

GENERAL NOTES

1. DESIGN IS FOR MAXIMUM 40'-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. ASCE 7-22: MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES

D. AISC STEEL CONSTRUCTION MANUAL (15TH EDITION)

E. ACI 318-19: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

F. TMS 402-16: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES

G. AWS D1.1: STRUCTURAL WELDING
2. RISK CATEGORY: I
3. EXPOSURE CATEGORY: C

LOW ULTIMATE WIND SPEED 105 TO 150 MPH (NOMINAL WIND SPEED 81 TO 116 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET.

HIGH ULTIMATE WIND SPEED 151 TO 180 MPH (NOMINAL WIND SPEED 117 TO 139 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
4. DEAD LOAD = 10 PSF
5. LIVE LOAD = 10 PSF
6. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS FOR VERTICAL PANELS, 29 GAUGE METAL PANELS SHALL BE FASTENED TO 18 GAUGE HAT CHANNELS (UNLESS OTHERWISE NOTED).
7. OPTIONAL BASE RAIL ANCHORAGE MAY BE USED FOR LOW AND MUST BE USED FOR HIGH WIND SPEEDS.
8. FASTENERS CONSIST OF #12-14 x 3/4" SELF DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS SPECIFICATIONS APPLICABLE ONLY FOR MEAN 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.
9. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9" OR END = 6", (MAX.).
10. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:

SOIL SITE CLASS = D

RISK CATEGORY I/II/III

R = 3.25 Ie = 1.0

Sds = 0.087 g V = CsW

Sdi = 0.084 g
11. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES.
12. 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. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USE IN UNSUITABLE SOILS AS NOTED.
13. MIN. LAP REQUIREMENT FOR REBAR IN FOOTER IS 25".

14. SOIL TO BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY, AT OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH ASTM D1557-93

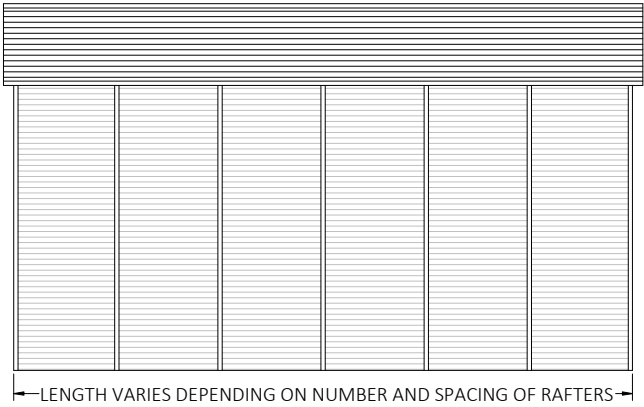
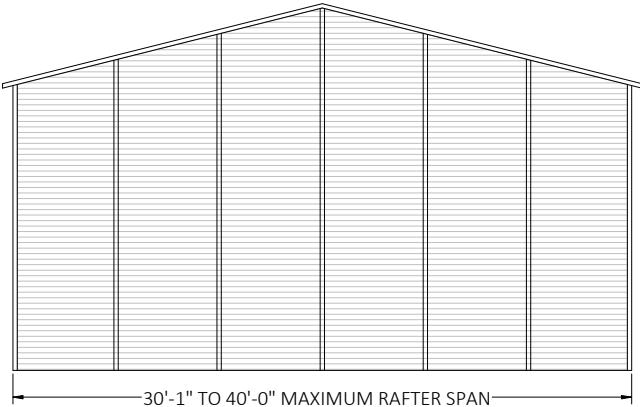
15. PRIOR TO PLACING CONCRETE, TREAT THE ENTIRE SUBSURFACE AREA FOR TERMITES IN COMPLIANCE WITH THE FBC.

16. A LANDING OF MIN. 36" WIDTH IN THE DIRECTION OF TRAVEL SHALL BE PROVIDED AT THE EXTERIOR DOORS. SLOPE OF LANDING NOT TO EXCEED 1/4"-1'. LANDING LEVEL NOT TO BE LOWER THAN 1-1/2" (FOR EGRESS DOORS) & 7-3/4" (FOR OTHER EXTERIOR DOORS) BELOW THE TOP OF THRESHOLD.

DRAWING INDEX

PAGE NO.	DESCRIPTION
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3	BASE RAIL AND FOUNDATION ANCHORAGE
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5	BOX EAVE RAFTER LEAN-TO OPTIONS
6	BOX EAVE RAFTER END WALL, SIDE WALL AND OPENING FRAMING
7	VENT AND CMU STEM WALL DETAIL
8	OPTIONAL CONCRETE STRIP FOOTING

ENCLOSED METAL BUILDING DESIGN
MAXIMUM 40'-0" WIDE X 20'-0" EAVE HEIGHT
BOX EAVE FRAME



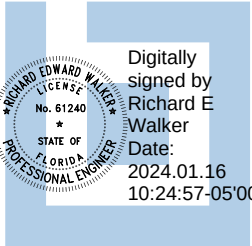
BOX EAVE FRAME RAFTER ENCLOSED BUILDING



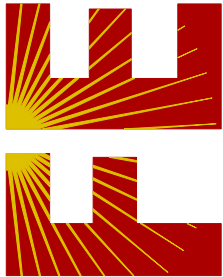
PRODUCT CATEGORY	SUB CATEGORY	MANUFACTURER	APPROVAL No. & DATE
STRUCTURAL COMPONENTS	ROOF DECK	CAPITAL METAL SUPPLY, INC. 29 GA. CAPITAL RIB ROOF PANEL	FL20147.2-R3 12/13/2023
STRUCTURAL COMPONENTS	STRUCTURAL WALL	CAPITAL METAL SUPPLY, INC. 29 GA. CAPITAL RIB WALL PANEL	FL20148.2-R3 12/13/2023
EXTERIOR DOORS	ROLL-UP	JANUS INTERNATIONAL GROUP, LLC. SERIES 3652	FL14425.1-R6 12/15/21
EXTERIOR DOORS	ROLL-UP	JANUS INTERNATIONAL GROUP, LLC. SERIES 750	FL21450.10-R11 10/17/23
EXTERIOR DOORS	ROLL-UP	JANUS INTERNATIONAL GROUP, LLC. SERIES 3100	FL12765.4-R6 10/12/20
EXTERIOR DOORS	SWINGING	ELIXIR DOOR AND METAL COMPANY SERIES 407	FL17996.5-R3 12/26/23
WINDOWS	SINGLE HUNG	KINRO, INC 9750 SH	FL993.5-R19 11/01/23
WINDOWS	VERTICAL SLIDING	KINRO, INC 18000-R VS	FL993.8-R19 11/01/23

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2. THIS DOCUMENT HAS BEEN CREATED BY FLORIDA ENGINEERING LLC FOR TUBULAR BUILDING SYSTEMS ONLY. IT SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF FLORIDA ENGINEERING LLC AND TUBULAR BUILDING SYSTEMS.
3. ALTERATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE FLORIDA ENGINEERING LLC'S CERTIFICATION.
4. THESE PLANS ARE GENERIC AND DO NOT PROVIDE INFORMATION FOR A SITE-SPECIFIC PROJECT WHERE THE SITE CONDITIONS DEVIATE FROM WHAT HAS BEEN CALLED OUT ON THESE PLANS.
5. CONTRACTOR MUST NOT DEVIATE FROM THE CONDITIONS DETAILED ON THESE PLANS.
6. CONSTRUCTION SAFETY AT THE SITE IS THE CONTRACTOR'S RESPONSIBILITY.

