

BECHTOL ENGINEERING AND TESTING, inc.

METAL ROOF PANEL FASTENER SPECIFICATIONS

PROJECT ID: 726 SW COUNTY ROAD 242A, LAKE CITY, FLORIDA
PARCEL NO.: 29-4S-17-08841-003 **COUNTY:** COLUMBIA
PREPARED FOR: DEEP SOUTH METALS
PREPARED BY: THOMAS BECHTOL, P.E., FLORIDA LICENSE NO. 38538
DATE PREPARED: 12-30-2024

MATERIAL SPECIFICATIONS:

ROOF PANELS: DEEP SOUTH METALS "SOUTH RIB" 26 OR 29 GA., 36" WIDE PANELS.

SUBSTRATE: EXISTING NOMINAL ½" OSB SHEATHING (RE-NAILED AS REQUIRED PER SECTION 706.7.1.2 FBC EXISTING BUILDING EIGHTH EDITION (2023)).

ROOF PANEL FASTENERS: #10 WOOD SCREWS WITH CONTROL SEAL WASHER, LENGTH AS NEEDED FOR FULL PENETRATION THROUGH SHEATHING.

DESIGN CRITERIA:

RISK CATEGORY: II

EXPOSURE CATEGORY: C

ULTIMATE WIND SPEED: 120 MPH

NOMINAL DESIGN WIND SPEED: 93 MPH

BUILDING CLASSIFICATION: ENCLOSED

MEAN ROOF HEIGHT: 15 FEET MAXIMUM

ROOF ANGLE: 9.5 DEGREES

EFFECTIVE WIND AREA: 10 S.F.

COMPONENT AND CLADDING DESIGN WIND PRESSURES:

DESIGN UNIT LOADS (q): SEE ATTACHED WIND PRESSURE CALCULATIONS.

MAXIMUM DESIGN PRESSURE: -60.4 PSF.

ROOF PANEL FASTENER DESIGN CALCULATIONS:

DESIGN FASTENER: #10 SCREWS INTO NOMINAL 1/2" OSB SHEATHING.

ALLOWABLE PULL-OUT CAPACITY = 71 POUNDS / SCREW (INCORPORATES MINIMUM SF = 5)

FASTENER ROW SPACING = 16" = 1.33' ON CENTERS.

USE 1 SCREW AT EACH FASTENING POINT ALONG EACH ROW.

USE MAXIMUM WIND PRESSURE = 60.4 PSF

MAXIMUM FASTENING POINT SPACING = $(71) / (1.33)(60.4) = 0.88' = 10.6"$

**DESIGN: USE ONE (1) SCREW @ 9" O.C.(ADJACENT TO OR ON EACH RIB) ALONG FASTENER ROWS
SPACED AT 16" ON CENTERS**

THIS IS TO CERTIFY THAT THE CALCULATIONS AND SPECIFICATIONS HEREIN HAVE BEEN PREPARED BY THE UNDERSIGNED PROFESSIONAL ENGINEER, AND ARE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1609 OF THE FLORIDA BUILDING CODE EIGHTH EDITION (2023) AND CHAPTER 30 OF ASCE 7-22.

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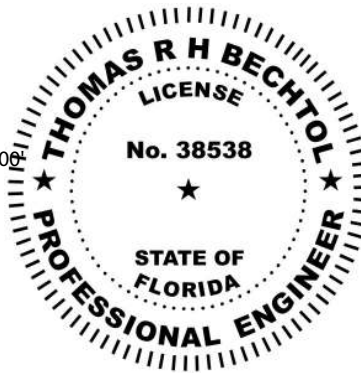
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Thomas Bechtol, P.E.

President / Principal Engineer

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DESIGN WIND PRESSURES CALCULATION SHEET				
PROJECT ID:		726 SW COUNTY ROAD 242A, LAKE CITY, FLORIDA		
ENCLOSURE TYPE: ENCLOSED		RISK CATEGORY: II	EXPOSURE CATEGORY: C	
MEAN ROOF HEIGHT (FT): 15 MAX		ROOF SLOPE (θ°): 7 < θ ≤ 20	ROOF TYPE: GABLE	
ULTIMATE WIND SPEED (FROM FIGURE 1609.3, FLORIDA BUILDING CODE EIGHTH EDITION (2023))			V _{ult} =	120
WIND DIRECTIONALITY FACTOR (FROM TABLE 26.6-1, ASCE 7-22)			K _d =	0.85
TOPOGRAPHIC FACTOR (FROM SECTION 26.8.2, ASCE 7-22)			K _{zt} =	1.00
GROUND ELEVATION FACTOR (FROM TABLE 26.9-1, ASCE 7-22)			K _e =	1.00
INTERNAL PRESSURE COEFFICIENT (FROM TABLE 26.13-1, ASCE 7-22)			GC _{pi} =	0.18
VELOCITY PRESSURE EXPOSURE COEFFICIENT (FROM TABLE 26.10-1, ASCE 7-22)			K _z =	0.85
VELOCITY PRESSURE (q _h) q _h = 0.00256(K _z)(K _{zt})(K _e)(V _{ult}) ² (0.6) = 0.001536(K _z)(V _{ult}) ²			q _h =	18.80
EXTERNAL PRESSURE COEFFICIENTS (FROM FIGURE 30.3, ASCE 7-22)	ROOF	ZONE 1	GC _p =	-2.0
		ZONE 2	GC _p =	-2.7
		ZONE 3	GC _p =	-3.6
	WALL	ZONE 4	GC _p =	N/A
		ZONE 5	GC _p =	N/A
DESIGN WIND PRESSURES (P) P = q _h K _d (GC _p - GC _{pi})	ROOF	ZONE 1	P =	-34.8
		ZONE 2	P =	-46.0
		ZONE 3	P =	-60.4
	WALL	ZONE 4	P =	N/A
		ZONE 5	P =	N/A

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Thomas Bechtol

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Thomas Bechtol, P.E.
President / Principal Engineer

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