

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE X 20'-0" EAVE HEIGHT FULLY ENCLOSED STRUCTURES.
2. APPLICABLE CODES, REGULATIONS, & STANDARDS:
 - A. 2023 FLORIDA BUILDING CODE (8TH EDITION)
 - B. 2024 INTERNATIONAL BUILDING CODE
 - C. 2024 INTERNATIONAL RESIDENTIAL CODE
 - D. AISC STEEL CONSTRUCTION MANUAL (13TH EDITION)
 - E. ACI 318-19
 - F. TMS-402-16: BUILDING CODE REQUIREMENTS FOR MASONRY CONCRETE
 - G. AWS D1.1: STRUCTURAL WELDING
3. EXPOSURE CATEGORY: C-2
4. MIN. ULTIMATE WIND SPEED: 105 TO 150 MPH (NOMINAL WIND SPEED 81 TO 116 MPH); MAXIMUM RAEFTER/POST AND END POST SPACING = 5.0 FEET.
5. MIN. ULTIMATE WIND SPEED: 151 TO 180 MPH (NOMINAL WIND SPEED 117 TO 139 MPH); MAXIMUM RAEFTER/POST AND END POST SPACING = 4.0 FEET.
6. DEAD LOAD = 10 PSF
7. LIVE LOAD = 10 PSF
8. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAUGE TYPE STEEL (TS) FRAMING MEMBERS FOR VERTICAL PANELS, 29 GAUGE METAL PANELS SHALL BE FASTENED TO 18 GAUGE INCH CHANNELS (UNLESS OTHERWISE NOTED).
9. OPTIONAL BASE RAIL ANCHORAGE MAY BE USED FOR LOW AND MUST BE USED FOR HIGH WIND SPEEDS.
10. FASTENERS CONSIST OF #12-14 x 3/4" SELF DRILLING FASTENER (SDF). USE CONTROL SEAL WASHERS WITH EXTERIOR FASTENERS SPECIFICATIONS APPLICABLE ONLY FOR ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.
11. AVERAGE FASTER SPACING ON CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9'9" OR END = 6' (MAX.).
12. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:

RISK CATEGORY: II/III	
R = 3.25	le = 1.0
Sds = 0.087 g	V = CSW
Sdi = 0.084 g	
13. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES.
14. GROUND ANCHOR (SOIL NAILS) CONSIST OF #5 REBAR W/ WELDED NUT X 30" LONG IN SUITABLE SOIL CONDITIONS MAY BE USED FOR LOW (≤ 108 MPH) NOMINAL WIND SPEEDS ONLY. OPTIMAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED.
15. MIN. LAP REQUIREMENT FOR REBAR IN FOOTER IS 25".
16. SOIL TO BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY, AT OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH ASTM D1557-95
17. PRIOR TO PLACING CONCRETE, TREAT THE ENTIRE SUBSURFACE AREA FOR TERMITES IN COMPLIANCE WITH THE FBC.

PAGE NO.	DESCRIPTION
1	NOTES AND SPECIFICATIONS
2	BOX EAVE FRAME RAFTER ENCLOSED BUILDING
3	BOW EAVE FRAME RAFTER ENCLOSED BUILDING/WIND PRESSURES
4	BASE RAIL AND FOUNDATION ANCHORAGE
5	BOW/BOW EAVE VERTICAL ROOF/SIDING OPTION
6	BOW/BOW EAVE FRAME LEAN-TO OPTIONS
7	BOX EAVE RAFTER END WALL, SIDE WALL AND OPENING FRAMING
8	VENT AND CWJ STEM WALL DETAIL
9	OPTIONAL CONCRETE STRIP FOOTING

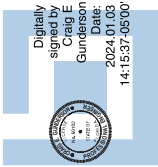
PRODUCT CATEGORY	SUB CATEGORY	MANUFACTURER	APPROVAL No. & DATE
STRUCTURAL COMPONENTS	ROOF DECK	CAPITAL METAL SUPPLY, INC. 29 GA. CAPITAL RIB ROOF PANEL	FL20147.2-R2 10/13/2020
STRUCTURAL COMPONENTS	STRUCTURAL WALL	CAPITAL METAL SUPPLY, INC. 29 GA. CAPITAL RIB WALL PANEL	FL20148.2-R2 10/13/2020
EXTERIOR DOORS	ROLL-UP	JANUS INTERNATIONAL GROUP, LLC SERIES 3652	FL14435.1-R6 11/27/21
EXTERIOR DOORS	ROLL-UP	JANUS INTERNATIONAL GROUP, LLC SERIES 750	FL21450.10-R8 12/13/22
EXTERIOR DOORS	ROLL-UP	JANUS INTERNATIONAL GROUP, LLC SERIES 3100	FL12766.4-R6 10/12/20
EXTERIOR DOORS	SWINGING	ELVIR DOOR AND METAL COMPANY SERIES 407	FL17996.5-R2 02/28/21
WINDOWS	SINGLE HUNG	KIMRO, INC 9750 SH	FL993.5-RL8 05/20/19
WINDOWS	VERTICAL SLIDING	KIMRO, INC 18000-R V5	FL993.8-RL8 08/11/20

TRACTOR:
TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
LAKE CITY, FL 32025

