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".

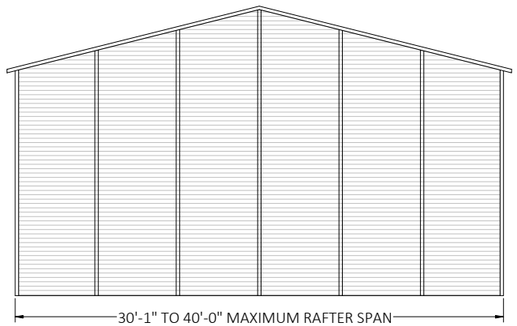
14. SOIL TO BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY, AT OPTIMUM MOISTURE CONTENT, IN ACCORDANCE WITH ASTM D1557-93

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

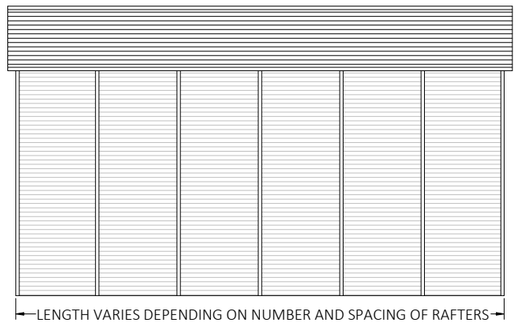
16. A LANDING OF MIN. 36" WIDTH IN THE DIRECTION OF TRAVEL SHALL BE PROVIDED AT THE EXTERIOR DOORS. SLOPE OF LANDING NOT TO EXCEED 1/4"-1'. LANDING LEVEL NOT TO BE LOWER THAN 1-1/2" (FOR EGRESS DOORS) & 7-3/4" (FOR OTHER EXTERIOR DOORS) BELOW THE TOP OF THRESHOLD.

DRAWING INDEX

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



TYPICAL END ELEVATION - HORIZONTAL ROOF



TYPICAL SIDE ELEVATION - HORIZONTAL ROOF

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

DIGITAL CERTIFICATION NOTES:
1. THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SHALL REMAIN IN DIGITAL FORMAT, SHALL BE VERIFIED BY ELECTRONIC MEANS & PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED.
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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RICHARD EDWARD WALKER LICENSE No. 61240 STATE OF FLORIDA PROFESSIONAL ENGINEER

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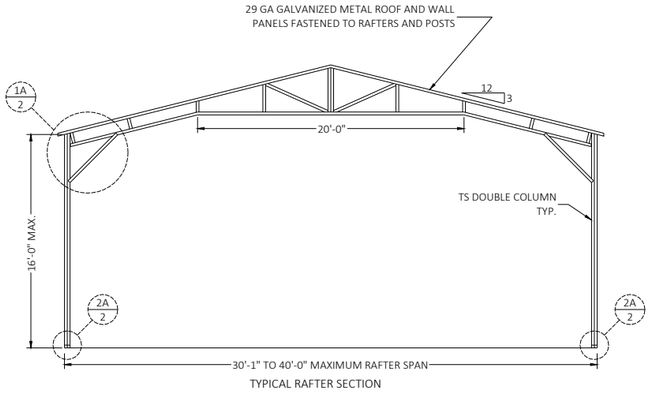
Orders@FLEng.com
CA CERT. #30782

PROJECT NO. 2322771-40-E

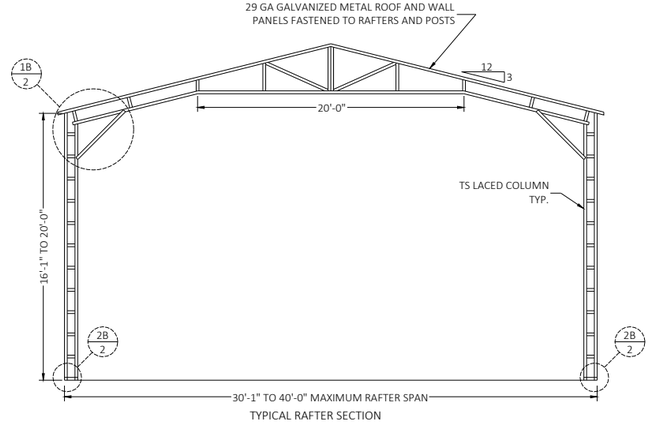
CONTRACTOR:
TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE,
LAKE CITY, FL 32025