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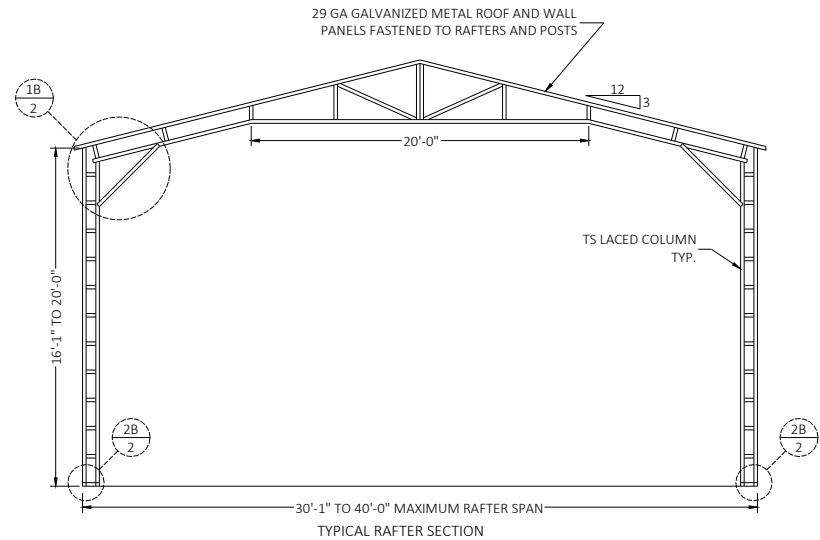
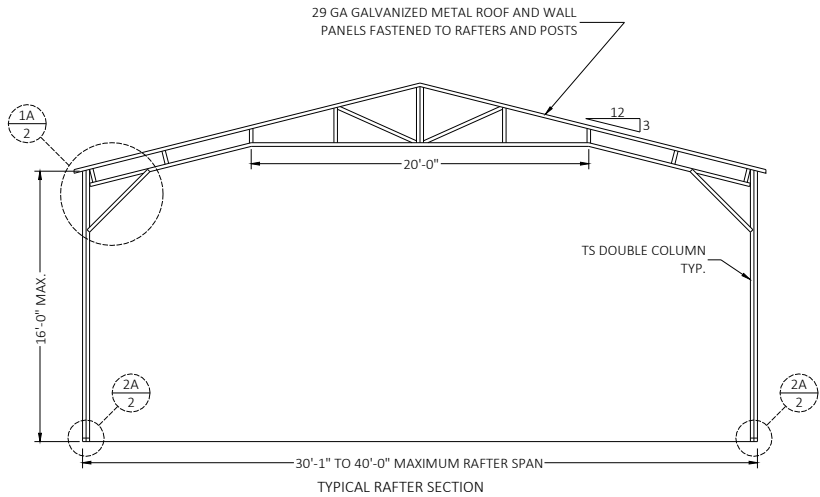


PROJECT NO. 2322771-40-E CA CERT. #30782

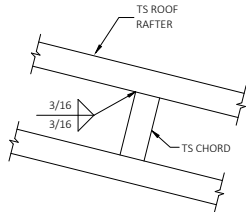
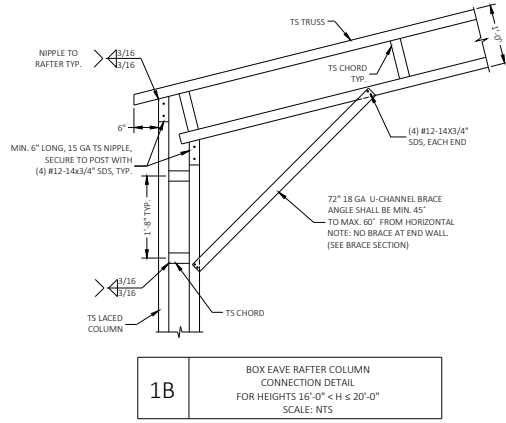
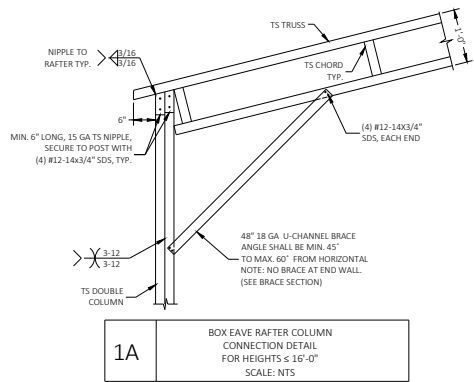
CONTRACTOR:
TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
LAKE CITY, FL 32025

PROJECT DESCRIPTION:
40' WIDE X 20' HIGH
ENCLOSED STRUCTURE

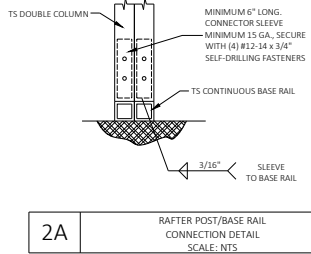
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REVISION 2:	DATE	
SCALE:	NTS	



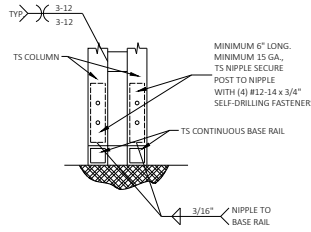
TYPICAL RAFTER/POST FRAME SECTION



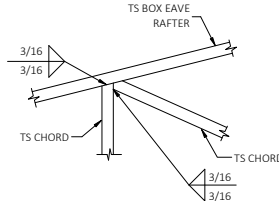
3 RAFTER TO CHORD CONNECTION
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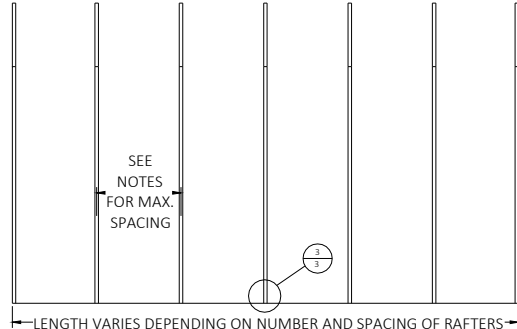
2A RAFTER POST/BASE RAIL
CONNECTION DETAIL
SCALE: NTS