PROJECT DESCRIPTION:

DESIGN DATE:	12/14/2023	PAGE :	1
REVISION 1:	DATE		
REVISION 2:	DATE		
SCALE:	NTS		

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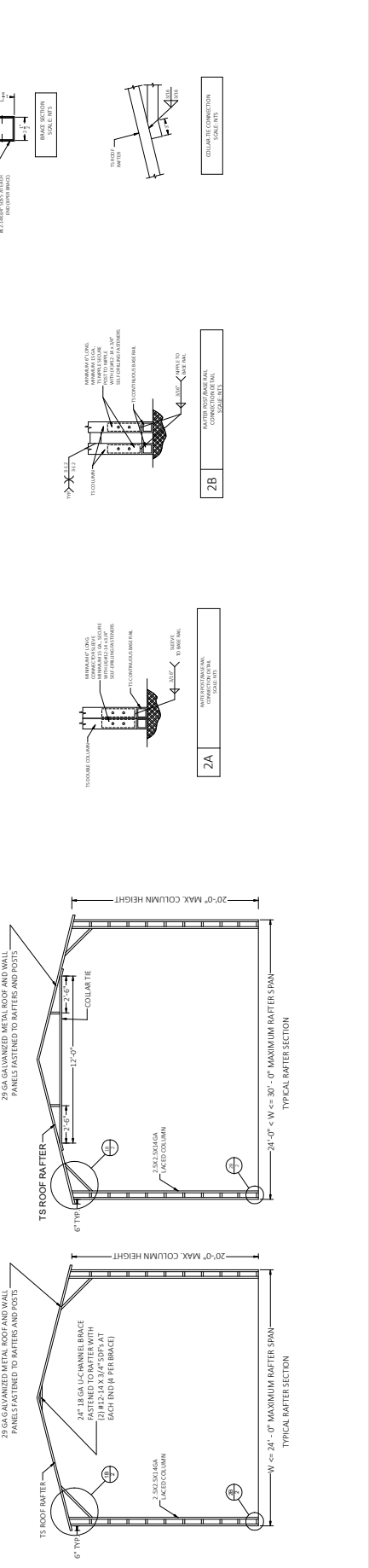
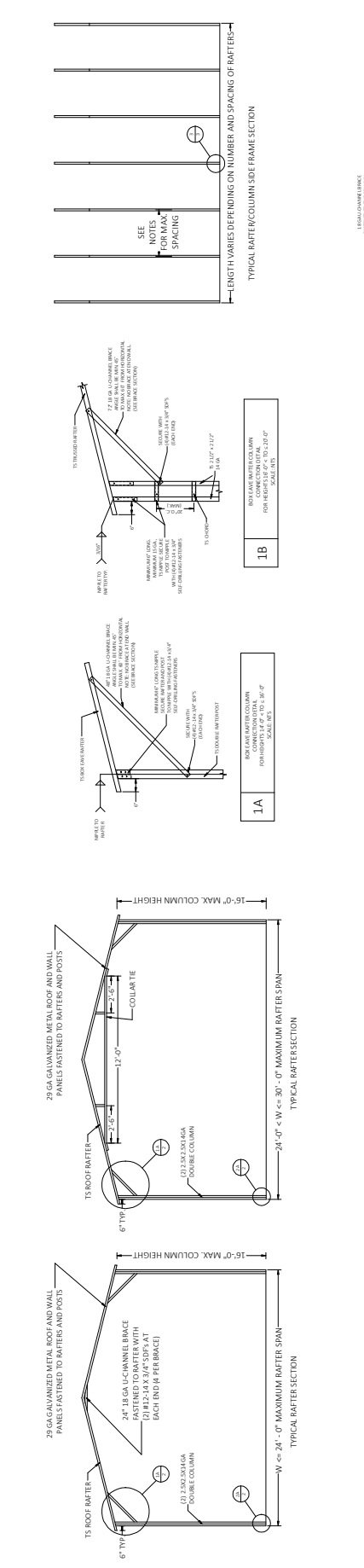
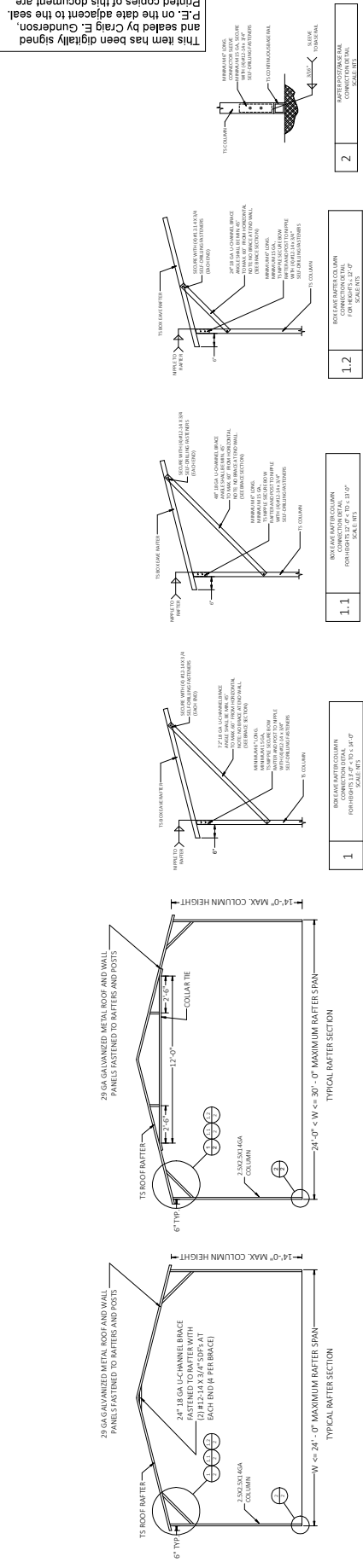
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PROJECT NO. 2322771-30-E
CA CERT. #30782