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

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

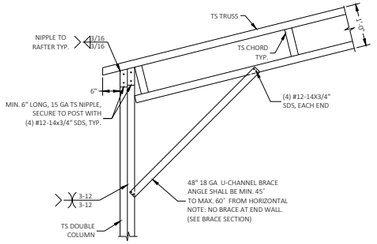


TYPICAL RAFTER SECTION

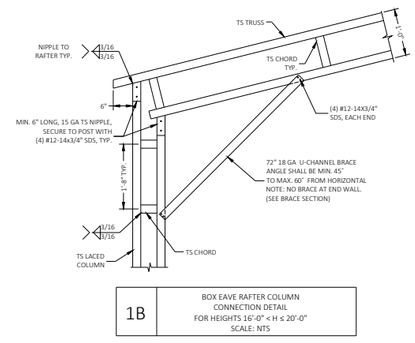


TYPICAL RAFTER SECTION

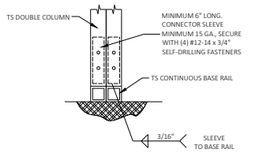
TYPICAL RAFTER/POST FRAME SECTION



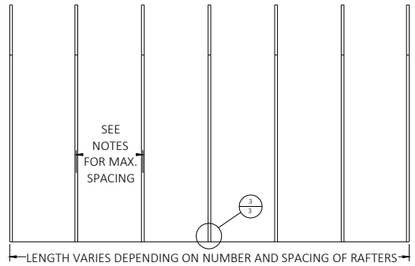
1A | BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 16'-0" SCALE: NTS



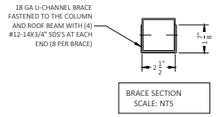
1B | BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < H ≤ 20'-0" SCALE: NTS



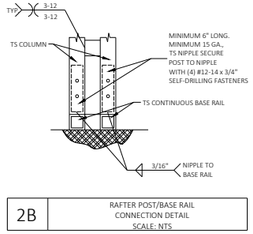
2A | RAFTER POST/BASE RAIL CONNECTION DETAIL SCALE: NTS



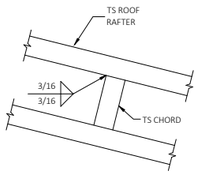
TYPICAL RAFTER/COLUMN SIDE FRAME SECTION



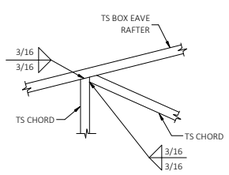
BRACE SECTION SCALE: NTS



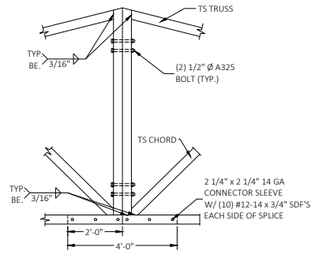
2B | RAFTER POST/BASE RAIL CONNECTION DETAIL SCALE: NTS



3 | RAFTER TO CHORD CONNECTION SCALE: NTS



4 | TRUSS POST AND CHORD TO RAFTER CONNECTION SCALE: NTS



5 | SPLICE CONNECTION SCALE: NTS

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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	PAGE : 2
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:

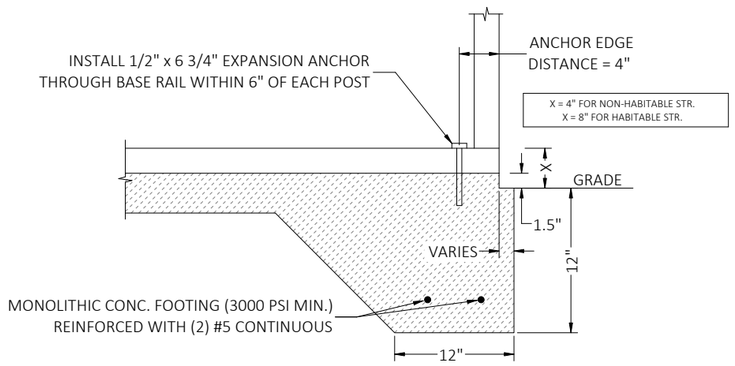
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

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

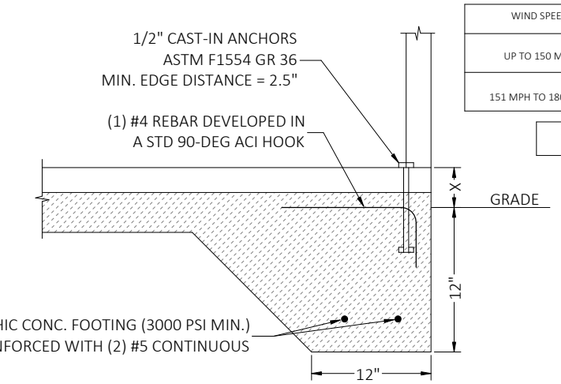
1. IT IS BENT COLD;
2. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT;
3. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
4. MINIMUM REQUIRED LAP LENGTH SHALL NOT BE LESS THAN 57-BAR DIAMETERS.

