PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for:	Art McDow Golden Rule Fastener 5290 Hwy 229 S, Tallassee, AL 36078
Product Name:	Jacked Vent
Project No.:	2655T0001
Dates Tested:	January 09, 2024
Test Methods:	FBC (HVZ) TAS 100(A)
Results Summary:	Compliant: FBC (HVHZ) TAS 100(A)

Purpose:

Determine the wind and wind-driven rain resistance for the specified ventilation product in accordance with **Florida Building Code Test Protocols for the High Velocity Hurricane Zones, Testing Application Standard (TAS) No. 100(A): *Test Procedure for Wind and Wind Driven Rain Resistance and/or Increased Wind Speed Resistance of Soffit Ventilation Strip and Continuous or Intermittent Ventilation System Installed at the Ridge Area***.

Test Methods:

Testing was conducted as described in Florida Building Code Test Protocols for the High Velocity Hurricane Zone, 8th Edition (2023) Testing Application Standard (TAS) No. 100(A): Test Procedure for Wind and Wind Driven Rain Resistance and/or Increased Wind Speed Resistance of Soffit Ventilation Strip and Continuous or Intermittent Ventilation System Installed at the Ridge Area.

Sampling:

The following materials were received by PRI.

Product	Source	Date	Sampling
3/4in rib closure	Tallassee, AL	9/6/2023	Golden Rule
Jacked Vent	Tallassee, AL	1/9/2024	Golden Rule
29ga galv. Roof panels	Tallassee, AL	9/6/2023	Golden Rule
Geocel 2300 sealant	Tallassee, AL	1/9/2024	Golden Rule

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, the test deck was allowed to equilibrate to ambient conditions.

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	Attachment	Additional Detail	TAS 100 Result [Pass/Fail]
Deck:	15/32-inch thick plywood APA Span-Rated over nominal No. 2 wood trusses at 24in o.c.	8d, 2-1/2in ring shank nails 6in o.c. at ends 12in o.c. along intermediates	Slope 2in:12in	Pass
Underlayment:	ASTM D226 Type II	32ga, 1-5/8in Ø tin caps with 12ga, 1-1/4in ring shank nails Fasteners installed at 6in o.c. in laps with two additional rows in the field at 12in o.c.	4in Side Laps	
Drip Metal:	26ga, G90 Steel 2-3/4in vertical face 3in flange	12ga, 1-1/4in ring shank nails Fasteners installed at 4in o.c. and 1in from exterior edge	Joints lapped 4in	
Roof Covering:	29 gauge galvanized roofing panels (38-1/2in x 72in)	#10 x 1-1/2in SFS HWH self-drilling wood screws with EPDM washer 3/4in butyl tape	29 gauge galvanized roofing panels installed using #10 x 1-1/2in SFS were placed 1in off each rib, every 13-20in 1-1/2in side lap. 3/4in butyl tape placed in the lap, secured with #10 x 1-1/2in SFS HWH self-drilling wood screws, placed 2-1/2in – 3in o.c.	
Eave Detail:	Golden Rule 3/4in Rib Closure	Self-adhered Geocel 2300 Construction Tripolymer Sealant #10 x 1-1/2in SFS HWH self-drilling wood screws with EPDM washer	A 3/8in bead of Geocel sealant was placed on top and bottom side of rib closure. The rib closure was placed atop drip metal at the eave. #10 x 1-1/2in SFS were placed through the top of the rib closure and placed 2-3/4in o.c. between ribs.	
Ridge:	29 gauge ridge metal 19in Golden Rule 3/4in Rib Closure (Part# 6587X-A200)	#10 x 1-1/2in SFS HWH self-drilling wood screws with EPDM washer	Rib closure was placed on top of the roof covering and #10 SFS screws were placed 9in O.C. and placed over top of each rib through the ridge metal.	
Installation continued on next page				

