm)	420 ± 10	16.5"
Cover width (mm)	370	14.6"
Side overlap (mm)	90	3.5"
Weight of tile (kg)	3 ± 0.1	6lb 9oz
Weight of tiled roof (kg/m ²)	6.5	14lbs 5oz
Coverage per tile (m ²)	0.46	5 ft ²

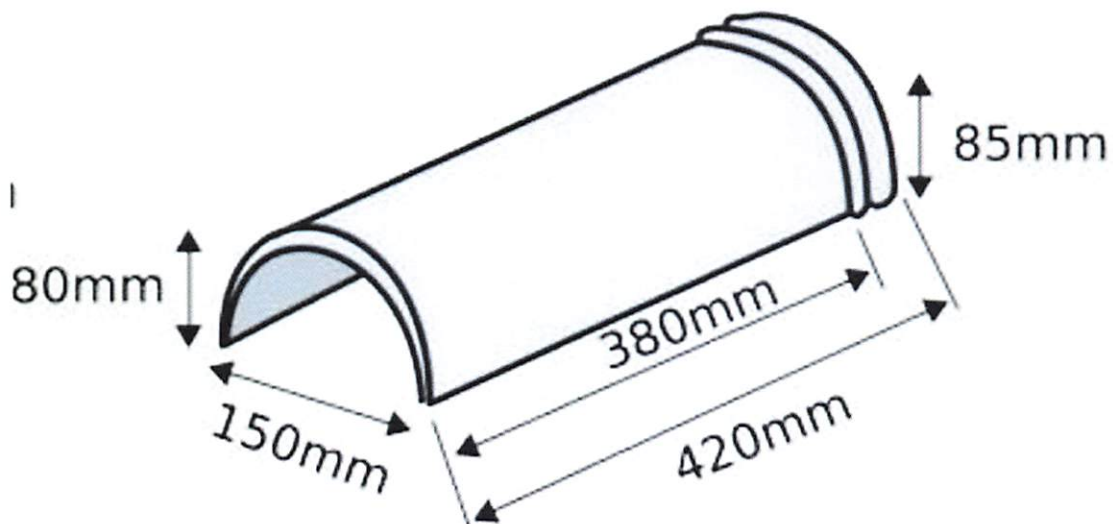
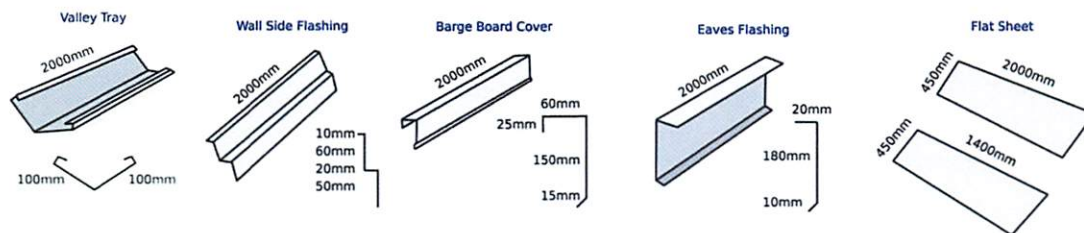
2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

26ga. Mosaic Sicily Tile



Mosaic Sicily Tile Fastening



2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Appendix B: Photographs



Prior To Testing



Subsequent To Testing

Continued on Following Page

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.



Prior To Completion of Interval 1: 35mph



Prior To Completion of Interval 2: 0mph



Prior To Completion of Interval 3: 70mph

Continued on Following Page



Prior To Completion of Interval 4: 0mph

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.



Prior To Completion of Interval 5: 90mph



Prior To Completion of Interval 6: 0mph

Continued on Following Page



Prior To Completion of Interval 7: 110mph



Prior To Completion of Interval 8: 0mph

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Appendix C: Calibration

Windstream Calibration

Procedure: The windstream velocity calibration is conducted on a vertical plane grid measuring 8' wide by 4' high and grid dimensions of 2' by 2'. The plane is located in front of the wind tunnel exit. For each axial velocity setting, windstream pressures are measured using either a Dwyer Model 605-3 or 605-10 Magnehelic Differential Pressure Indicating Transmitter to a Dwyer Model 160-48 Pitot Tube. Velocity pressures for each grid square are observed as inches of water and converted to miles per hour according to the below relationship.

$$MPH = 12.4625 \sqrt{P_v / d}$$

where, P_v represents the velocity pressure in inH₂O and d represents the density of air in lbs/ft³ adjusted for temperature, barometric pressure, and relative humidity.

