

APPLICABLE CODES

1. 2021 INTERNATIONAL BUILDING CODE
2. 2018 INTERNATIONAL BUILDING CODE
3. 2018 INTERNATIONAL BUILDING CODE W/ GEORGIA AMENDMENTS
4. 2015 INTERNATIONAL BUILDING CODE
5. 2012 INTERNATIONAL BUILDING CODE
6. 2018 NORTH CAROLINA STATE BUILDING CODE
7. 2021 SOUTH CAROLINA BUILDING CODE
8. 2018 VIRGINIA CONSTRUCTION CODE

APPLICABLE STANDARDS

1. ASCE 7-16: MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES
2. AISC STEEL CONSTRUCTION MANUAL (15TH EDITION)
3. ACI 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. TMS 402-16: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
5. AWS D1.1: STRUCTURAL WELDING

DESIGN LOADS

1. DEAD LOAD = 15 PSF
2. ROOF LIVE LOAD = 12 PSF
3. GROUND SNOW LOAD = 10 PSF
4. WIND LOAD
 - A. RISK CATEGORY = I
 - B. WIND EXPOSURE CATEGORY = C
 - C. ULTIMATE WIND SPEED = 110 MPH TO 155 MPH
NOMINAL WIND SPEED = 85 MPH TO 120 MPH

INSTALLATION NOTES AND SPECIFICATIONS

1. THESE PLANS BELONG EXCLUSIVELY TO THE STRUCTURE, INCLUDING MAIN WIND FORCE RESISTING SYSTEM (MWFRS), COMPONENTS AND CLADDING (C&C), AND BASE RAIL ANCHORAGE. OTHER DESIGN ISSUES, INCLUDING BUT NOT LIMITED TO PROPERTY SET-BACKS, ELECTRICAL, PLUMBING, INGRESS/EGRESS, FINISH FLOOR SLOPES AND ELEVATIONS, OR OTHER LOCAL ZONING REQUIREMENTS ARE THE LIABILITY OF OTHERS.
2. THESE STRUCTURES ARE ENGINEERED AS CAPABLE OF SUPPORTING DEAD LOAD OF THE STRUCTURE AND LIVE AND WIND LOADS. UPGRADES NOT SPECIFICALLY ADDRESSED HEREIN, SUCH AS WINDOWS, DOORS, OR ANOTHER COMPONENT NOT LISTED IN THE INTERNATIONAL BUILDING CODE APPROVED PRODUCT LIST, AND NOT PROVIDED AND INSTALLED BY THE CONTRACTOR, WHICH CAUSE ADDITIONAL LOADS ON THE STRUCTURE SHALL BE AT THE OWNER'S RISK. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR FAILURE OR STRUCTURAL DAMAGE DUE TO THE EXTRA LOAD.
3. ALL STEEL TUBING SHALL BE 50 KSI GALVANIZED STEEL WITH MINIMUM YIELD STRENGTH OF 54 KSI. ALL FASTENERS SHALL BE ZINC COATED HARDWARE.
4. END WALL COLUMNS (POST) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING U.N.O.
5. SPECIFICATIONS APPLICABLE TO 29 GA METAL PANELS FASTENED DIRECTLY TO 2.5"x2.5"x14 GA TUBE STEEL (TS) FRAMING MEMBERS FOR VERTICAL PANELS. 29 GA METAL PANELS SHALL BE FASTENED DIRECTLY TO 18 GA HAT CHANNELS U.N.O.
6. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9" AND END = 6" MAX.
7. FASTENERS CONSIST OF #12-14X3/4" SELF-DRILLING SCREWS (SDS), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20'-0" OR LESS, AND ROOF SLOPES OF 18.4° (4:12 PITCH) OR LESS. SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.
8. ANCHORS SHALL BE INSTALLED THROUGH THE BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES AND ENDS.
9. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBARS WITH WELDED NUT X 30" LONG AND MAY BE USED IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. SOIL NAILS MAY BE USED FOR WIND SPEEDS LESS THAN OR EQUAL TO 140 MPH.
10. MAXIMUM RAFTER SPACING IS 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 140 MPH AND 4'-0" FOR WIND SPEEDS BETWEEN 140 MPH AND 155 MPH U.N.O. ON PLAN.
11. 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


DRAWING INDEX

PAGE NO.	DESCRIPTION
1	TITLE PAGE WITH INDEX
2	ELEVATION VIEWS
3	TRUSS DESIGN FOR BLDG LENGTH<=80'
4	TRUSS DESIGN FOR BLDG LENGTH>80'
5	CONNECTION DETAILS (1-2)
6	BASE RAIL AND FOUNDATION ANCHORAGE
7	RAFTER END WALL, SIDE WALL AND OPENING FRAMING
8	CONNECTION DETAILS (4-14)
9	BOX EAVE RAFTER LEAN-TO OPTIONS
10	CONNECTION DETAILS (15-19)
11	BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION
12	OPTIONAL HELICAL ANCHORING DETAIL


**ENCLOSED METAL BUILDING DESIGN
MAXIMUM 32'-0" WIDE X 100'-0" LONG X 20'-0" HIGH (EAVE)
BOX EAVE FRAME / BOW EAVE FRAME**

GENERIC PLANS ARE NOT VALID
WITHOUT A RAISED SEAL & BLUE INK
SIGNATURE.

(1) SET OF SIGNED AND SEALED GENERIC
ENGINEERING IS VALID FOR
(1) STRUCTURE ONLY.


Craig E. Gunderson, P.E. #032329
CA CERT. #PEF007324


DATE: 10/18/2023


Craig E. Gunderson, P.E. #048404
CA CERT. #P-2016


DATE: 10/18/2023


Craig E. Gunderson, P.E. #36740
CA CERT. #6921

DATE: 10/18/2023

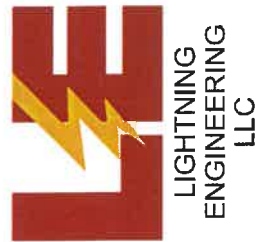

Craig E. Gunderson, P.E. #123141
CA CERT. #9631

DATE: 10/18/2023


Craig E. Gunderson, P.E. #402065359
CA CERT. # 407008475

DATE: 10/18/2023

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)
GUNDERSON ENGINEERING (SC, NC)
4161 TAMiami TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.LightningEngineer.com
www.GundersonEngineering.com



