

Z100F FLOFORCE®

ROOF DRAIN PERFORMANCE

FLOW DATA



Table of Contents

INTRODUCTION	1	ZC100F-EA FLOFORCE®	31
Z100F FLOFORCE®	2		
Z100F-2NH	3	ZC100F-4NH-EA	32
Z100F-3NH	4	ZC100F-6NH-EA	33
Z100F-4NH	5	ZC100F-8NH-EA	34
Z100F-6NH	6	ZC100F-84 FLOFORCE®	35
Z100F-8NH	7	ZC100F-4NH-84	36
Z100F-EA FLOFORCE®	8	ZC100F-6NH-84	37
Z100F-2NH-EA	9	ZC100F-8NH-84	38
Z100F-3NH-EA	10		
Z100F-4NH-EA	11		
Z100F-6NH-EA	12		
Z100F-8NH-EA	13		
Z100F-84 FLOFORCE®	14		
Z100F-2NH-84	15		
Z100F-3NH-84	16		
Z100F-4NH-84	17		
Z100F-6NH-84	18		
Z100F-8NH-84	19		
Z100F-89 FLOFORCE®	20		
Z100F-2NH-89	21		
Z100F-3NH-89	22		
Z100F-4NH-89	23		
Z100F-6NH-89	24		
ZC100F FLOFORCE®	25		
ZC100F-2NH	26		
ZC100F-3NH	27		
ZC100F-4NH	28		
ZC100F-6NH	29		
ZC100F-8NH	30		



INTRODUCTION

Introduction

In an effort to provide the industry with the most accurate performance flow data of a roof drain, Zurn Industries has endeavored upon an initiative to provide complete and reliable performance results of its main roof drain products.

About the Test Method and Data Collection

The data contained within this document is compiled from flow tests that were conducted within a laboratory setting. Outside variables, such as wind, atmospheric temperature, intermittent change in rainfall intensity, and physical obstacles that alter the deliverance of water to the drain, have been excluded from the test procedure to provide reliably consistent data. Each roof drain is tested upon a test stand that is constructed and operated within compliance of ASME A112.6.4-2022/CSA B79.4:22 Standard. Three outlet piping configurations have been selected and utilized to deliver flow performance graphs and charts that provide the plumbing engineer with a selection of data that best fits the application. Those pipe configurations consist of the following:

1. One-foot vertical drop by five-foot horizontal length with $\frac{1}{4}$ bend elbow
2. Two-foot vertical drop by five-foot horizontal length with $\frac{1}{4}$ bend elbow
3. Four-foot vertical drop

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.



ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

Z100F FLOFORCE®

FLOFORCE® High efficient flow performing roof drain. Roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnelshaped interior surface, providing a seamless transition to outlet connection, and eliminating internal obstructions. Complete with Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard and low silhouette Poly-Dome. Flashing clamp/gravel guard provided to prevent debris from entering the drain while allowing water to immediately pass through at zero head level. Poly-dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 2 of 38

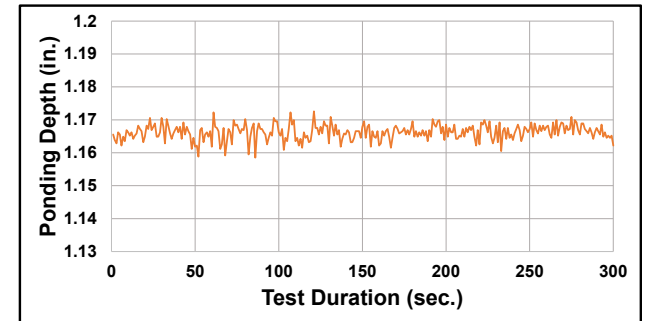
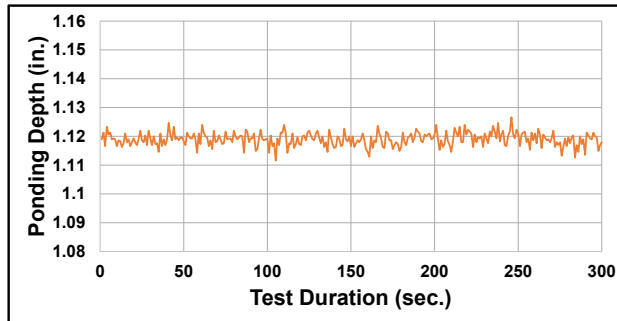
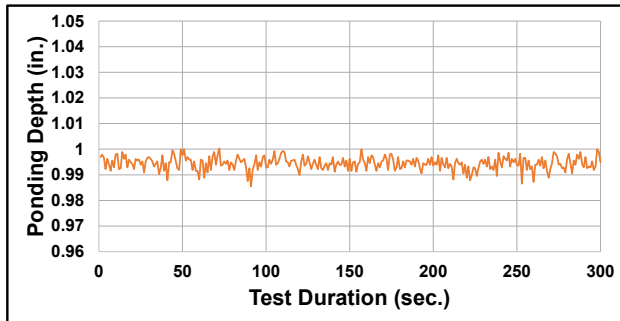
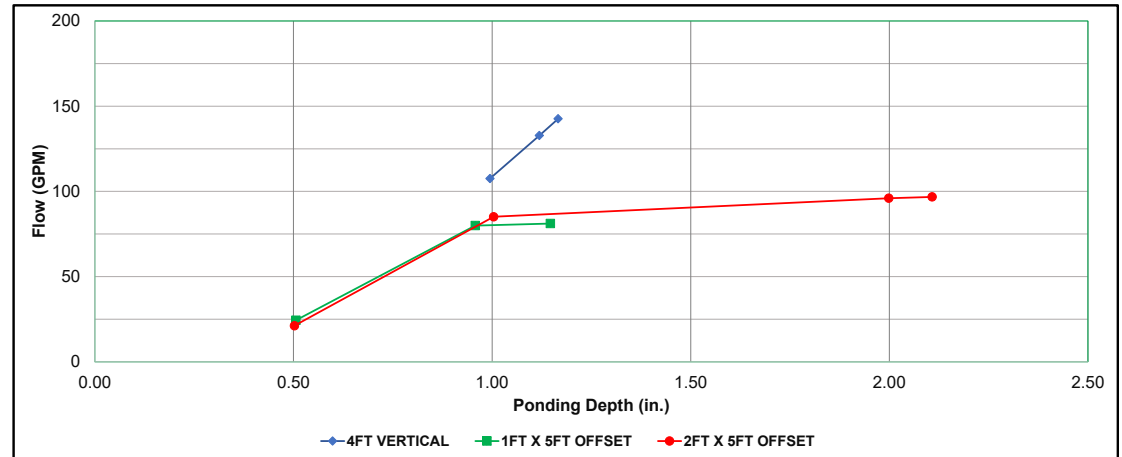


ROOF DRAIN FLOW DATA

Z100F-2NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
0.99	107.51	0.51	24.38	0.50	21.20
1.12	132.80	0.96	79.97	1.00	85.12
1.17	142.59	1.15	81.16	2.00	96.00
				2.11	96.76

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



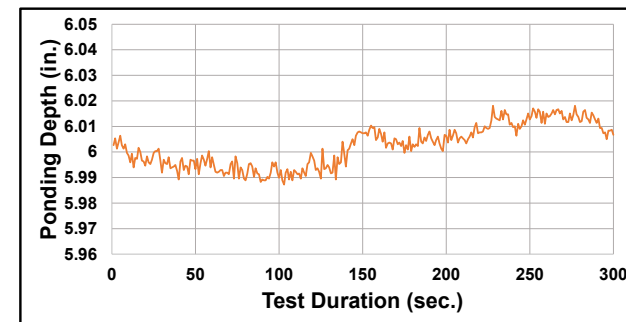
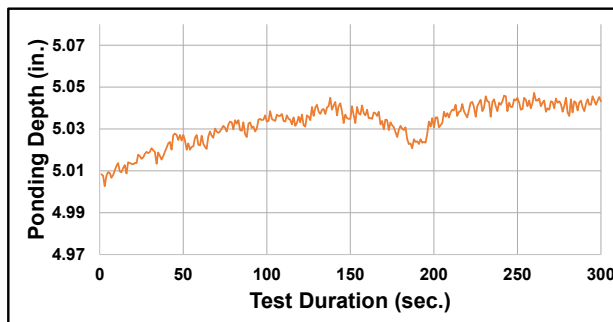
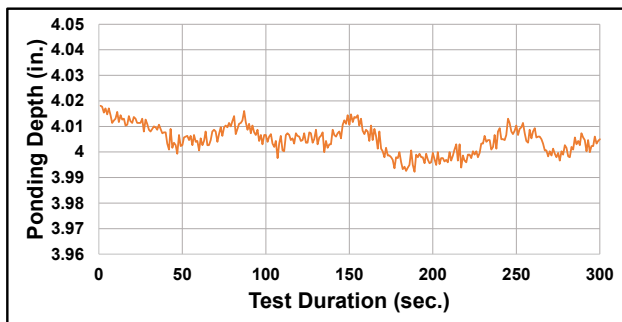
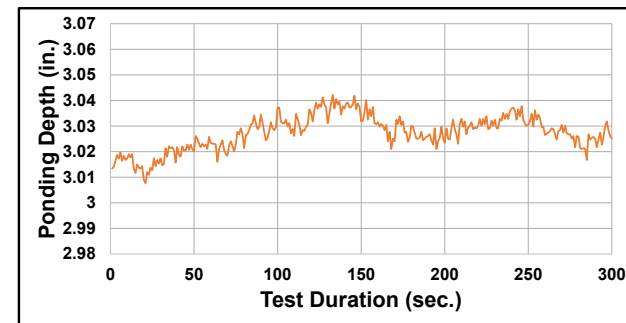
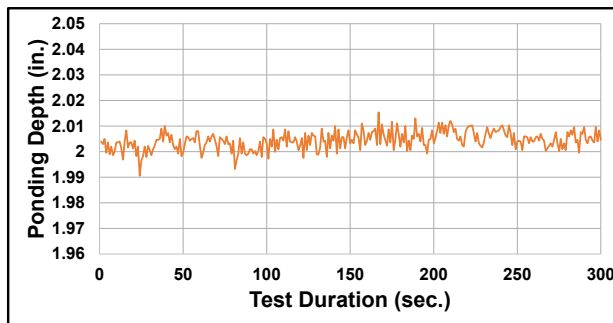
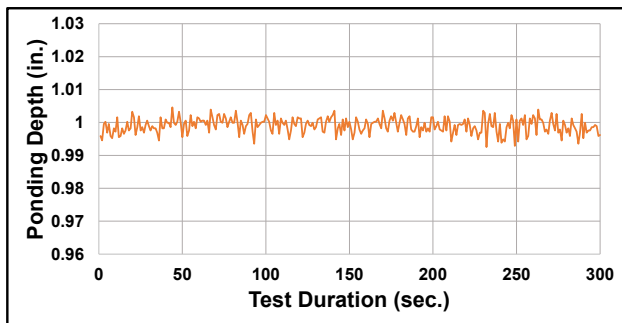
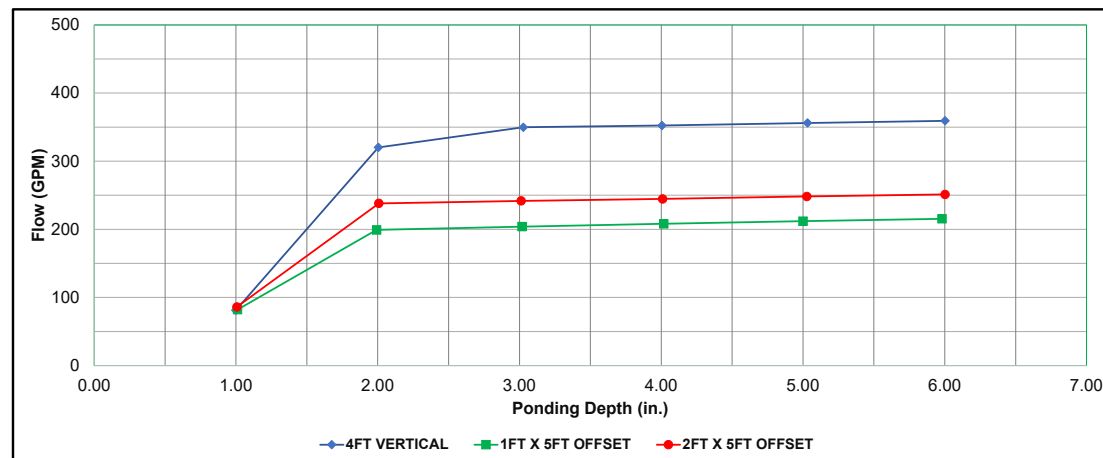


ROOF DRAIN FLOW DATA

Z100F-3NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	81.33	1.01	82.11	1.01	86.03
2.00	320.28	1.99	199.19	2.01	238.08
3.03	349.76	3.02	203.94	3.01	241.77
4.00	352.40	4.02	208.12	4.01	244.59
5.03	356.12	5.00	211.92	5.03	248.20
6.00	359.25	5.98	215.47	6.00	251.24

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

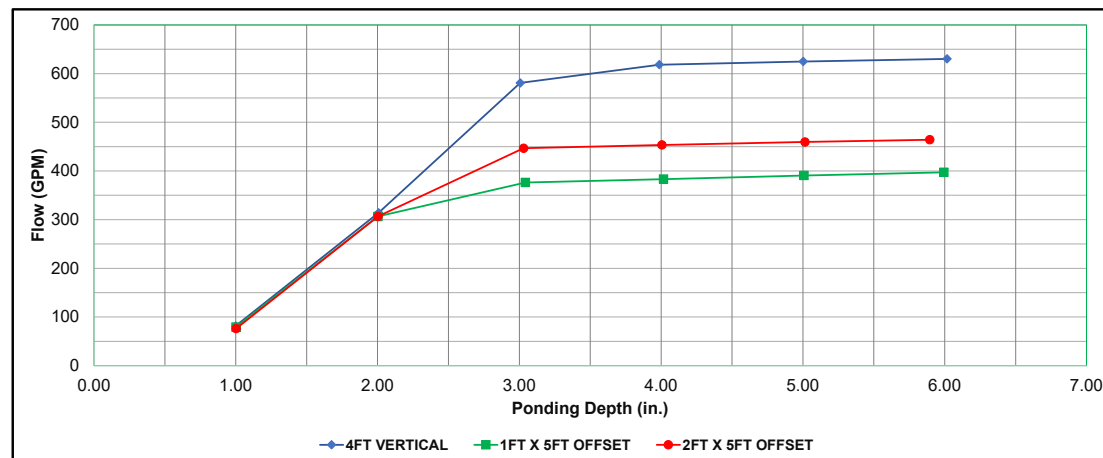




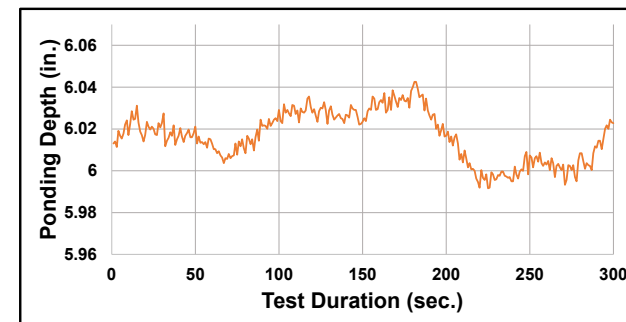
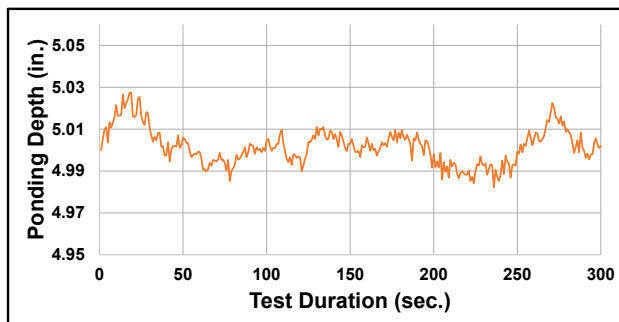
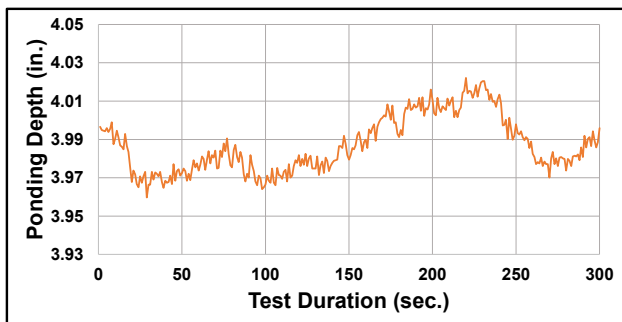
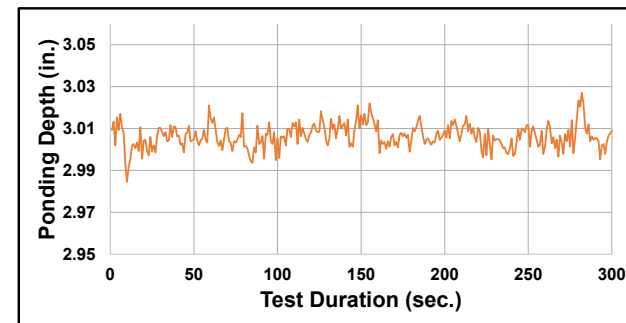
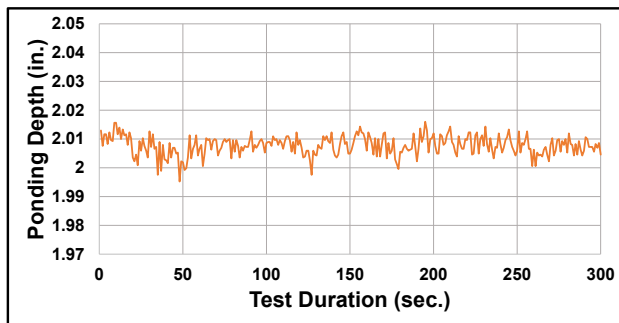
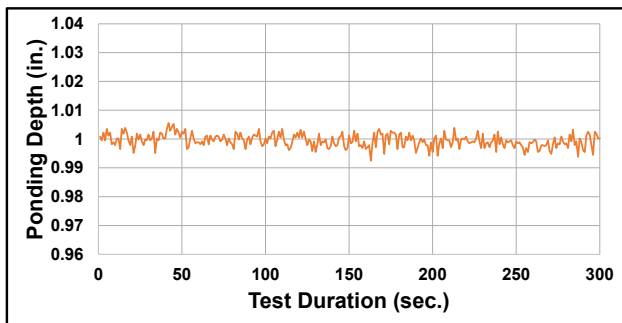
ROOF DRAIN FLOW DATA

Z100F-4NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	81.68	1.00	79.31	1.00	76.30
2.01	314.14	2.00	306.65	2.00	306.58
3.01	580.74	3.04	376.36	3.03	446.73
3.99	618.29	4.02	383.20	4.01	453.45
5.00	624.89	5.01	390.66	5.01	459.53
6.02	630.21	5.99	397.10	5.89	464.23



