

# METAL ROOF PANEL FASTENER SPECIFICATIONS

PROJECT ID:

6288 SW CR 18, FORT WHITE, FLORIDA

PARCEL NO.:

34-6S-16-04059-502

**COUNTY: COLUMBIA** 

PREPARED FOR:

TRI COUNTY METALS, INC.

PREPARED BY:

THOMAS BECHTOL, P.E., FLORIDA LICENSE NO. 38538

DATE PREPARED:

06-18-2024

## MATERIAL SPECIFICATIONS:

ROOF PANELS: TRI COUNTY METALS "5V LOK" 26 GA., 24" WIDE PANELS.

TRUSSES/RAFTERS (EXISTING): ROUGH CUT 2 x 4 SYP AT MAXIMUM 32" ON CENTERS. FIELD VERIFY.

PURLINS (EXISTING): ROUGH CUT 1x4 PLANK AT 12" ON CENTERS (RE-NAILED AS REQUIRED PER

SECTION 706.7.1 FBC EXISTING BUILDING EIGHTH EDITION (2023)).

ROOF PANEL FASTENERS: #10 WOOD SCREWS WITH CONTROL SEAL WASHER, LENGTH AS NEEDED

FOR FULL PENETRATION INTO PURLINS.

### **DESIGN CRITERIA:**

RISK CATEGORY: II

**EXPOSURE CATEGORY:** C

**ULTIMATE WIND SPEED: 130 MPH** 

**NOMINAL DESIGN WIND SPEED: 101 MPH** 

**BUILDING CLASSIFICATION: ENCLOSED** 

**MEAN ROOF HEIGHT: 30 FEET MAXIMUM** 

ROOF ANGLE: >7 - 20 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: -81.7 PSF.

#### ROOF PANEL FASTENER DESIGN CALCULATIONS:

DESIGN FASTENER: #10 SCREWS INTO 1X4 SPF PURLIN

ALLOWABLE PULL-OUT CAPACITY = 162 POUNDS / SCREW (INCORPORATES MINIMUM SF = 5)

PURLIN SPACING = 12" = 1.0' ON CENTERS.

USE 1 SCREW AT EACH FASTENING POINT ALONG EACH PURLIN.

USE MAXIMUM WIND PRESSURE = 81.7 PSF

MAXIMUM FASTENING POINT SPACING = (162) / (1.0)(81.7) = 1.98' = 23.8"

**DESIGN:** 

USE ONE (1) SCREW IN FLAT ADJACENT TO OVERLAP DOUBLE RIB AND ONE (1) SCREW IN FLAT ADJACENT TO CENTER RIB ON EACH PANEL ALONG EACH PURLIN

THIS IS TO CERTIFY THAT THE CALCULATIONS AND SPECIFICATIONS HEREIN HAVE BEEN PREPARED BY THE UNDERSIGNED

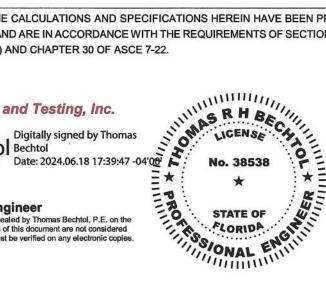
PROFESSIONAL ENGINEER, AND ARE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1609 OF THE FLORIDA BUILDING CODE EIGHTH EDITION (2023) AND CHAPTER 30 OF ASCE 7-22.

## Bechtol Engineering and Testing, Inc.

Thomas Bechtol Bechtol

Thomas Bechtol, P.E. President / Principal Engineer

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DECICAL WIND DECOLIDED ON OUR ATION OFFEE					
DESIGN WIND PRESSURES CALCULATION SHEET					
PROJECT ID: 6288 SW CR 18, FORT WHITE, FLORIDA					
ENCLOSURE TYPE: ENCLOSED	RISK CATEGORY: II EXPOSURE			CATEGORY: C	
MEAN ROOF HEIGHT (FT): 30 MAX	ROOF SLOPE ( $\theta^{\circ}$ ): $7 \prec \theta \le 20$ ROOF			TYPE:	GABLE
ULTIMATE WIND SPEED (FROM FIGURE 1609.3, FLORIDA BUILDING CODE EIGHTH EDITION (2023)				V <sub>ult</sub> =	130
WIND DIRECTIONALITY FACTOR (FROM TABLE 26.6-1, ASCE 7-22)				K <sub>d</sub> =	0.85
TOPOGRAPHIC FACTOR (FROM SECTION 26.8.2, ASCE 7-22)				K <sub>zt</sub> =	1.00
GROUND ELEVATION FACTOR (FROM TABLE 26.9-1, ASCE 7-22)				K <sub>e</sub> =	1.00
INTERNAL PRESSURE COEFFICIENT (FROM TABLE 26.13-1, ASCE 7-22)				GC <sub>pi</sub> =	0.18
VELOCITY PRESSURE EXPOSURE COEFFICIENT (FROM TABLE 26.10-1, ASCE 7-22)				K <sub>z</sub> =	0.98
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 <sub>h</sub> =	25.44
EXTERNAL PRESSURE COEFFICIENTS		ROOF	ZONE 1	GC <sub>p</sub> =	-2.0
(FROM FIGURE 30.3, ASCE 7-22)			ZONE 2	GC <sub>p</sub> =	-2.7
			ZONE 3	GC <sub>p</sub> =	-3.6
4		WALL	ZONE 4	GC <sub>p</sub> =	N/A
			ZONE 5	GC <sub>p</sub> =	N/A
DESIGN WIND PRESSURES (P)		ROOF	ZONE 1	P=	-47.1
			ZONE 2	P=	-62.3
$P = q_h K_d(GC_p - GC_{pi})$			ZONE 3	P=	-81.7
		WALL	ZONE 4	P=	N/A
			ZONE 5	P=	N/A

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Thomas Bechtol, P.E.

President / Principal Engineer
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