Vent Installation:	**Jacked Vent**	#10 x 1-1/2in SFS HWH self-drilling wood screws with EPDM washer #10 x 1in pan head screws Geocel 2300 Construction Tripolymer Sealant	A 9in hole placed 18in from ridge. Vent was secured using four (4) #10 x 1in pan head wood screws placed in each of the four mounting brackets under the flange. Under the flange 1/2in back, 1/2in butyl tape was placed. Then fastened using Seventy-five (75) #10 x 1-1/2in SFS HWH self-drilling wood screws, centered in the aluminum strip on the rubber flange, placed 1/8in – 1/4in apart. A 1/4in bead of Geocel 2300 Sealant was used around the edge of the flange.	

Note(s) None.

Observations:

Interval	Test Condition	Result
1	Wind Speed: 35 mph Water Spray: 8.8in/h Duration: 15 min	**Wind Speed: No Vent displacement** **Water Spray: No Water infiltration**
2	Wind Speed: 0 mph Water Spray: Off Duration: 5 min	**Wind Speed: No Vent displacement** **Water Spray: No Water infiltration** **(Total infiltration is 0.000% of allowable 0.050% of total water spray)**
3	Wind Speed: 70 mph Water Spray: 8.8in/h Duration: 15 min	**Wind Speed: No Vent displacement** **Water Spray: No Water infiltration**
4	Wind Speed: 0 mph Water Spray: Off Duration: 5 min	**Wind Speed: No Vent displacement** **Water Spray: Water infiltration 20ml** **(Total infiltration is 0.002% of allowable 0.050% of total water spray)**
5	Wind Speed: 90 mph Water Spray: 8.8in/h Duration: 15 min	**Wind Speed: No Vent displacement** **Water Spray: No Water infiltration**
6	Wind Speed: 0 mph Water Spray: Off Duration: 5 min	**Wind Speed: No Vent displacement** **Water Spray: Water infiltration 110ml** **(Total infiltration is 0.015% of allowable 0.050% of total water spray)**
7	Wind Speed: 110 mph Water Spray: 8.8in/h Duration: 5min	**Wind Speed: No Vent displacement** **Water Spray: No Water infiltration**
8	Wind Speed: 0 mph Water Spray: Off Duration: 5 min	**Wind Speed: No Vent displacement** **Water Spray: Water infiltration 96ml** **(Total infiltration is 0.025% of allowable 0.050% of total water spray)**

Summary Observations: Vent displacement was not observed during the test. Water infiltration was observed during the test; **226ml (0.03%)** was collected; 450ml (0.05%) is allowed.

Statement of Compliance: The test deck constructed complies with all the requirements of **Florida Building Code Test Protocols for the High Velocity Hurricane Zones, 8th Edition (2023) Testing Application Standard (TAS) No. 100(A):** ***Test Procedure for Wind and Wind Driven Rain Resistance and/or Increased Wind Speed Resistance of Soffit Ventilation Strip and Continuous or Intermittent Ventilation System Installed at the Ridge Area***. The laboratory test results presented in this report are reprehensive of the materials supplied.

Signed: _____ **Jason Simmons, Director**

Date: 4/18/2024

Signed: _____ **Zachary R. Priest, Florida Registered Professional Engineer, P.E. Number 74021**