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

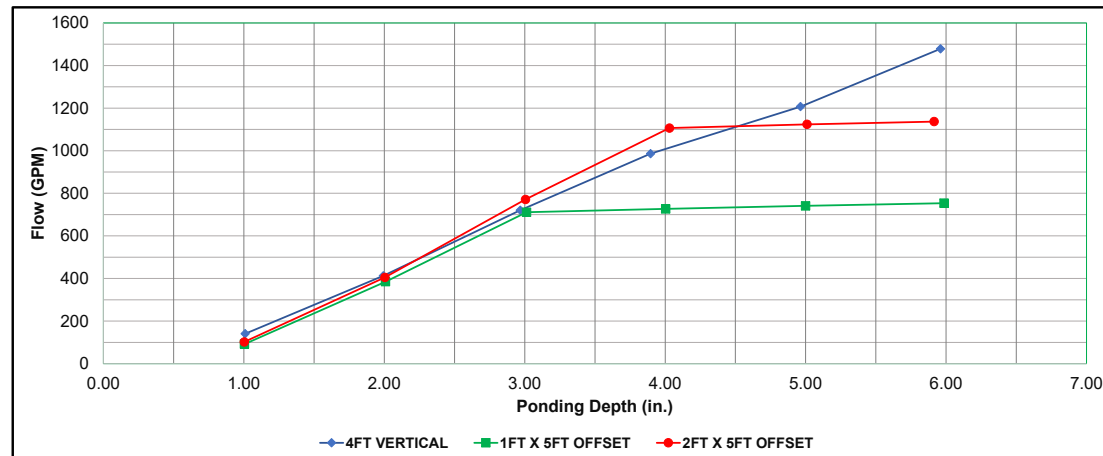




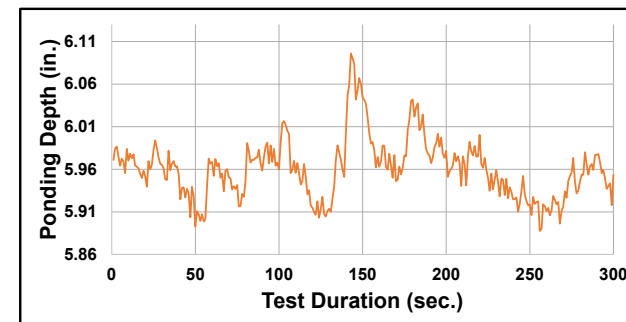
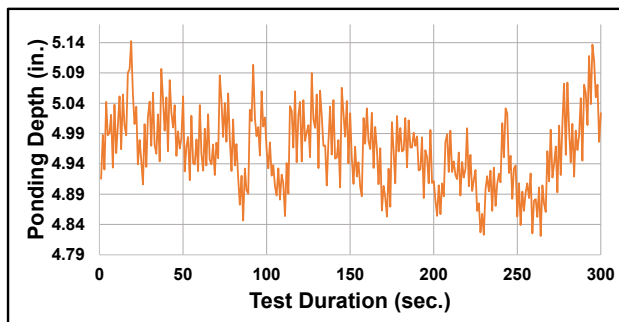
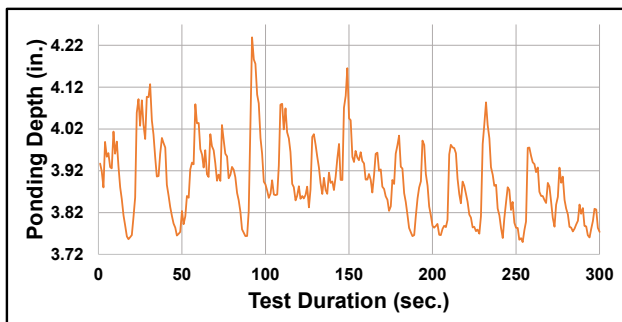
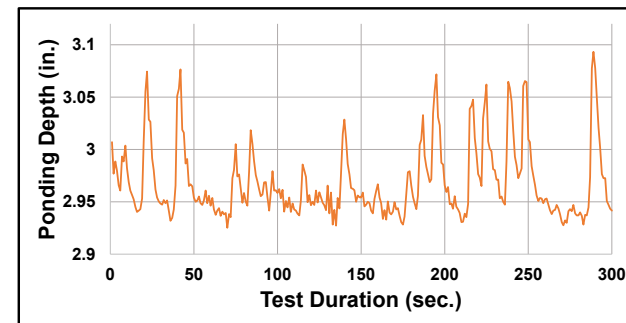
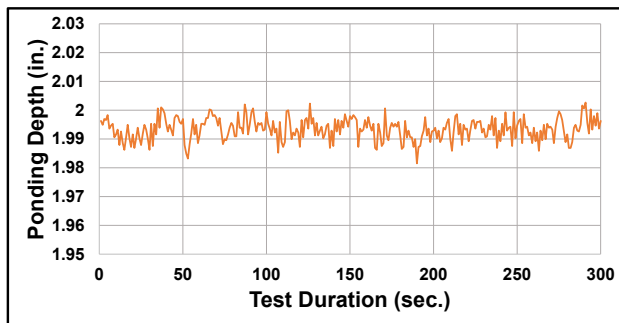
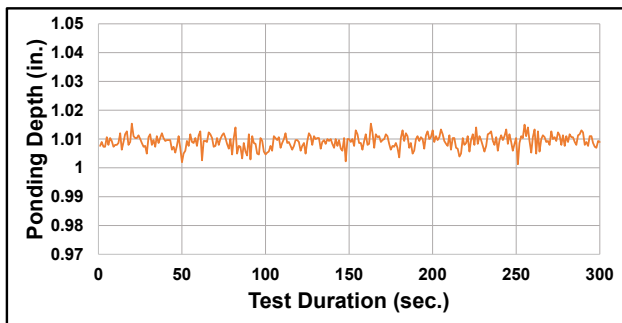
ROOF DRAIN FLOW DATA

Z100F-6NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	140.49	1.00	92.08	1.00	102.10
1.99	412.62	2.01	384.97	2.00	405.17
2.97	720.61	3.01	710.94	3.01	770.96
3.90	986.09	4.00	726.79	4.03	1106.19
4.96	1206.99	5.00	741.10	5.01	1123.76
5.96	1478.29	5.99	753.63	5.91	1136.69



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

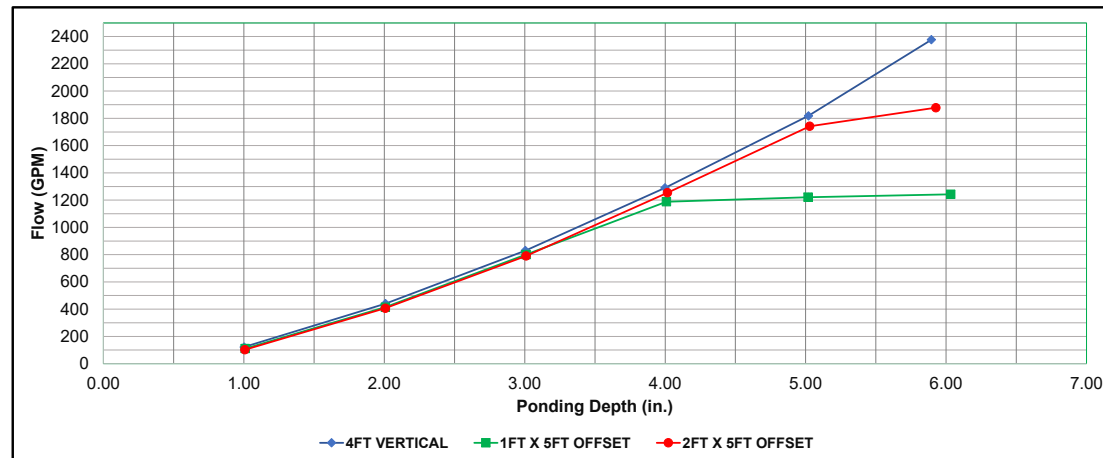




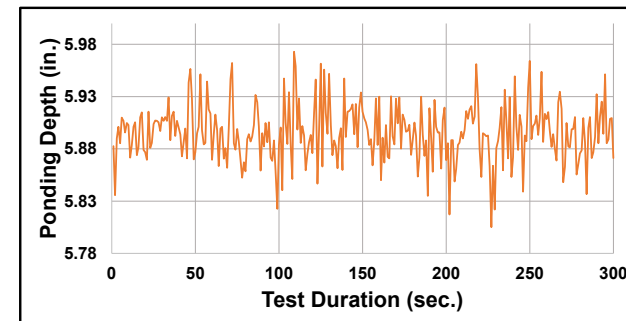
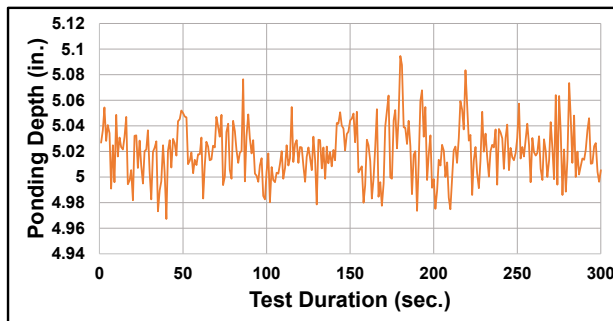
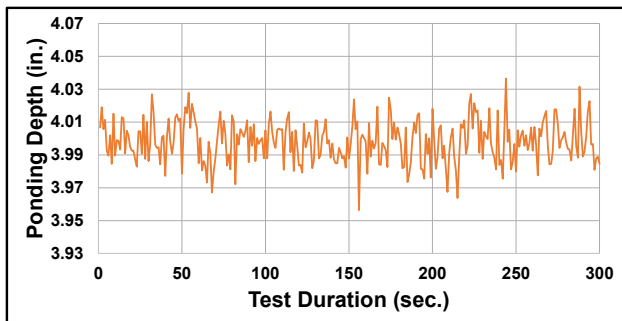
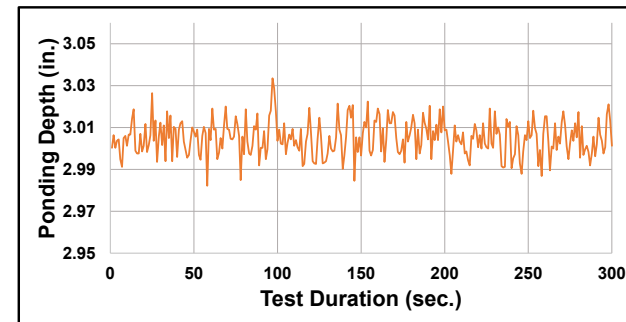
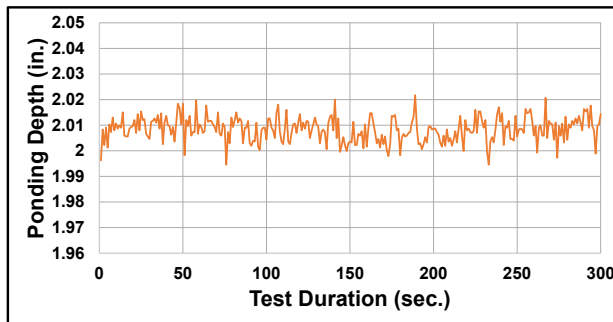
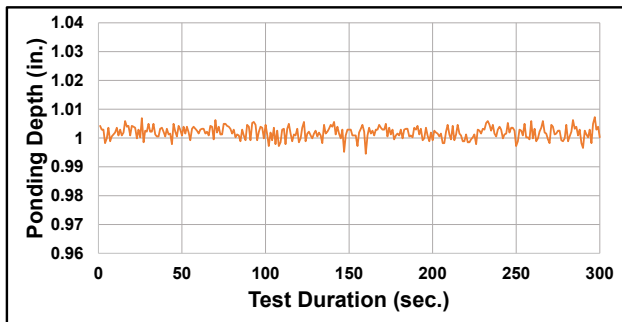
ROOF DRAIN FLOW DATA

Z100F-8NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	122.23	1.01	110.90	1.01	102.17
2.01	440.68	2.01	414.12	2.01	406.68
3.00	829.67	3.01	800.68	3.01	790.24
4.00	1289.54	4.01	1188.29	4.02	1254.48
5.02	1818.32	5.02	1221.28	5.03	1742.09
5.90	2376.50	6.03	1242.80	5.93	1878.10



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.





ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

Z100F-EA FLOFORCE®

FLOFORCE® High efficient flow performing roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnel-shaped interior surface, providing a seamless transition to outlet connection and eliminating internal obstructions. Complete with Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard, adjustable extension, gasketed collar with o-ring seal and low silhouette Poly-Dome. Flashing clamp/gravel guard provided to prevent debris from entering the drain while allowing water to immediately pass through at zero head level. Poly-dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

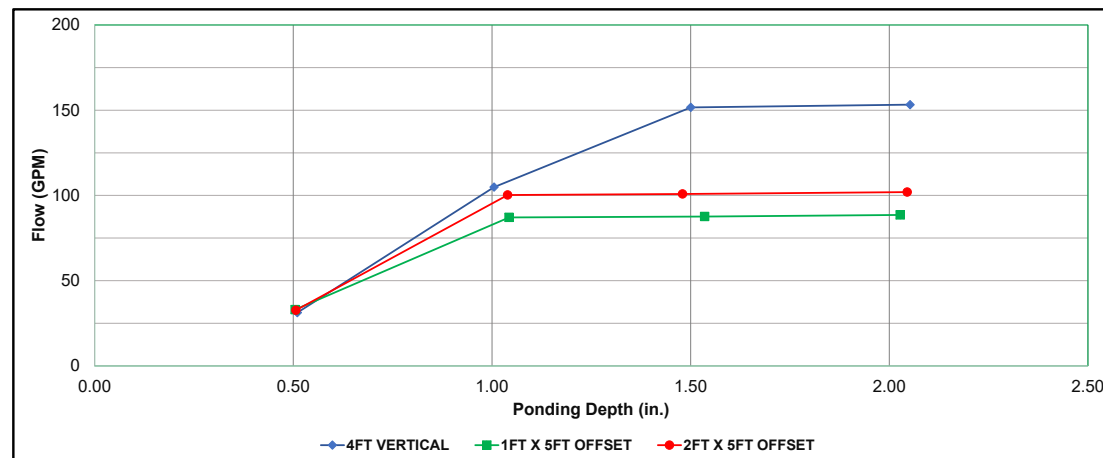
Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 8 of 38



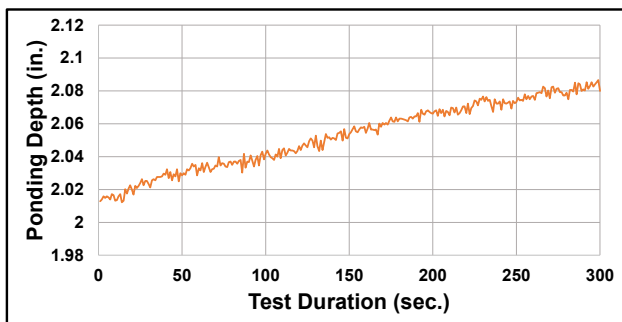
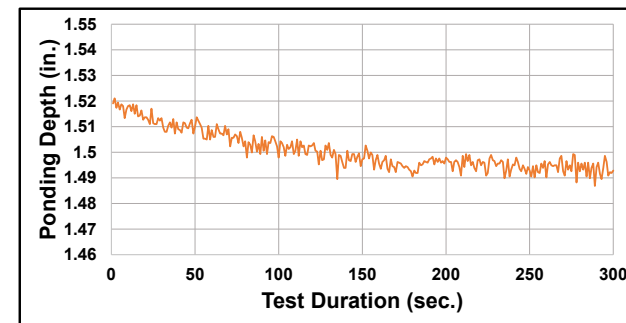
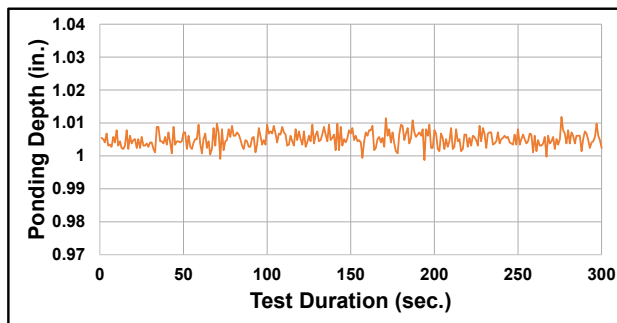
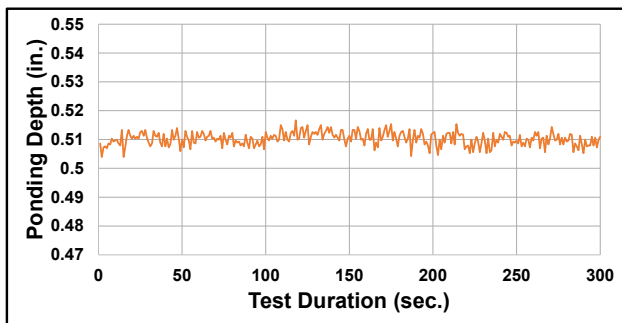
ROOF DRAIN FLOW DATA

Z100F-2NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
0.51	31.28	0.50	33.07	0.51	32.68
1.01	104.86	1.04	87.13	1.04	100.26
1.50	151.63	1.54	87.64	1.48	100.88
2.05	153.24	2.03	88.59	2.05	101.97



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

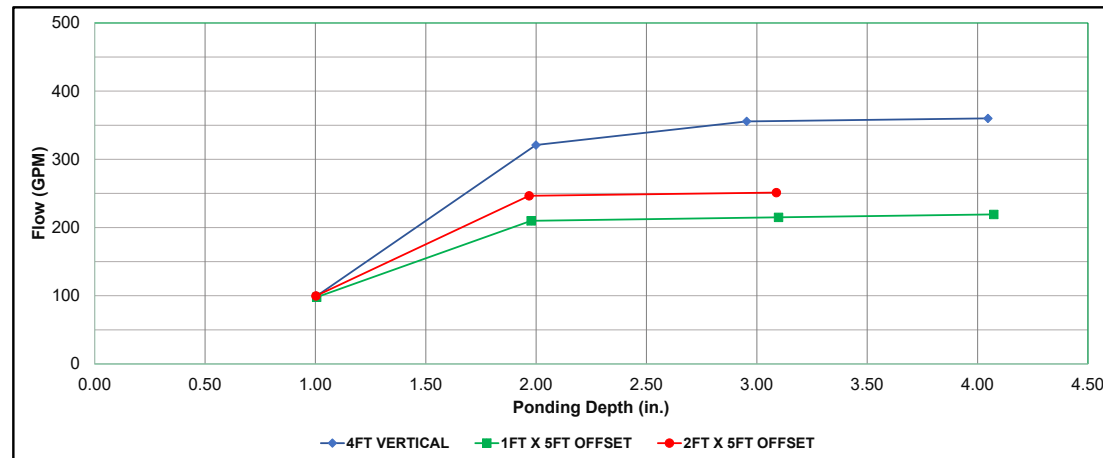




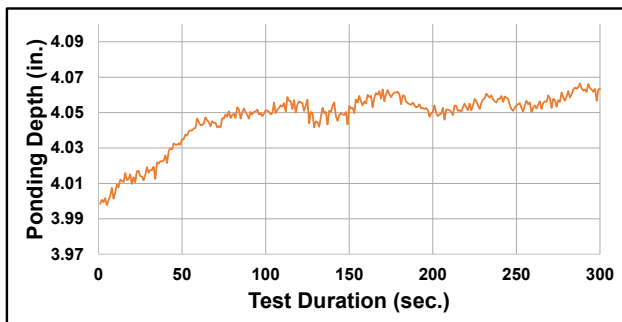
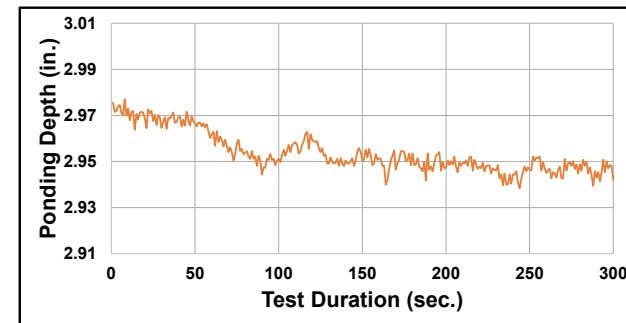
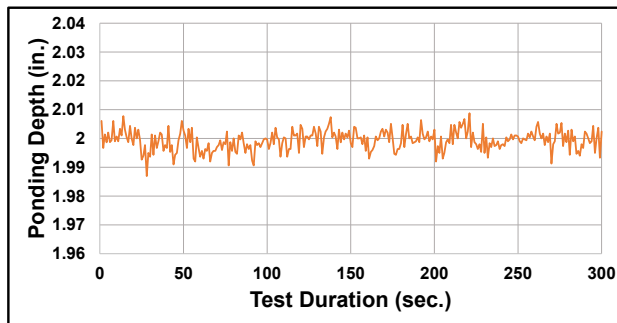
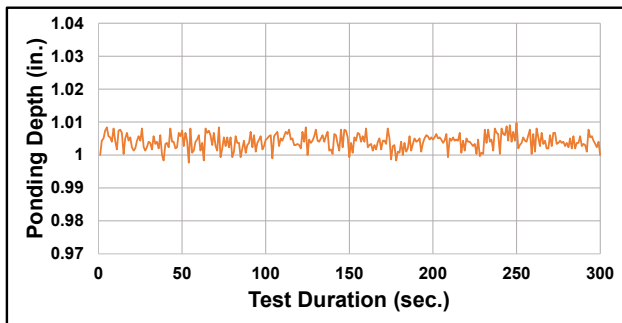
ROOF DRAIN FLOW DATA

Z100F-3NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	99.40	1.01	97.83	1.00	99.70
2.00	320.94	1.98	209.82	1.97	246.48
2.95	355.63	3.10	214.90	3.09	251.18
4.05	360.01	4.07	219.21		