PROJECT NO. 2326887 ENC1550006

CONTRACTOR:
STEELCRAFT STRUCTURES
1841 AMITY HILL RD.
STATESVILLE, NC 28625

PROJECT ADDRESS:
12'-32' WIDE ENCLOSED

DESIGN DATE: 10/10/2023

REVISION 1: DATE

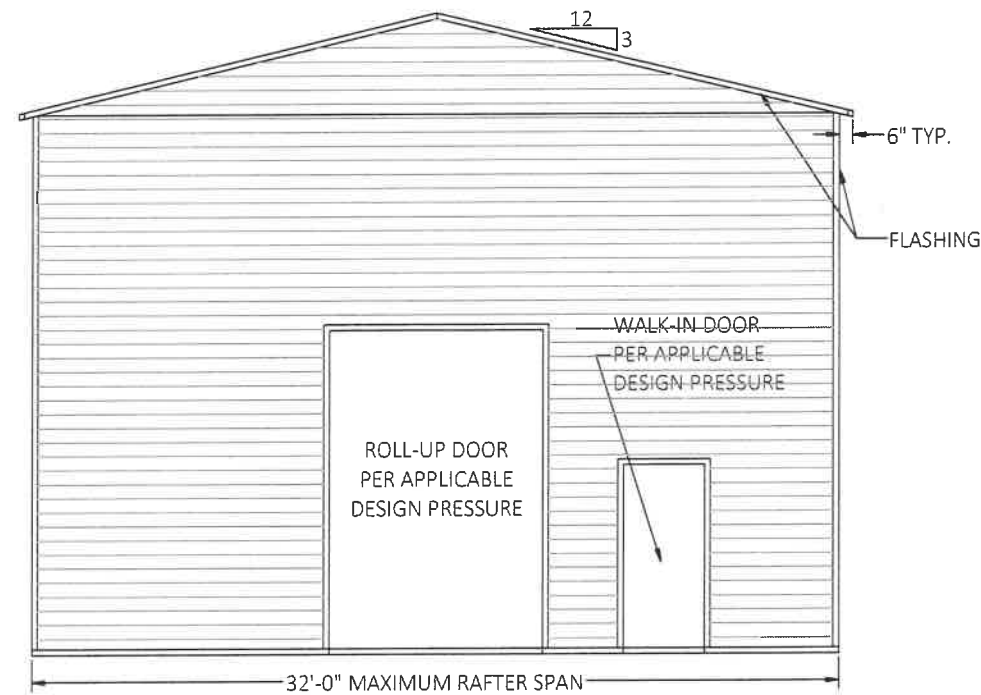
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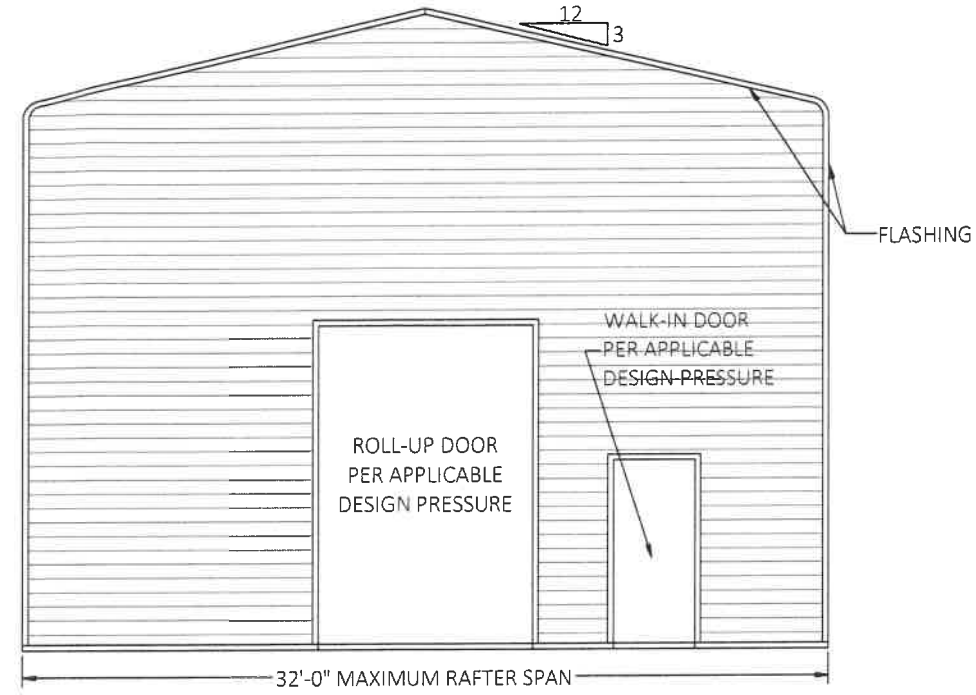
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PAGE :
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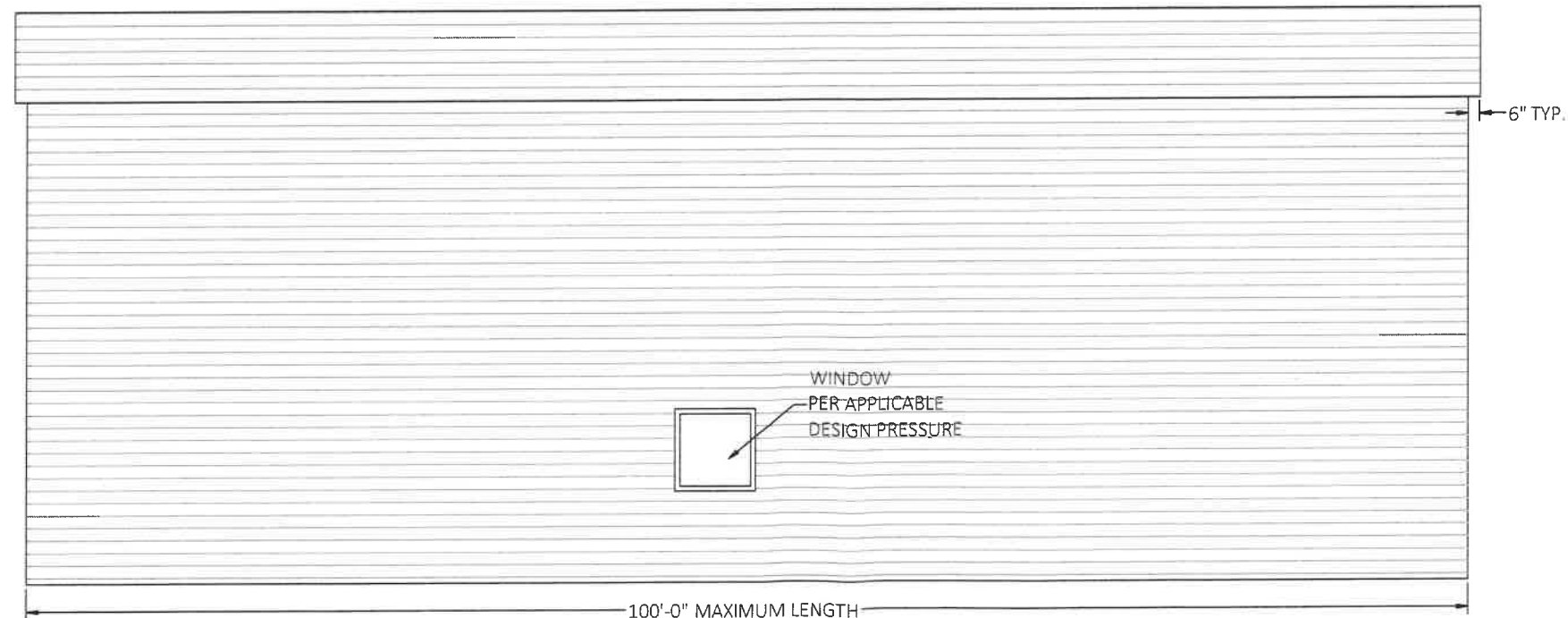
ENCLOSED METAL BUILDING DESIGN
 MAXIMUM 32'-0" WIDE X 100'-0" LONG X 20'-0" HIGH (EAVE)
 BOX EAVE FRAME / BOW EAVE FRAME



TYPICAL END ELEVATION - BOX EAVE

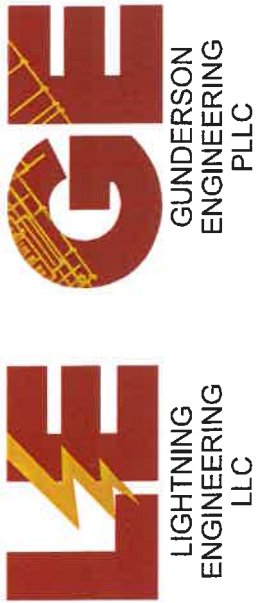


TYPICAL END ELEVATION - BOW EAVE



TYPICAL SIDE ELEVATION - HORIZONTAL ROOF

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MEMBER LEGEND:

