

Forensic Engineering Consultants, Inc.

MEMBRANE ATTACHMENT CALCULATIONS

Project Name Colonial Manor **Report No.:** ATRT-MB-23.162
Project Address 2424 NE 9 Street
 Ft. Lauderdale, FL - 33304

Deck Substrate	Wood	Non-Insulated	Mean Roof Height	29.0 Feet	
Configuration	Low Slope		Roof Area (Approx.)	14073 Sq.Ft.	
Category	II		Roof Width	86.0 Feet	
Exposure Condition	D		Perimeter Width	17.4 Feet	
Building Type	Enclosed		Parapet Height	0.0 Feet	
Base Wind Speed	170	mph	Corner Zones	17.4' x 17.4' Each	
Slope V	0.0	Slope H	12.0	Slope Angle ^o	0.00

Uplift Pressures $q_z = 0.00256 K_z K_{zt} K_d K_e V^2$ $P = q_z (GC_p - GC_{pi})$

q_z	K_z	K_{zt}	K_d	K_e	V	GC_p	GC_{pi}	
72.658	1.155	1.000	0.85	1.00	170	-0.90	0.18	Field'
						-1.70	0.18	Field
						-2.30	0.18	Perimeter
						-3.20	0.18	Corner

Field'	P _{1' ult.}	-78.47 psf	P _{1' asd}	-47.08 psf
Field	P _{1 ult.}	-136.60 psf	P _{1 asd}	-81.96 psf
Perimeter	P _{2 ult.}	-180.19 psf	P _{2 asd}	-108.12 psf
Corner	P _{3 ult.}	-245.58 psf	P _{3 asd}	-147.35 psf

Proposed System **GAF EverGuard TPO Roof Systems over Wood Decks**

Product Approval No. **20-0518.02** (Pages 35 of 38) Fastening #2

System Design Pressure **-67.5 psf**

Membrane Full Width	54 inches	Side Lap	6 inches	Net Width	48 inches
Membrane Red. Width	30 inches	Side Lap	6 inches	Net Width	24 inches
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Fasteners **Drill-Tec #14 Fasteners & Approved Drill-Tec Plates (Min. 1" embed. into Wood Supports)**

Fastener Spacing in Lap of Membrane **6 inches** # Rows **1**

Min. Characteristic Resistance Force **-135.00 lbf**

Fastener Spacing $\{(MCRF/P_i) \times 144\} / \text{Row Spacing}$

	Membrane Full Width	Reduced Width	Addl. Reduced Width
Field' Fastener Spacing	8.60	17.20	17.20
Field Fastener Spacing	4.94	9.88	9.88
Perimeter Fastener Spacing	3.75	7.49	7.49
Corner Fastener Spacing	2.75	5.50	5.50

RECOMMENDED MEMBRANE ATTACHMENT PATTERN

Field'	Laps @ 48" o.c. max.	Full Width Sheet	6 inches on center
Field	Laps @ 24" o.c. max.	Reduced Width Sheet	6 inches on center
Perimeter	Laps @ 24" o.c. max.	Reduced Width Sheet	6 inches on center
Corner	Laps @ 24" o.c. max.	Reduced Width Sheet	5 inches on center

These calculations have been done in accordance with FBC 2020 & ASCE 7-16, based on information provided by contractor. The roof system must be installed per Florida Building Code & manufacturer's recommendations. Ensure that roof system meets drainage, insulation and fire rating requirements of the Florida Building Code. Verify acceptability with Bldg Dept. for fastener spacing less than HVHZ required 6" in corners, before installing.

Sincerely,
 Forensic Engineering Consultants, Inc.
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