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

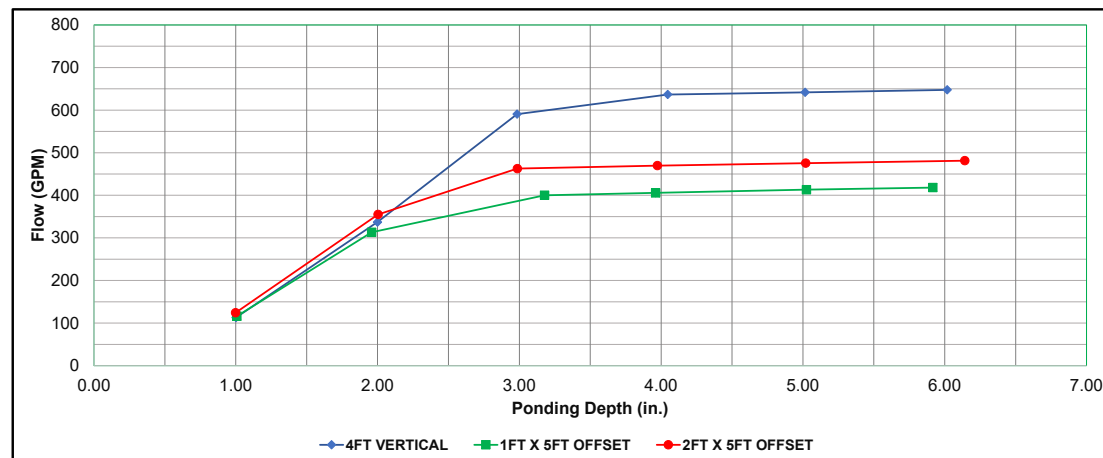




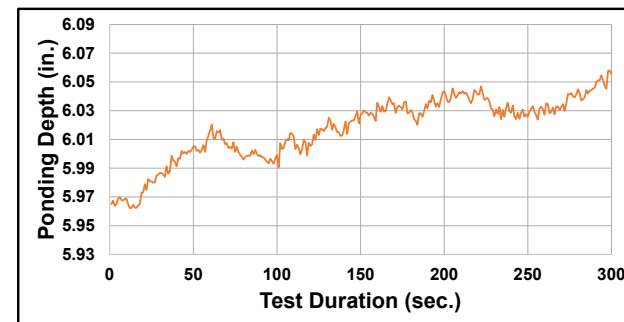
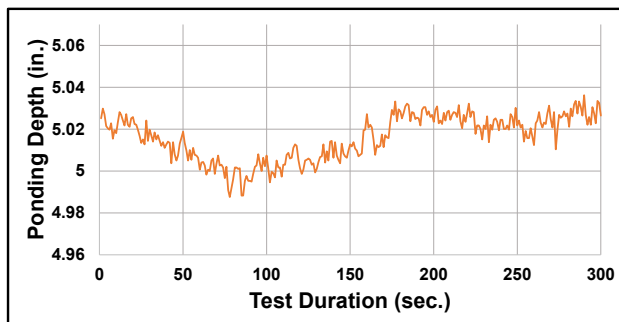
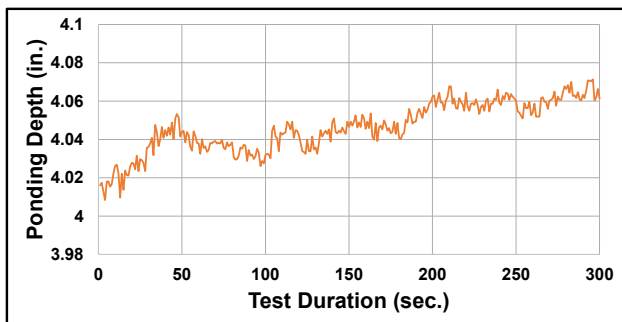
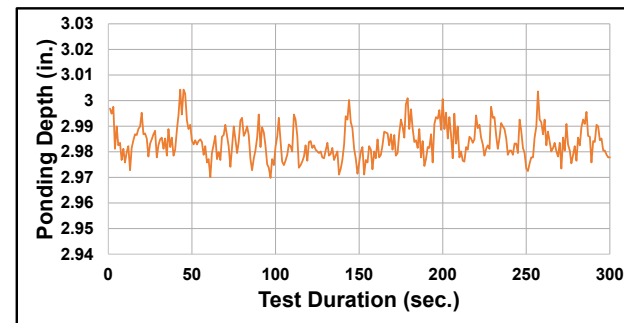
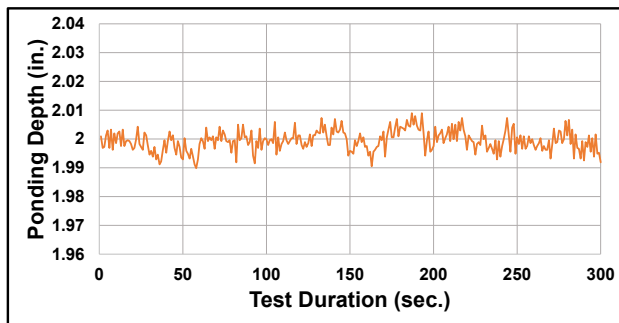
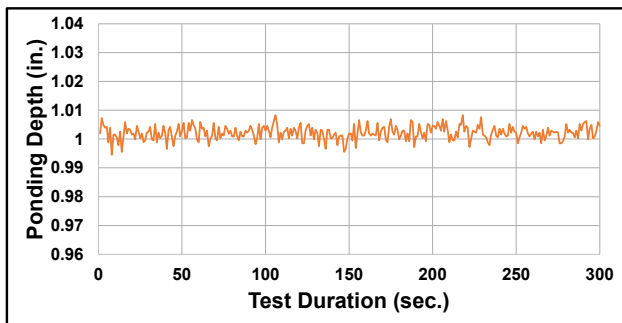
ROOF DRAIN FLOW DATA

Z100F-4NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	113.08	1.01	116.17	1.00	124.32
2.00	337.06	1.96	313.12	2.00	355.07
2.98	590.62	3.18	399.99	2.99	462.68
4.05	636.66	3.96	405.75	3.97	469.76
5.02	641.85	5.02	413.20	5.02	475.54
6.02	647.51	5.92	418.07	6.14	481.35



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

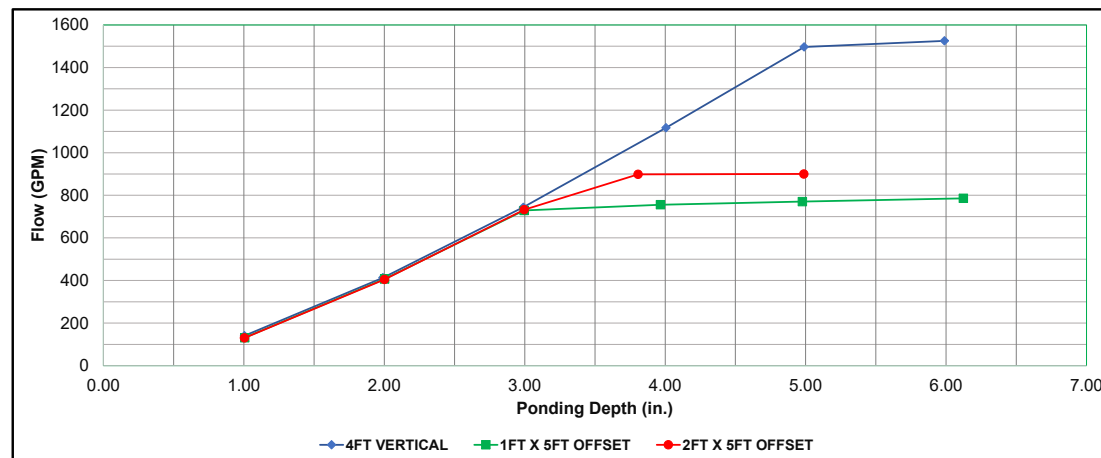




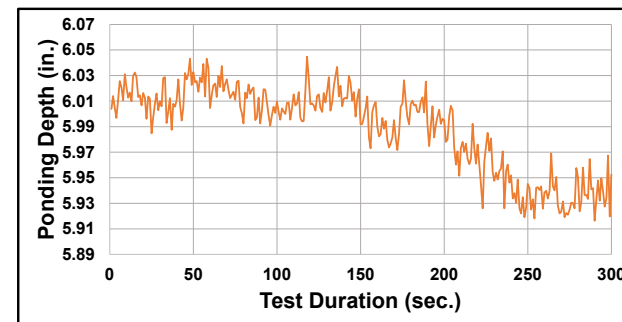
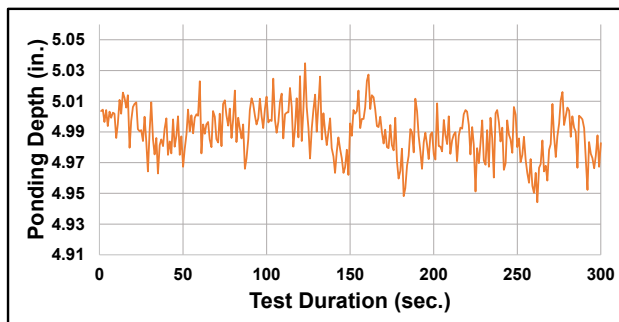
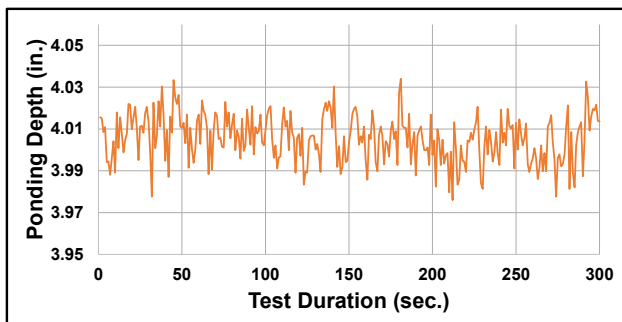
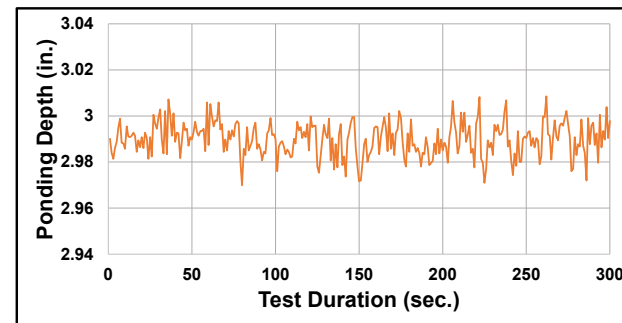
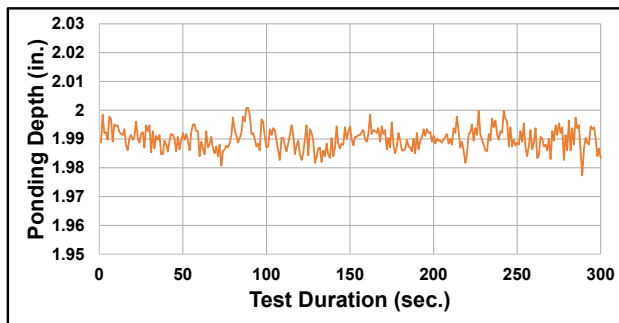
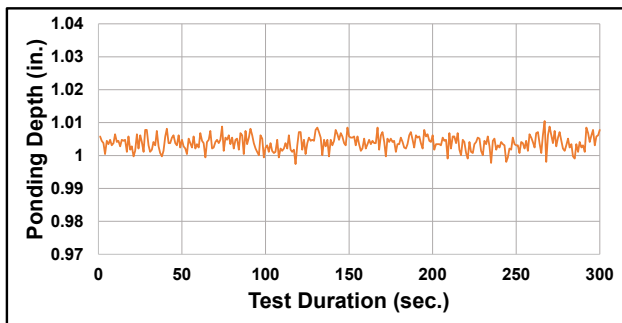
ROOF DRAIN FLOW DATA

Z100F-6NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	140.66	1.01	131.52	1.00	130.33
1.99	413.18	2.00	407.08	2.00	404.90
2.99	743.97	3.00	728.73	3.00	732.68
4.01	1117.01	3.97	755.79	3.81	898.60
4.99	1496.44	4.98	770.45	4.99	900.10
5.99	1525.14	6.12	785.62		



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



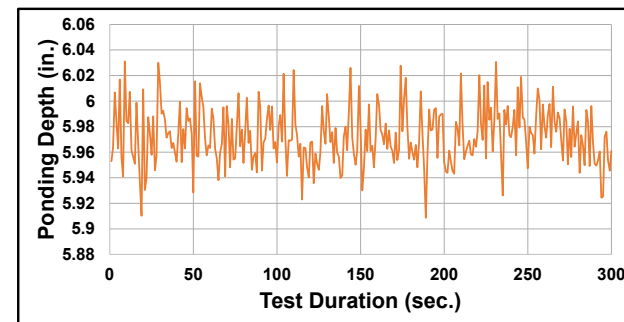
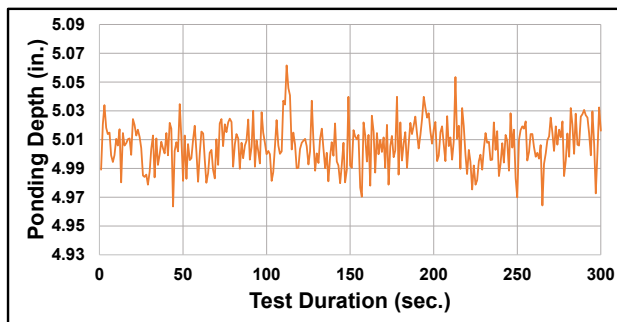
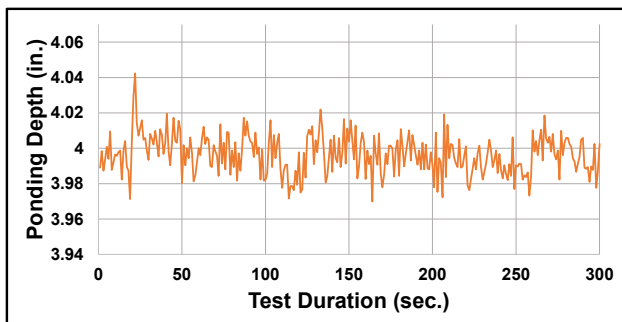
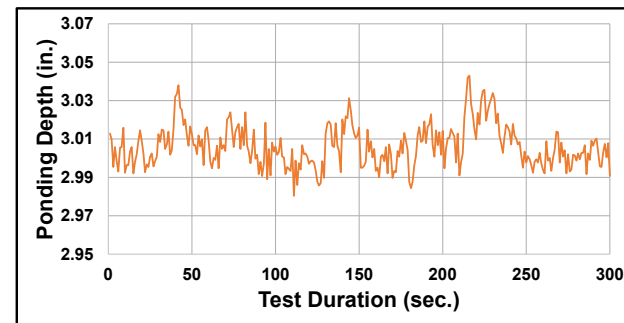
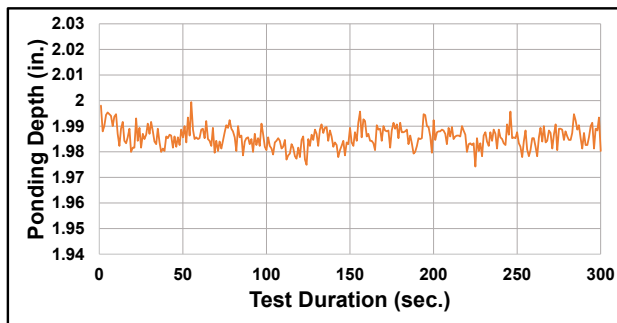
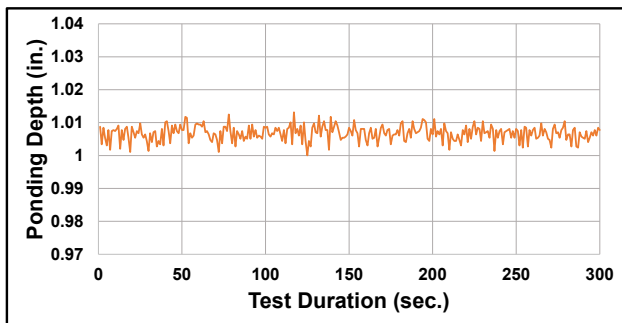
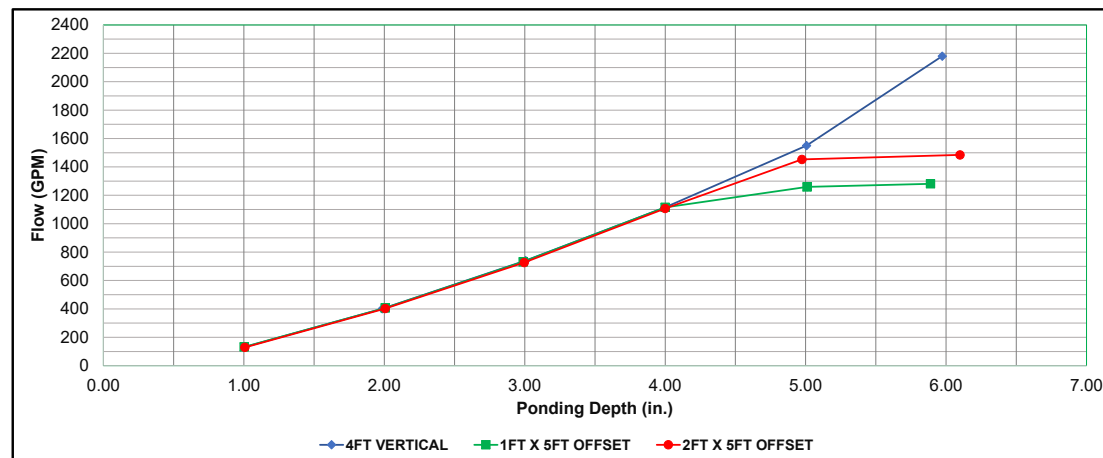


ROOF DRAIN FLOW DATA

Z100F-8NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	131.72	1.00	132.02	1.01	129.13
1.99	400.94	2.01	406.31	2.01	402.43
3.01	739.96	2.99	731.60	3.00	726.39
4.00	1113.41	4.00	1115.35	4.00	1107.18
5.01	1549.78	5.01	1259.18	4.97	1452.86
5.97	2180.00	5.89	1280.58	6.10	1484.45

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.





ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

Z100F-84 FLOFORCE®

FLOFORCE® High efficient flow performing overflow roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnel-shaped interior surface, providing a seamless transition to outlet connection and eliminating internal obstructions. Complete with Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard, stainless steel perforated gravel guard and low silhouette Poly-Dome. Perforated gravel guard provided to prevent debris from entering the drain while allowing water to immediately pass through at zero head level. Poly-dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 14 of 38

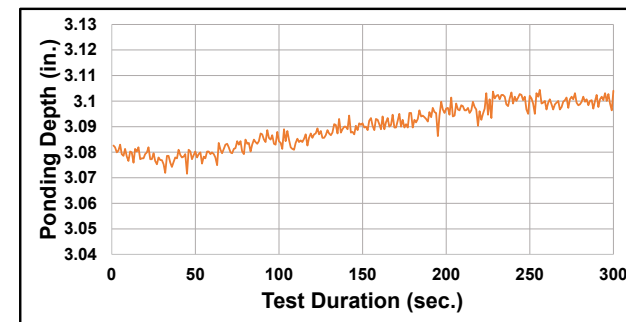
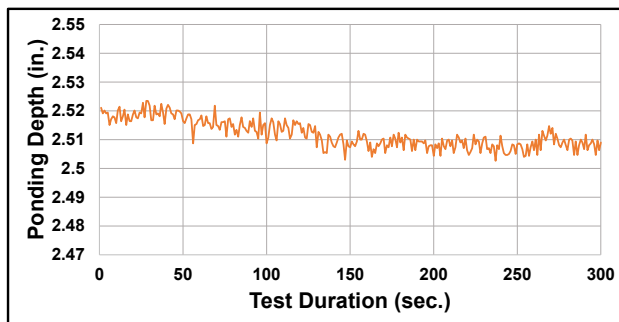
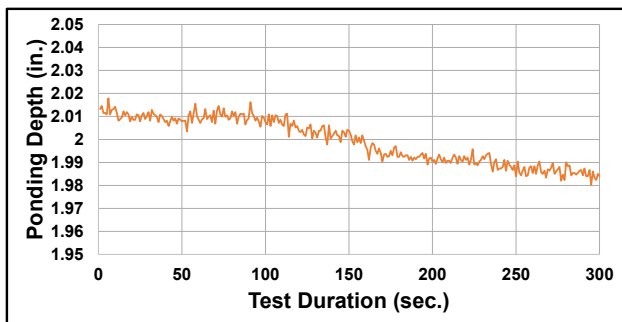
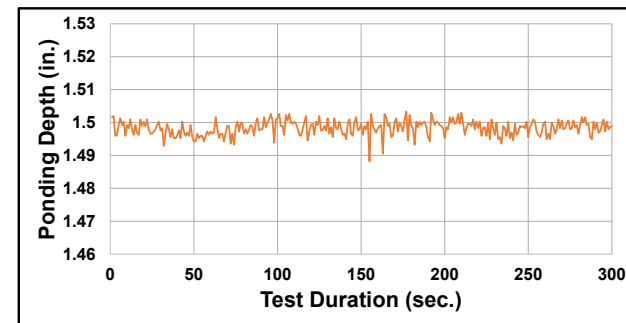
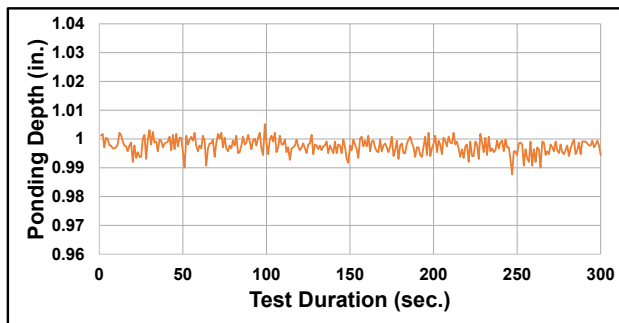
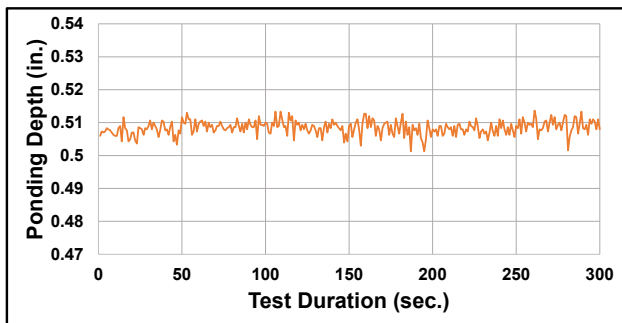
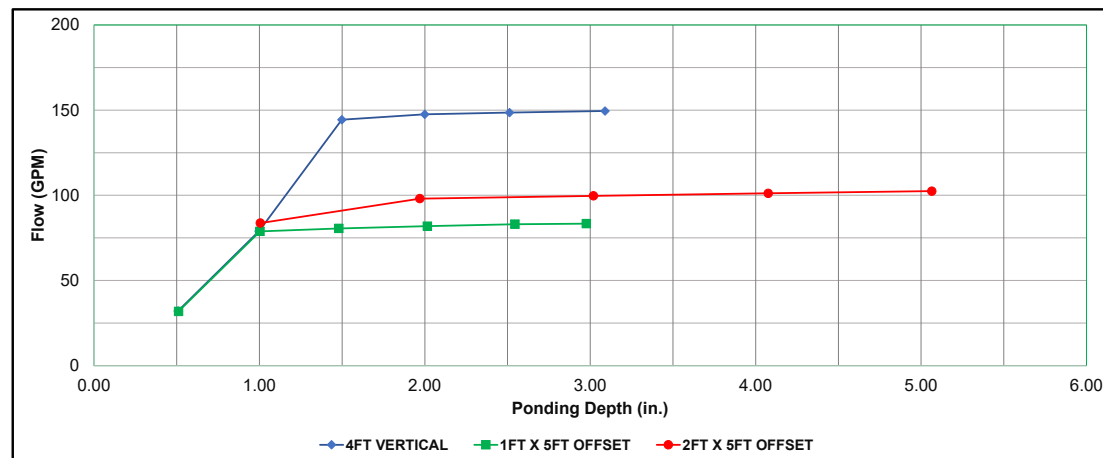