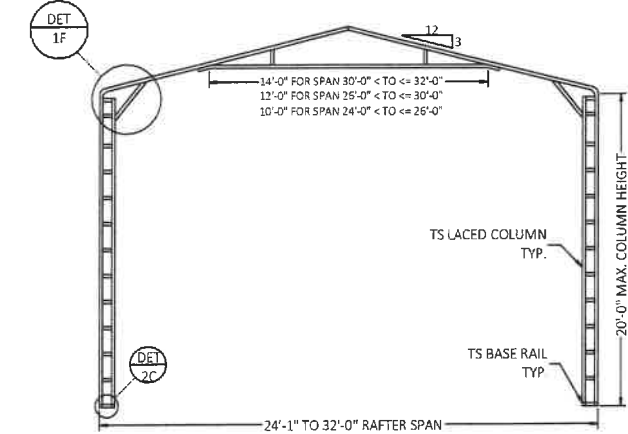
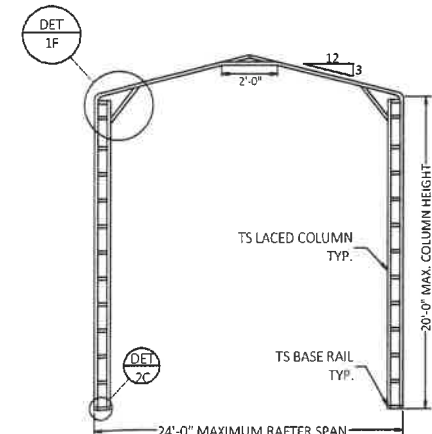
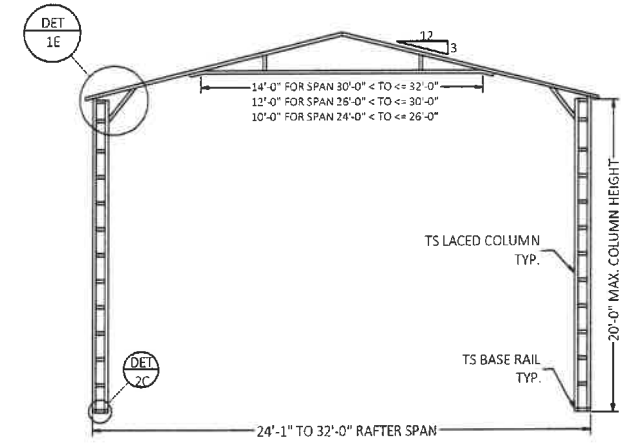
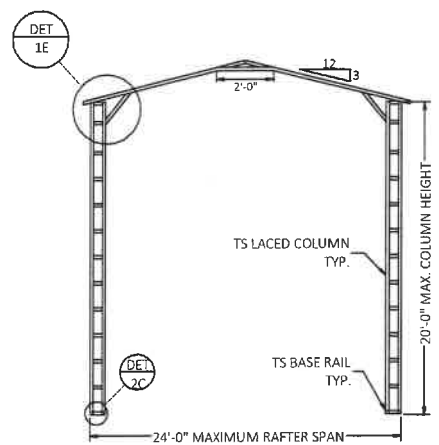
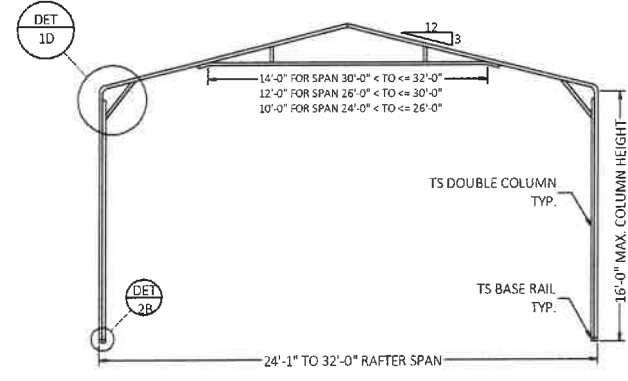
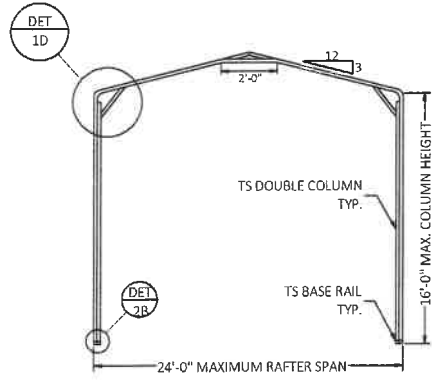
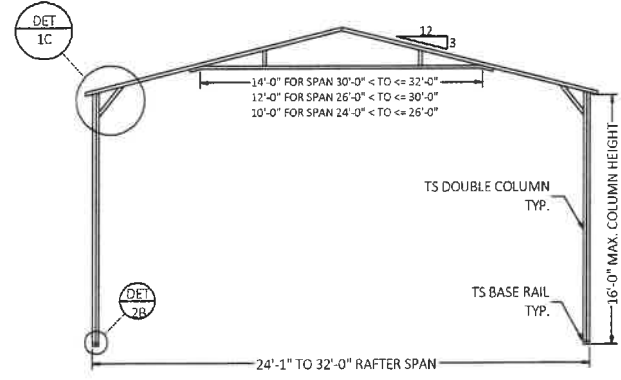
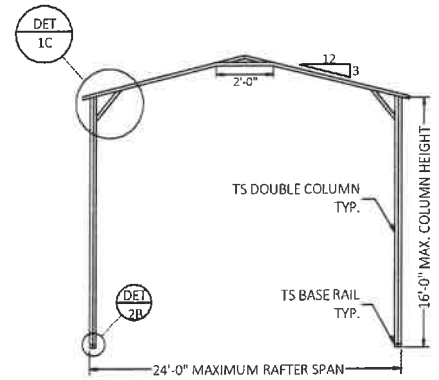
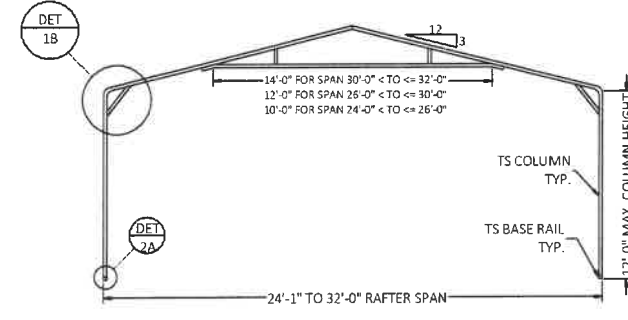
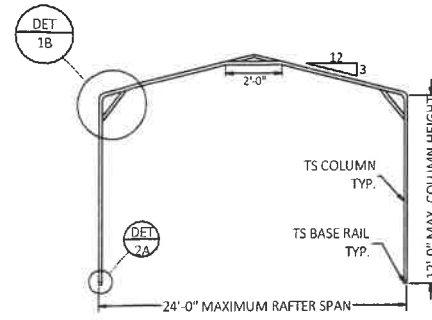
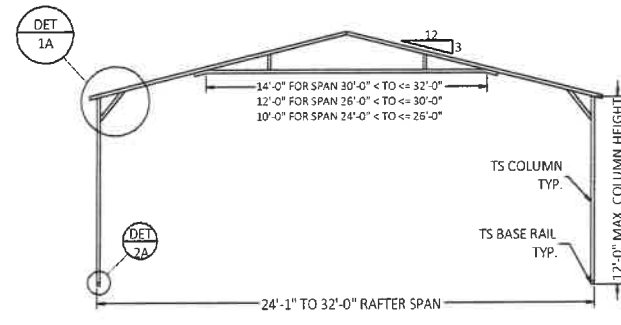
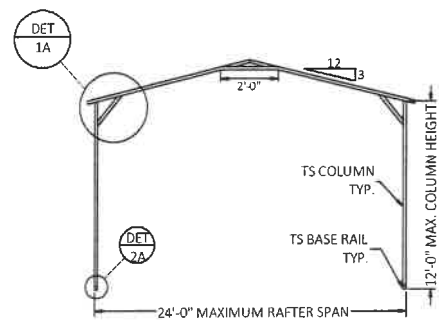
1. TS COLUMN = 2.5X2.5X14GA U.N.O. OR 2.25X2.25X12GA U.N.O.
2. TS DOUBLE COLUMN = (2)2.5X2.5X14GA OR (2) 2.25X2.25X12GA U.N.O.
3. TRUSS MEMBERS = 2.5X2.5X14GA U.N.O.
4. KNEE-BRACE = 2.5"X1.5"X18GA CHANNEL
5. PURLIN = 1.5"X18GA HAT CHANNEL
6. U-BRACE = 2.5"X1.5"X18GA CHANNEL

MAX. EAVE HEIGHT	ENDWALL COLUMN DIMENSIONS
14'-0"	2.5X2.5X14 GA OR 2.25X2.25X12GA
20'-0"	(2)2.5X2.5X14 GA OR (2)2.25X2.25X12GA

BUILDING LENGTH <=80'-0"

TRUSS LAYOUT- BOX EAVE

TRUSS LAYOUT- BOW EAVE



DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)
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 5. PURLIN = 1.5"X18GA HAT CHANNEL
 6. U-BRACE = 2.5"X1.5"X18GA CHANNEL

BUILDING LENGTH 80'-1" TO 100'-0"

MAX. EAVE HEIGHT	ENDWALL COLUMN DIMENSIONS
14'-0"	2.5X2.5X14 GA OR 2.25X2.25X12GA
20'-0"	(2)2.5X2.5X14 GA OR (2)2.25X2.25X12GA