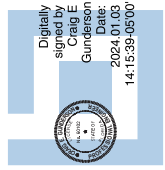


Digitally signed by Craig E. Gunderson
DN: cn=Craig E. Gunderson, o=FLORIDA ENGINEERING LLC, email=Craig.E.Gunderson@FLEng.com, c=US
2024.01.03 14:15:38-0500

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TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
LAKE CITY, FL 32025
PROJECT DESCRIPTION:
30" WIDE X 20" HIGH
ENCLOSED STRUCTURE





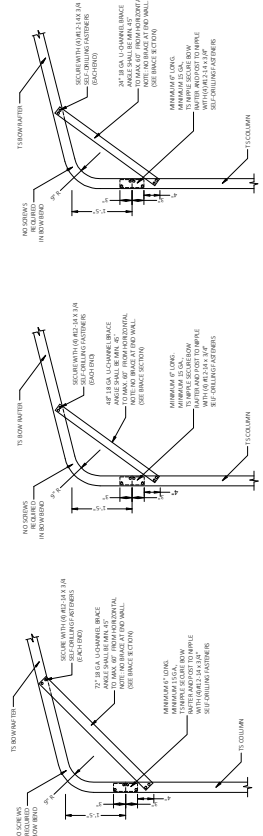
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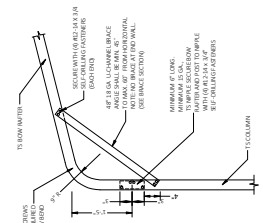


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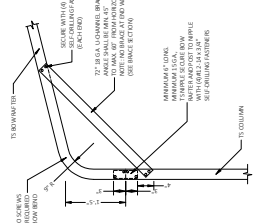
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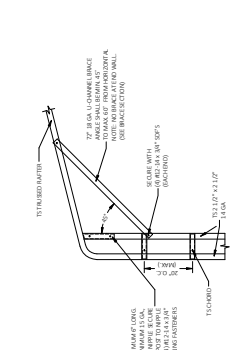
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BOW EAVE AFTER COLUMN
FOR HEIGHTS 11'-0" TO 13'-0"
SCALE: NTS



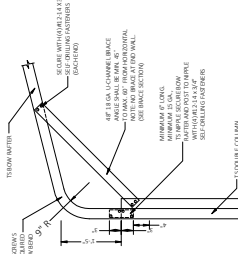
1.1
BOW EAVE AFTER COLUMN
FOR HEIGHTS 13'-0" TO 15'-0"
SCALE: NTS



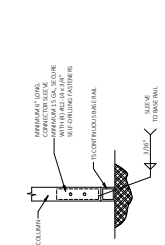
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BOW EAVE AFTER COLUMN
FOR HEIGHTS 15'-0" TO 17'-0"
SCALE: NTS



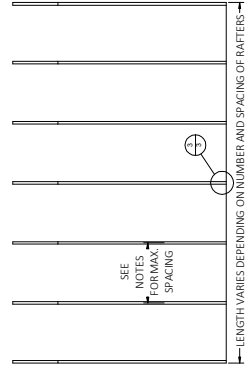
1B
BOW EAVE AFTER COLUMN
FOR HEIGHTS 17'-0" TO 19'-0"
SCALE: NTS



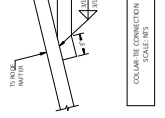
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BOW EAVE AFTER COLUMN
FOR HEIGHTS 19'-0" TO 21'-0"
SCALE: NTS