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.



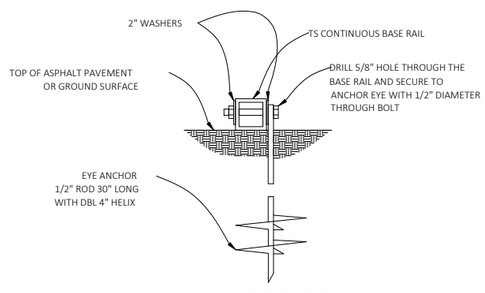
3A1 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE
SCALE: NTS



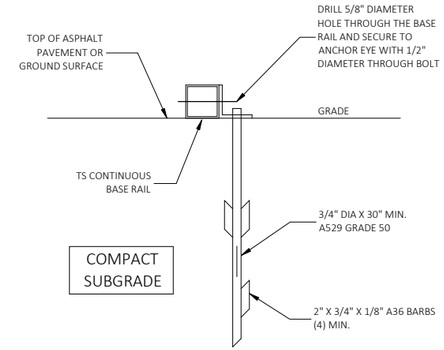
WIND SPEED	WALL HEIGHT	MIN. ANCHOR EMBEDMENT
UP TO 150 MPH	UP TO 14'-0"	3.25"
	14'-1" TO 16'-0"	3.50"
	16'-1" TO 20'-0"	4.75"
151 MPH TO 180 MPH	UP TO 14'-0"	4.25"
	14'-1" TO 16'-0"	5.00"
	16'-1" TO 20'-0"	6.50"

X = 4" FOR NON-HABITABLE STR.
X = 8" FOR HABITABLE STR.

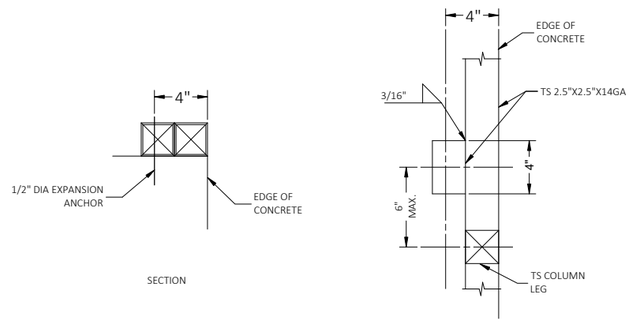
3A2 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE
SCALE: NTS



3B GROUND BASE HELIX ANCHORAGE
SCALE: NTS



3C ASPHALT BASE ANCHORAGE (HP 9 BARBED DRIVE ANCHOR)
SCALE: NTS



3D TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE
SCALE: NTS

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PROJECT NO. 2322771-40-E

CONTRACTOR:
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631 SE INDUSTRIAL CIRCLE,
LAKE CITY, FL 32025

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

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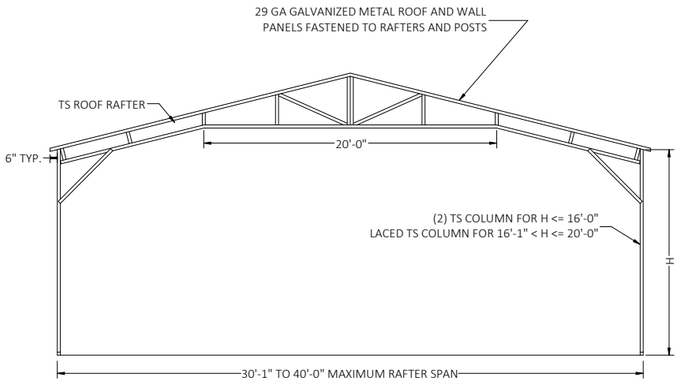
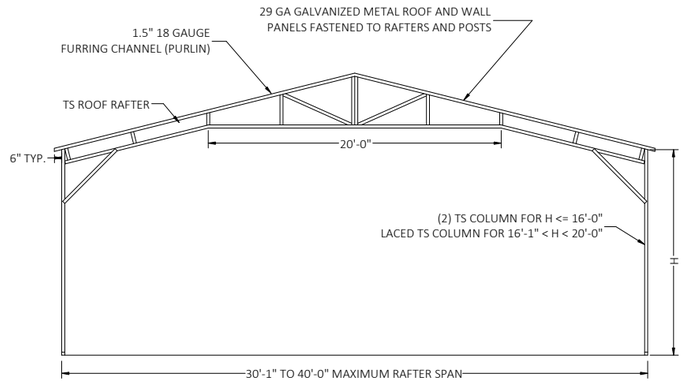
BOX EAVE RAFTER HORIZONTAL SIDE PANEL OPTION