TRUSS LAYOUT- BOX EAVE

TRUSS LAYOUT- BOW EAVE

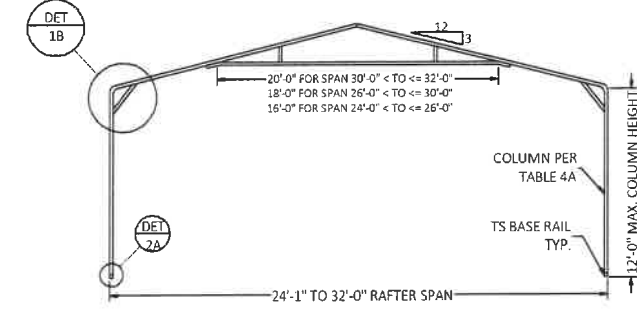
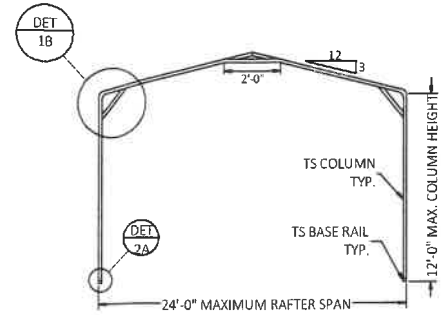
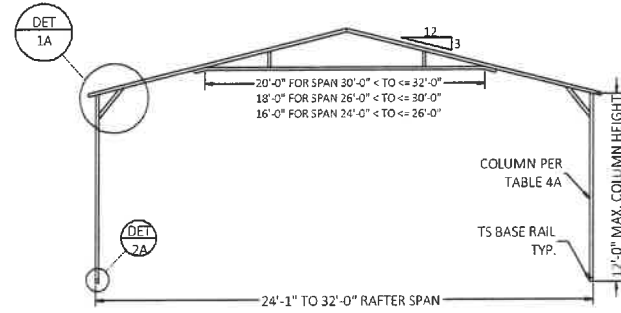
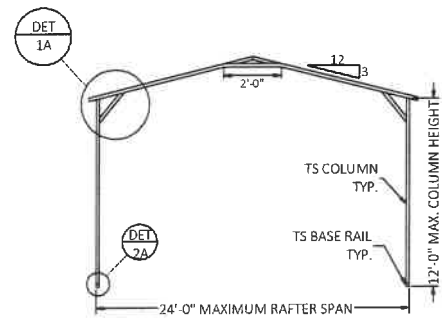
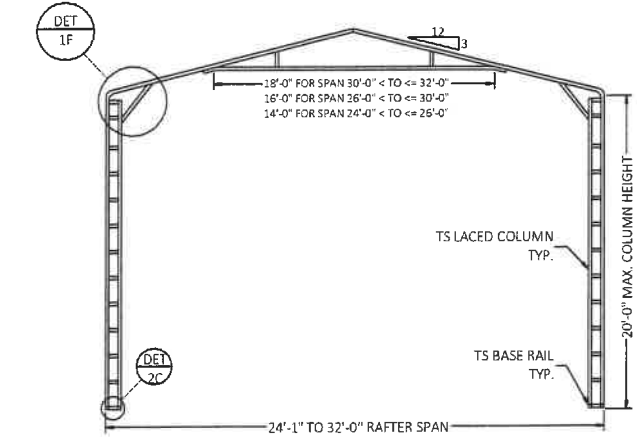
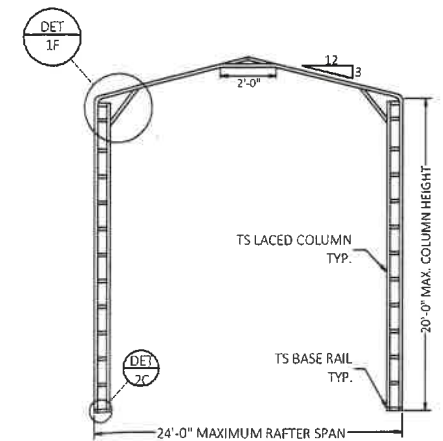
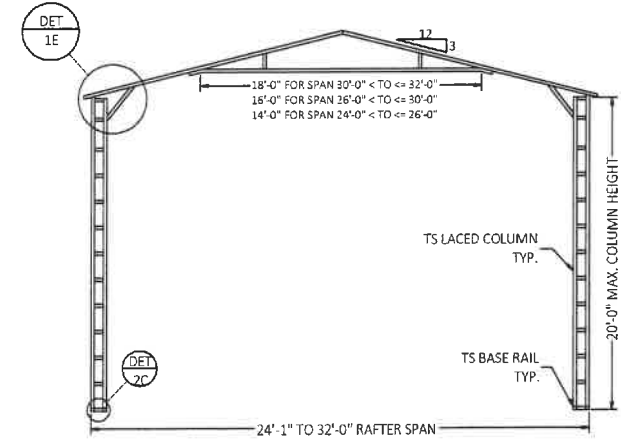
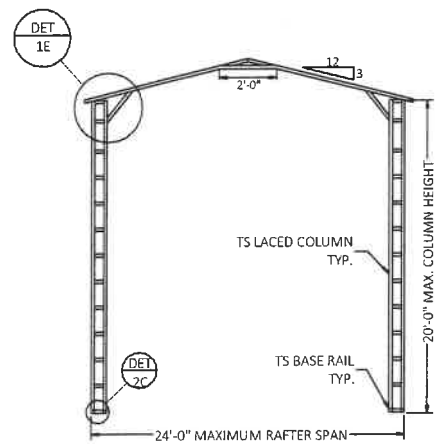
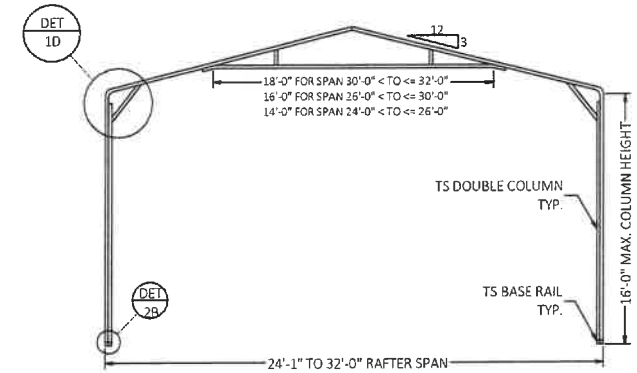
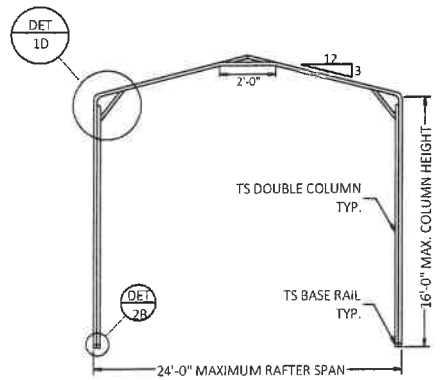
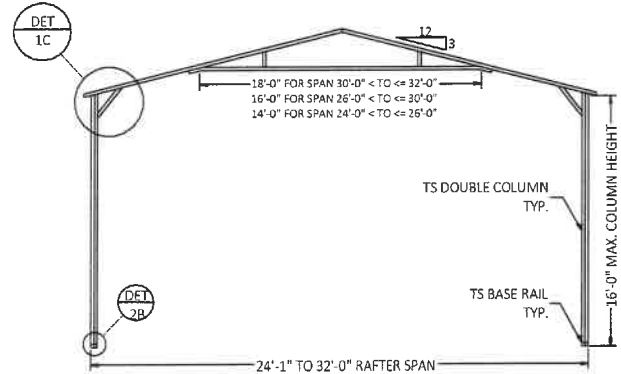
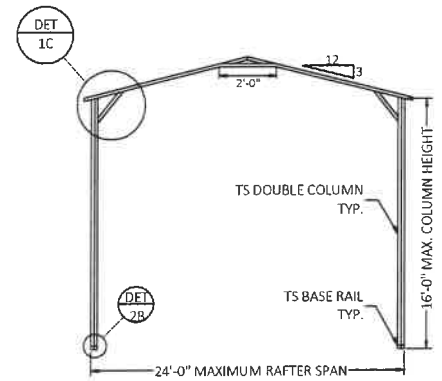


TABLE 4A:

MAX. COLUMN HEIGHT	COLUMN DIMENSIONS
12'-0"	(N-12) CENTRAL COLUMNS TO BE (2)2.5X2.5X14 GA REST 2.5X2.5X14 GA

*N = NO. OF COLUMNS PER SIDE ELEVATION



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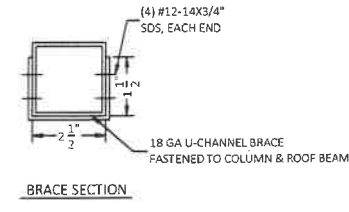
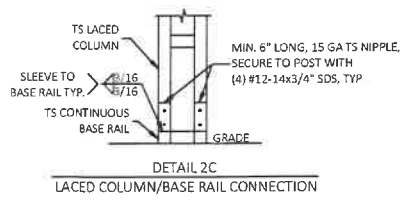
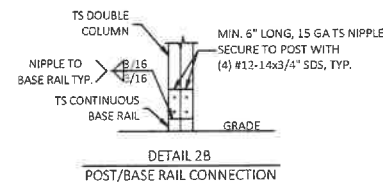
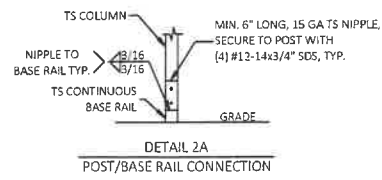
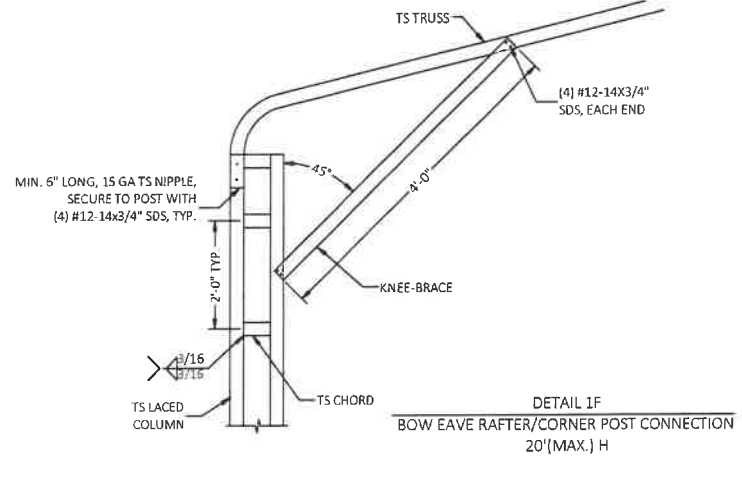
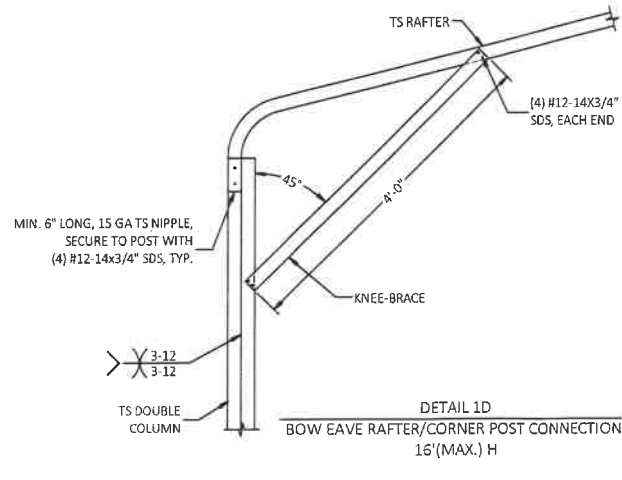
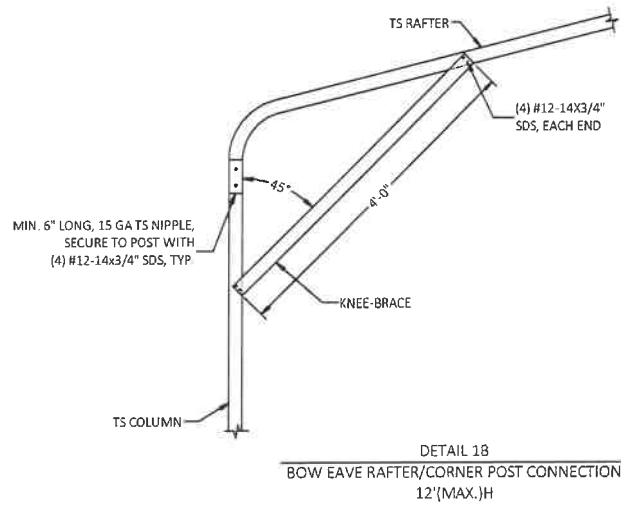
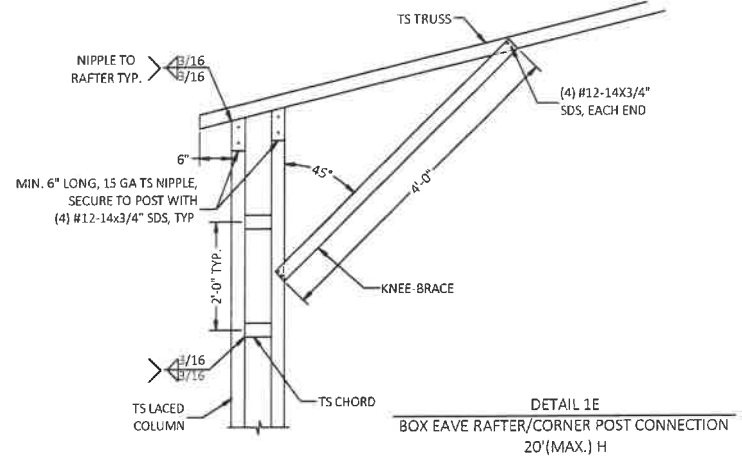
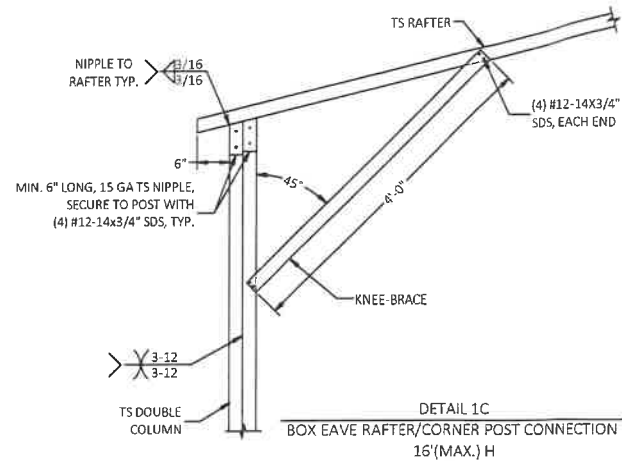
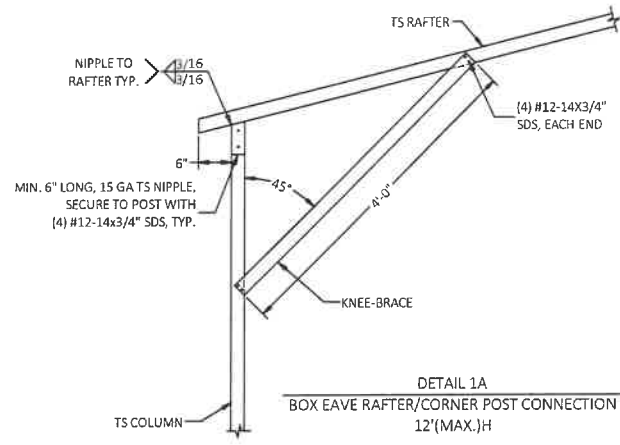