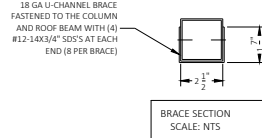
2B RAFTER POST/BASE RAIL
CONNECTION DETAIL
SCALE: NTS



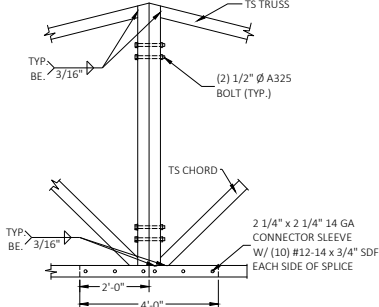
4 TRUSS POST AND CHORD
TO RAFTER CONNECTION
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TYPICAL RAFTER/COLUMN SIDE FRAME SECTION

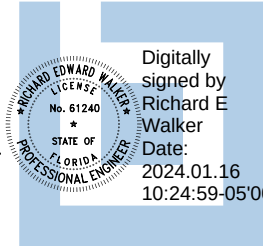


BRACE SECTION
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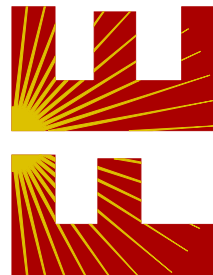


5 SPLICE CONNECTION
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CA CERT. #30782

PROJECT NO. 2322771-40-E

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

PROJECT DESCRIPTION:

**40' WIDE X 20' HIGH
ENCLOSED STRUCTURE**

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

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

COVERAGE OF THE REINFORCED STEEL:

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

REINFORCING STEEL:

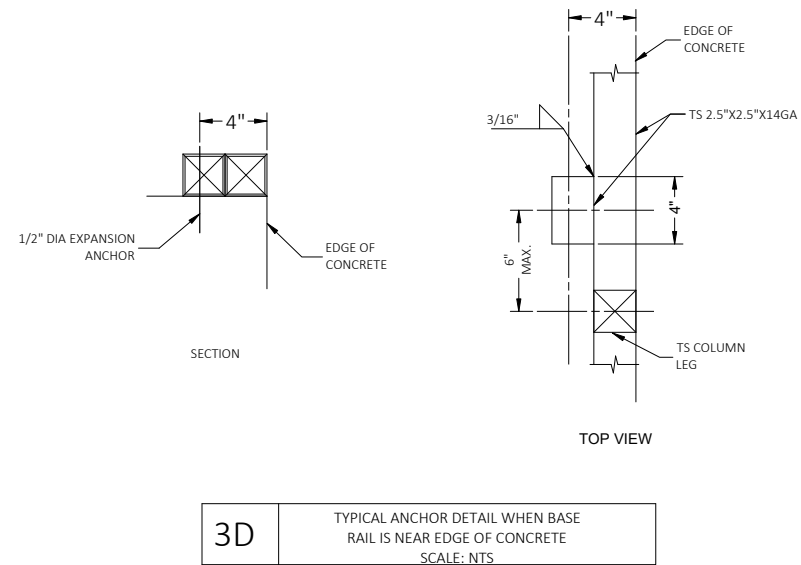
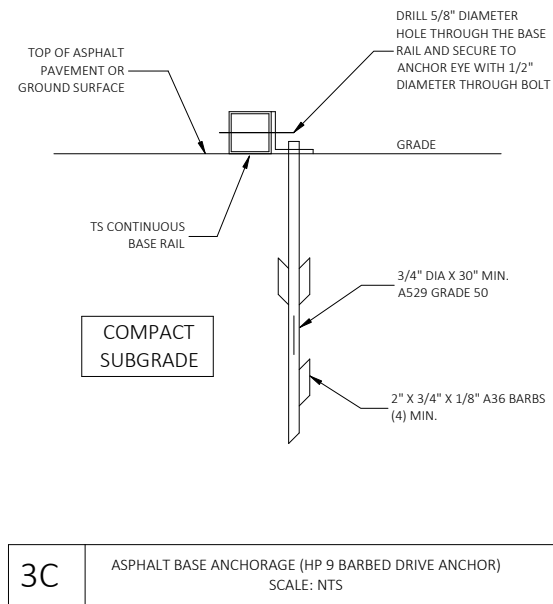
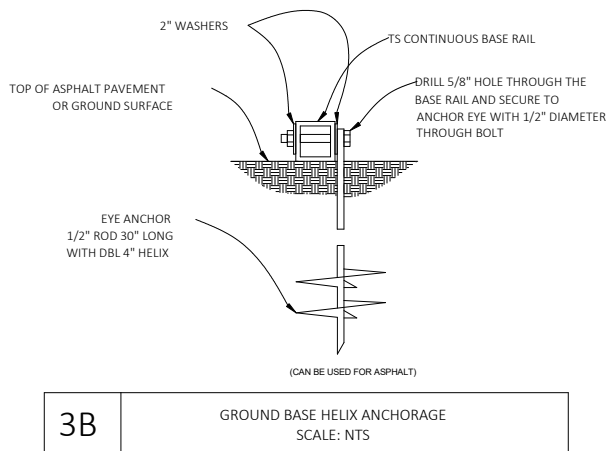
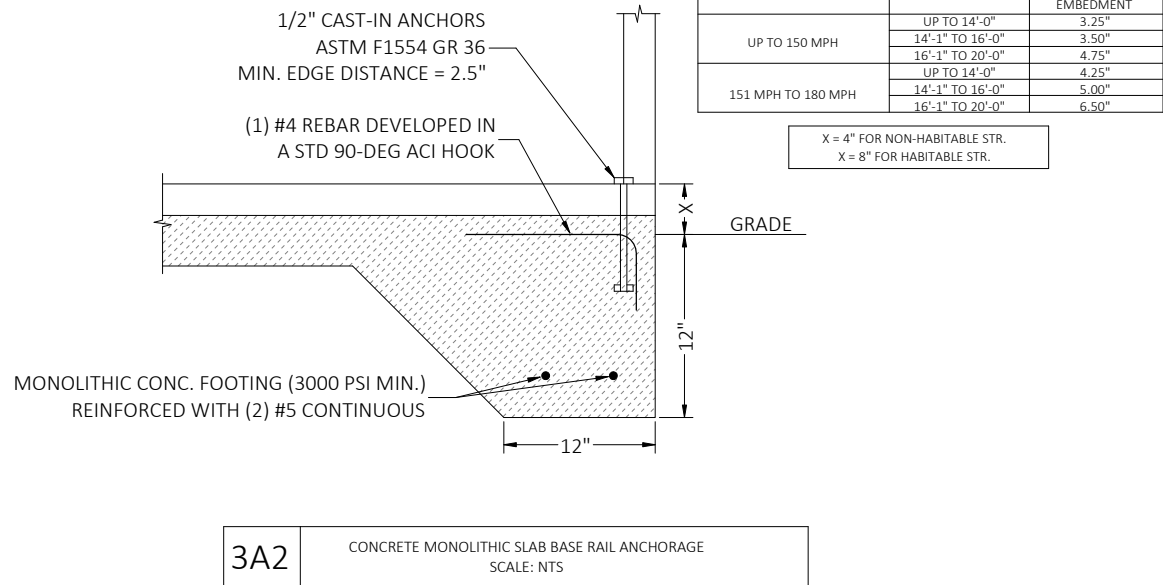
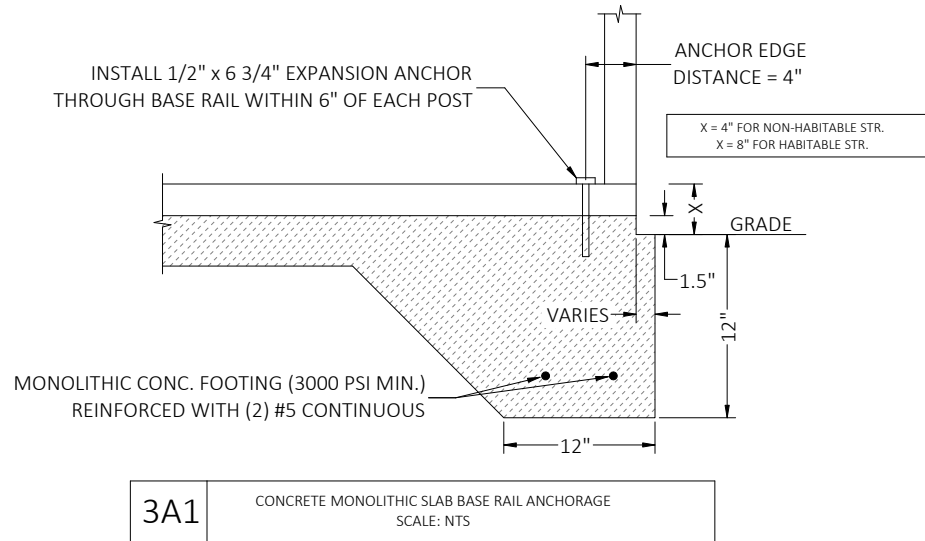
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