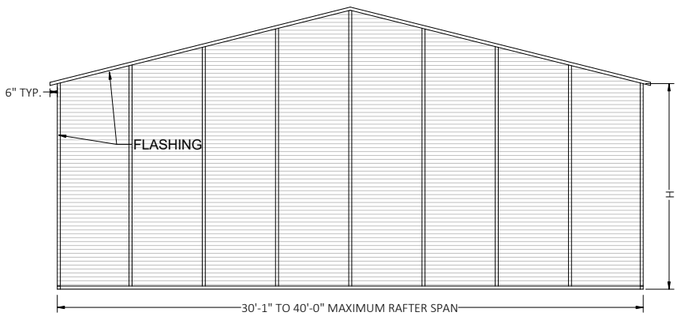
TYPICAL RAFTER SECTION

BOX EAVE RAFTER VERTICAL ROOF OPTION



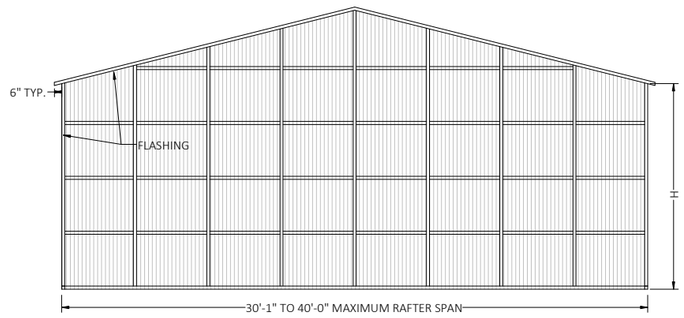
TYPICAL RAFTER SECTION

TYPICAL RAFTER/POST FRAME SECTION
EXTRA SIDE PANELS



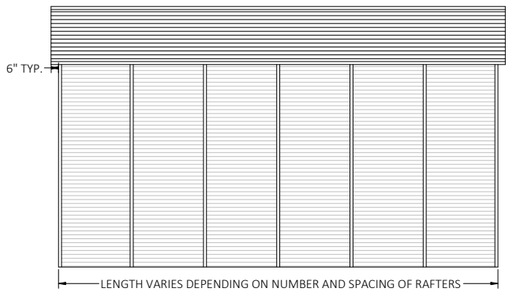
TYPICAL RAFTER SECTION

TYPICAL RAFTER/POST FRAME SECTION
EXTRA SIDE PANELS



TYPICAL RAFTER SECTION

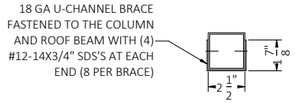
TYPICAL END ELEVATION
EXTRA SIDE PANELS



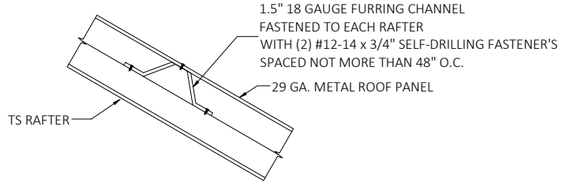
TYPICAL SIDE ELEVATION - EXTRA SIDE PANELS

TYPICAL END ELEVATION
VERTICAL ROOF/SIDING OPTION

TYPICAL SIDE ELEVATION - VERTICAL ROOF/SIDING OPTION



BRACE SECTION
SCALE: NTS



ROOF PANEL ATTACHMENT
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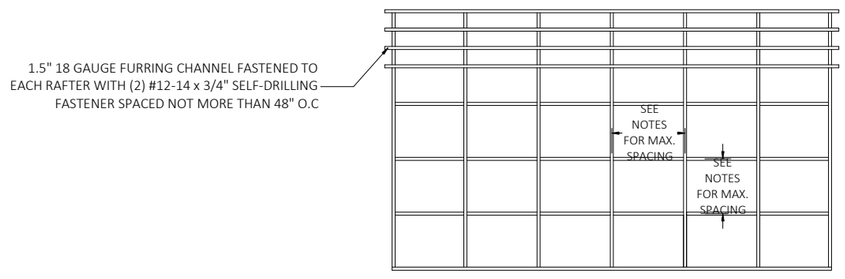