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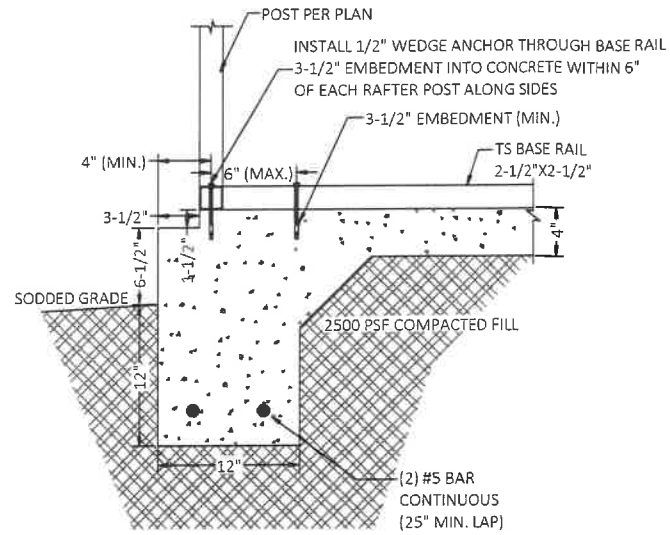
GENERAL NOTES
 CONCRETE MONOLITHIC SLAB DESIGN IS BASED ON A MINIMUM SOIL BEARING CAPACITY OF 2500 PSF.

CONCRETE
 MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI

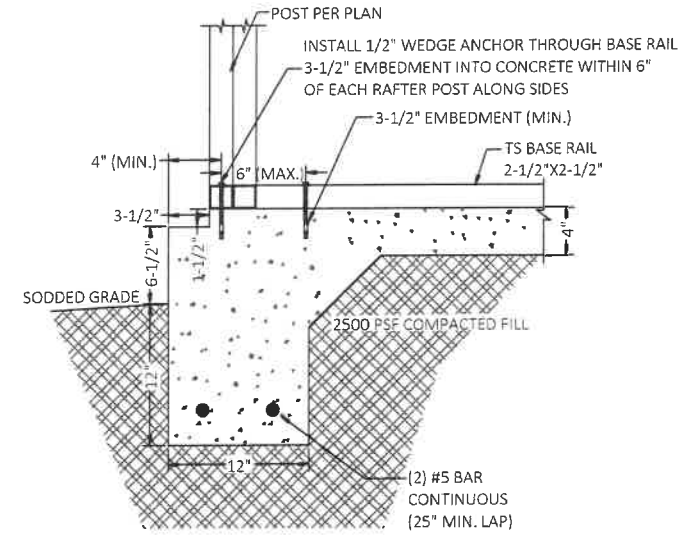
REINFORCING STEEL
 1. TURNDOWN REINFORCING STEEL = ASTM A615 GRADE 60
 2. SLAB REINFORCEMENT = WELDED WIRE FABRIC PER ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT
 3. REINFORCING STEEL COVER = 3" WHERE CASE AGAINST AND PERMANENTLY EXPOSED TO SOIL OR WATER, 1.5" EVERYWHERE ELSE.
 4. REINFORCEMENT IS BENT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

HELIX ANCHOR NOTES
 1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 10'.
 2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 5' OR EVERY POST (LEG).
 3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.

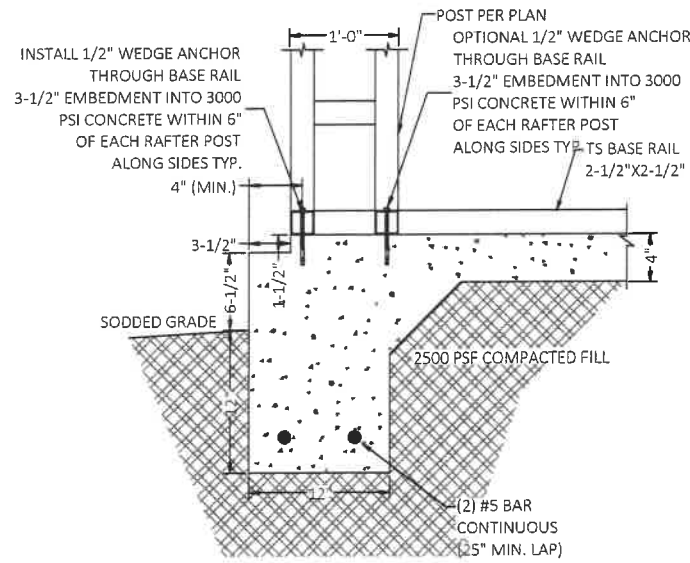
HP 9 BARBED DRIVE ANCHOR NOTES
 1. ANCHOR TO BE 3/4" DIA (A529 GRADE 50) WITH 30" MIN. EMBEDMENT & (4) MIN. BARBS AS SHOWN IN DETAIL 3C.
 2. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, MAXIMUM SPACING TO BE 10'.
 2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, MAX. SPACING TO BE 5' OR EVERY POST (LEG).
 3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.



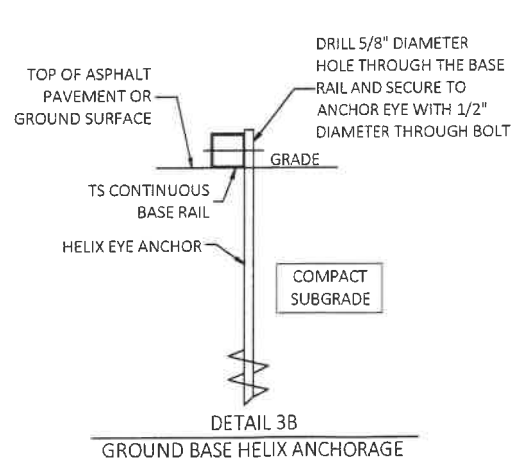
DETAIL 3A-I
 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE



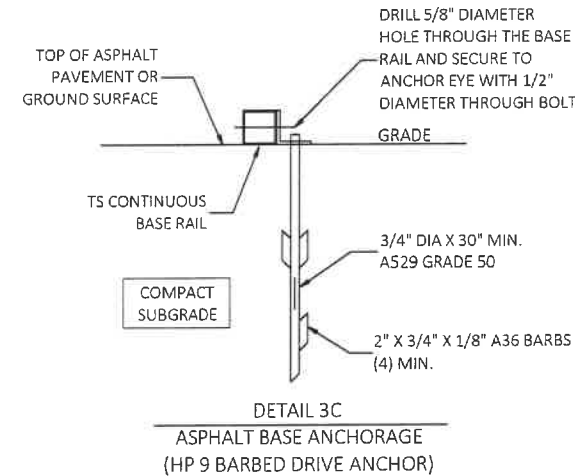
DETAIL 3A-II
 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE