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

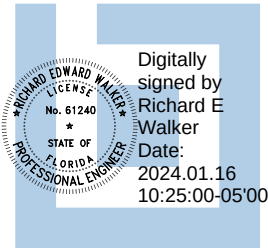
1. IT IS BENT COLD;
2. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT;
3. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
4. MINIMUM REQUIRED LAP LENGTH SHALL NOT BE LESS THAN 57-BAR DIAMETERS.

HELIX ANCHOR NOTES

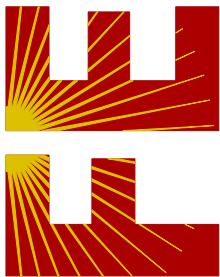
1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT.
2. FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT.
3. FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND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



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TRACTOR: TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
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40' WIDE X 20' HIGH
ENCLOSED STRUCTURE

CA CERT. #30782

PROJECT NO. 2322771-40-E

CONTRACTOR:

PROJECT DESCRIPTION:

DESIGN DATE: 12/14/2023

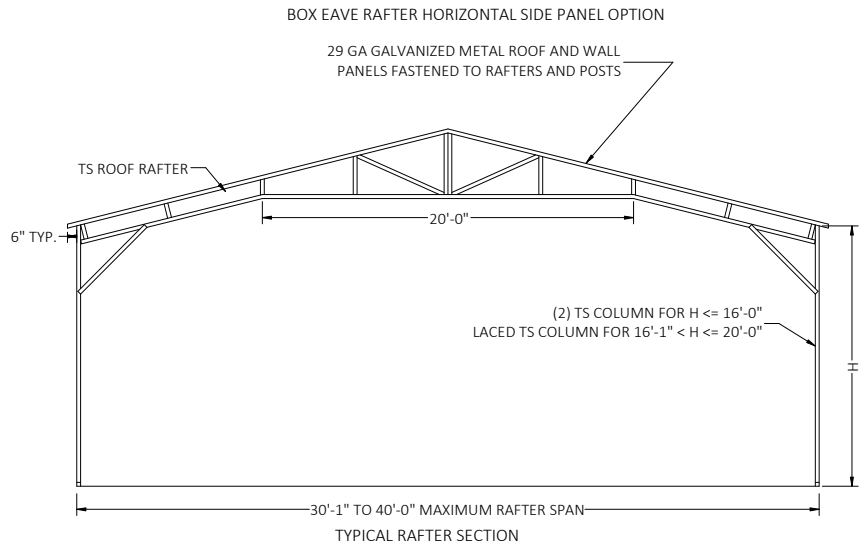
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DATE _____

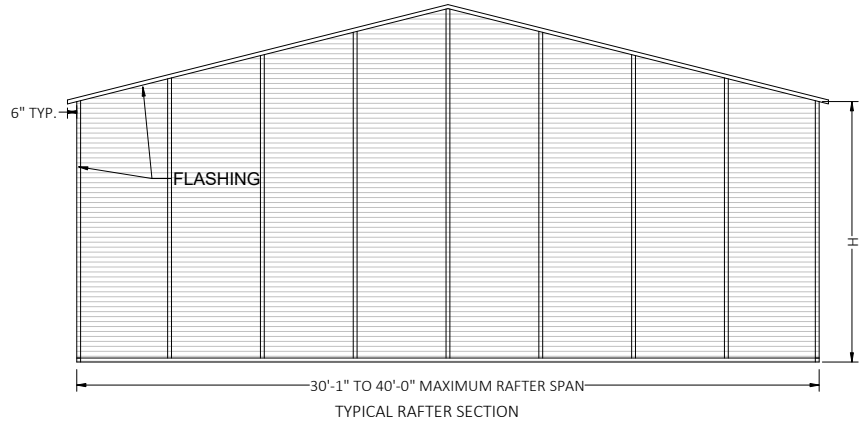
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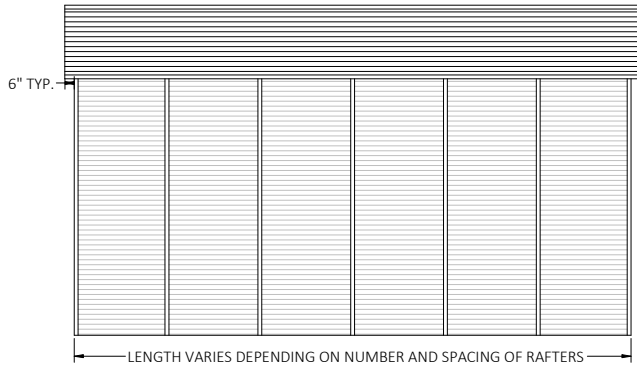
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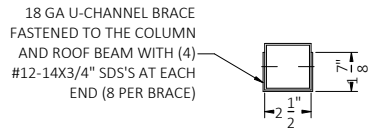
TYPICAL RAFTER/POST FRAME SECTION
EXTRA SIDE PANELS