TYPICAL FRAMING SECTION - VERTICAL ROOF/SIDING OPTION

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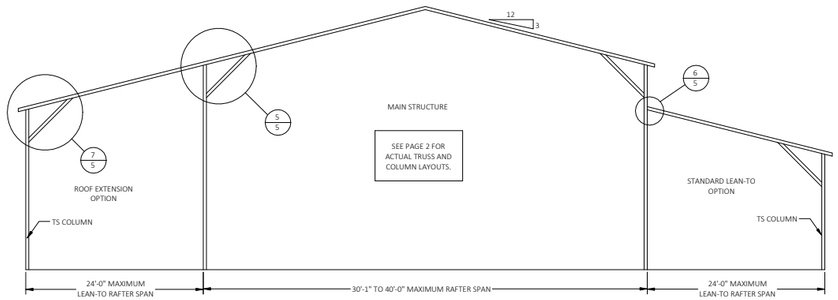
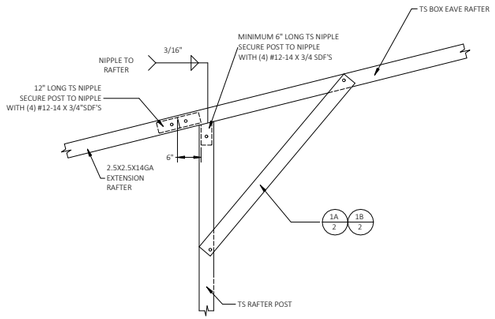
PAGE : 4

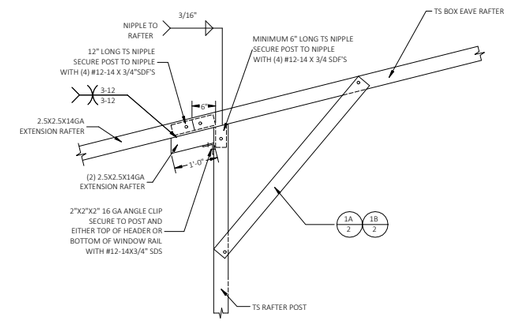
BOX EAVE RAFTER LEAN-TO OPTIONS



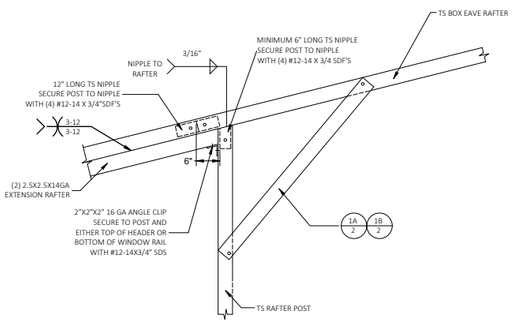
TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)



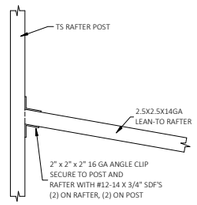
5A	SIDE EXTENSION RAFTER/COLUMN DETAIL FOR EXTENSION RAFTER SPANS W'<=12'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5. FOR EXTENSION RAFTER SPANS W'<=13'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5. FOR EXTENSION RAFTER SPANS W'<=15'-0", IF THE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



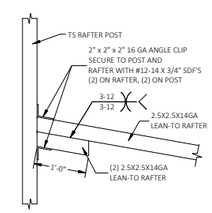
5B	SIDE EXTENSION RAFTER/COLUMN DETAIL FOR EXTENSION RAFTER SPANS 12'-0"<W'<=16'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7A/5. FOR EXTENSION RAFTER SPANS 13'-0"<W'<=18'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7B/5. FOR EXTENSION RAFTER SPANS 15'-0"<W'<=19'-0", IF THE KNEE BRACE ON THE OTHER END OF THE RAFTER IS PER DETAIL 7C/5. SCALE: NTS



5C	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



6A	LEAN-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



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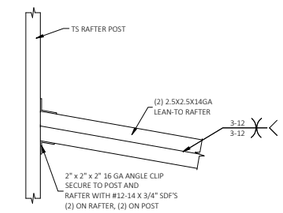

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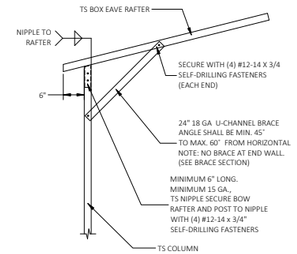
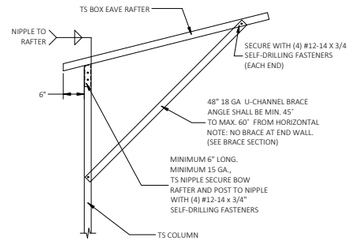
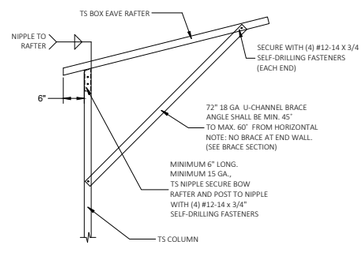