The measured windstream velocity within each grid square shall be within ±10% of the required axial velocity for each wind speed.

Data and Calculations: Data from the most recent calibration indicates that the wind generator provides a suitably constant wind profile for the TAS 100-95 test procedure. Windstream velocity calibration data is provided in the table that follows on the next page.

Windstream Velocity Calibration

Date of Calibration Procedure: 10/23/23

Next Due: April-24

Ambient Temperature: 78.0 °F

Barometric Pressure: 29.96 in Hg

Relative Humidity: 72 %

RPM	Grid Position	Velocity Pressure (in H ₂ O)	Windstream Velocity (mph)	Grid Position	Velocity Pressure (in H ₂ O)	Windstream Velocity (mph)	Grid Position	Velocity Pressure (in H ₂ O)	Windstream Velocity (mph)	Grid Position	Velocity Pressure (in H ₂ O)	Windstream Velocity (mph)
1200	1	0.49	32.2	2	0.50	32.6	3	0.50	32.6	4	0.50	32.6
	5	0.50	32.6	6	0.50	32.6	7	0.60	35.7	8	0.60	35.7
Target: 35 mph		Calibration: Each Grid Square shall be within ± 10% of 35 mph (31.5 - 38.5 mph)								Pass/Fail: Pass		
2300	1	2.1	66.8	2	2.3	69.9	3	2.4	71.4	4	2.5	72.8
	5	2.2	68.3	6	2.3	69.9	7	2.5	72.8	8	2.5	72.8
Target: 70 mph		Calibration: Each Grid Square shall be within ± 10% of 70 mph (63 - 77 mph)								Pass/Fail: Pass		
3000	1	3.6	87.4	2	3.7	88.6	3	3.9	91.0	4	4.0	92.1
	5	3.7	88.6	6	3.8	89.8	7	3.9	91.0	8	4.0	92.1
Target: 90 mph		Calibration: Each Grid Square shall be within ± 10% of 90 mph (81 - 99 mph)								Pass/Fail: Pass		
3600	1	5.4	107	2	5.6	109	3	5.7	110	4	5.8	111
	5	5.5	108	6	5.6	109	7	5.8	111	8	5.9	112
Target: 110 mph		Calibration: Each Grid Square shall be within ± 10% of 110 mph (99 - 121 mph)								Pass/Fail: Pass		

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Simulated Rainfall and Flow Meter Calibration

Procedure: Water is supplied to the windstream via mounted sprinkle-pipes. Calibration is conducted in essentially two steps. First, the flow meter readings, in gal/min, are recorded, summed, and input into the following equation:

$$\left[\frac{\left(\frac{\text{gallons}}{\text{minute}} \right) \times \left(\frac{60 \text{ minutes}}{1 \text{ hour}} \right) \times \left(\frac{231 \text{ inches}^3}{1 \text{ gallon}} \right)}{11,520 \text{ inches}^2} \right] = \left(x \frac{\text{inches}}{\text{hour}} \right)$$

The quantity x determined above shall be within $\pm 5\%$ of the desired rainfall simulation of 8.8 inches/hour.

Second, the quantity of water captured in one (1) minute is weighed, converted to volume, and input into the below equation:

$$\left[\frac{\left(\frac{\text{inches}^3}{11,520 \text{ inches}^2} \right) \times \left(\frac{60 \text{ minutes}}{1 \text{ hour}} \right)}{1 \text{ minute}} \right] = \left(y \frac{\text{inches}}{\text{hour}} \right)$$

The flow meter determination x shall be within $\pm 5\%$ of the quantity y determined above.

Data and Calculations: Data from the most recent calibration indicate that an appropriate volume of water is applied during the TAS 100-95 test procedure. Simulated rainfall and flow meter calibration data is provided in the below table.