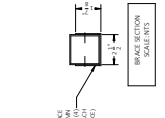
2
BOW EAVE AFTER COLUMN
FOR HEIGHTS 21'-0" TO 23'-0"
SCALE: NTS



TYPICAL BOW EAVE RAFTER/COLUMN SIDE FRAME SECTION



COLLAR TIE CONNECTION
SCALE: NTS



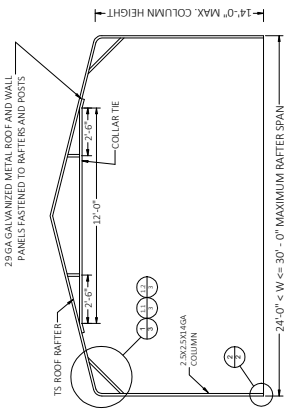
BRACE SECTION
SCALE: NTS



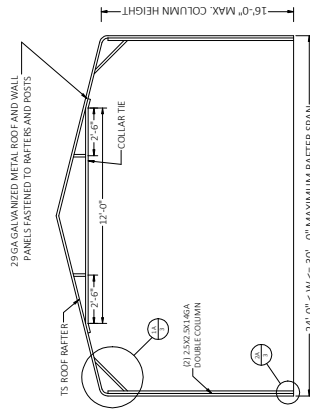
RAFTER/BRACE CONNECTION
SCALE: NTS



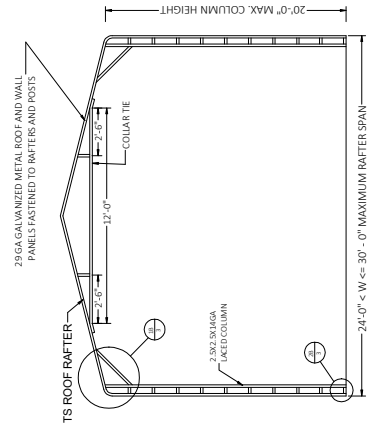
RAFTER/BRACE CONNECTION
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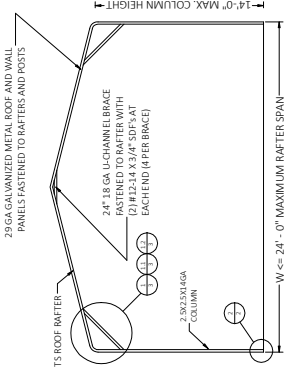
TYPICAL RAFTER SECTION



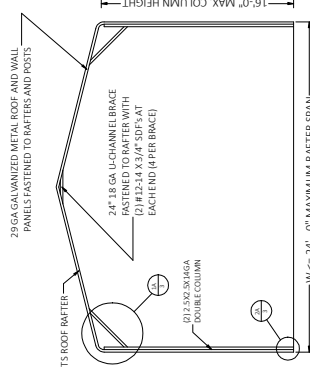
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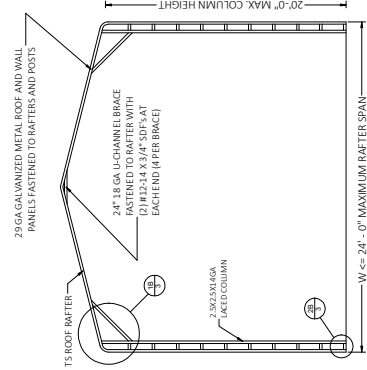
TYPICAL RAFTER SECTION



TYPICAL RAFTER SECTION



TYPICAL RAFTER SECTION



TYPICAL RAFTER SECTION

BASE RAIL ANCHORAGE OPTIONS FOR LOW AND HIGH WIND SPEED

GENERAL NOTES

CONCRETE:

1. CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. PRIOR TO PLACING CONCRETE, TREAT THE ENTIRE SUBSURFACE AREA FOR TERMITES IN COMPLIANCE WITH THE FBC.
3. MINIMUM SOIL BEARING CAPACITY OF COMPACTED GRADE= 2000 PSF

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318: 3 INCHES WHERE THE CONCRETE IS POURED AGAINST AND TEMPORARY CONTACT WITH THE EARTH OR UNPROTECTED FROM THE EARTH OR WEATHER, OTHERWISE 1-1/2 INCHES.

REINFORCING STEEL:

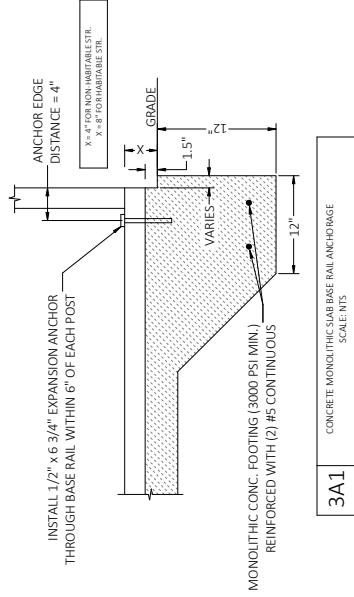
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

REINFORCEMENT MAY BE BENT IN THE FIELD OR SHOP AS LONG AS:

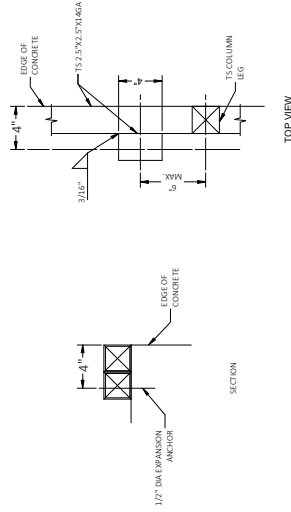
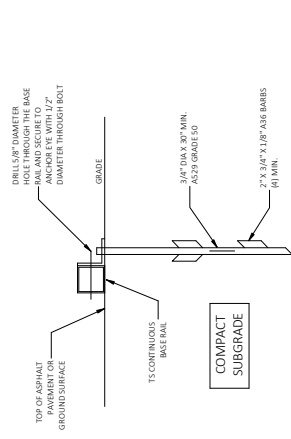
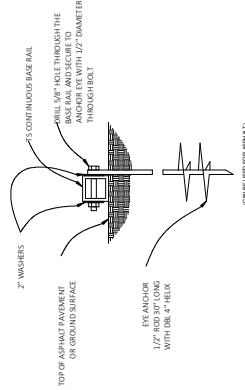
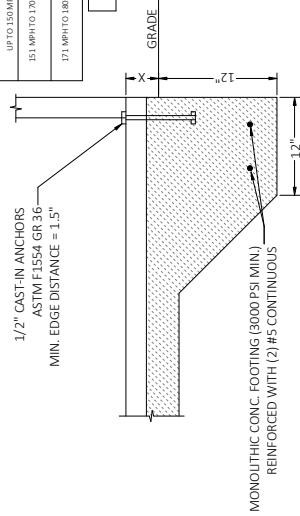
1. IT IS BENT COLD;
2. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT;
3. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
4. MINIMUM REQUIRED LAP LENGTH SHALL NOT BE LESS THAN 57-BAR DIAMETERS.