7A	BOX EAVE RAFTER COLUMN CONNECTION DETAIL 24" BRACE SCALE: NTS



7B	BOX EAVE RAFTER COLUMN CONNECTION DETAIL 48" BRACE SCALE: NTS



7C	BOX EAVE RAFTER COLUMN CONNECTION DETAIL 72" BRACE SCALE: NTS

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CA CERT. #30782

PROJECT NO. 2322771-40-E

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

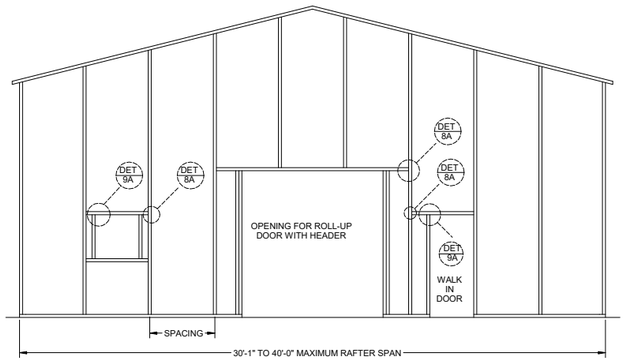
PROJECT DESCRIPTION:
40' WIDE X 20' HIGH
ENCLOSED STRUCTURE

DESIGN DATE: 12/14/2023

REVISION 1: DATE

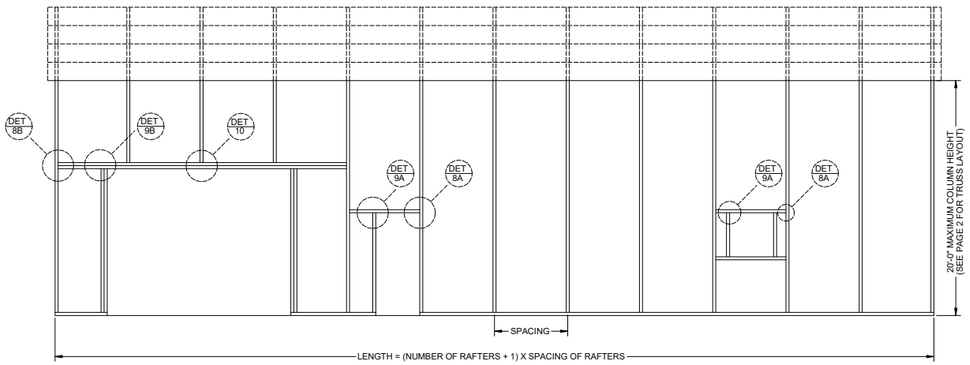
REVISION 2: DATE

SCALE: NTS



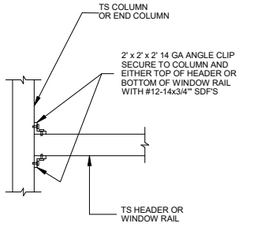
SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 150 MPH
SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 150 MPH AND 180 MPH

TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

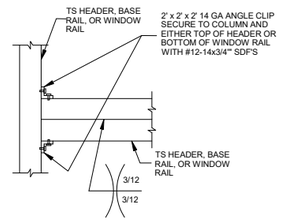


SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 150 MPH
SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 150 MPH AND 180 MPH