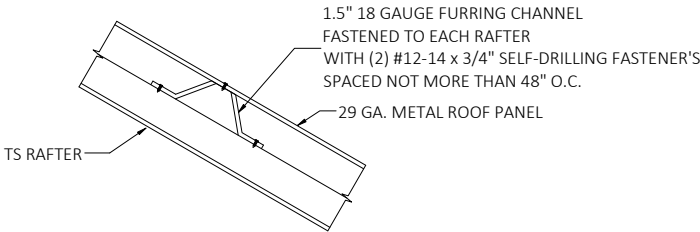
TYPICAL END ELEVATION
EXTRA SIDE PANELS



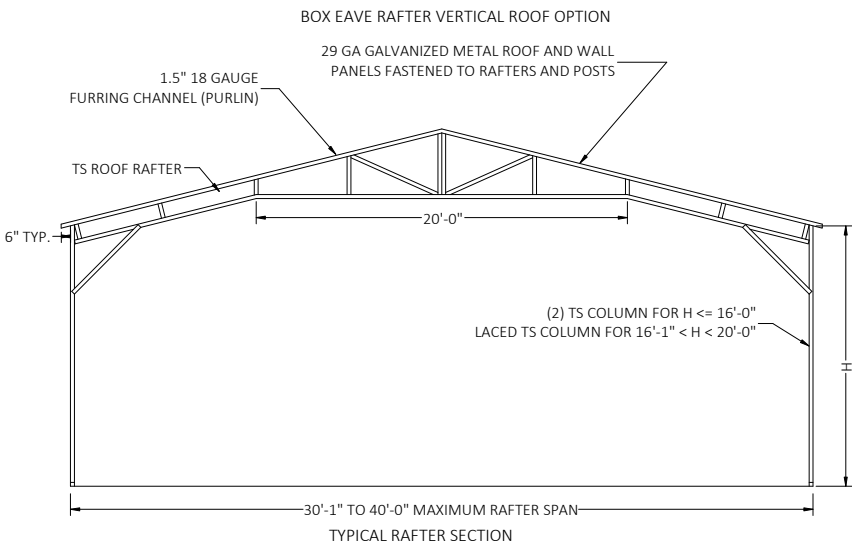
TYPICAL SIDE ELEVATION - EXTRA SIDE PANELS



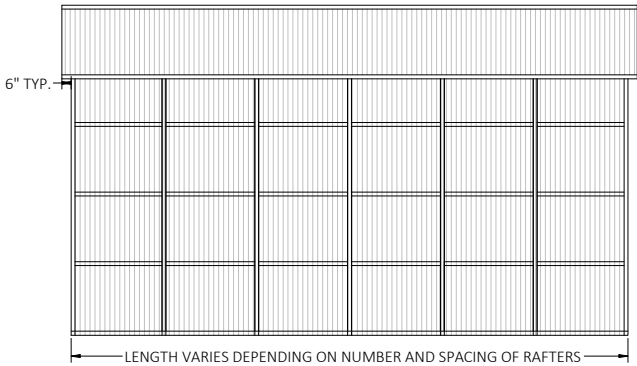
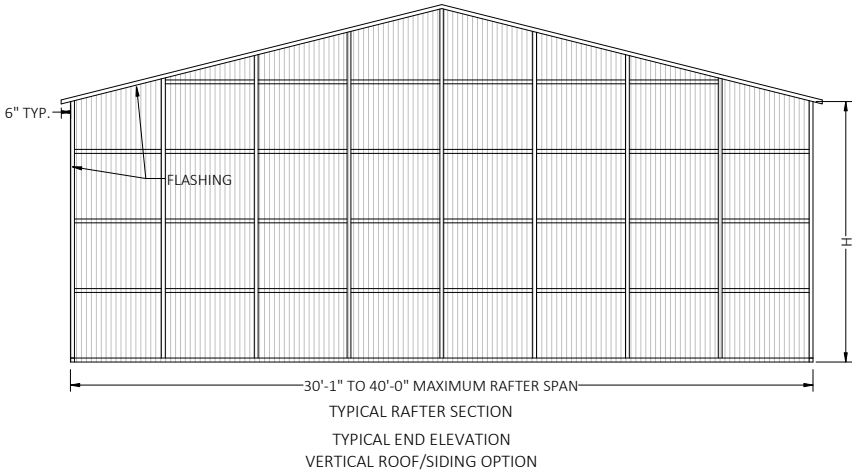
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ROOF PANEL ATTACHMENT
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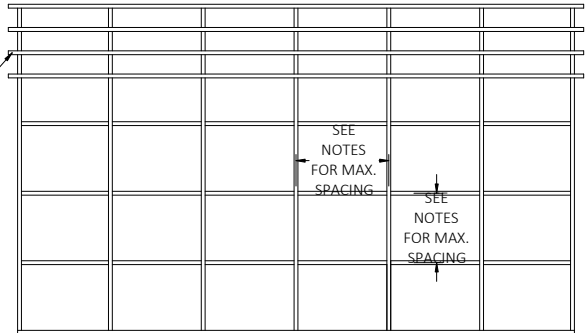


TYPICAL RAFTER/POST FRAME SECTION
EXTRA SIDE PANELS



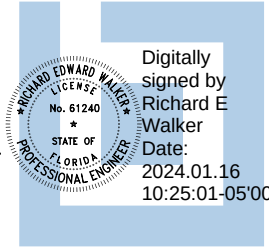
TYPICAL SIDE ELEVATION - VERTICAL ROOF/SIDING OPTION

1.5" 18 GAUGE FURRING CHANNEL FASTENED TO
EACH RAFTER WITH (2) #12-14 x 3/4" SELF-DRILLING
FASTENER SPACED NOT MORE THAN 48" O.C