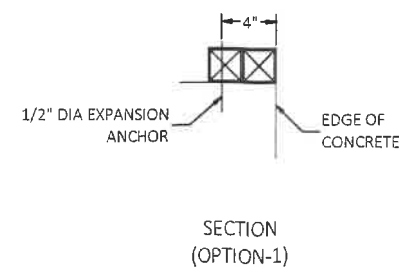
DETAIL 3A-III
 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE



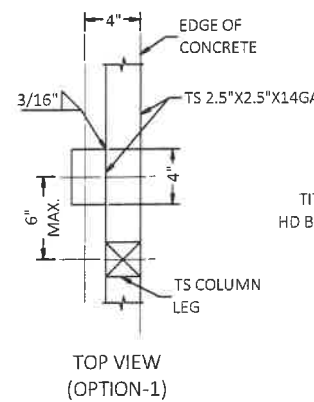
DETAIL 3B
 GROUND BASE HELIX ANCHORAGE



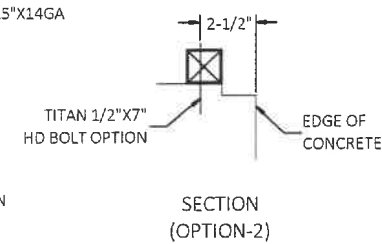
DETAIL 3C
 ASPHALT BASE ANCHORAGE
 (HP 9 BARBED DRIVE ANCHOR)



SECTION
 (OPTION-1)



TOP VIEW
 (OPTION-1)

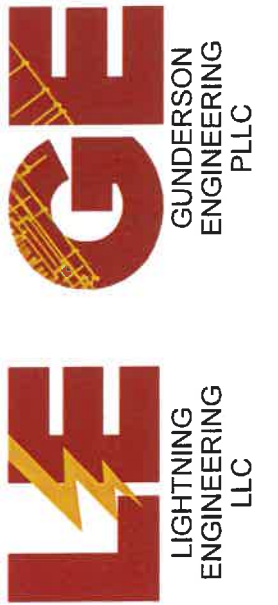


SECTION
 (OPTION-2)

TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

BASE RAIL ANCHORAGE OPTION

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PROJECT NO. 2326887

CONTRACTOR:
 STEELCRAFT STRUCTURES
 1841 AMITY HILL RD.
 STATESVILLE, NC 28625

PROJECT ADDRESS:
 12'-32' WIDE ENCLOSED

DESIGN DATE: 10/10/2023

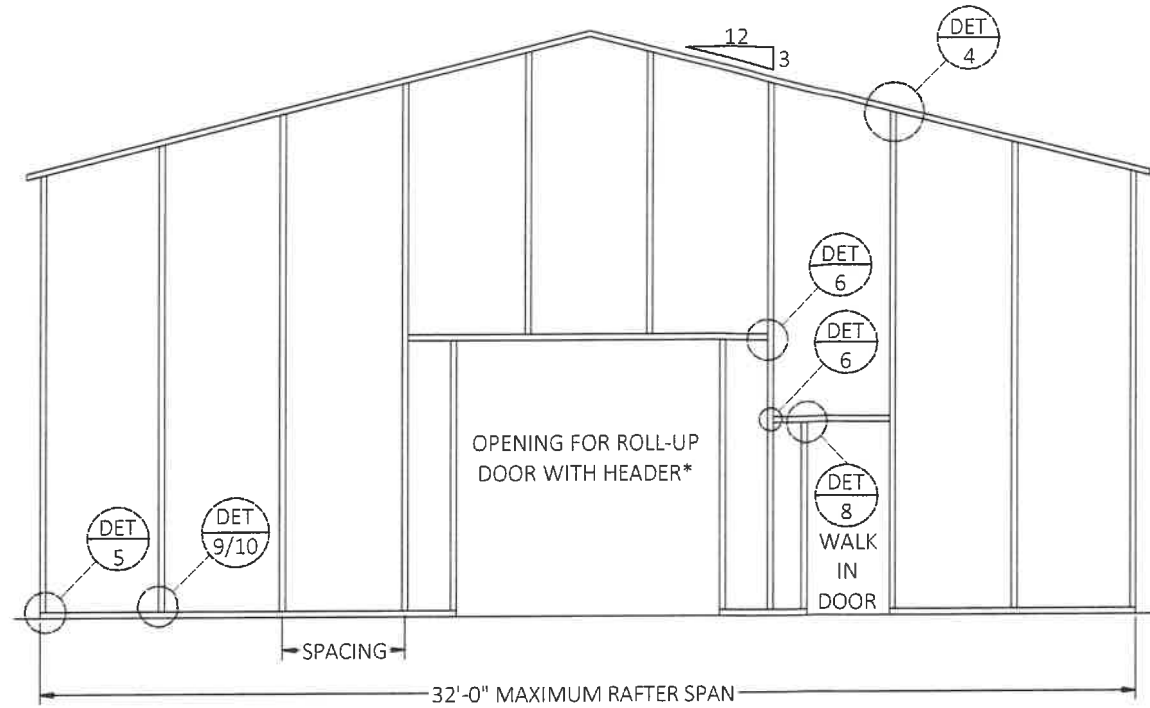
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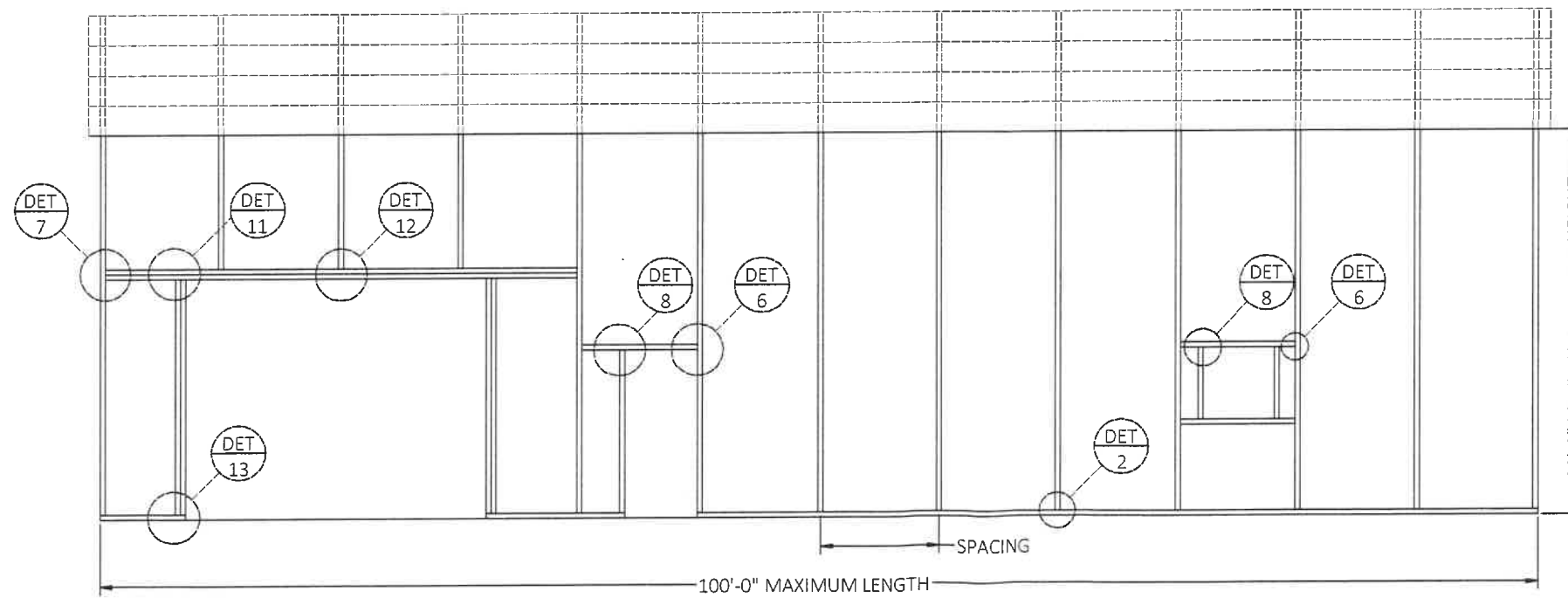
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SCALE: NTS 6 OF 12

*SEE PAGE 11 FOR
HEADER REQUIREMENT



SPACING = 5'-0" FOR WIND SPEEDS FROM 110 MPH TO 140 MPH
 SPACING = 4'-0" FOR WIND SPEEDS FROM 141 MPH TO 155 MPH
 TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION



SPACING = 5'-0" FOR WIND SPEEDS FROM 110 MPH TO 140 MPH
 SPACING = 4'-0" FOR WIND SPEEDS FROM 141 MPH TO 155 MPH
 TYPICAL BOX EAVE RAFTER SIDE WALL FRAMING SECTION

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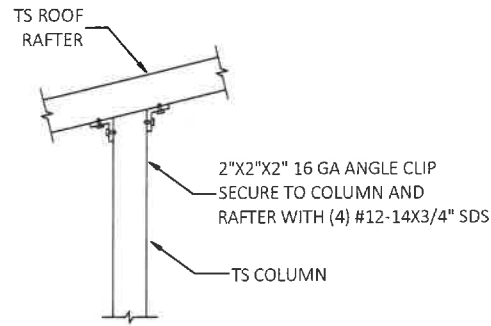
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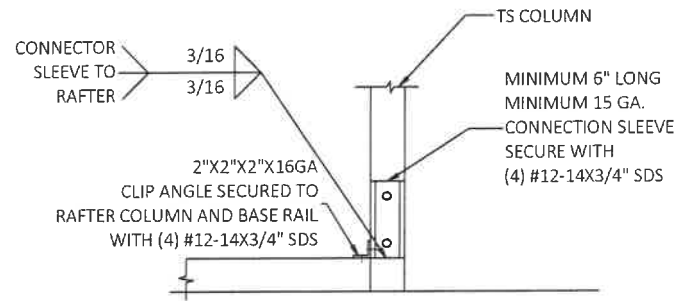
PROJECT ADDRESS:
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DESIGN DATE:	10/10/2023
REVISION 1:	DATE
REVISION 2:	DATE
DRAWN BY:	-
SCALE:	NTS