HELIX ANCHOR NOTES

1. FOR VERY FINE OR FINE CEMENTED SANDS, COARSE GRAVEL, AND COBBLES/CLASH, PRELOADED SANDS AND CLAYS USE MINIMUM (2) 4" HEICES WITH MINIMUM 30 INCH EMBEDMENT.
2. FOR CORAL USE MINIMUM (2) 4" HEICES WITH MINIMUM 30 INCH EMBEDMENT.
3. FOR MEDIUM COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4" HEICES WITH MINIMUM 30 INCH EMBEDMENT.
4. FOR SILTS TO MEDIUM COARSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLOWED TO USE MINIMUM (2) 6" HEICES WITH MINIMUM 50 INCH EMBEDMENT.
5. FOR VERY FIRM TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLOWED TO USE MINIMUM (2) 8" HEICES WITH MINIMUM 60 INCH EMBEDMENT.

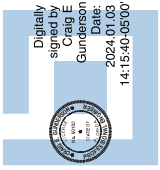


WIND SPEED	WALL HEIGHT	MIN ANCHOR EMBEDMENT
UP TO 150 MPH	UP TO 16' 0"	3-25"
151 MPH TO 170 MPH	16' 1" TO 20' 0"	5-00"
171 MPH TO 180 MPH	UP TO 14' 0"	3-25"
	16' 1" TO 20' 0"	5-00"
	UP TO 14' 0"	3-25"
	16' 1" TO 20' 0"	5-00"



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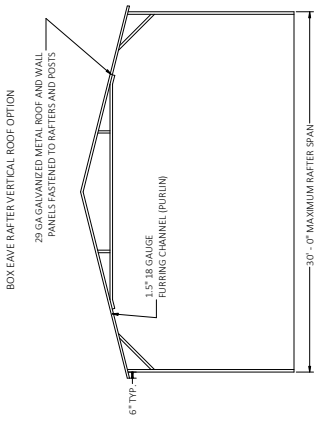


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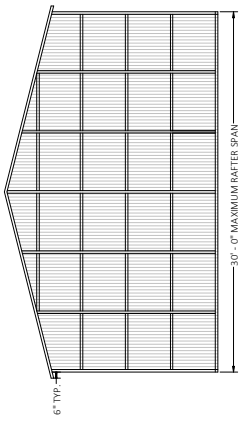


CONTRACTOR:
TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
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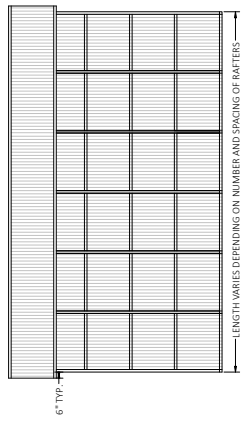
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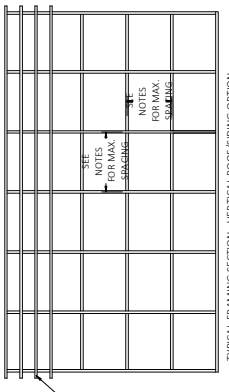
TYPICAL SECTION VERTICAL ROOF/SIDING OPTION