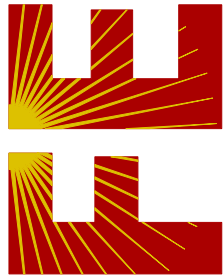


TYPICAL FRAMING SECTION - VERTICAL ROOF/SIDING OPTION

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CA CERT. #30782

PROJECT NO. 2322771-40-E

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

PROJECT DESCRIPTION:
40' WIDE X 20' HIGH
ENCLOSED STRUCTURE

DESIGN DATE: 12/14/2023
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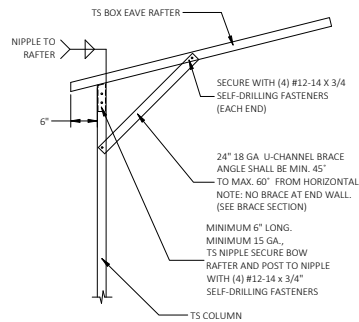
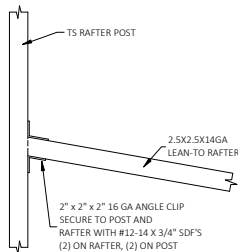
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Diagram illustrating the main structure and roof options. The structure is labeled "MAIN STRUCTURE". The roof is shown with a pitch of 12/3. The diagram includes two options for roof extension: "ROOF EXTENSION OPTION" and "STANDARD LEAN-TO OPTION". The roof extension option shows a truss (TS) column and a roof extension with a pitch of 7/5. The standard lean-to option shows a truss (TS) column and a standard lean-to roof with a pitch of 6/5. The diagram also indicates the maximum lean-to rafter span: 24'-0" maximum lean-to rafter span for the roof extension option and 30'-1" to 40'-0" maximum rafter span for the standard lean-to option.

Technical drawing illustrating the connection details for a roof truss assembly, showing the intersection of a TS Box Eave Rafter and a TS Rafter Post.

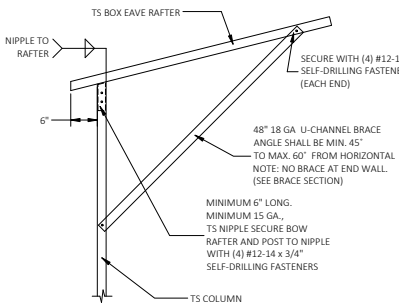
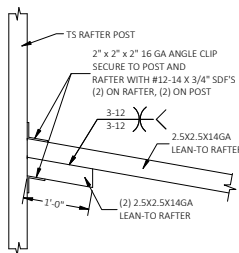
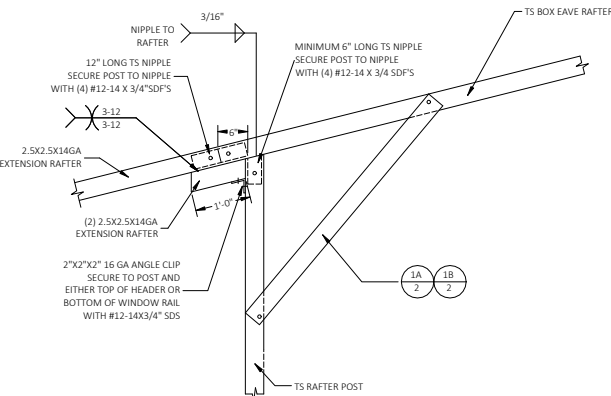
Key components and dimensions shown:

- TS BOX EAVE RAFTER**: The upper rafter member.
- TS RAFTER POST**: The vertical support member.
- NIPPLE TO RAFTER**: A 3/16" diameter connection point.
- 1 1/2" LONG TS NIPPLE SECURE POST TO NIPPLE WITH (4) #12-14 X 3/4" SDF'S**: A vertical connection detail.
- MINIMUM 6" LONG TS NIPPLE SECURE POST TO NIPPLE WITH (4) #12-14 X 3/4" SDF'S**: A horizontal connection detail.
- 2.5X2.5X14GA EXTENSION RAFTER**: A smaller rafter section.
- 6"**: Dimension indicating the length of the extension rafter.
- 1A 2** and **1B 2**: Circular callouts indicating specific connection points or details.



SIDE EXTENSION RAFTER/COLUMN DETAIL
 FOR EXTENSION RAFTER SPANS $W' < 12'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5.
 FOR EXTENSION RAFTER SPANS $W' < 13'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5.
 FOR EXTENSION RAFTER SPANS $W' < 15'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5.
 SCALE: NTS

LEARN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL
 FOR LEAN-TO RAFTER SPANS $W' < 12'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5.
 FOR LEAN-TO RAFTER SPANS $W' < 13'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5.
 FOR LEAN-TO RAFTER SPANS $W' < 15'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5.
 SCALE: NTS



SIDE EXTENSION RAFTER/COLUMN DETAIL

FOR EXTENSION RAFTER SPANS $12'-0'' < W' < 16'-0''$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5.

FOR EXTENSION RAFTER SPANS $13'-0'' < W' < 18'-0''$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5.

FOR EXTENSION RAFTER SPANS $15'-0'' < W' < 19'-0''$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5.

SCALE: NTS

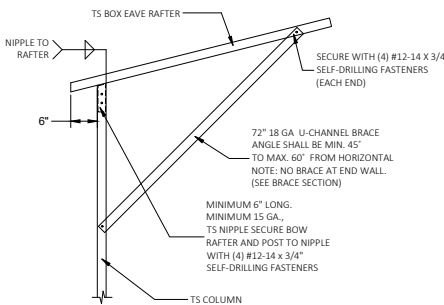
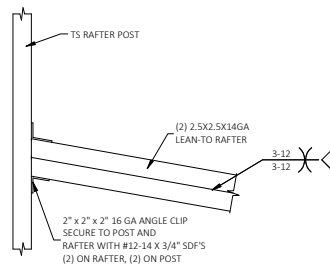
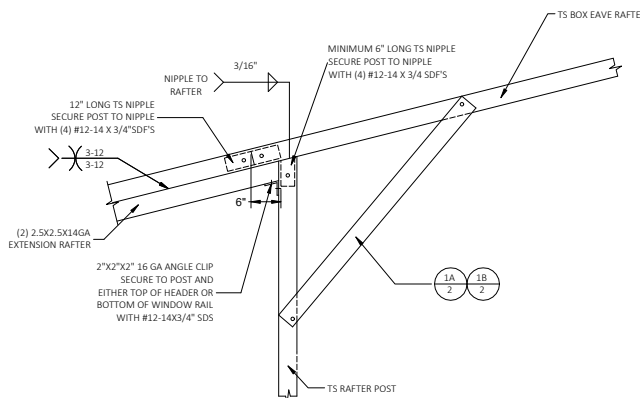
LEARN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

FOR LEAN-TO RAFTER SPANS $12'-0" < W < 16'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5

FOR LEAN-TO RAFTER SPANS $13'-0" < W < 18'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5

FOR LEAN-TO RAFTER SPANS $15'-0" < W < 19'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5

SCALE: NTS



SIDE EXTENSION RAFTER/COLUMN DETAIL

FOR EXTENSION RAFTER SPANS 16'-0" < W' <= 24'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5,
FOR EXTENSION RAFTER SPANS 18'-0" < W' <= 24'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5,
FOR EXTENSION RAFTER SPANS 19'-0" < W' <= 24'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5.