ROOF DRAIN FLOW DATA

Z100F-2NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
0.51	32.13	0.51	31.86	1.01	83.70
1.00	79.00	1.00	78.83	1.97	98.06
1.50	144.34	1.48	80.55	3.02	99.67
2.00	147.52	2.02	81.88	4.08	101.17
2.51	148.54	2.54	83.01	5.06	102.47
3.09	149.46	2.98	83.37		

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



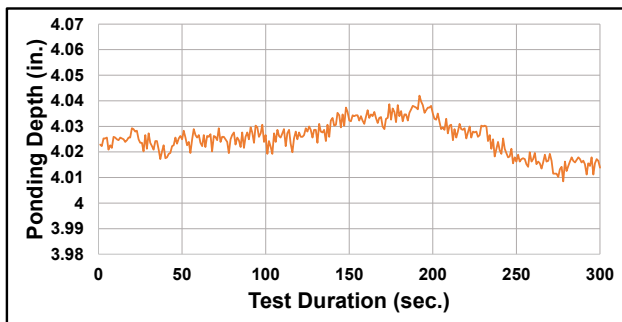
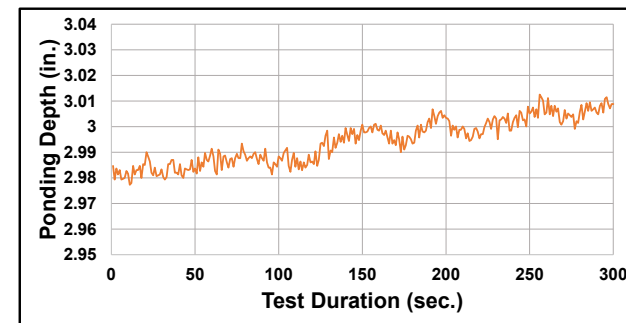
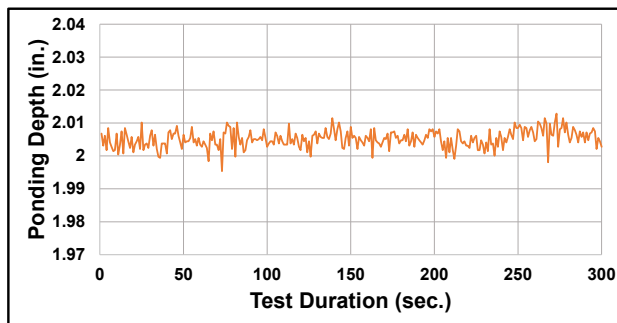
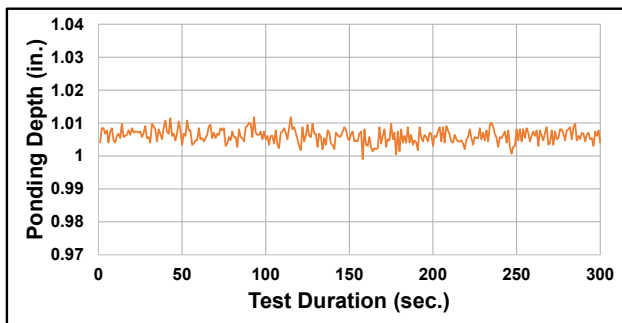
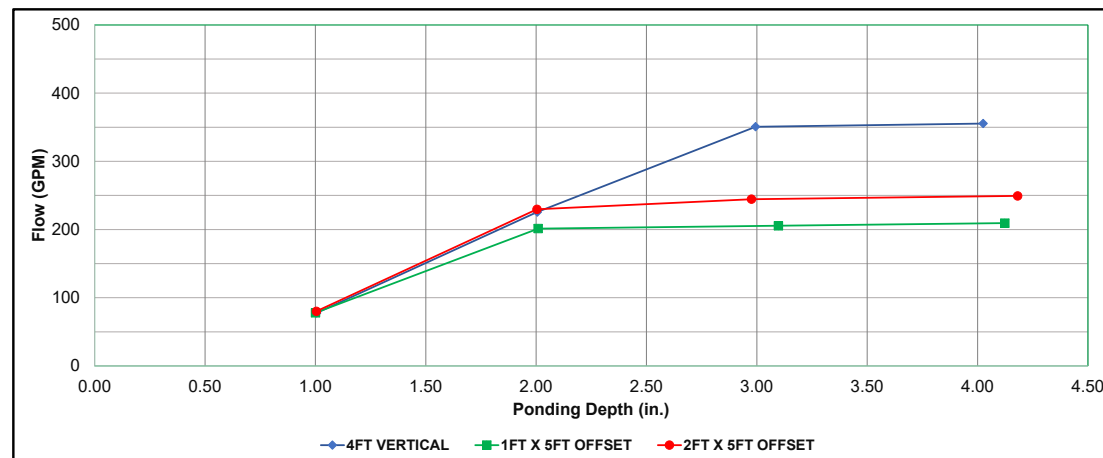


ROOF DRAIN FLOW DATA

Z100F-3NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	77.79	1.00	78.02	1.00	80.08
2.01	225.64	2.01	201.36	2.00	229.65
2.99	350.76	3.10	205.55	2.98	244.54
4.03	355.44	4.12	209.42	4.18	249.27

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



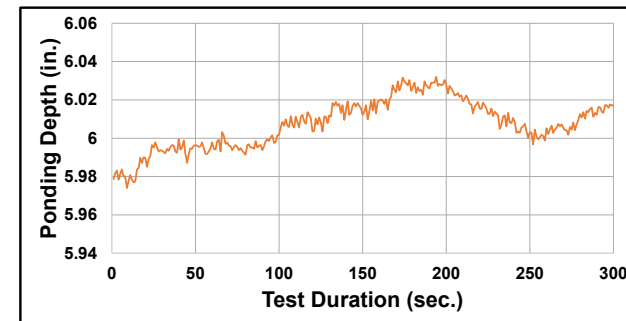
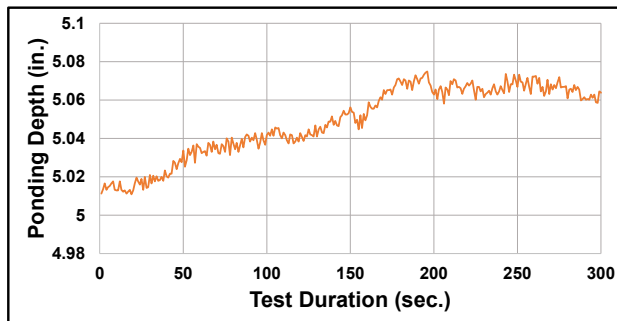
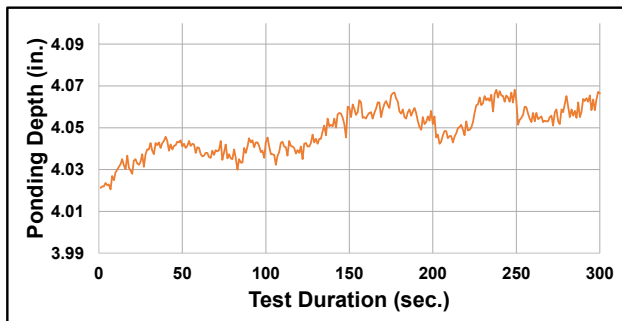
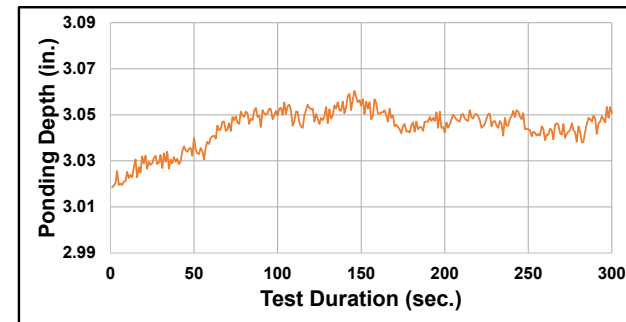
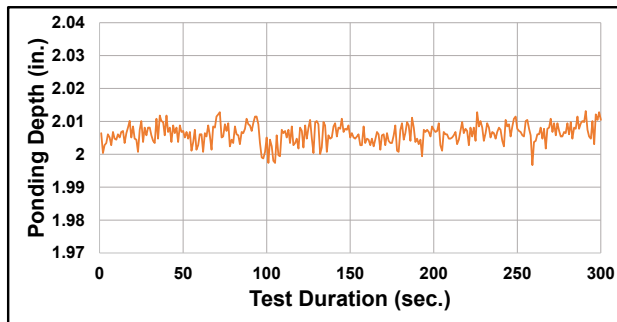
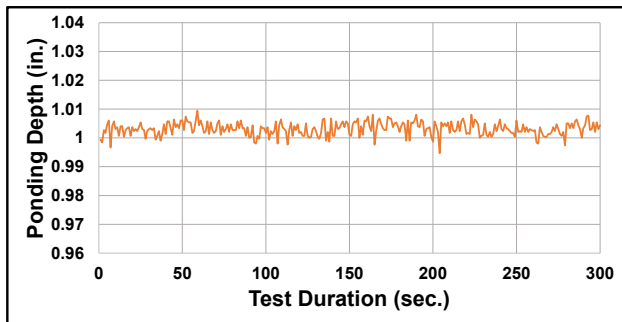
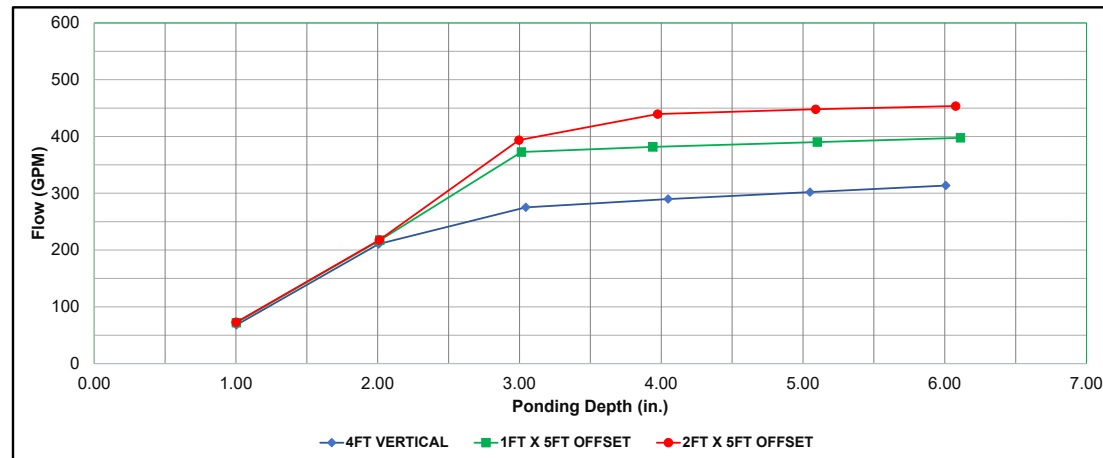


ROOF DRAIN FLOW DATA

Z100F-4NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	68.11	1.00	72.11	1.00	72.69
2.01	210.52	2.02	217.31	2.01	217.66
3.04	275.25	3.01	372.68	3.00	393.60
4.05	289.82	3.94	381.54	3.97	439.52
5.05	301.99	5.10	390.14	5.09	447.93
6.01	313.60	6.11	397.54	6.08	453.50

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



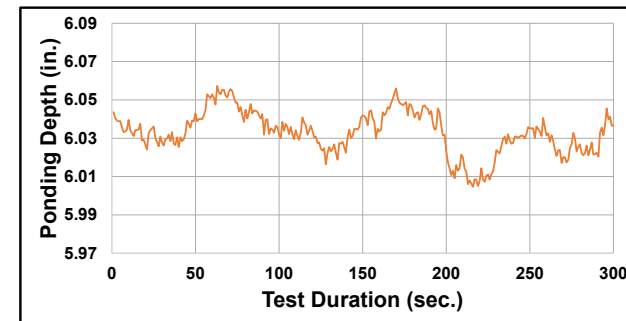
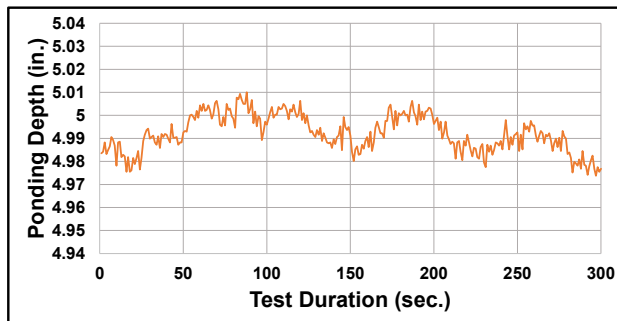
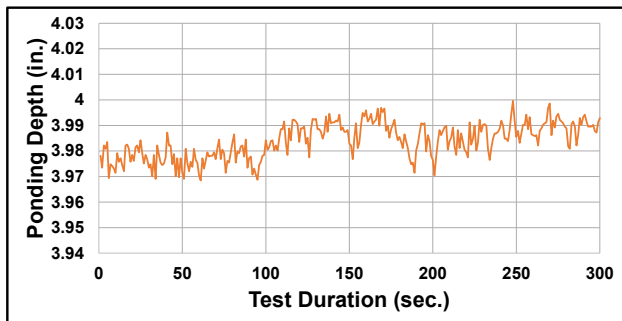
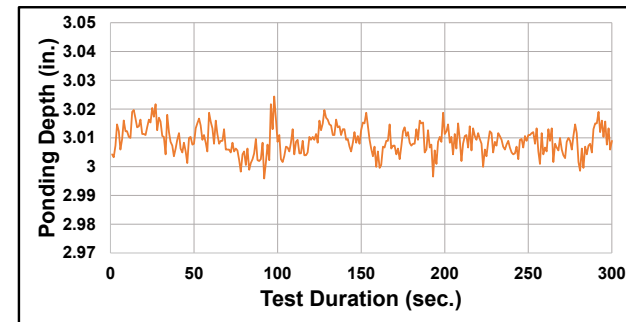
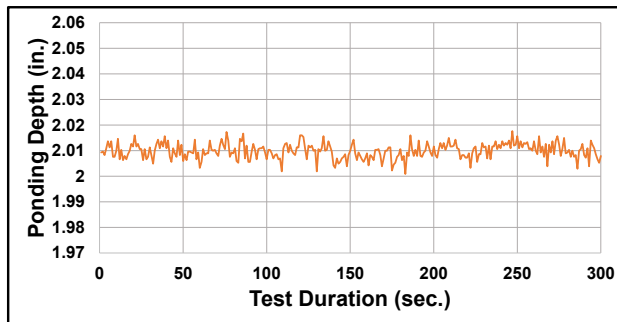
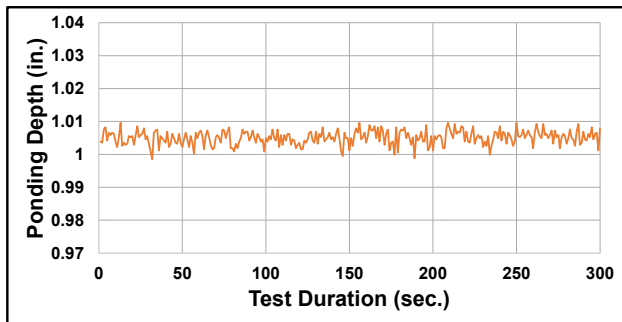
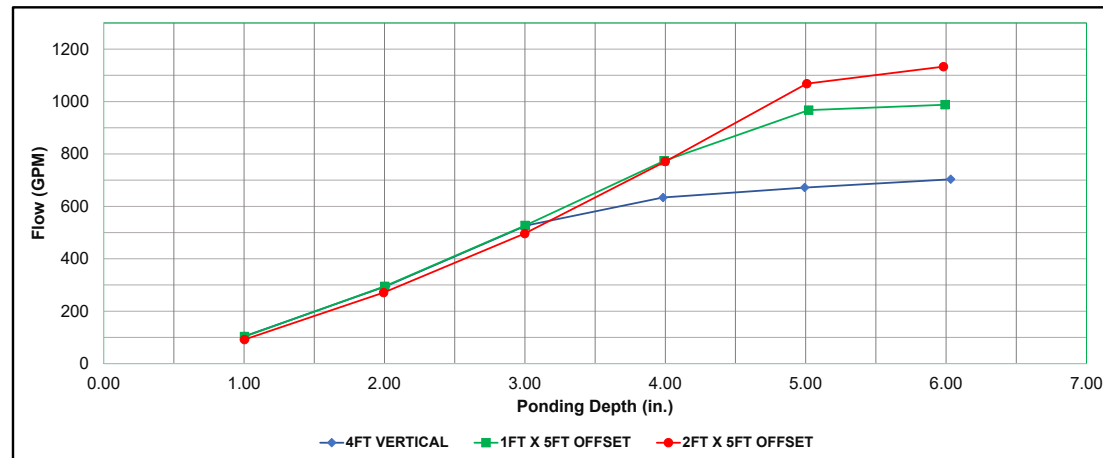


ROOF DRAIN FLOW DATA

Z100F-6NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	104.66	1.00	103.08	1.00	91.77
2.01	294.83	2.00	294.81	1.99	271.07
3.01	526.76	3.00	526.88	3.00	496.15
3.98	633.63	3.99	773.92	4.00	771.08
4.99	671.62	5.02	967.25	5.01	1068.03
6.03	703.36	5.99	987.72	5.98	1133.05

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

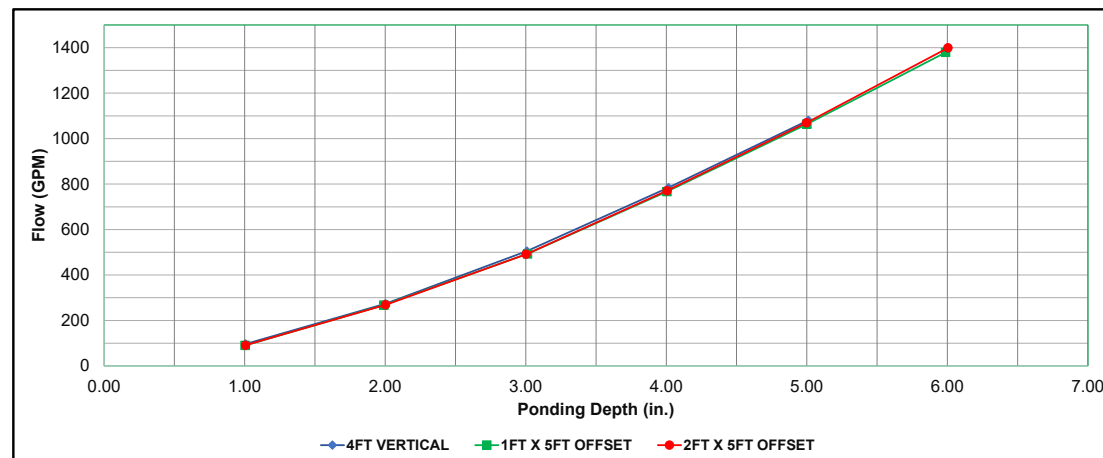




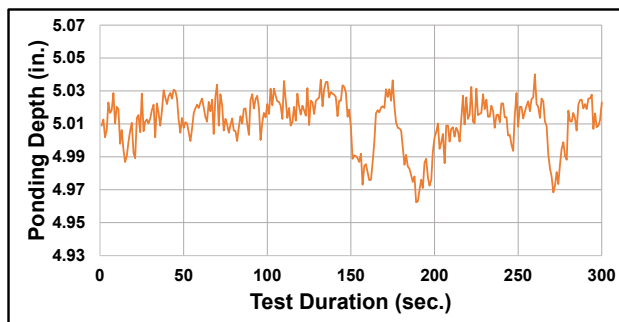
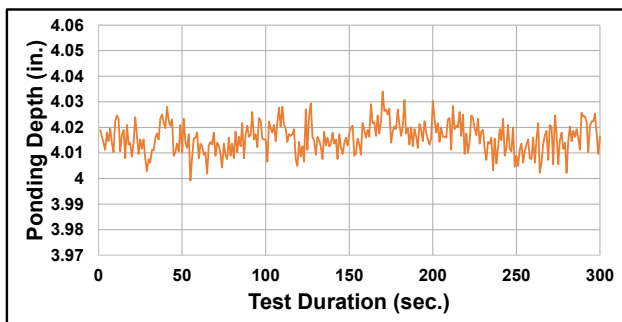
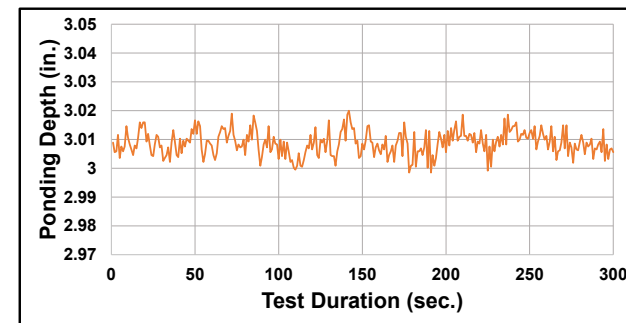
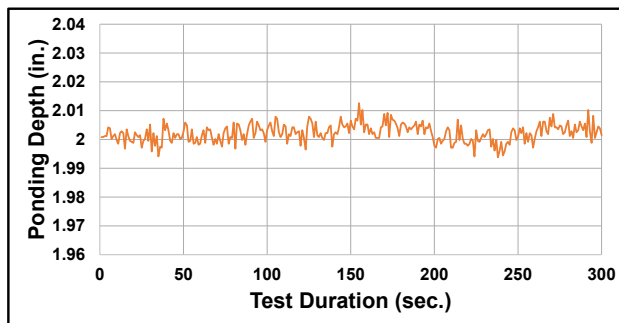
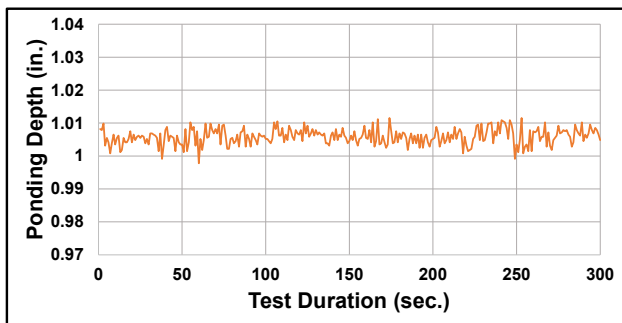
ROOF DRAIN FLOW DATA

Z100F-8NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	96.68	1.00	90.08	1.01	91.21
2.00	273.94	1.99	267.85	2.00	268.94
3.01	505.28	3.01	493.07	3.00	491.62
4.02	784.25	4.00	767.22	4.01	771.00
5.01	1080.59	5.00	1063.74	5.00	1069.38
		5.99	1378.95	6.00	1399.33



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.





ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

Z100F-89 FLOFORCE®

FLOFORCE® High efficient flow performing overflow roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnel-shaped interior surface, providing a seamless transition to outlet connection and eliminating internal obstructions. Complete with Dura-Coated cast iron body with 2[51] high combination membrane flashing clamp/gravel guard, and low silhouette Poly-Dome. Flashing clamp / gravel guard provided to prevent water and debris from entering the drain up to 2[51] head level. Poly-dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

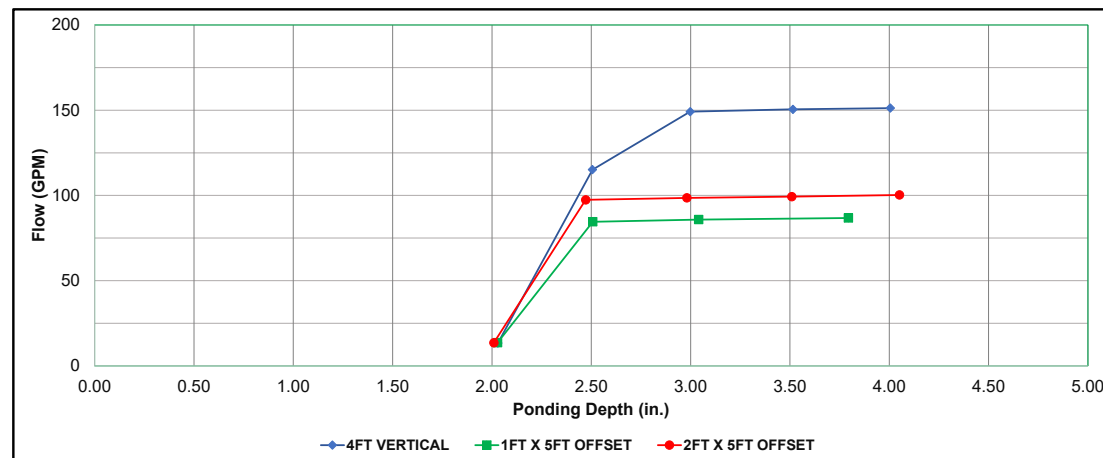
Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 20 of 38



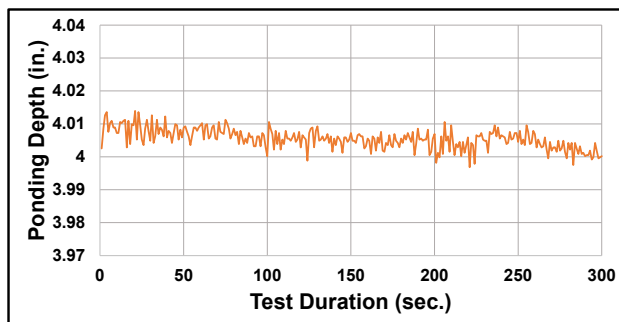
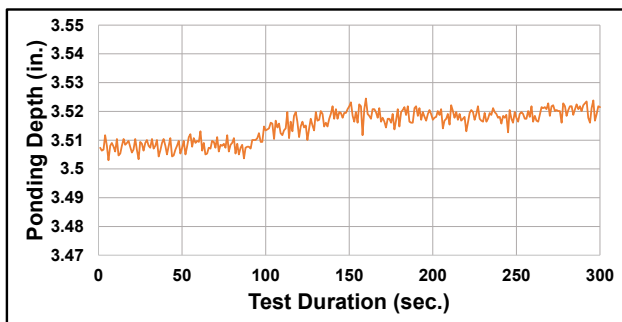
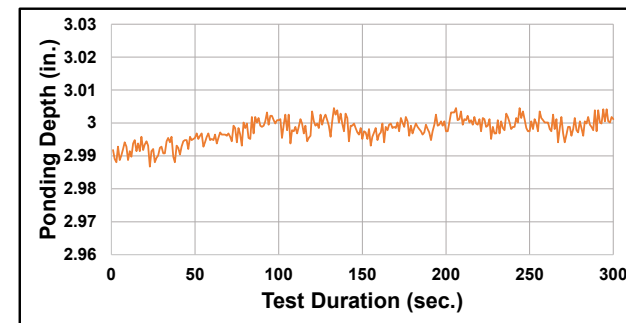
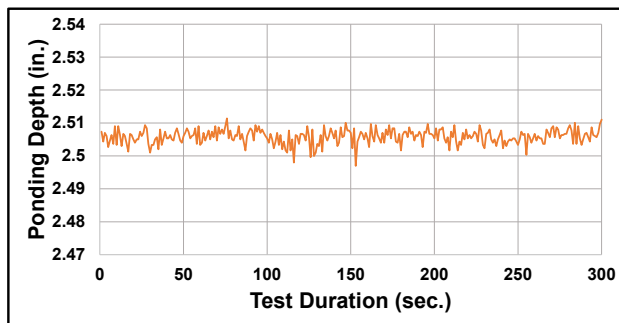
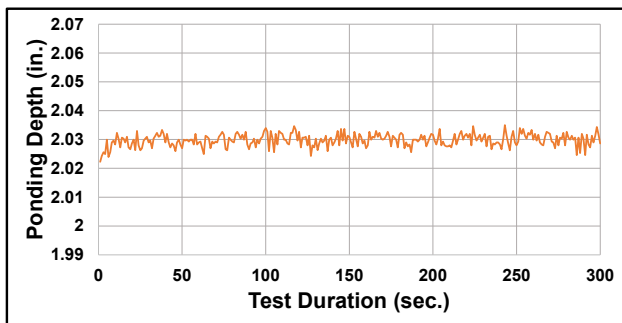
ROOF DRAIN FLOW DATA

Z100F-2NH-89

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
2.03	13.43	2.03	13.66	2.01	13.62
2.51	115.12	2.51	84.57	2.47	97.42
3.00	149.11	3.04	85.84	2.98	98.55
3.51	150.49	3.79	86.80	3.51	99.30
4.01	151.24			4.05	100.28



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



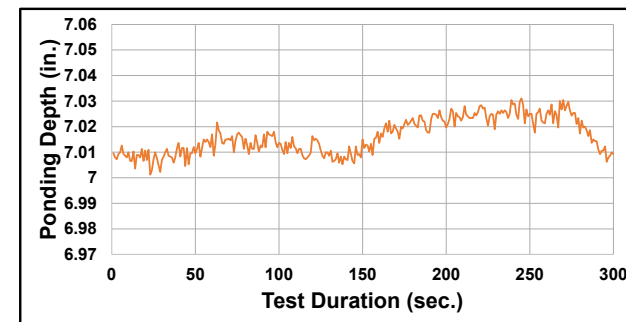
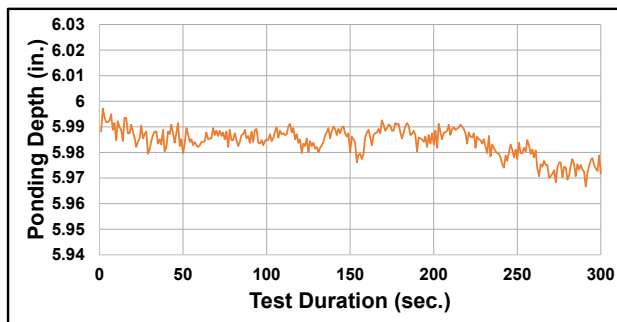
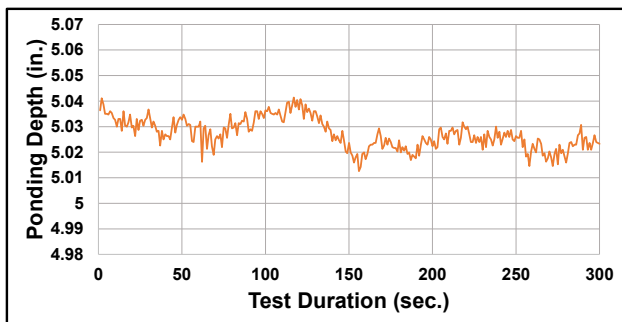
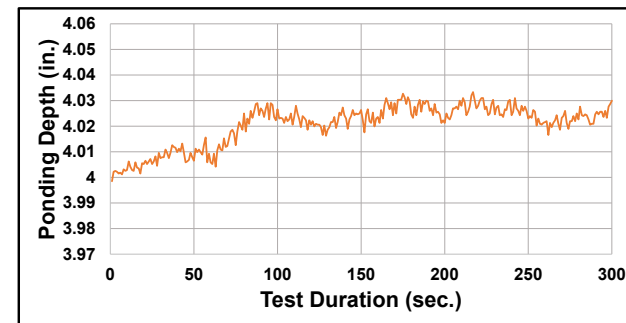
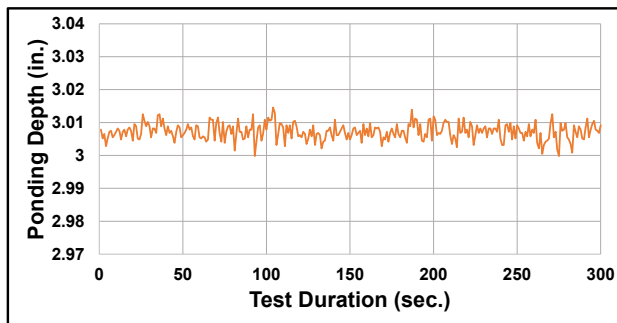
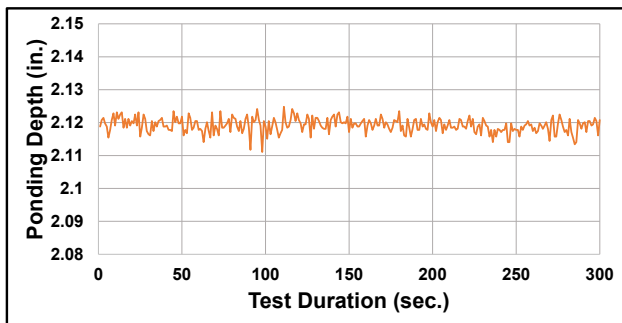
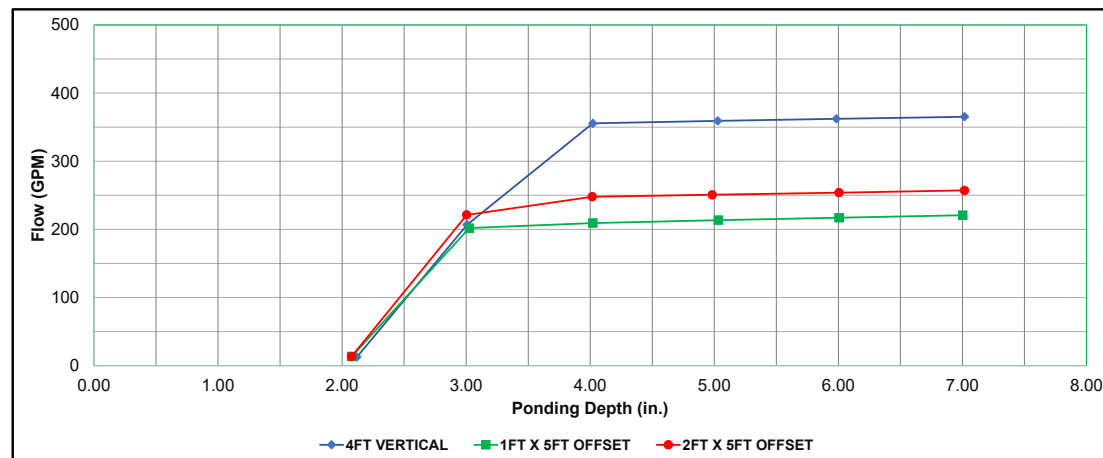


ROOF DRAIN FLOW DATA

Z100F-3NH-89

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
2.12	12.76	2.08	13.53	2.08	13.38
3.01	206.82	3.03	201.91	3.00	221.21
4.02	355.60	4.02	209.26	4.02	247.93
5.03	359.13	5.03	213.52	4.98	250.74
5.98	362.26	6.01	217.10	6.00	253.85
7.02	365.24	7.00	220.80	7.02	257.17

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

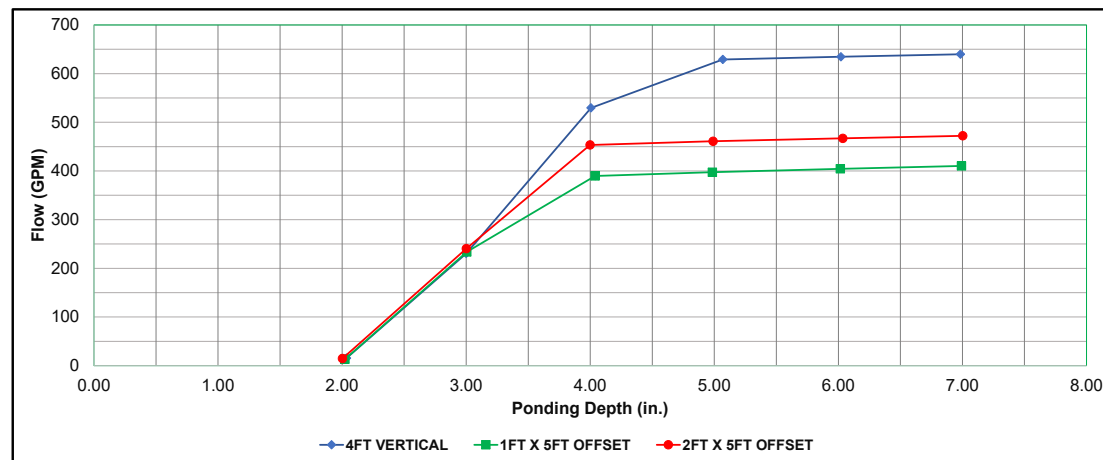




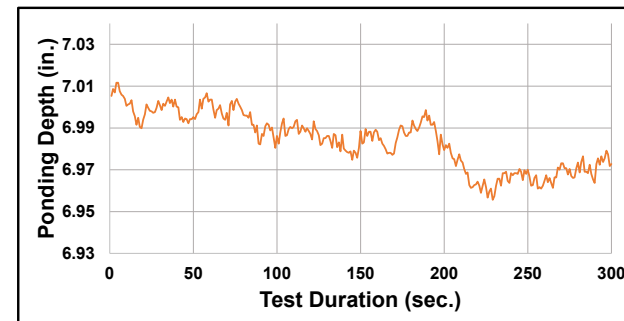
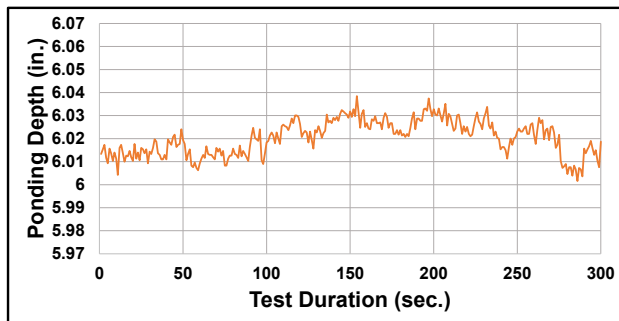
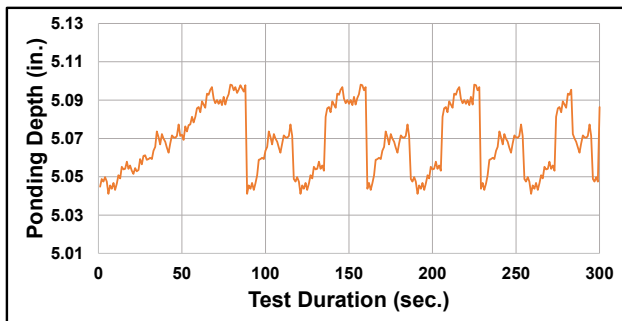
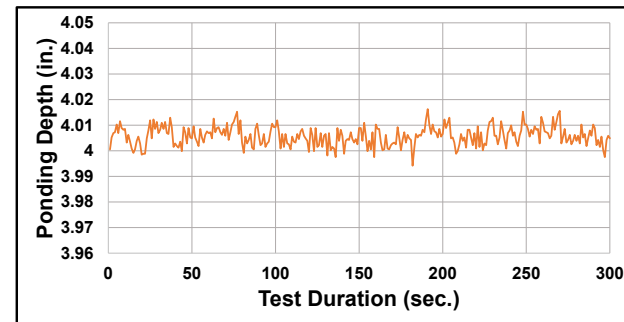
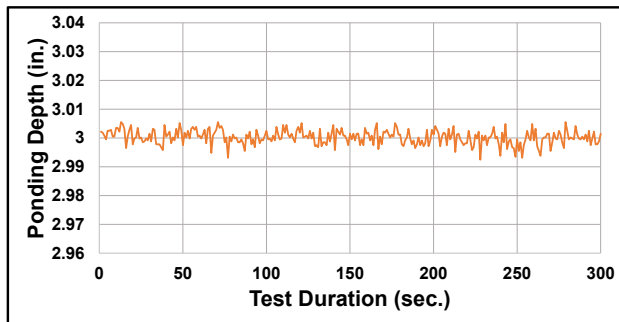
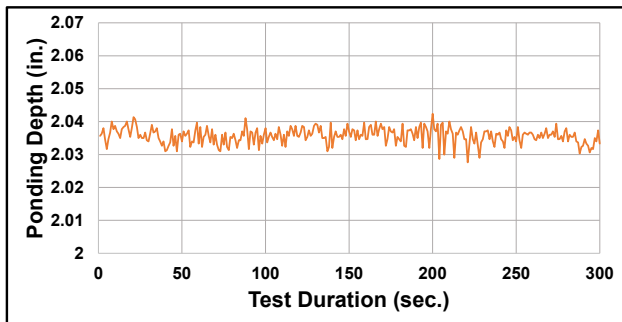
ROOF DRAIN FLOW DATA

Z100F-4NH-89

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
2.04	15.61	2.02	13.36	2.00	14.70
3.00	230.56	3.01	233.71	3.00	240.43
4.01	529.57	4.04	389.85	4.00	453.40
5.07	628.99	4.98	397.34	4.99	461.10
6.02	634.53	6.02	404.38	6.04	467.03
6.98	639.79	6.99	410.39	7.00	472.26