Date: 04/18/2024

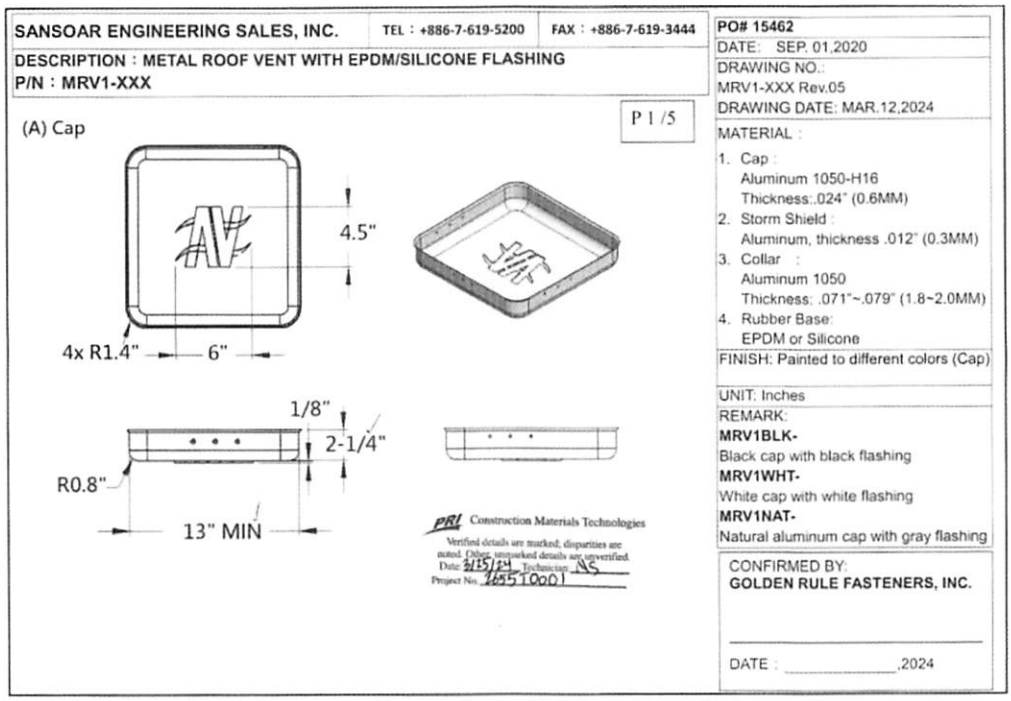
ZACHARY R. PRIEST LICENSE No. 74021 STATE OF FLORIDA PROFESSIONAL ENGINEER

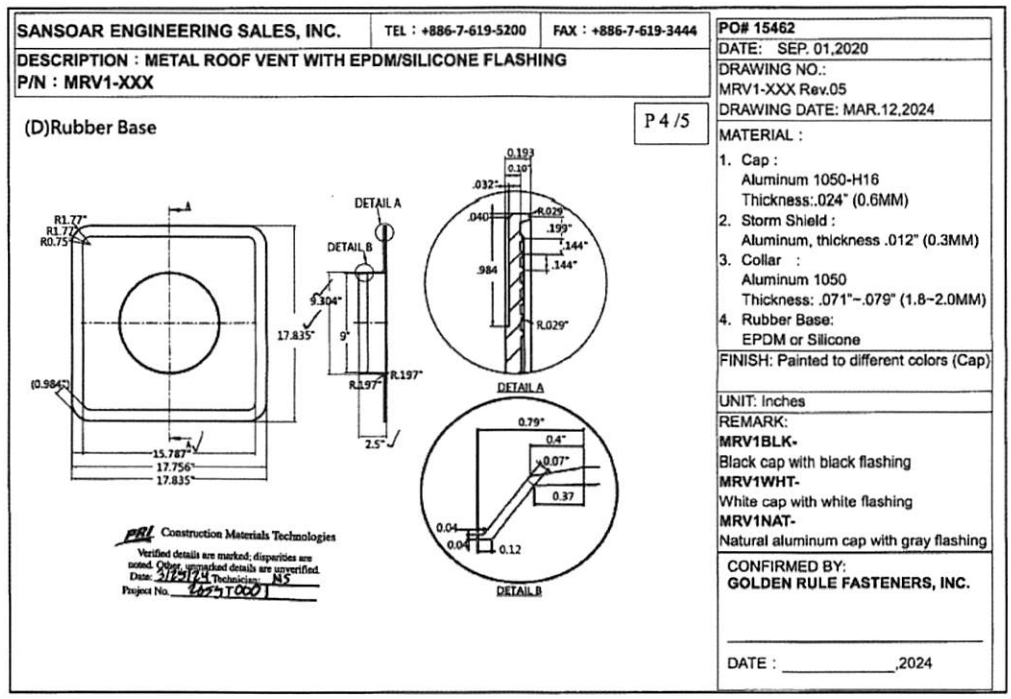
Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	4/18/2024	11	NA