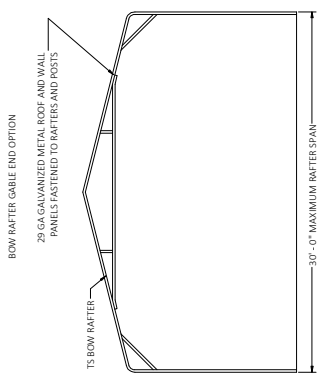
TYPICAL END ELEVATION VERTICAL ROOF/SIDING OPTION



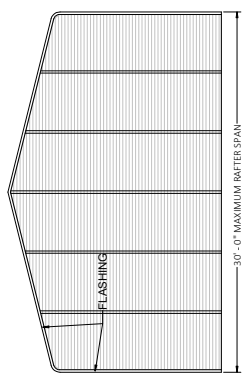
TYPICAL SIDE ELEVATION - VERTICAL ROOF/SIDING OPTION



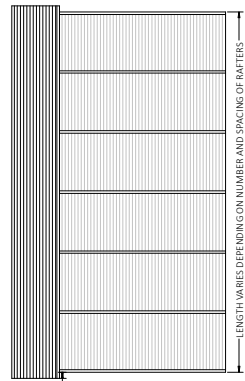
TYPICAL FRAMING SECTION - VERTICAL ROOF/SIDING OPTION



TYPICAL RAFTER/POST FRAME SECTION EXTRA SIDE PANELS



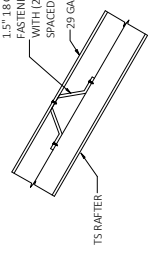
TYPICAL END ELEVATION EXTRA SIDE PANELS



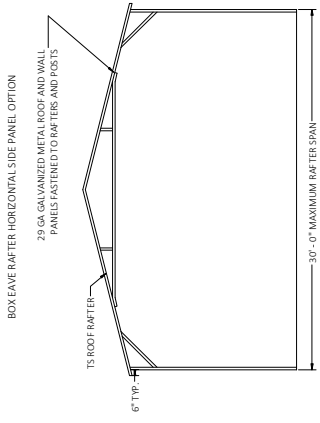
TYPICAL SIDE ELEVATION - EXTRA SIDE PANELS

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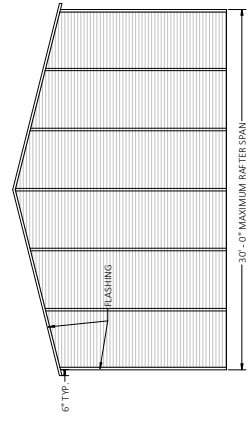
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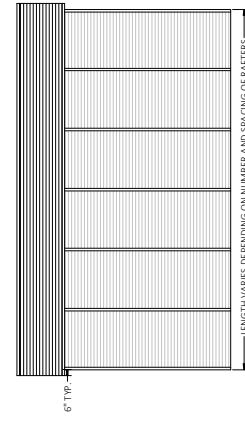
ROOF PANEL ATTACHMENT SCALE: NTS



TYPICAL RAFTER/POST FRAME SECTION EXTRA SIDE PANELS



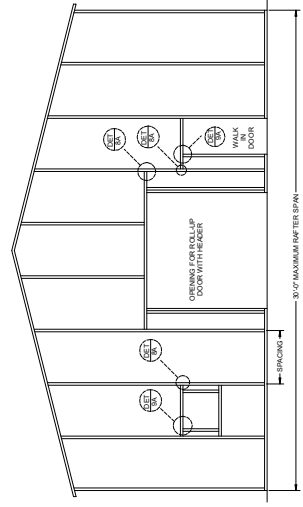
TYPICAL END ELEVATION EXTRA SIDE PANELS



TYPICAL SIDE ELEVATION - EXTRA SIDE PANELS

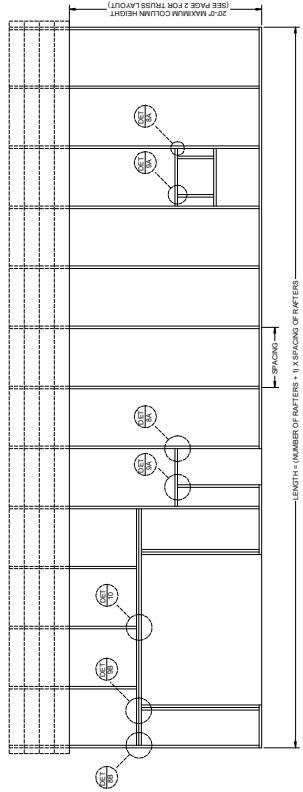
18 GA U-CHANNEL BRACE FASTENED TO THE COLUMN AND ROOF BEAM WITH (4) #12-14x24\"/>

BRACE SECTION SCALE: NTS



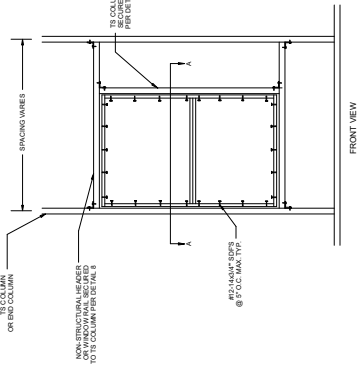
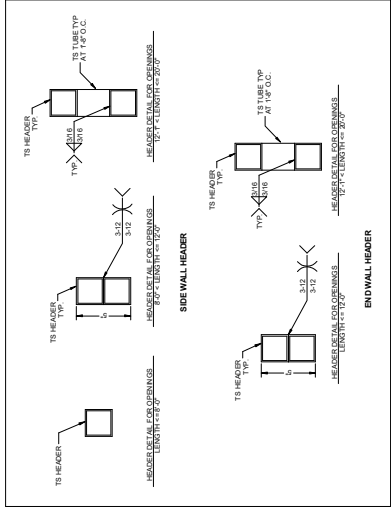
SPACING = 6'-0" FOR WIND SPEEDS BETWEEN 10 MPH AND 100 MPH
SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 100 MPH AND 150 MPH
SPACING = 3'-0" FOR WIND SPEEDS BETWEEN 150 MPH AND 160 MPH

3'-0" MAXIMUM RAFTER SPAN



LENGTH = (NUMBER OF RAFTERS - 1) x SPACING OF RAFTERS
SPACING = 6'-0" FOR WIND SPEEDS BETWEEN 10 MPH AND 100 MPH
SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 100 MPH AND 150 MPH
SPACING = 3'-0" FOR WIND SPEEDS BETWEEN 150 MPH AND 160 MPH