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

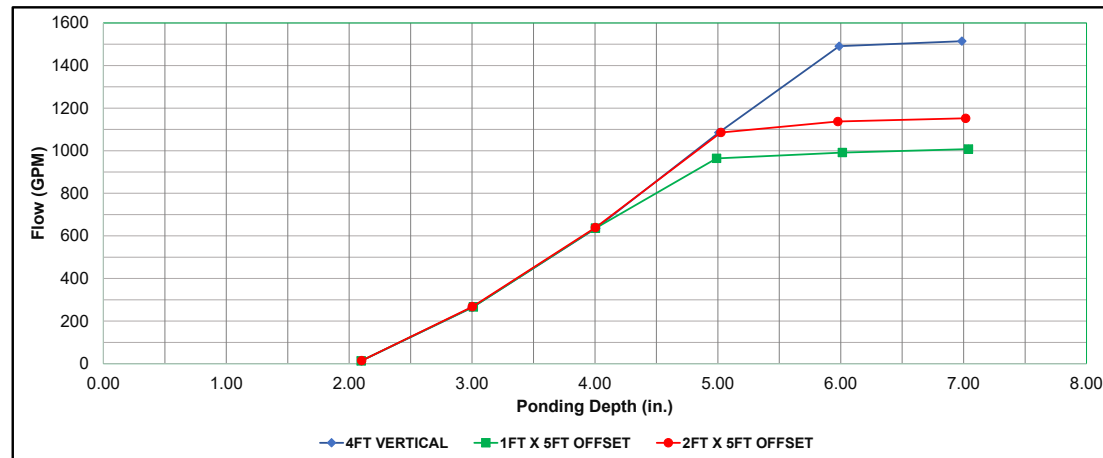




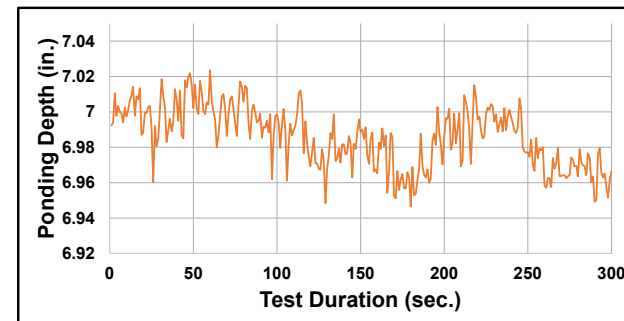
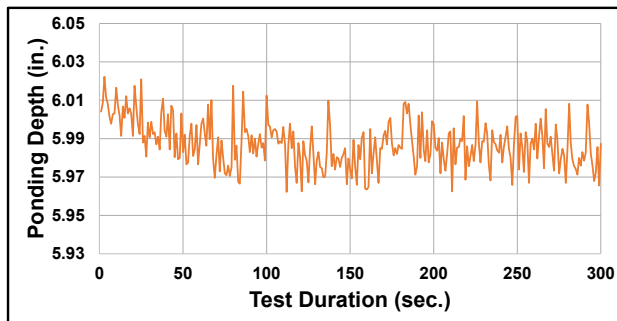
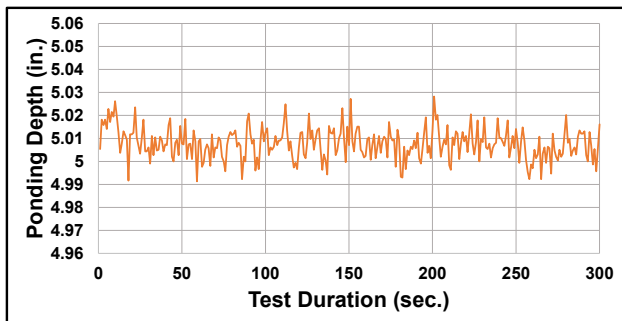
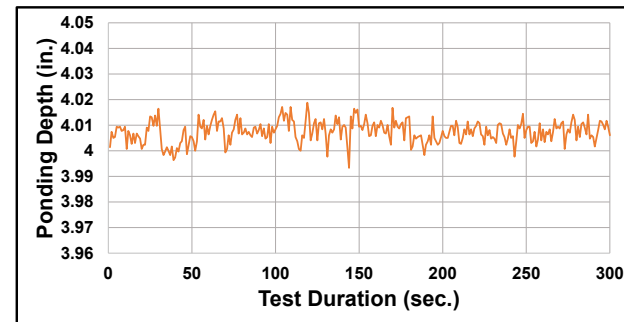
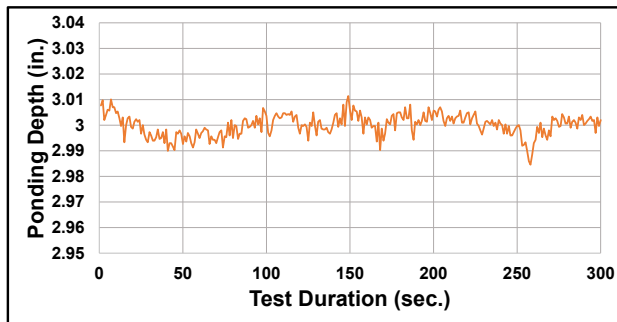
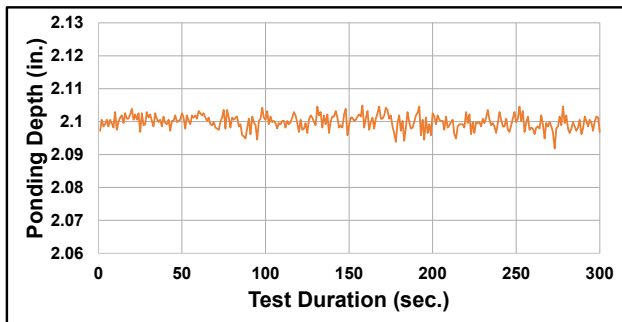
ROOF DRAIN FLOW DATA

Z100F-6NH-89

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
2.10	13.41	2.10	13.31	2.10	14.27
3.00	263.49	3.01	266.49	3.00	267.60
4.01	635.56	4.00	636.24	4.00	638.87
5.01	1085.03	4.99	964.13	5.02	1085.61
5.99	1490.81	6.01	991.36	5.98	1137.10
6.99	1514.40	7.04	1007.72	7.02	1152.18



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.





ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

ZC100F FLOFORCE®

FLOFORCE® High efficient flow performing roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnel-shaped interior surface, providing a seamless transition to outlet connection, and eliminating internal obstructions. Complete with Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard and low silhouette cast iron dome. Flashing clamp/gravel guard provided to prevent debris from entering the drain while allowing water to immediately pass through at zero head level. Cast iron dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 25 of 38

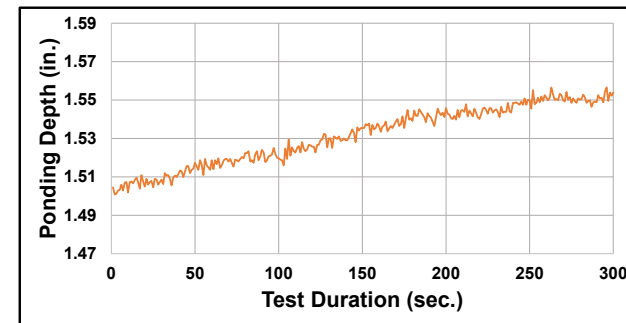
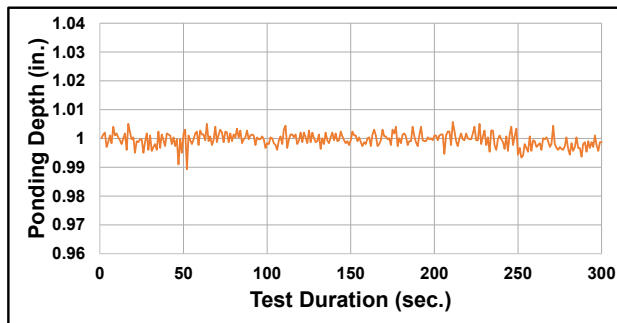
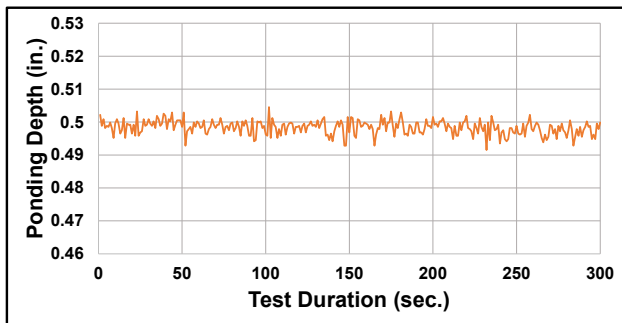
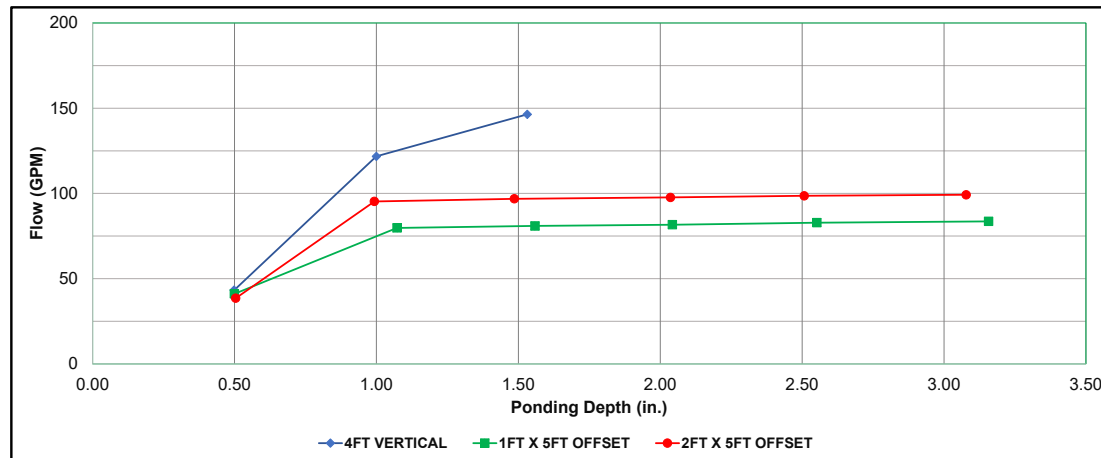


ROOF DRAIN FLOW DATA

ZC100F-2NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
0.50	43.28	0.50	41.15	0.50	38.59
1.00	121.75	1.07	79.77	0.99	95.33
1.53	146.40	1.56	80.96	1.49	96.87
		2.04	81.66	2.04	97.68
		2.55	82.85	2.51	98.59
		3.16	83.64	3.08	99.22

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



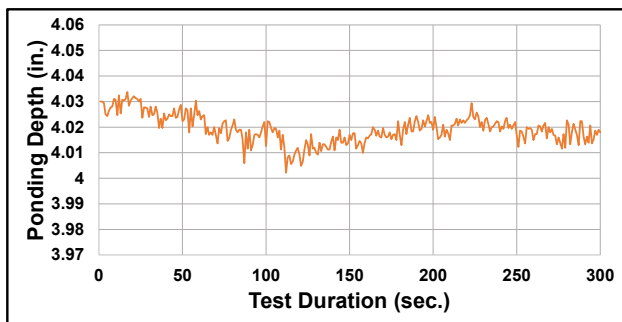
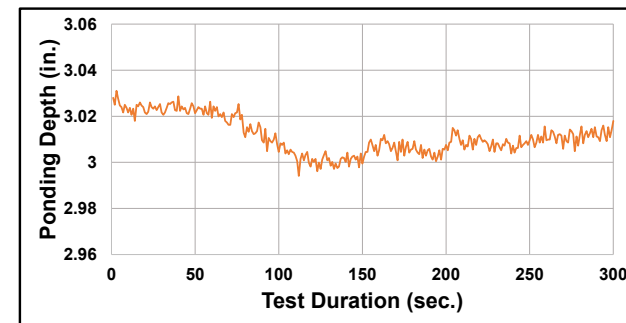
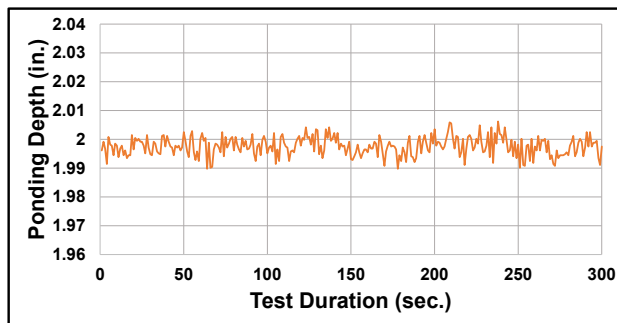
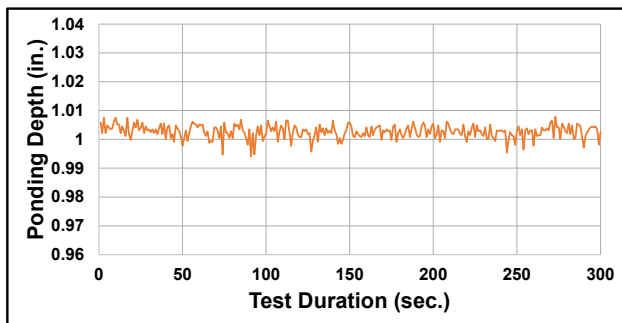
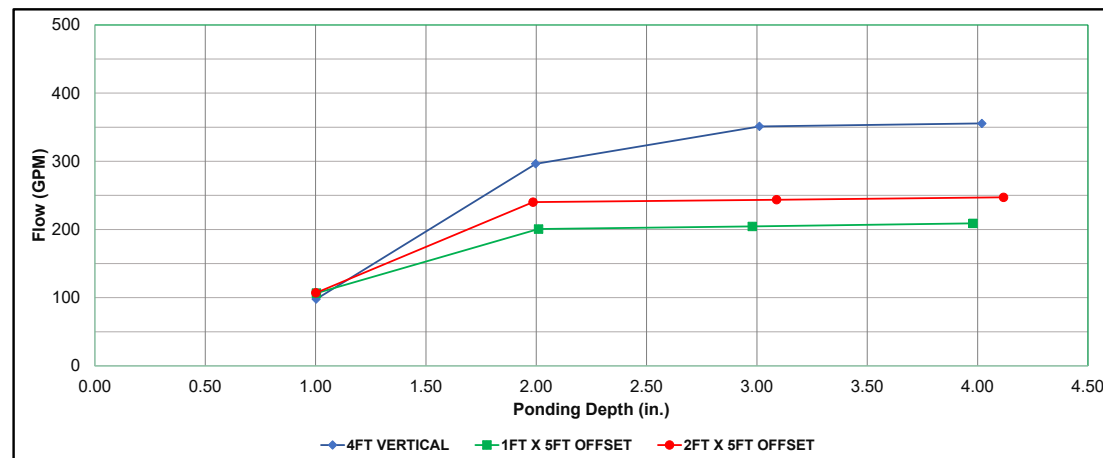


ROOF DRAIN FLOW DATA

ZC100F-3NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	97.95	1.00	106.65	1.00	107.10
2.00	296.37	2.01	200.61	1.99	240.10
3.01	351.21	2.98	204.48	3.09	243.67
4.02	355.56	3.98	208.99	4.12	247.20

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



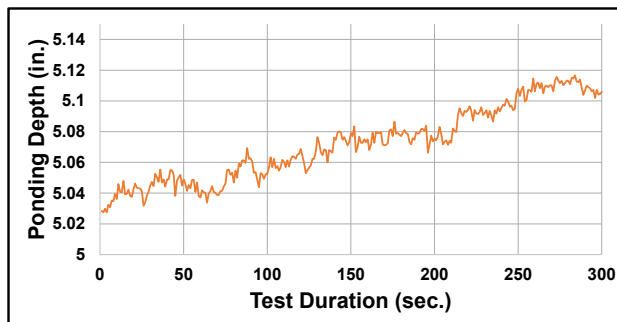
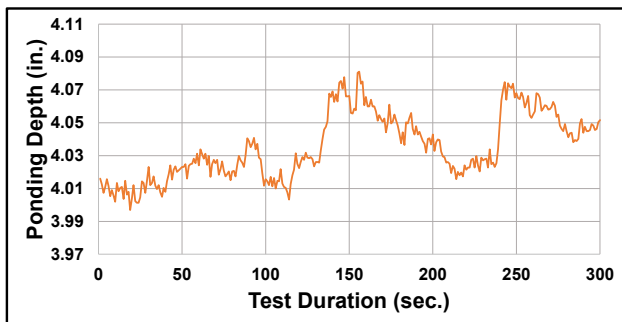
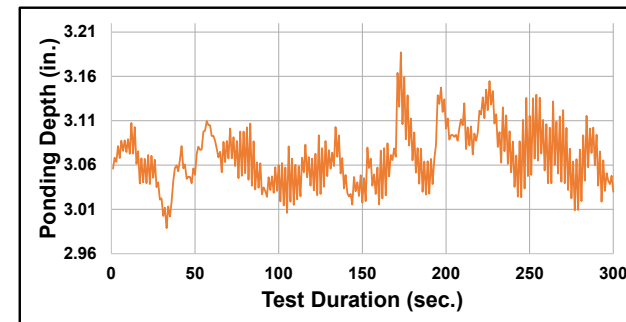
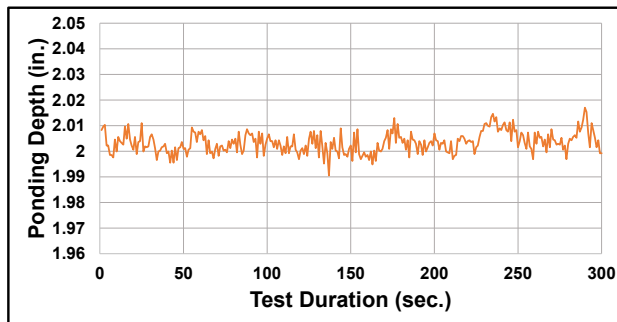
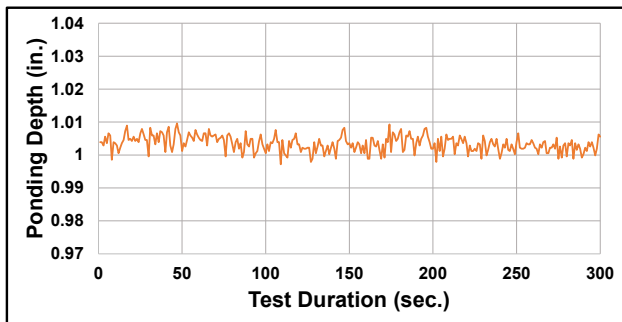
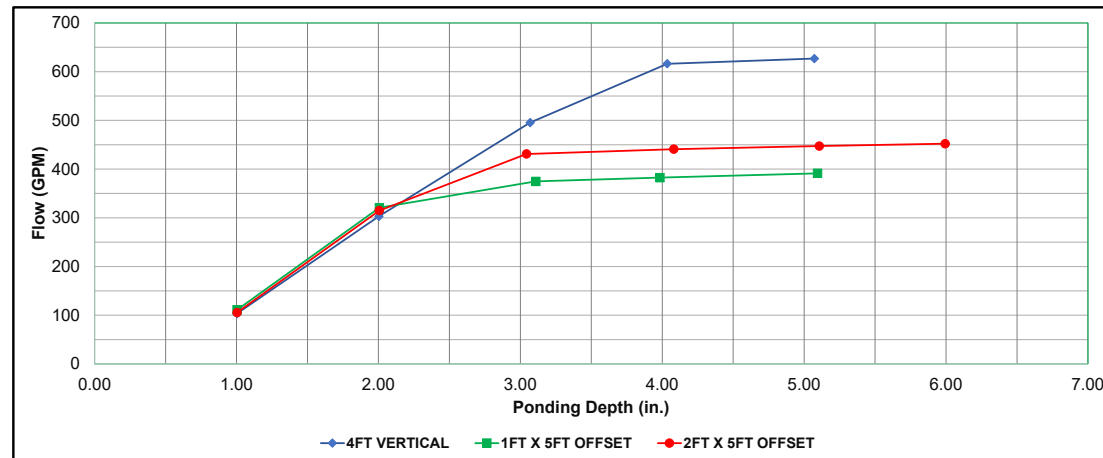


ROOF DRAIN FLOW DATA

ZC100F-4NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	103.46	1.00	111.04	1.00	105.62
2.00	302.95	2.01	320.70	2.01	314.85
3.07	495.34	3.11	374.70	3.04	431.00
4.04	616.21	3.98	382.43	4.08	440.81
5.07	626.78	5.09	391.23	5.11	447.29
				5.99	452.06

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

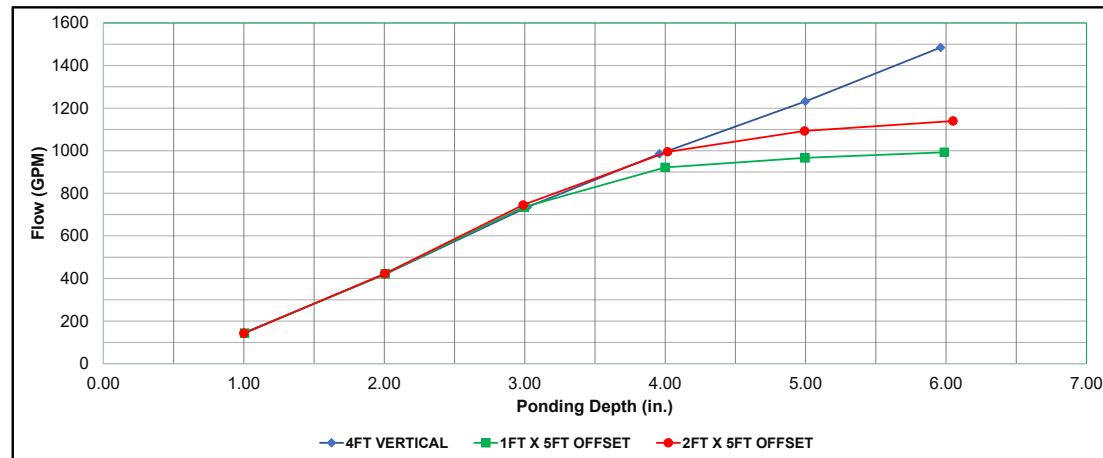




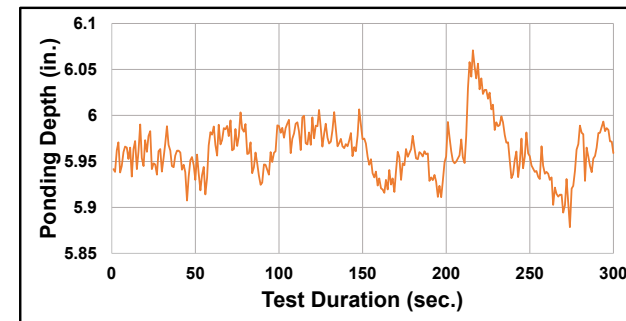
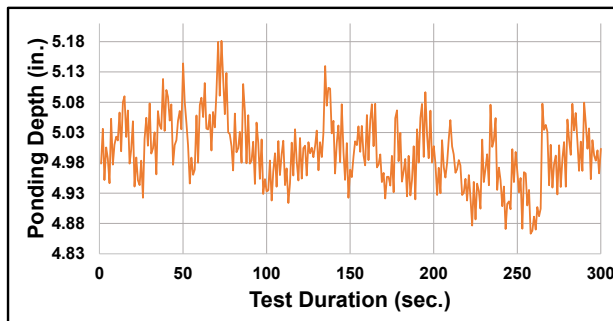
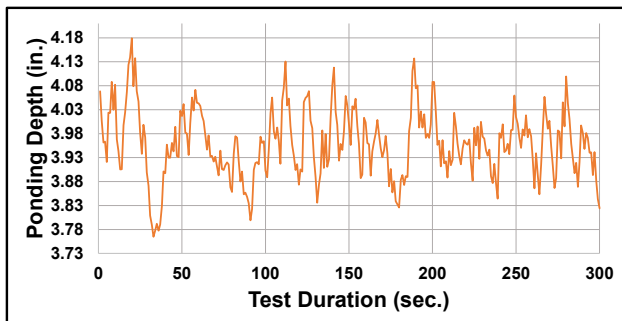
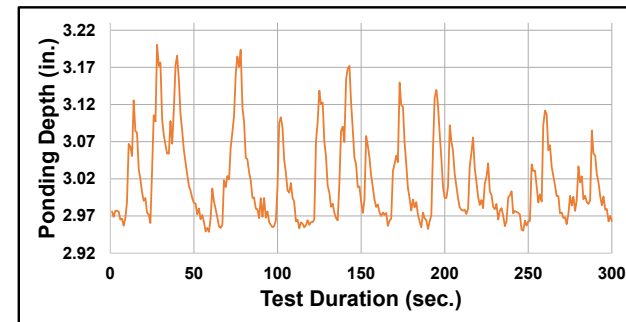
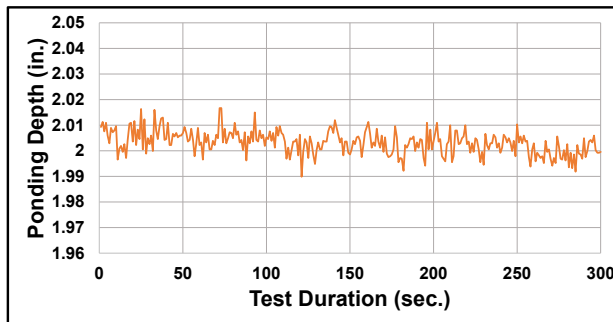
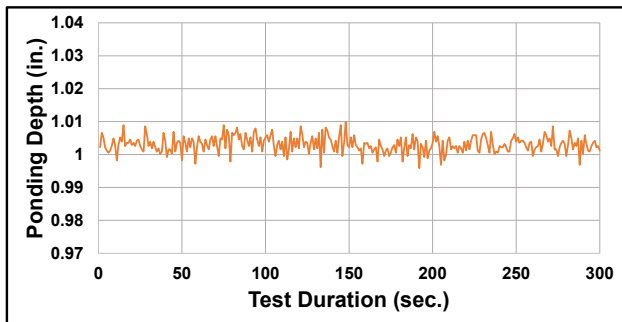
ROOF DRAIN FLOW DATA