APPENDIX FOLLOWS

Appendix A: Test Lab "Marked" Drawings

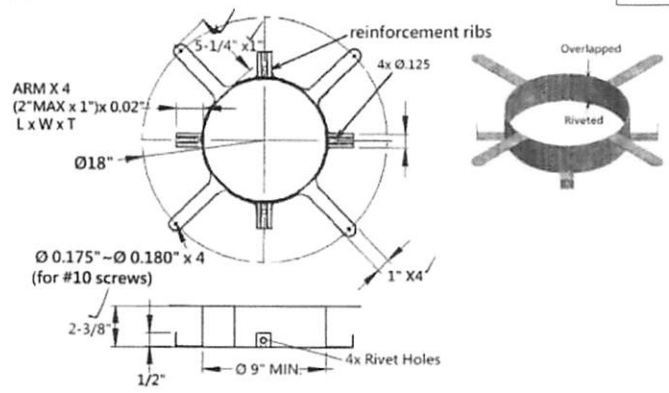




SANSOAR ENGINEERING SALES, INC.	TEL : +886-7-619-5200	FAX : +886-7-619-3444
DESCRIPTION : METAL ROOF VENT WITH EPDM/SILICONE FLASHING P/N : MRV1-XXX		

(C)Collar

P 3/5



PRI Construction Materials Technologies
Verified details are marked; disparities are noted. Other, unmarked details are unverified.
Date: 9/25/24 Technician: NS
Project No. 2655T0001

PO# 15462
DATE: SEP. 01,2020
DRAWING NO.: MRV1-XXX Rev.05
DRAWING DATE: MAR.12,2024
MATERIAL : 1. Cap : Aluminum 1050-H16 Thickness:.024" (0.6MM) 2. Storm Shield : Aluminum, thickness .012" (0.3MM) 3. Collar : Aluminum 1050 Thickness: .071"~.079" (1.8~2.0MM) 4. Rubber Base: EPDM or Silicone
FINISH: Painted to different colors (Cap)
UNIT: Inches
REMARK: **MRV1BLK-** Black cap with black flashing **MRV1WHT-** White cap with white flashing **MRV1NAT-** Natural aluminum cap with gray flashing

CONFIRMED BY:
GOLDEN RULE FASTENERS, INC.

DATE : _____,2024

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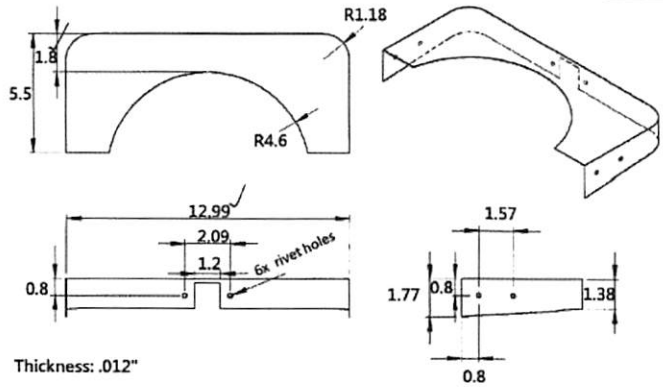
(B) Storm Shield

P 2/5



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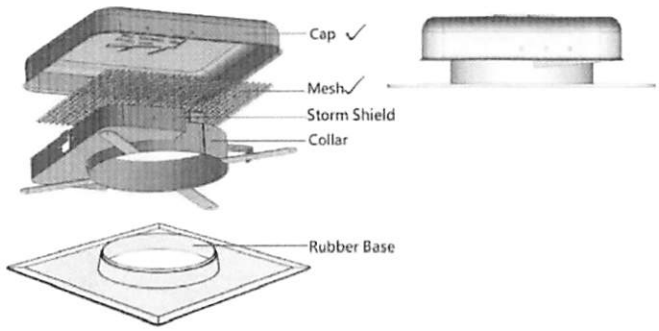
P 5 /5