20'-0" MAXIMUM COLUMN HEIGHT (SEE PAGE 2 FOR TRUSS LAYOUT)



SECTION A-A

11 WINDOW INSTALLATION DETAILS
SCALE: N.T.S.

CONTRACTOR: TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
LAKE CITY, FL 32025
PROJECT DESCRIPTION:
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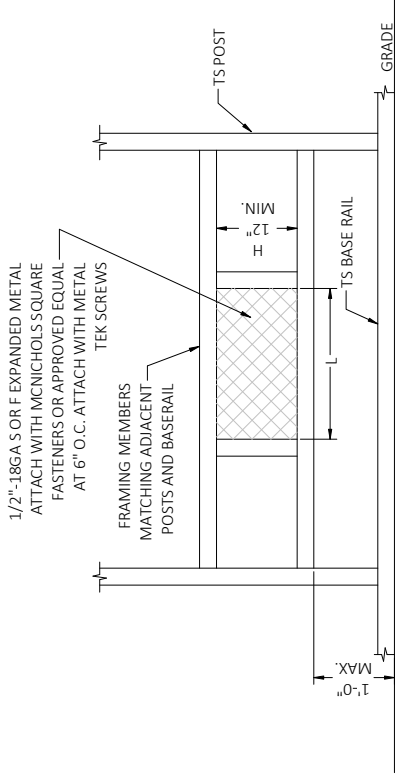
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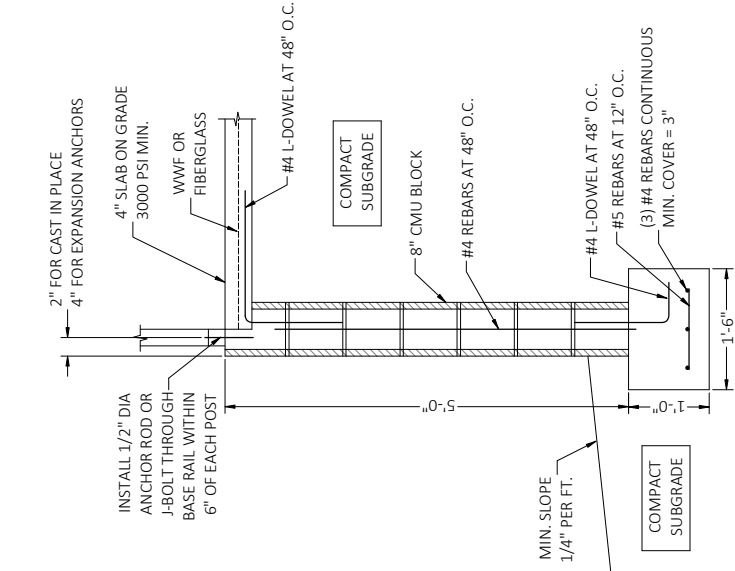


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14:15:41-0500
Digitally signed by
Craig E. Gunderson
DN: cn=Craig E. Gunderson, o=FLORIDA ENGINEERING LLC, email=cgunderson@fleng.com, c=US



TYPICAL FLOOD VENT DETAIL

- NOTES:
1. MINIMUM VENT SPACE REQUIRED = 1 SQ. IN. OF OPEN VENT AREA PER SQ. FT. OF BUILDING AREA.
 2. PROVIDE A MINIMUM OF TWO OPENINGS ON DIFFERENT SIDES OF EACH ENCLOSED BUILDING.
 3. APPLY A 1.3 FACTOR WHEN CALCULATING TOTAL OPEN AREA WHEN USING 1/2"-18GA S OR F EXPANDED METAL.
 4. TOTAL OPEN AREA OF VENT = L X H (MIN. 12").
 5. FLOOD VENT DETAIL COMPLIES WITH FEMA/NFIP.
 6. PREFABRICATED FLOOD VENTS MEETING THE REQUIREMENTS OF FEMA/NFIP MAY BE USED.



STAND-ALONE CONCRETE MASONRY UNIT (CMU)
FOUNDATION STEM WALL DETAIL

FLORIDA ENGINEERING LLC

4161 TAMAMI TRAIL, UNIT 101

PORT CHARLOTTE, FLORIDA 33952

(941) 391-5980

FLeng.com

Orders@FLeng.com

PROJECT NO. 2322771-30-E

CA CERT. #30782

FF

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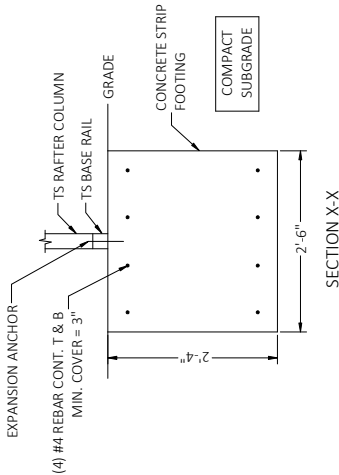
Orders@FLeng.com