Simulated Rainfall and Flow Meter Calibration					
These settings are for 35mph					
Date of Calibration Procedure: 10/23/23			Next Due: January-24		
X	Water Supply (gal/min)	Simulated Rainfall (in/hr)	Y	Weight (lbs)	Volume (in ³)
Flow Meter #1	2.4	2.9	Flow Meter #1	20.4	564.7
Flow Meter #2	4.8	5.8	Flow Meter #2	40.5	1121.0
Total	7.2	8.7	Total	60.9	1685.7
Simulated Rainfall		8.7	Simulated Rainfall		8.8
Target		8.8	Target		8.7
Within $\pm 5\%$ Tolerance		Pass	Within $\pm 5\%$ Tolerance		Pass

Simulated Rainfall and Flow Meter Calibration					
These settings are for 70+ mph					
Date of Calibration Procedure: 10/23/23			Next Due: January-24		
X	Water Supply (gal/min)	Simulated Rainfall (in/hr)	Y	Weight (lbs)	Volume (in ³)
Flow Meter #1	3.6	4.3	Flow Meter #1	30.0	830.4
Flow Meter #2	3.6	4.3	Flow Meter #2	30.0	830.4
Total	7.2	8.7	Total	60.0	1660.8
Simulated Rainfall		8.7	Simulated Rainfall		8.6
Target		8.8	Target		8.7
Within $\pm 5\%$ Tolerance		Pass	Within $\pm 5\%$ Tolerance		Pass

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Water Distribution Check

Procedure: The water distribution of simulated rain fall over the test frame was determined by placing a thick absorptive material on the deck sheathing, determining the amount of water absorbed during a set time interval, and verifying the water distribution profile within given tolerances. The procedure outlined in TAS 100-95 and was followed. The deck was set to a 2in:12in slope. The thick absorptive material used was 46 gauge organic felt. Wind driven rain was applied for approximately six (6) minutes. Each individual 2' x 2' wetted square was weighed using an Ohaus Model I-10 Scale.

The simulated rainfall calculated for each 2' x 2' wetted square shall be within either $\pm 15\%$ (at 35mph) or $\pm 10\%$ (at 70mph) of every other wetted square.

Data and Calculations: Data from the most recent calibration indicates that the wind generator and water supply system provides a suitably constant water distribution profile for the TAS 100-95 test procedure. Water distribution check data is provided in the table below.

Water Distribution Check															
Date of Calibration Procedure:		10/23/23				Next Due:		April-24							
Ambient Temperature:		78.0 °F				Barometric Pressure:		29.95 in Hg							
Relative Humidity:		72 %				Windstream Velocity:		35 mph							
Water Supply:		8.8 gal/min				Elapsed Time:		6 min							
Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)	Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)	Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)	Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)
1	185.0	685.0	8.68	2	190.0	675.0	8.42	3	190.0	675.0	8.42	4	185.0	675.0	8.51
5	180.0	680.0	8.68	6	180.0	670.0	8.51	7	180.0	670.0	8.51	8	185.0	690.0	8.77
9	185.0	685.0	8.68	10	190.0	680.0	8.51	11	185.0	675.0	8.51	12	190.0	685.0	8.59
13	190.0	675.0	8.42	14	180.0	690.0	8.85	15	185.0	700.0	8.94	16	190.0	705.0	8.94
17	190.0	700.0	8.85	18	185.0	700.0	8.94	19	180.0	710.0	9.20	20	190.0	690.0	8.68
Target: No one particular square sample shall exhibit a rainfall simulation greater than or less than 15% of any other square sample.															
High Value:		9.20		Low Tolerance:		7.82		Pass/Fail:		Pass					
Low Value:		8.42		High Tolerance:		9.68									
Windstream Velocity:		70 mph				Water Supply:		8.8 gal/min				Elapsed Time:		6 min	
Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)	Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)	Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)	Grid Position	Dry Felt (g)	Wetted Felt (g)	Simulated Rainfall (in/hr)
1	190.0	680.0	8.5	2	185.0	675.0	8.51	3	190.0	680.0	8.51	4	190.0	685.0	8.59
5	180.0	675.0	8.6	6	185.0	670.0	8.42	7	180.0	670.0	8.51	8	180.0	680.0	8.68
9	185.0	680.0	8.6	10	190.0	680.0	8.51	11	185.0	675.0	8.51	12	185.0	680.0	8.59
13	190.0	680.0	8.5	14	190.0	695.0	8.77	15	190.0	670.0	8.33	16	190.0	690.0	8.68
17	190.0	690.0	8.7	18	195.0	685.0	8.51	19	190.0	680.0	8.51	20	190.0	680.0	8.51
Target: No one particular square sample shall exhibit a rainfall simulation greater than or less than 10% of any other square sample.															
High Value:		8.77		Low Tolerance:		7.89		Pass/Fail:		Pass					
Low Value:		8.33		High Tolerance:		9.17									

END OF REPORT

2581T0006

The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.