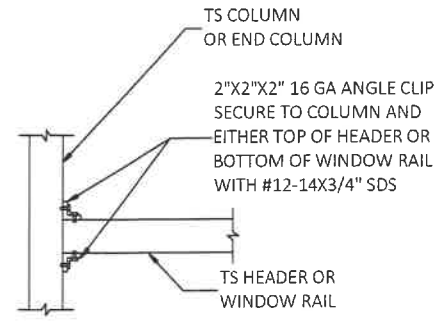
CONNECTION DETAILS



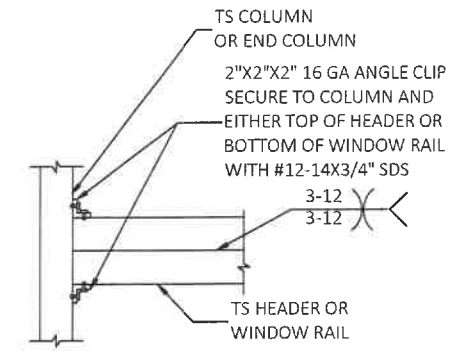
DETAIL 4
END COLUMN/RAFTER CONNECTION



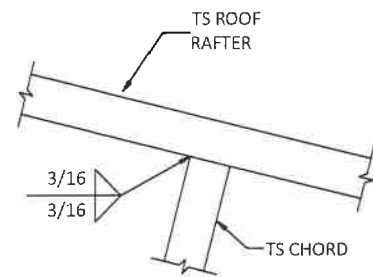
DETAIL 5
END POST/BASE RAIL CONNECTION



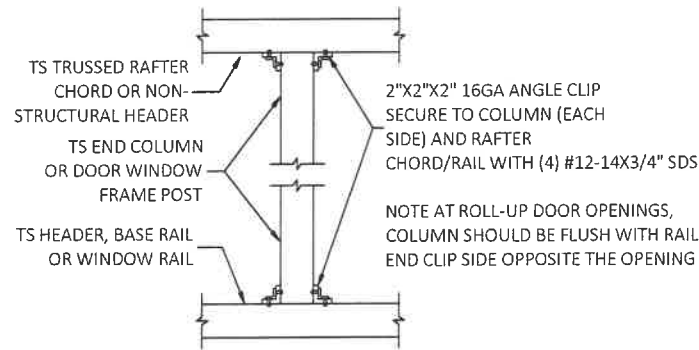
DETAIL 6
HEADER TO COLUMN CONNECTION



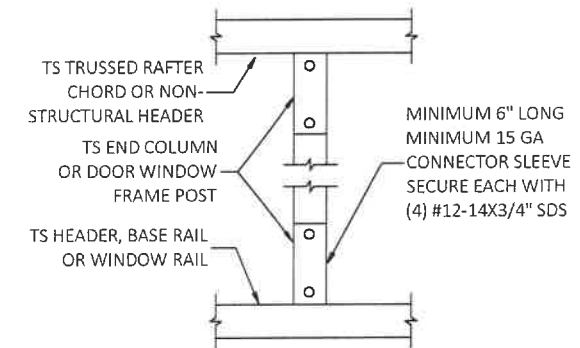
DETAIL 7
DOUBLE HEADER TO COLUMN CONNECTION



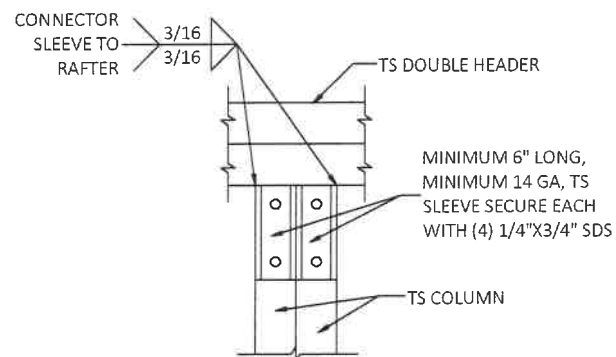
DETAIL 8
RAFTER TO CHORD CONNECTION



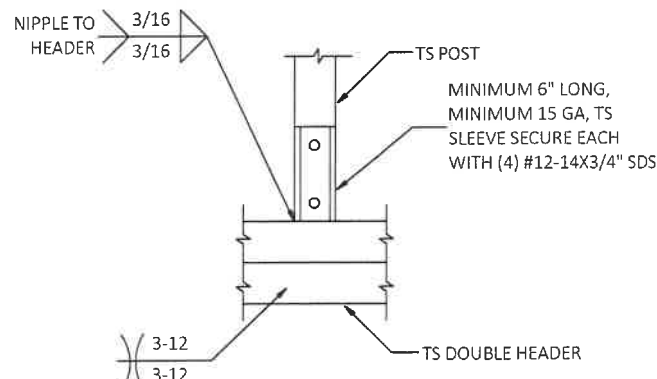
DETAIL 9
POST TO HEADER, BASE RAIL OR WINDOW RAIL CONNECTION
(OPTION-1)



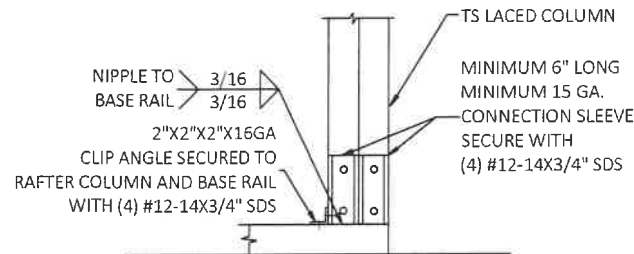
DETAIL 10
POST TO HEADER, BASE RAIL CONNECTION
(OPTION-2)