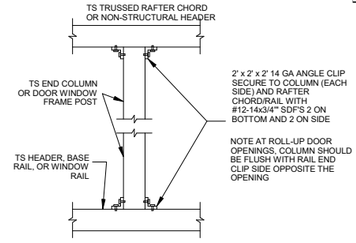
TYPICAL BOX EAVE RAFTER SIDE WALL FRAMING SECTION



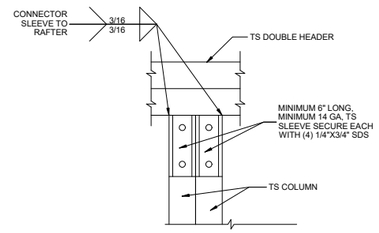
8A NON-STRUCTURAL HEADER OR WINDOW RAIL TO POST CONNECTION DETAIL
SCALE: NTS



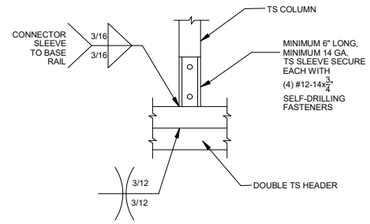
8B DOUBLE HEADER OR WINDOW RAIL TO POST CONNECTION DETAIL
SCALE: NTS



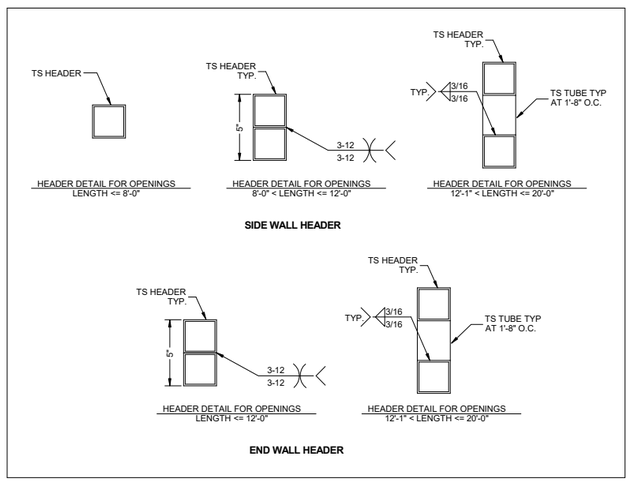
9A POST TO NON-STRUCTURAL HEADER, BASE, RAIL OR WINDOW RAIL CONNECTION DETAIL
SCALE: NTS

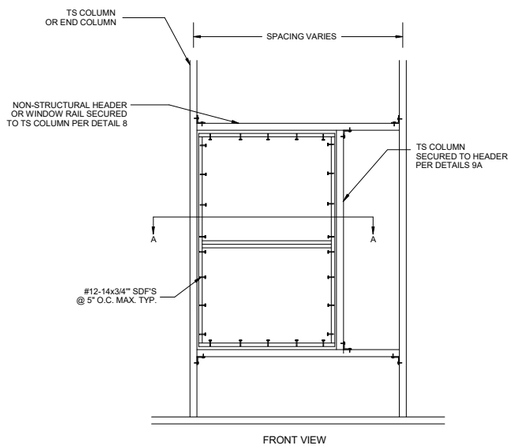


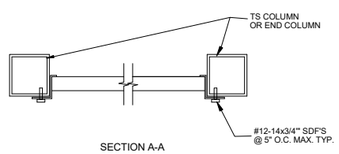
9B DOUBLE HEADER/COLUMN CONNECTION
SCALE : N.T.S.



10 POST TO DOUBLE HEADER, BASE, RAIL OR WINDOW RAIL CONNECTION DETAIL
SCALE: NTS







11 WINDOW INSTALLATION DETAILS
N.T.S.

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(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
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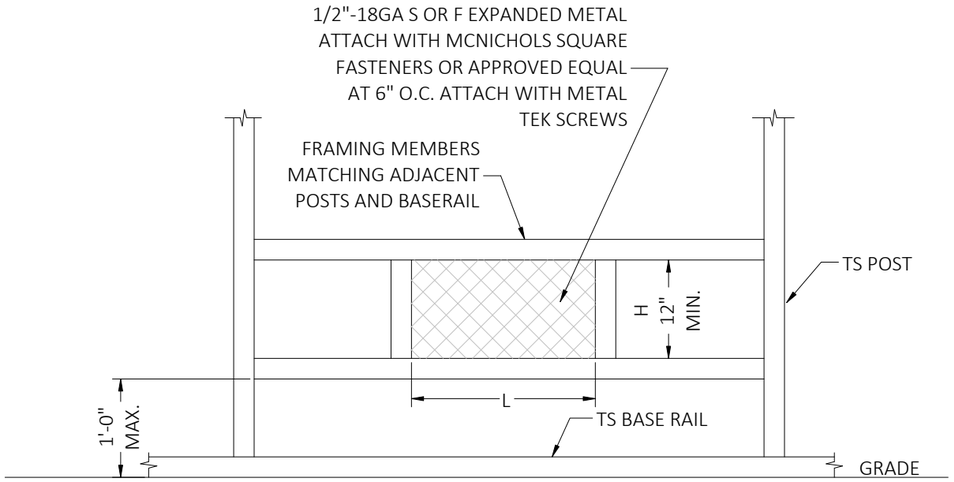
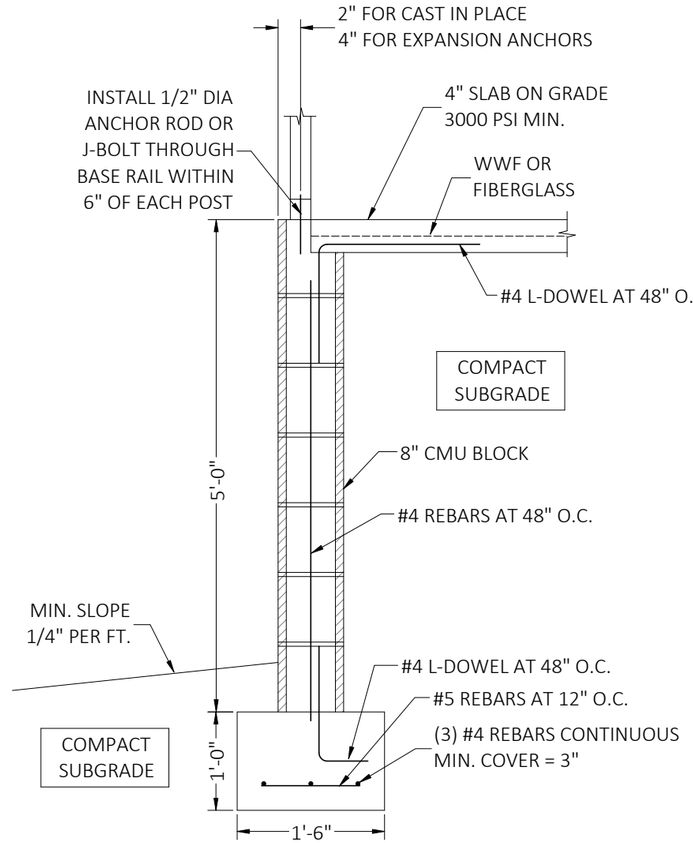