CONTRACTOR:		TUBULAR BUILDING SYSTEMS		LAKE CITY, FL 32025	
PROJECT DESCRIPTION:		30' WIDE X 20' HIGH		ENCLOSED STRUCTURE	
DESIGN DATE:	12/14/2023	REVISION 1:	DATE	PAGE:	8
REVISION 2:	DATE	REVISION 1:	DATE	SCALE:	NTS

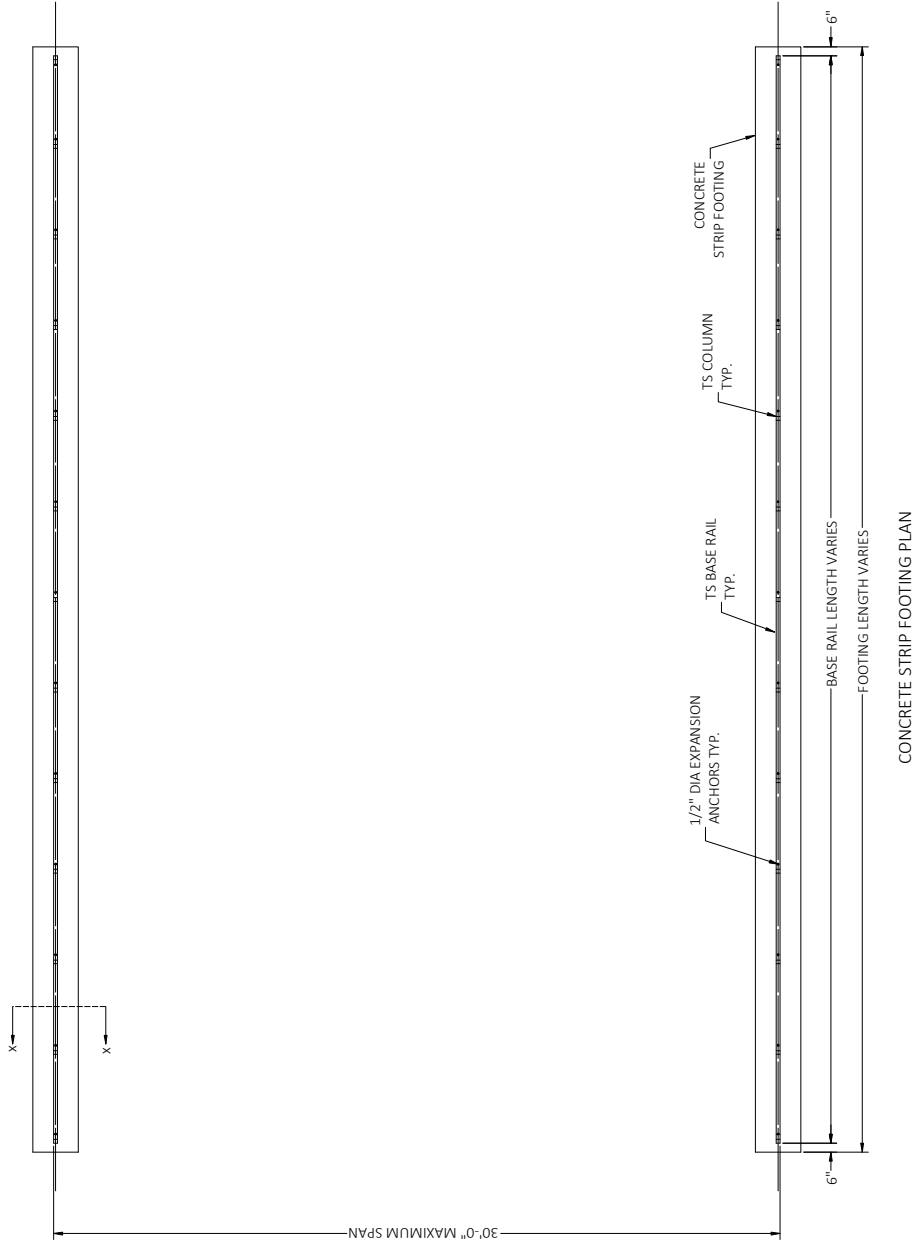
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GENERAL NOTES:
CONCRETE MONOLITHIC SLAB DESIGN IS BASED ON A MINIMUM SOIL BEARING CAPACITY OF 1500 PSF.

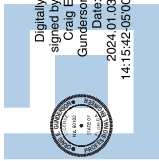
- CONCRETE:
MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI
- REINFORCING STEEL:
1. TURNDOWN REINFORCING STEEL = ASTM A615 GRADE 60
2. SLAB REINFORCEMENT = WELDED WIRE FABRIC PER ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT
3. REINFORCING STEEL COVER = 3" WHERE CASE AGAINST AND PERMANENTLY EXPOSED TO SOIL OR WATER, 1.5" EVERYWHERE ELSE.
4. REINFORCEMENT IS BENT COLD.
5. MINIMUM INSIDE DIAMETER OF BEND = (6) BAR DIAMETERS
6. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.



OPTIONAL CONCRETE STRIP FOOTING



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TUBULAR BUILDING SYSTEMS

631 SE INDUSTRIAL CIRCLE,

LAKE CITY, FL 32025

CONTRACTOR:

30' WIDE X 20' HIGH

ENCLOSED STRUCTURE

PROJECT DESCRIPTION:

LAKE CITY, FL 32025

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