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FINISH: Painted to different colors (Cap)

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REMARK:
MRV1BLK-
Black cap with black flashing
MRV1WHT-
White cap with white flashing
MRV1NAT-
Natural aluminum cap with gray flashing

CONFIRMED BY:
GOLDEN RULE FASTENERS, INC.

DATE : _____,2024

Appendix B: Photographs

Prior To Testing

Subsequent To Testing

Soffit vent prior to testing

Soffit vent Subsequent to testing

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 inH_2O and d represents the density of air in lbs/ft^3 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 indicate 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_2O)	Windstream Velocity (mph)	Grid Position	Velocity Pressure (in H_2O)	Windstream Velocity (mph)	Grid Position	Velocity Pressure (in H_2O)	Windstream Velocity (mph)	Grid Position	Velocity Pressure (in H_2O)	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

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:

$$\left[\frac{\left(\frac{gallons}{minute}\right)\times\left(\frac{60\ minutes}{1\ hour}\right)\times\left(\frac{231\ inches^3}{1\ gallon}\right)}{6{,}912\ inches^2}\right]=\left(x\,\frac{inches}{hour}\right)$$

The quantity x determined above shall be within ± 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:

$$\left[\frac{\left(\frac{inches^3}{6{,}912\ inches^2}\right)}{1\ minute}\times\left(\frac{60\ minutes}{1\ hour}\right)\right]=\left(y\,\frac{inches}{hour}\right)$$

The flow meter determination x shall be within ± 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 TAS 100(A)
Date of Calibration Procedure: **10/23/23** Next Due: **January-24**

X	Water Supply (gal/min)	Simulated Rainfall (in/hr)
Flow Meter #1	3	6.0
Flow Meter #2	1.4	2.8
Total	4.4	8.8
Simulated Rainfall		**8.8**
Target		8.8
Within ± 5% Tolerance		**Pass**

Y	Weight (lbs)	Volume (in^3)	Simulated Rainfall (in/hr)
Flow Meter #1	25.0	692.0	6.0
Flow Meter #2	11.4	315.6	2.7
Total	36.4	1007.5	8.7
Simulated Rainfall			**8.7**
Target			8.8
Within ± 5% Tolerance			**Pass**

Simulated Rainfall and Flow Meter Calibration

These settings are for 70+mph TAS 100(A)
Date of Calibration Procedure: **10/23/23** Next Due: **January-24**

X	Water Supply (gal/min)	Simulated Rainfall (in/hr)
Flow Meter #1	3	6.0
Flow Meter #2	1.4	2.8
Total	4.4	8.8
Simulated Rainfall		**8.8**
Target		8.8
Within ± 5% Tolerance		**Pass**

Y	Weight (lbs)	Volume (in^3)	Simulated Rainfall (in/hr)
Flow Meter #1	25.0	692.0	6.0
Flow Meter #2	11.5	318.3	2.8
Total	36.5	1010.3	8.8
Simulated Rainfall			**8.8**
Target			8.8
Within ± 5% Tolerance			**Pass**

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 ±15% (at 35mph) or ±10% (at 70mph) of every other wetted square.

Data and Calculations: Data from the most recent calibration indicate 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
Elasped 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	
Low Value:	8.42	⇒	High Tolerance:	9.68	Pass/Fail: **Pass**

Windstream Velocity: 70 mph

Water Supply:	8.8	gal/min
Elasped 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	
Low Value:	8.33	⇒	High Tolerance:	9.17	Pass/Fail: **Pass**

END OF REPORT

2655T0001