TYPICAL FLOOD VENT DETAIL

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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OPTIONAL CONCRETE STRIP FOOTING

GENERAL NOTES

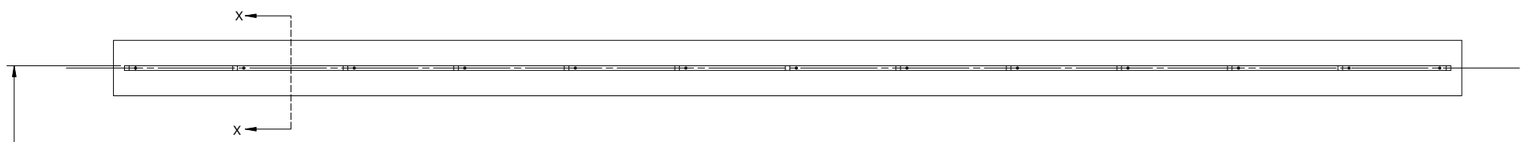
CONCRETE MONOLITHIC SLAB DESIGN IS BASED ON A MINIMUM SOIL BEARING CAPACITY OF 1500 PSF.

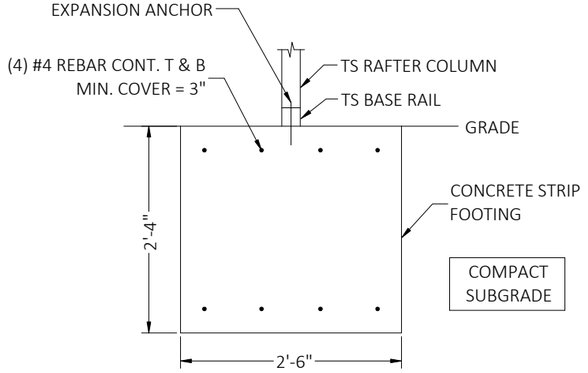
CONCRETE

MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI

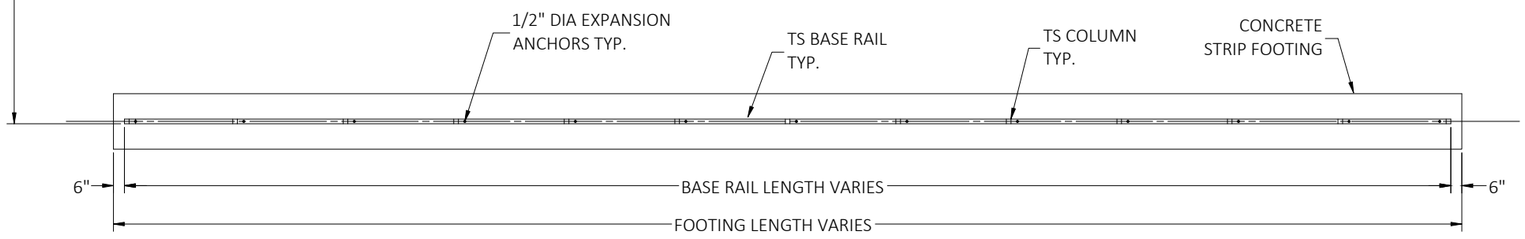
REINFORCING STEEL

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 PERMENENTLY 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.





SECTION X-X



CONCRETE STRIP FOOTING PLAN

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PAGE : 8