SCALE: NTS

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

FOR LEAN-TO RAFTER SPANS $16'-0" < W < 24'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 74/5
 FOR LEAN-TO RAFTER SPANS $18'-0" < W < 24'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 78/5
 FOR LEAN-TO RAFTER SPANS $19'-0" < W < 24'-0"$, IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5

SCALE: NTS

BOX EAVE RAFTER COLUMN
CONNECTION DETAIL
72" BRACE
SCALE: NTS

Digitally signed by
Richard E Walker
Date:
2024.01.16
10:25:03-05'00

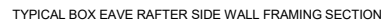
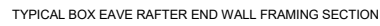
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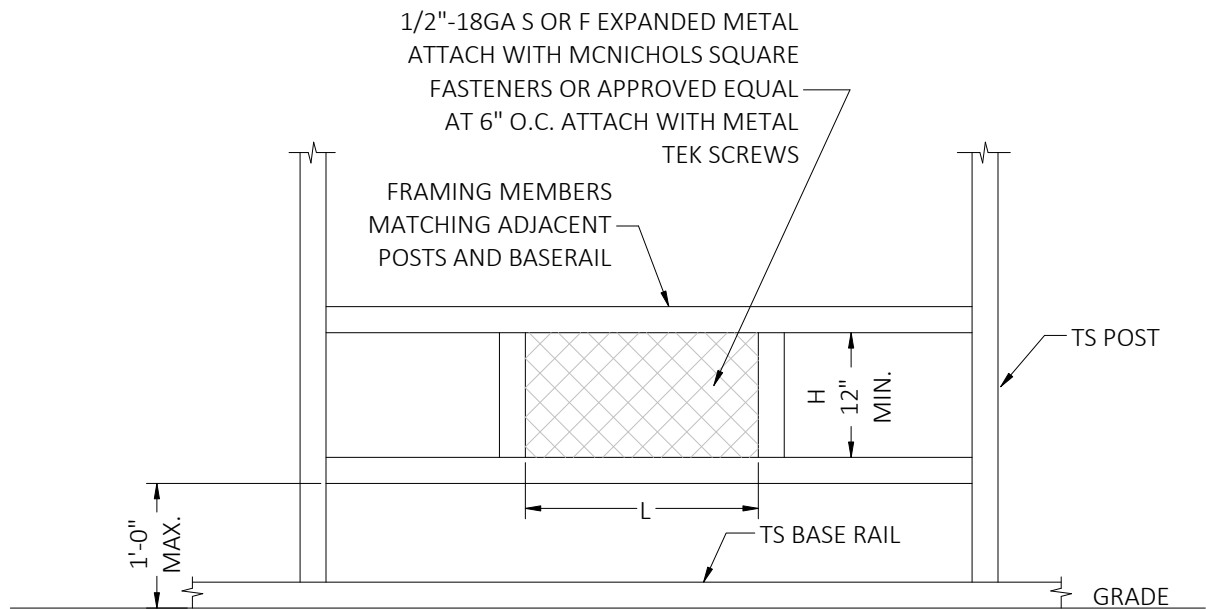
40' WIDE X 20' HIGH
ENCLOSED STRUCTURE

PROJECT NO. 2322771-40-E

SCALE: NTS

5

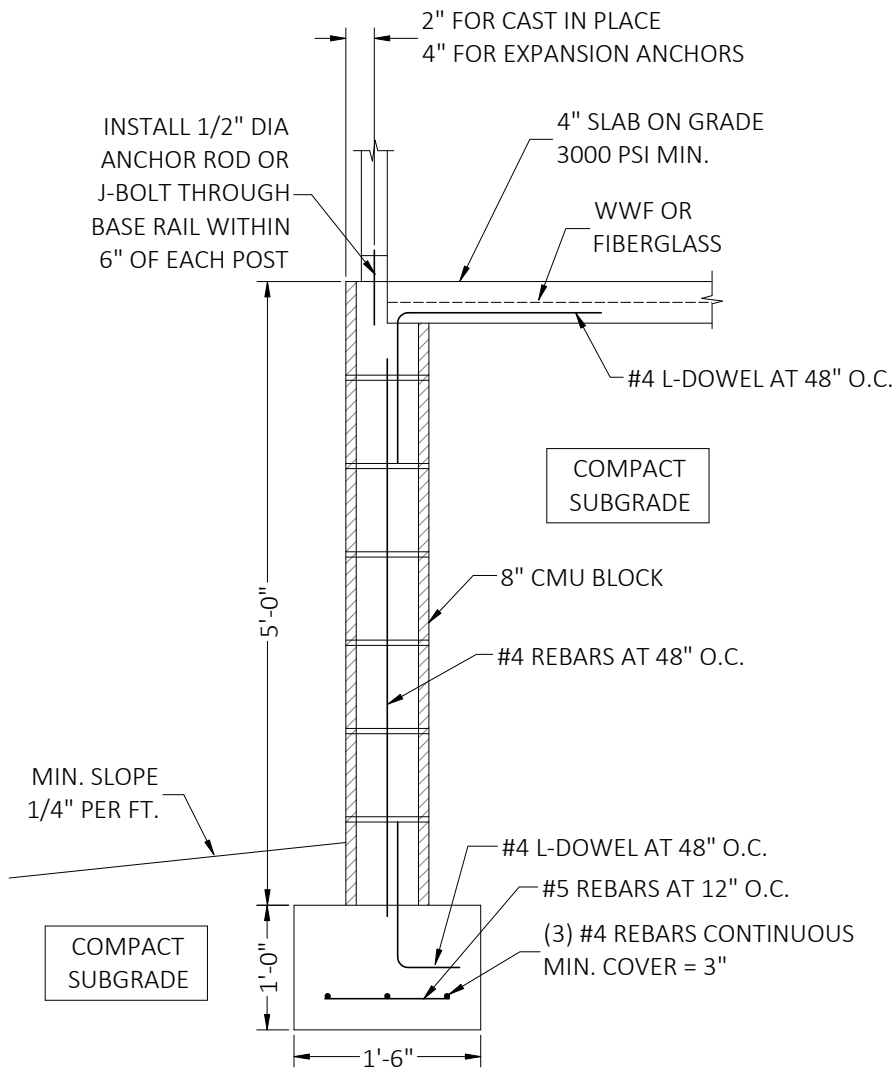




TYPICAL FLOOD VENT DETAIL

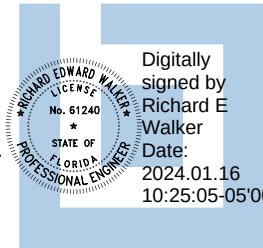
NOTES:

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.