ZC100F-6NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	145.54	1.01	143.81	1.00	142.60
2.00	419.03	2.01	421.76	2.00	422.55
3.02	734.98	2.99	735.73	2.99	745.27
3.96	985.09	4.00	921.51	4.02	994.71
5.00	1231.71	5.00	966.48	4.99	1092.78
5.96	1484.75	5.99	992.26	6.05	1139.57



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

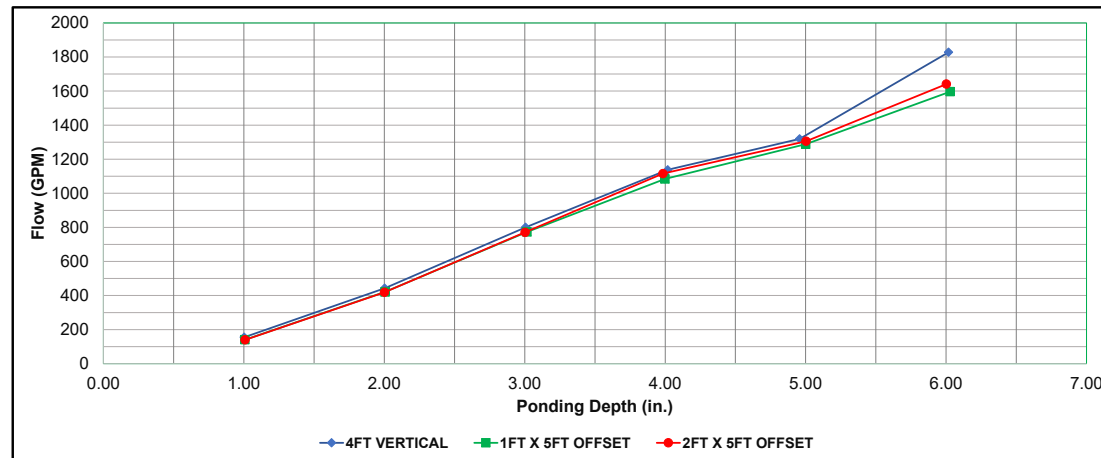




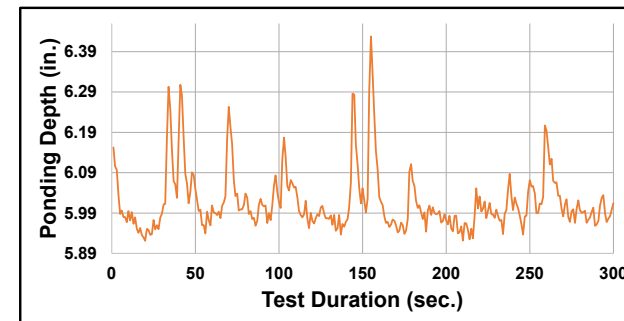
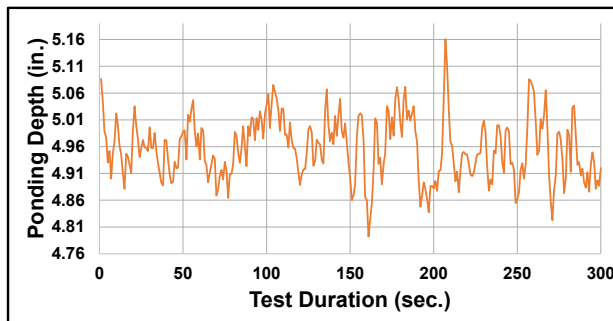
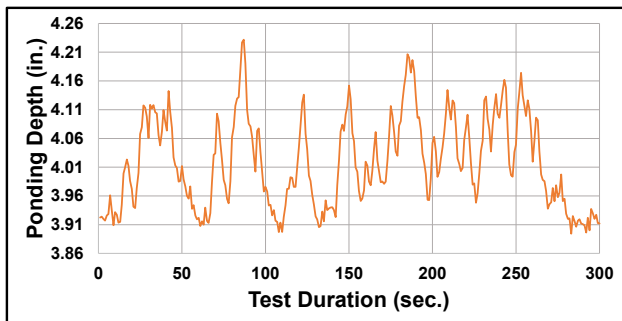
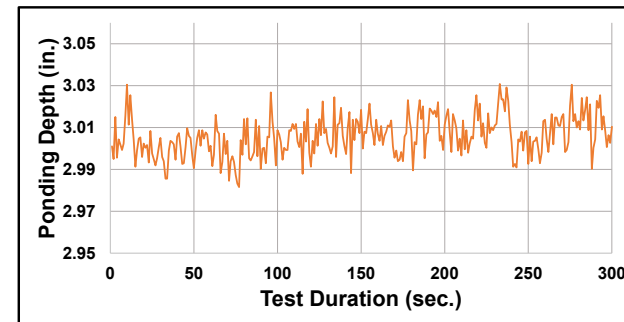
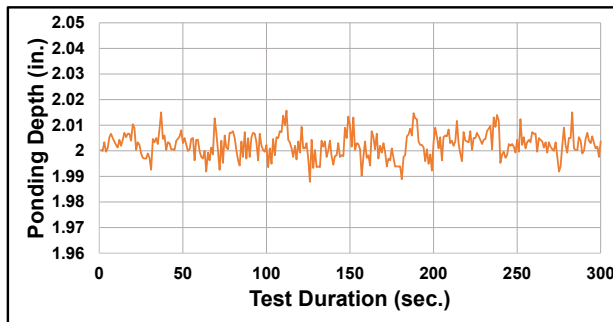
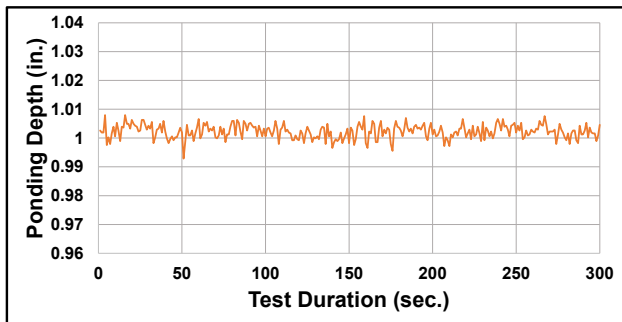
ROOF DRAIN FLOW DATA

ZC100F-8NH

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	155.29	1.01	140.69	1.01	140.00
2.00	443.01	2.01	421.09	2.00	419.18
3.01	800.55	3.02	773.15	3.00	770.85
4.02	1137.79	4.00	1084.08	3.98	1115.63
4.96	1319.30	5.00	1288.26	5.00	1305.70
6.02	1828.02	6.03	1596.36	6.00	1641.20



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.





ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

ZC100F-EA FLOFORCE®

FLOFORCE® High efficient flow performing roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnel-shaped interior surface, providing a seamless transition to outlet connection and eliminating internal obstructions. Complete with Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard, adjustable extension, gasketed collar with o-ring seal and low silhouette cast iron dome. Flashing clamp/gravel guard provided to prevent debris from entering the drain while allowing water to immediately pass through at zero head level. Cast iron dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

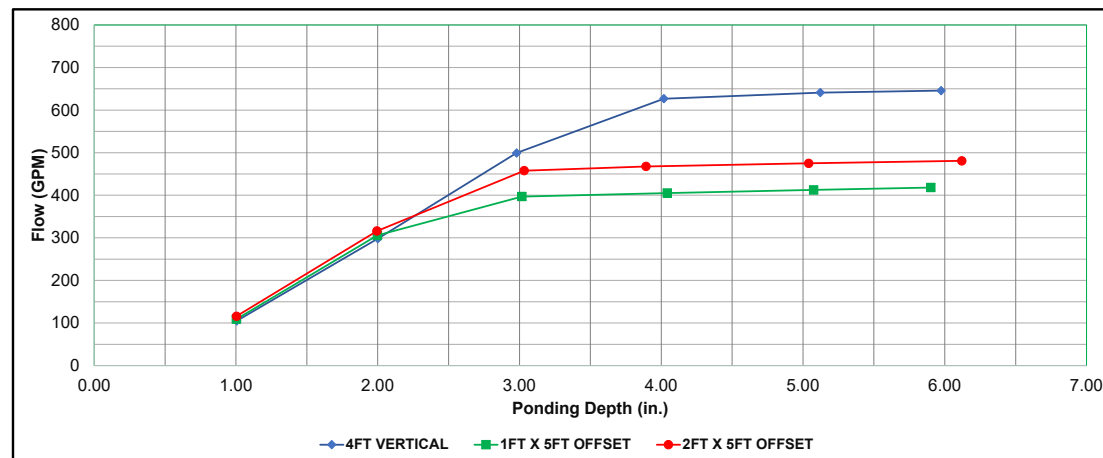
Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 31 of 38



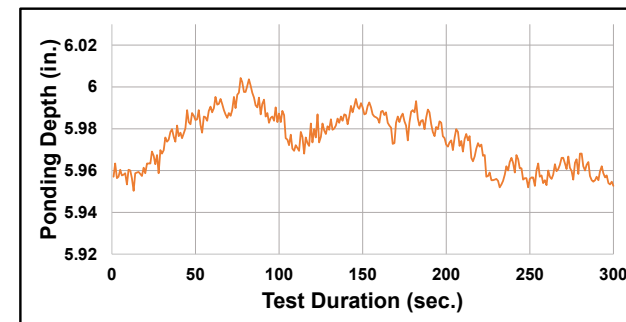
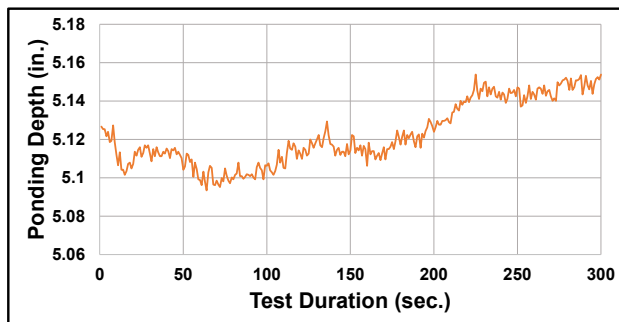
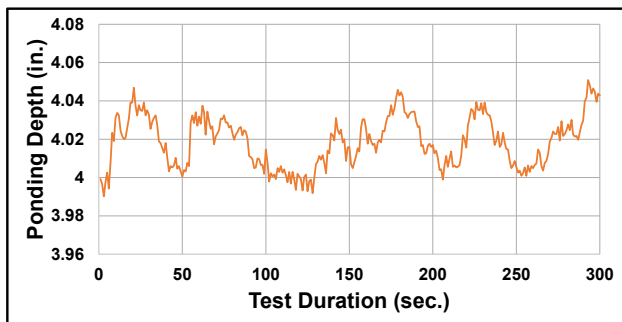
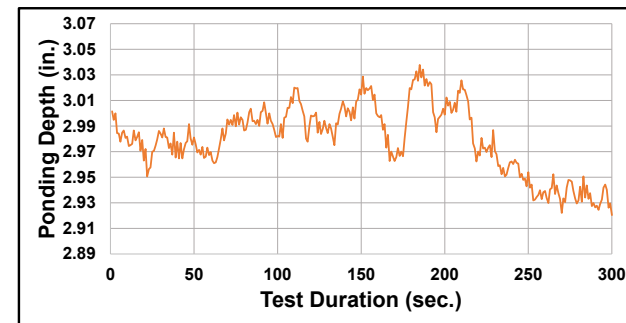
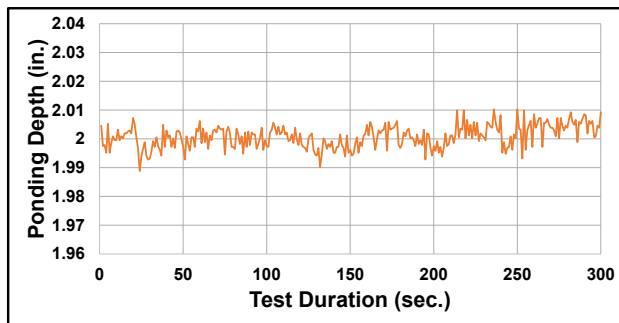
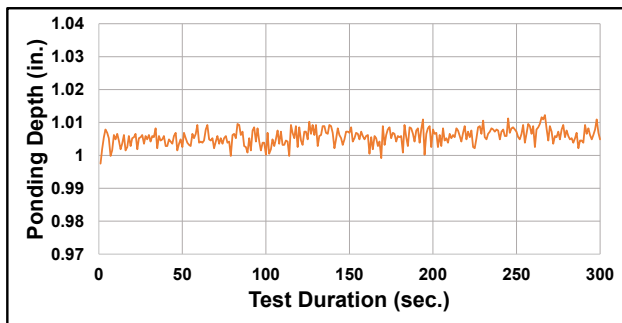
ROOF DRAIN FLOW DATA

ZC100F-4NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	104.91	1.00	109.25	1.00	115.90
2.00	298.15	2.00	305.65	1.99	316.07
2.98	499.31	3.02	397.08	3.03	457.78
4.02	626.69	4.04	405.26	3.89	467.66
5.12	641.05	5.07	412.59	5.04	475.00
5.97	645.63	5.90	418.21	6.12	480.83



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.



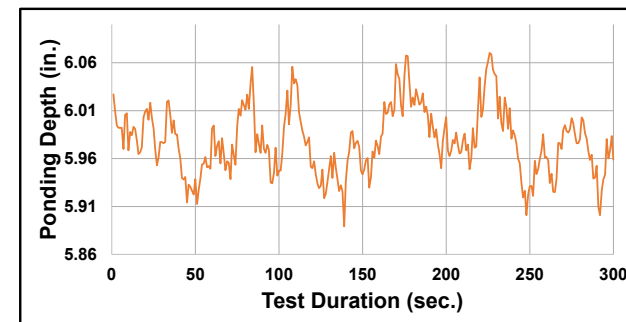
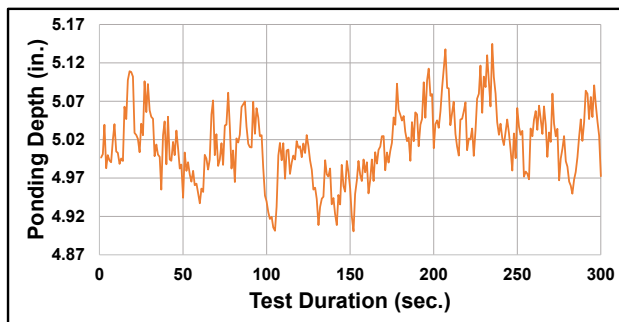
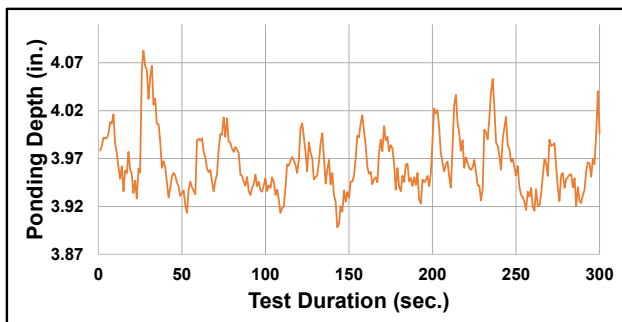
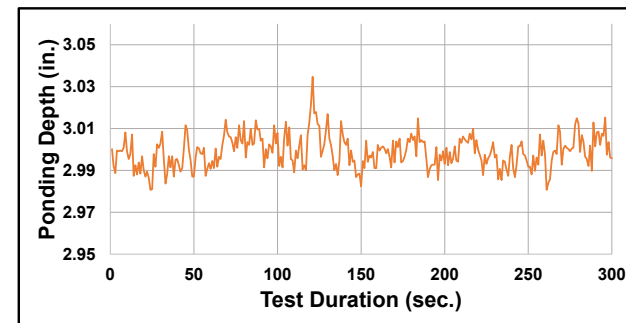
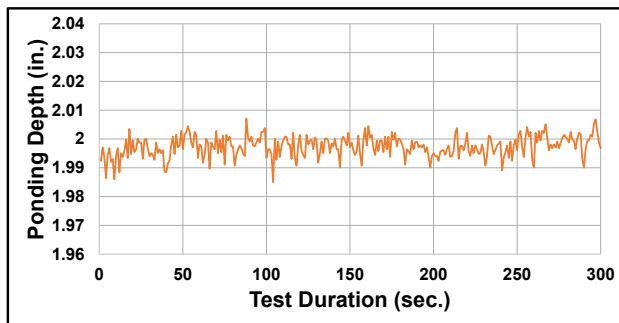
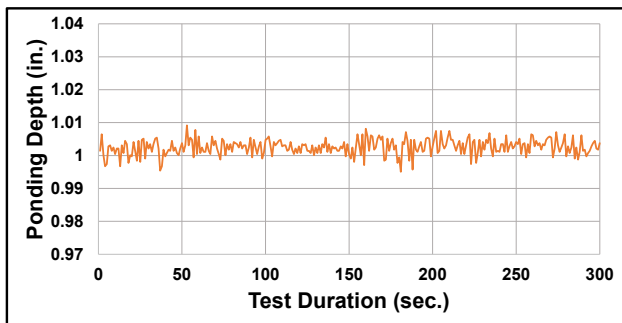
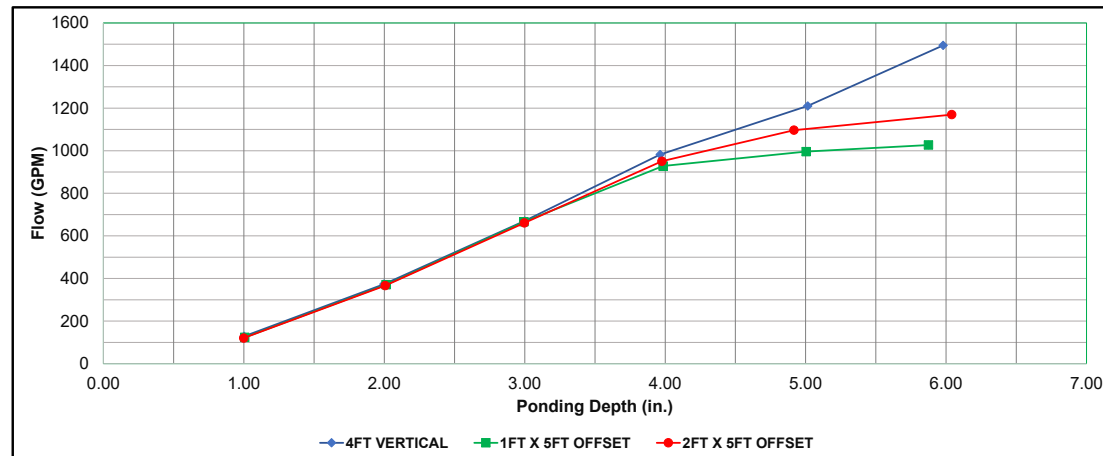


ROOF DRAIN FLOW DATA

ZC100F-6NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	128.75	1.01	123.64	1.00	120.59
2.00	373.57	2.01	370.70	2.01	366.64
3.00	670.03	2.99	666.37	3.00	660.85
3.96	982.21	3.99	928.31	3.98	950.78
5.02	1210.19	5.00	995.80	4.92	1096.45
5.98	1494.62	5.87	1026.41	6.04	1169.37