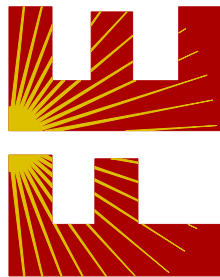


STAND-ALONE CONCRETE MASONRY UNIT (CMU)
FOUNDATION STEM WALL DETAIL

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FLORIDA ENGINEERING LLC
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PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
FLEng.com
Orders@FLEng.com



CA CERT. #30782

PROJECT NO. 2322771-40-E

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

PROJECT DESCRIPTION:
40' WIDE X 20' HIGH
ENCLOSED STRUCTURE

DESIGN DATE: 12/14/2023

REVISION 1: DATE

REVISION 2: DATE

SCALE: NTS

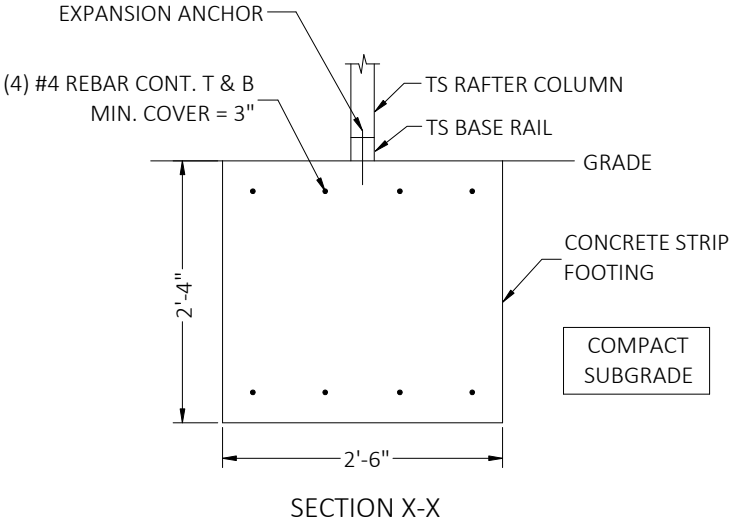
PAGE :

7

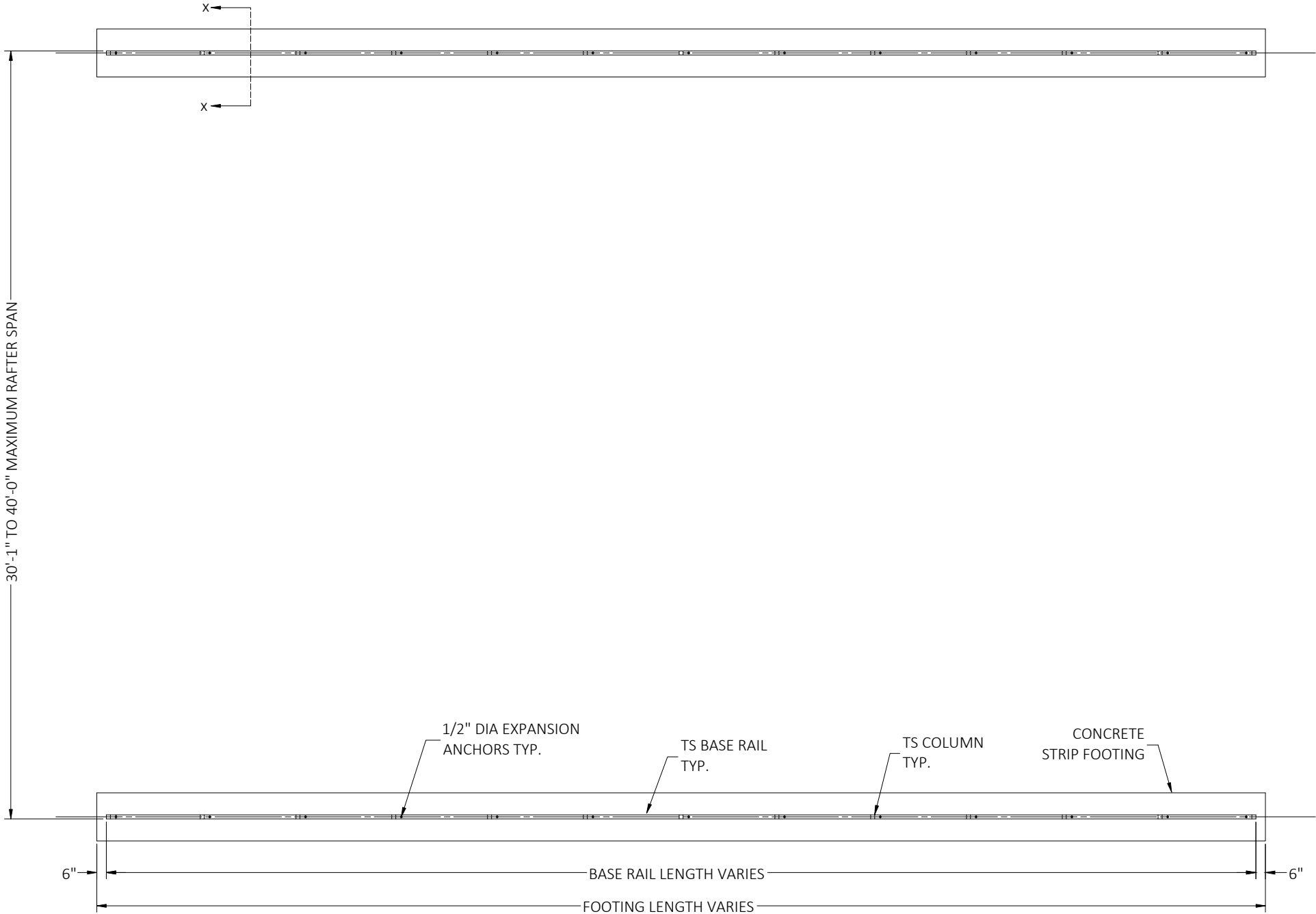
GENERAL NOTES
CONCRETE MONOLITHIC SLAB DESIGN IS BASED ON A MINIMUM SOIL BEARING CAPACITY OF 1500 PSF.

CONCRETE
MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI

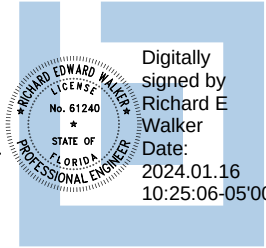
- REINFORCING STEEL
1. TURNDOWN REINFORCING STEEL = ASTM A615 GRADE 60
 2. SLAB REINFORCEMENT = WELDED WIRE FABRIC PER ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT
 3. REINFORCING STEEL COVER = 3" WHERE CASE AGAINST AND PERMENTLY EXPOSED TO SOIL OR WATER, 1.5" EVERYWHERE ELSE.
 4. REINFORCEMENT IS BENT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



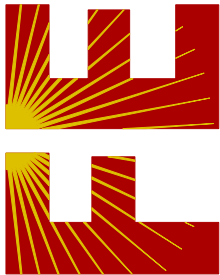
OPTIONAL CONCRETE STRIP FOOTING



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DESIGN DATE:	12/14/2023
REVISION 1: DATE	PAGE : 8
REVISION 2: DATE	
SCALE: NTS	