The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

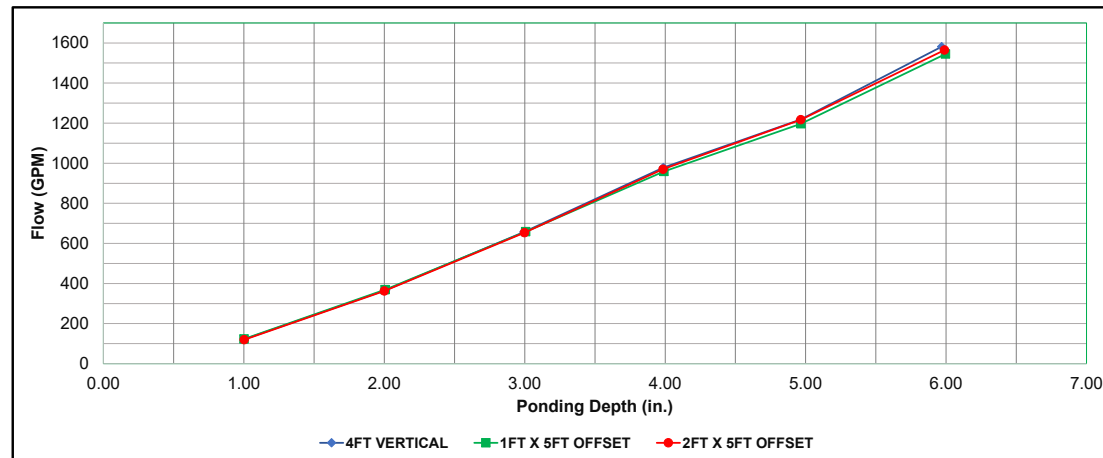




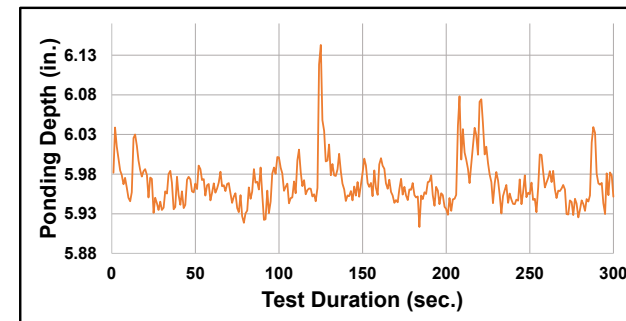
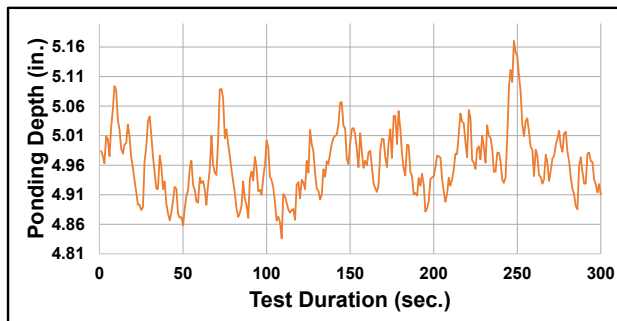
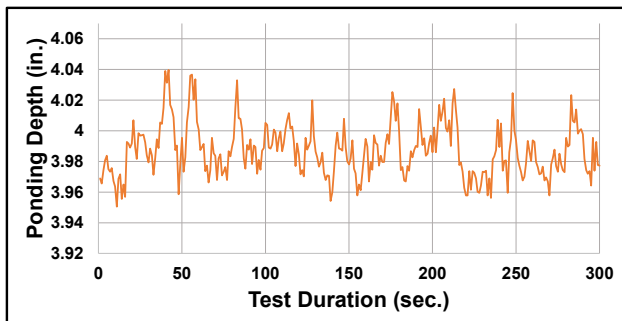
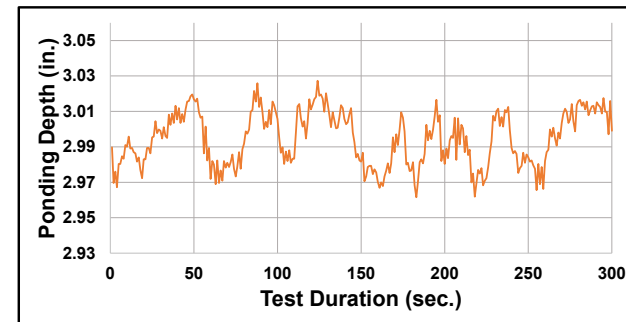
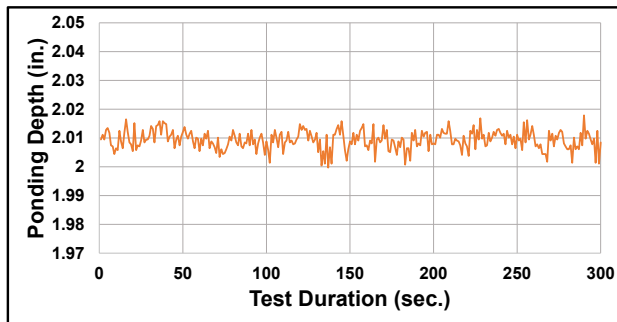
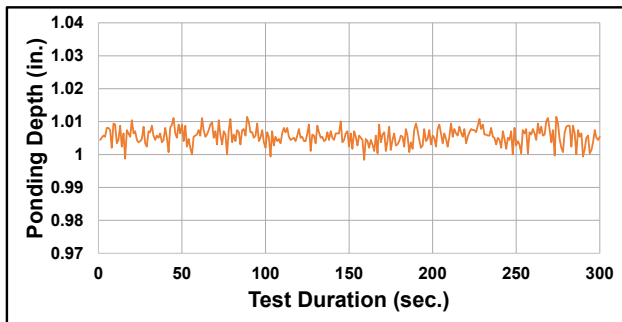
ROOF DRAIN FLOW DATA

ZC100F-8NH-EA

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	122.34	1.00	123.41	1.00	119.59
2.01	366.58	2.01	369.32	2.00	362.51
2.99	657.31	3.01	658.55	3.00	653.50
3.99	978.72	3.99	959.08	3.98	970.17
4.96	1217.42	4.97	1196.86	4.97	1217.30
5.97	1581.35	6.00	1545.26	5.99	1564.77



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.





ROOF DRAIN FLOW DATA

Disclaimer of the data contained within this document

Results obtained from the application of flow measurement procedures specified in A112.6.4-2022/CSA B79.4 indicate a flow rate achieved under laboratory conditions using 1219mm (48 in) vertical discharge pipe; all added elements of drainage design may increase or decrease the flow rates reported. Variables such as wind, vortices, debris, roof design, roof obstructions and slope can significantly change the roof drain flow rate. Designers are advised to consider these and other possible variables in roof drainage design.

ZC100F-84 FLOFORCE®

FLOFORCE® High efficient flow performing overflow roof drain engineered to evacuate water off of roof structure by incorporating a smooth funnel-shaped interior surface, providing a seamless transition to outlet connection and eliminating internal obstructions. Complete with Dura-Coated cast iron body with combination membrane flashing clamp/gravel guard, stainless steel perforated gravel guard and low silhouette cast iron dome. Perforated gravel guard provided to prevent debris from entering the drain while allowing water to immediately pass through at zero head level. Cast iron dome designed to maximize effective open area and promote efficient flow.



⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov

⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn Industries, LLC | Specification Drainage Operation
1801 Pittsburgh Avenue, Erie, PA 16502, Ph. 855.663.9876

In Canada | Zurn Industries Limited
7900 Goreway Drive, Unit 10, Brampton, Ontario L6T 5W6, Ph. 877.892.5216

www.zurn.com

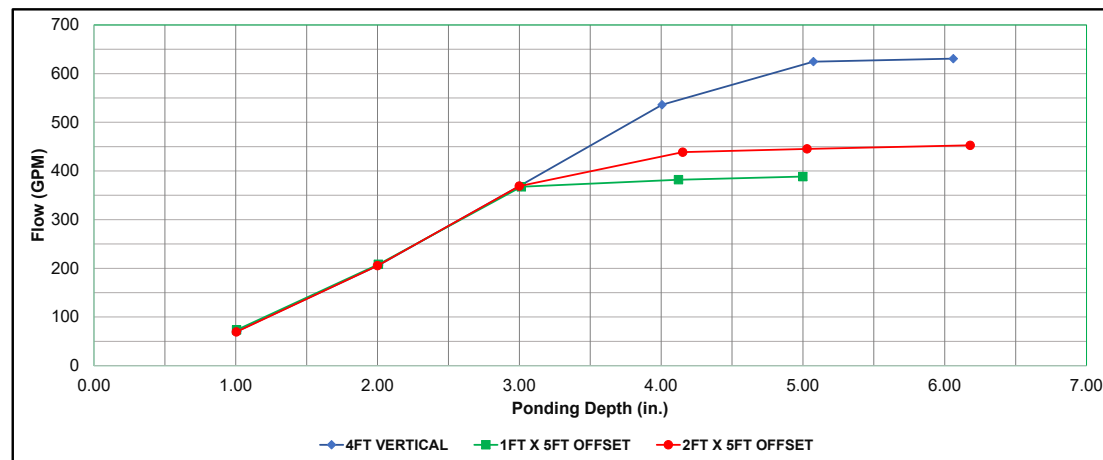
Rev.	-
Date:	10/31/2023
C.N. No.	145646
Patents	zurn.com/patents
Prod. Dwg. No.	RD161 Page 35 of 38



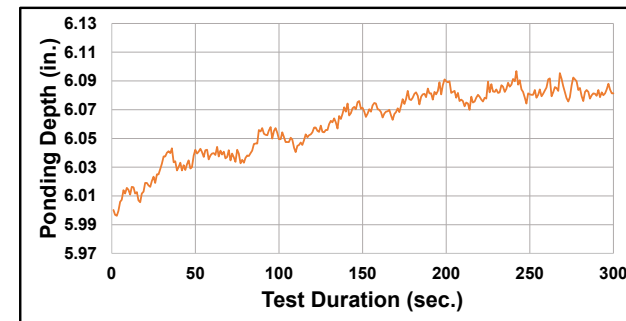
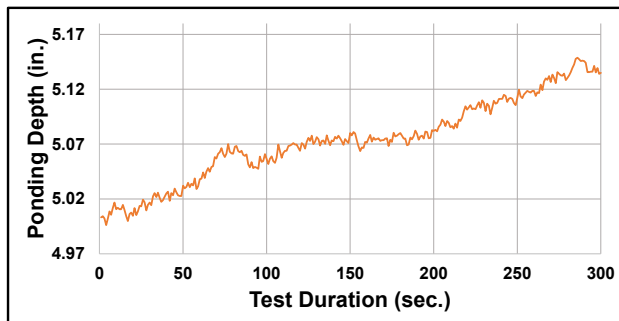
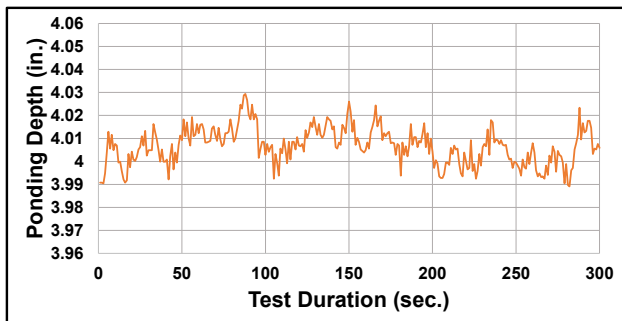
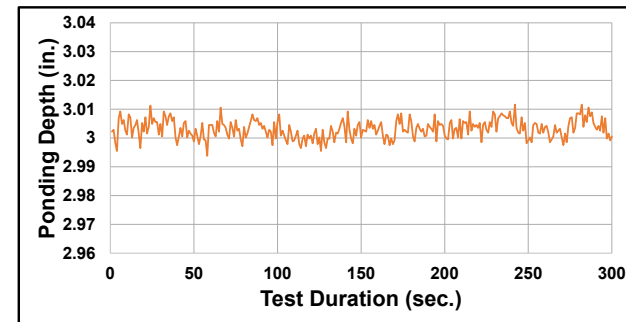
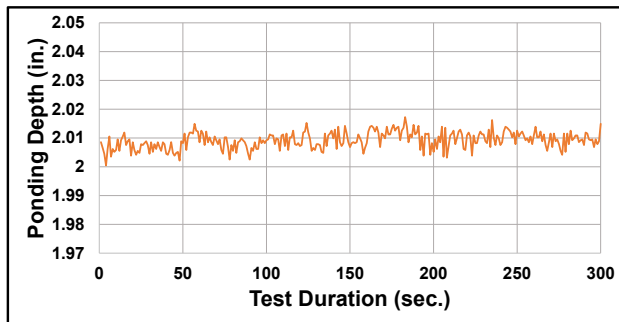
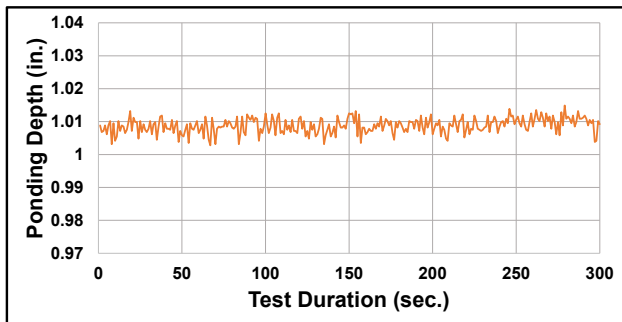
ROOF DRAIN FLOW DATA

ZC100F-4NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	70.70	1.01	73.51	1.00	69.33
2.01	206.65	2.01	208.23	2.00	205.55
3.00	369.29	3.01	367.59	3.00	368.90
4.01	536.07	4.12	382.09	4.15	438.70
5.07	624.51	5.00	388.40	5.03	445.30
6.06	630.67			6.18	452.69



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

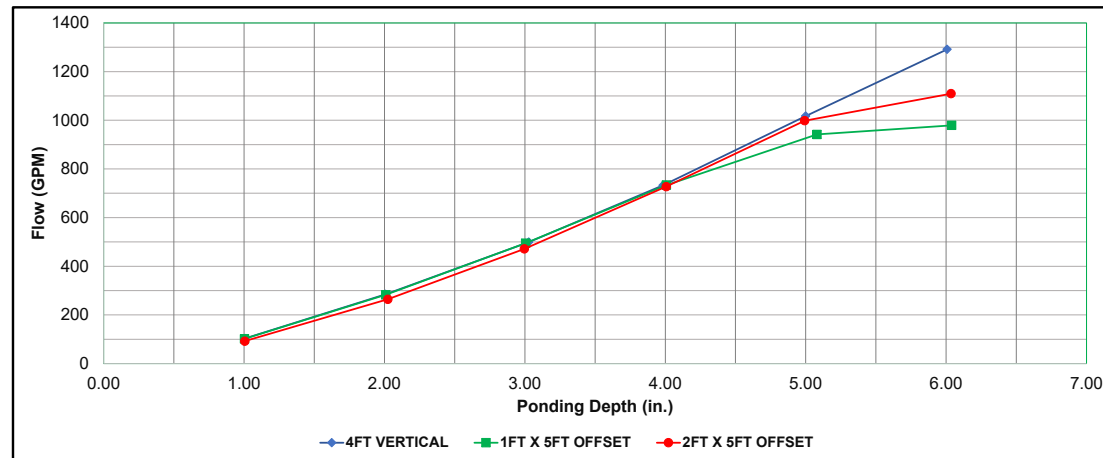




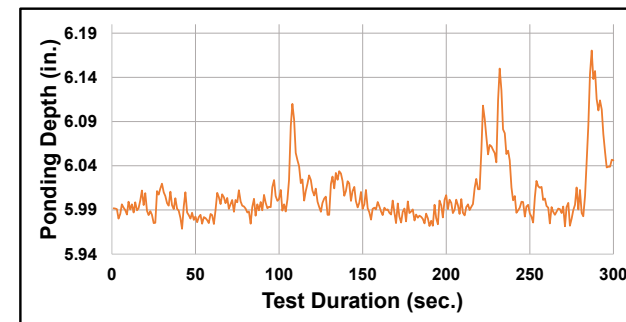
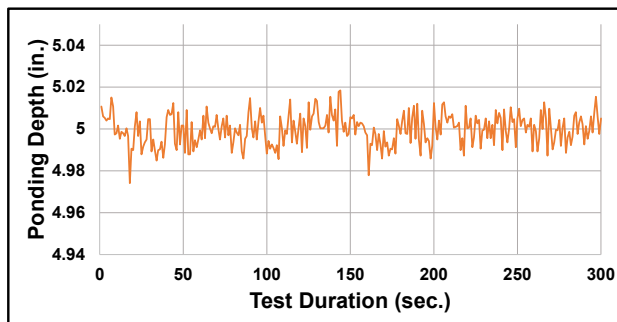
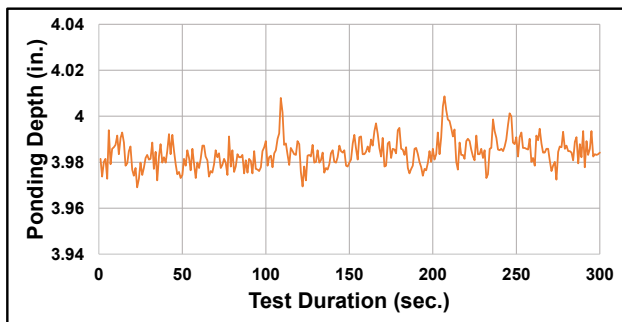
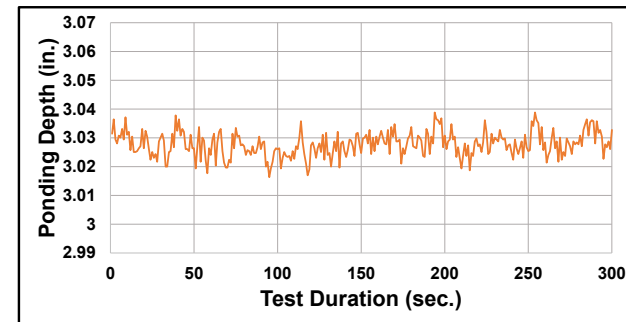
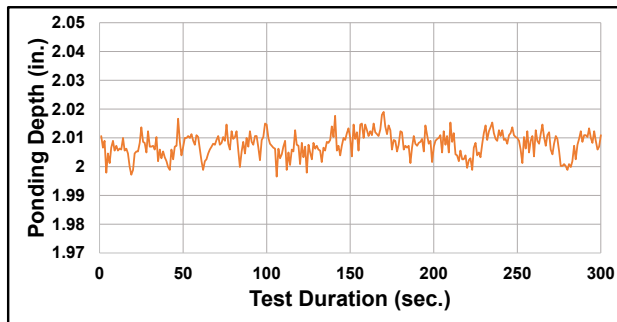
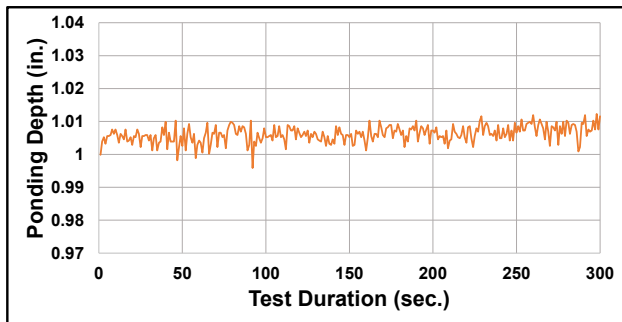
ROOF DRAIN FLOW DATA

ZC100F-6NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.01	103.28	1.00	101.83	1.00	92.31
2.01	285.02	2.01	282.93	2.02	264.38
3.03	499.30	3.01	495.00	3.00	471.38
3.98	732.60	4.01	733.56	4.01	727.20
5.00	1017.41	5.08	941.69	4.99	998.15
6.01	1291.69	6.04	979.04	6.04	1109.33



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

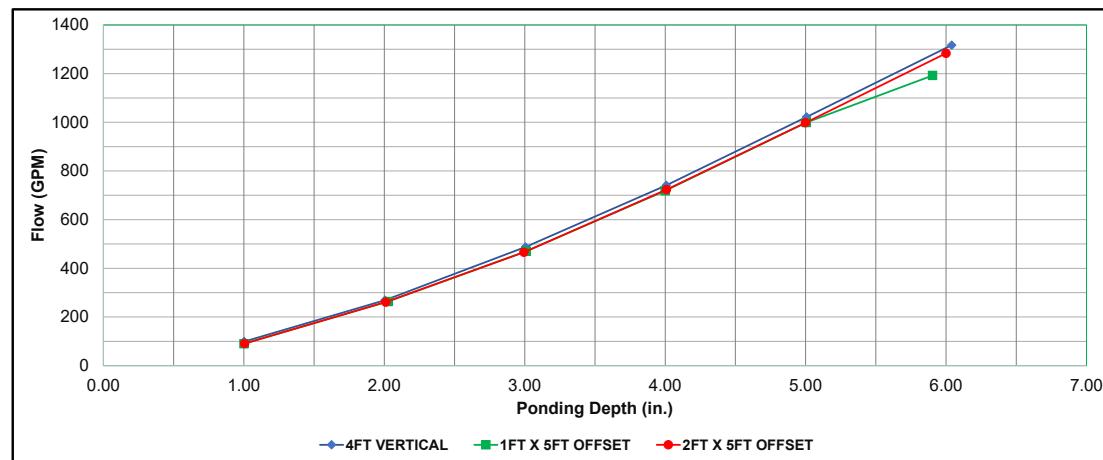




ROOF DRAIN FLOW DATA

ZC100F-8NH-84

4ft Vertical Pipe Outlet		1x5 Offset Pipe Outlet		2x5 Offset Pipe Outlet	
Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)	Roof Ponding Depth (in.)	Flow Rate (GPM)
1.00	99.27	1.00	90.60	1.00	90.83
2.01	269.21	2.03	263.62	2.01	261.24
3.01	487.81	3.01	470.23	2.99	465.94
4.01	740.99	4.00	718.61	4.01	723.53
5.01	1021.89	5.00	998.72	5.00	998.17
6.04	1317.08	5.90	1192.42	6.00	1283.61



The graphs below show the magnitude and frequency of the fluctuations of ponding depths when tested with 4ft vertical pipe outlet.