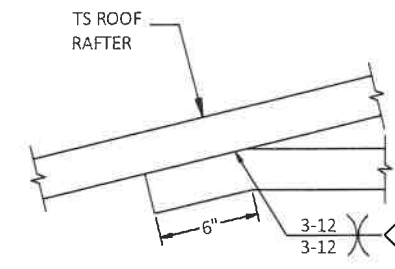
DETAIL 11
DOUBLE HEADER TO COLUMN CONNECTION



DETAIL 12
POST/DOUBLE HEADER CONNECTION



DETAIL 13
POST/BASE RAIL CONNECTION



DETAIL 14
COLLAR TIE CONNECTION

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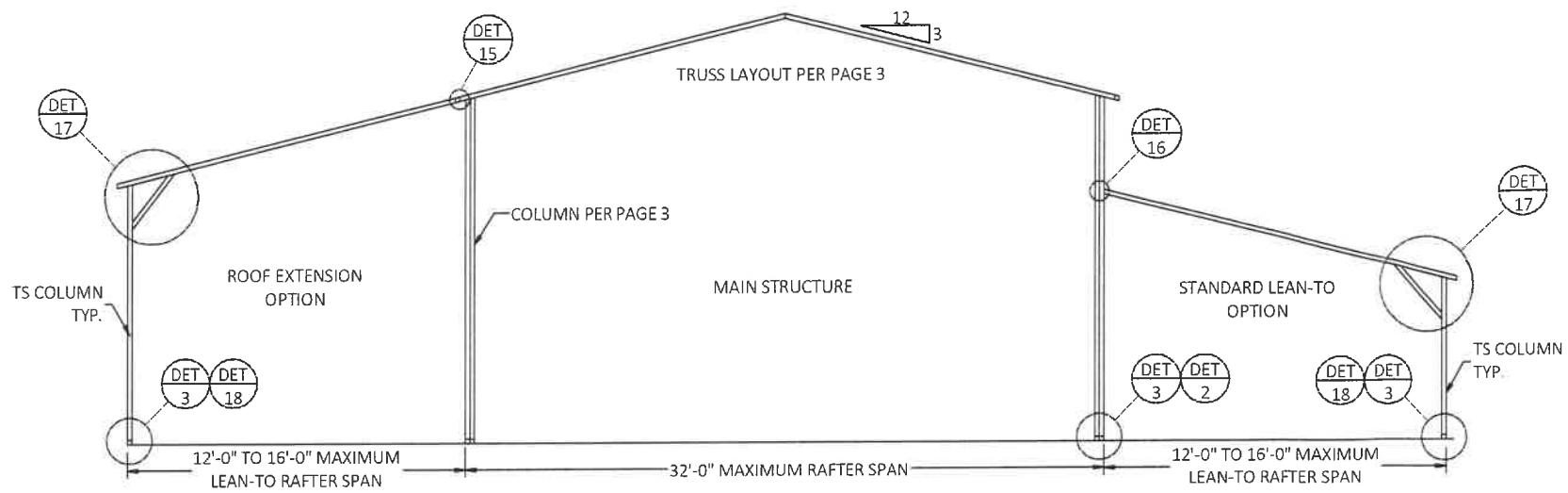
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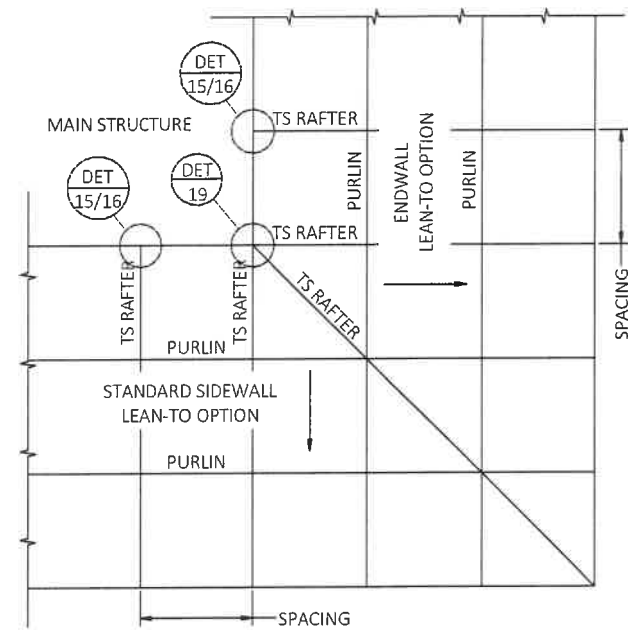
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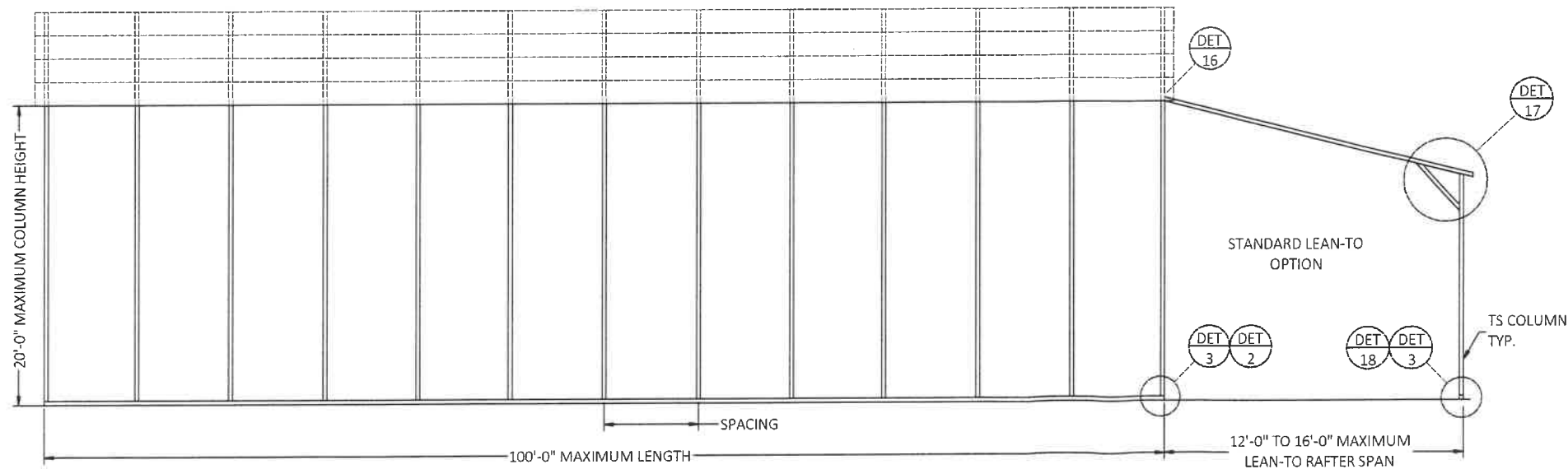
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TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION



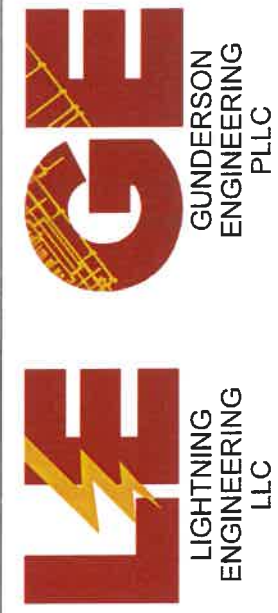
WRAP AROUND LEAN-TO FRAMING TOP VIEW



TYPICAL BOX EAVE ENDWALL LEAN-TO OPTIONS FRAMING SECTION

SPACING = 5'-0" FOR WIND SPEEDS FROM 110 MPH TO 140 MPH
 SPACING = 4'-0" FOR WIND SPEEDS FROM 141 MPH TO 155 MPH

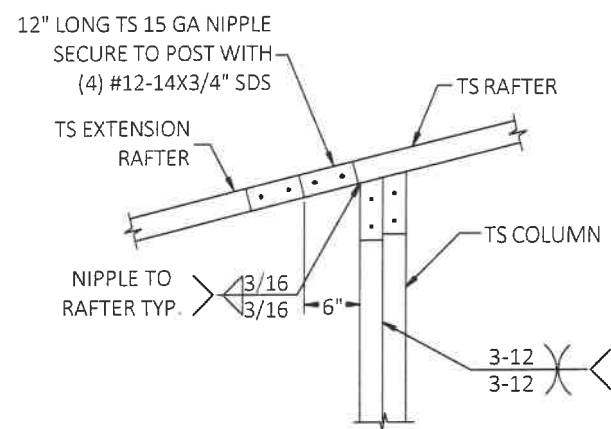
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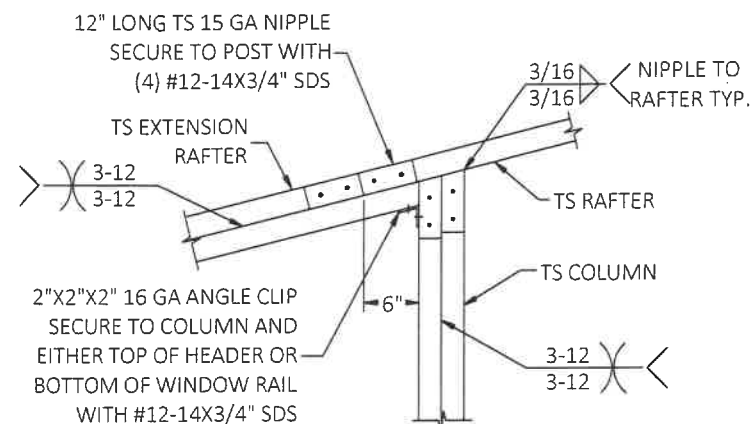
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DESIGN DATE:	10/10/2023	REVISION 1:	DATE
REVISION 2:	DATE	PAGE:	9 OF 12
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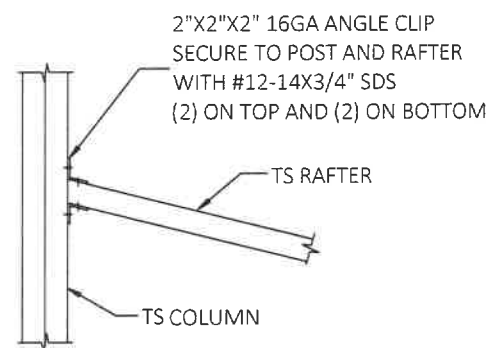
CONNECTION DETAILS



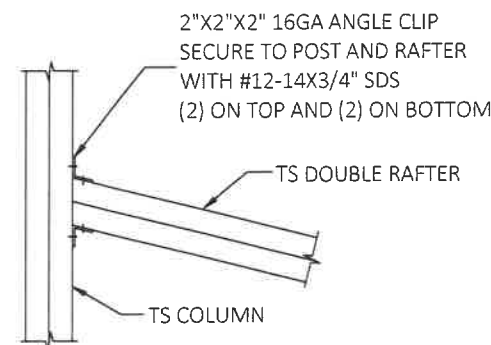
DETAIL 15A
SIDE EXTENSION RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS <=12'-0"



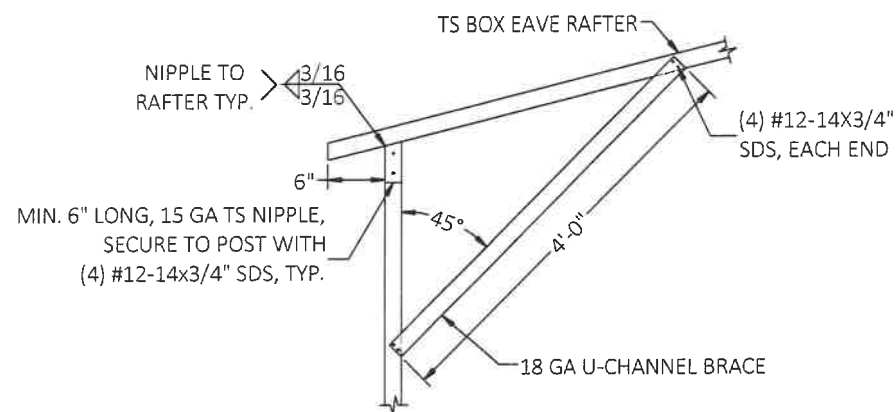
DETAIL 15B
SIDE EXTENSION RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS 12'-0" < TO <= 16'-0"



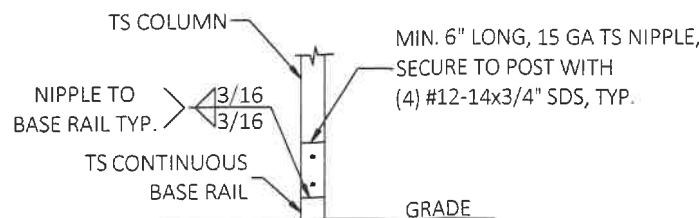
DETAIL 16A
LEAN TO RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS <=12'-0"



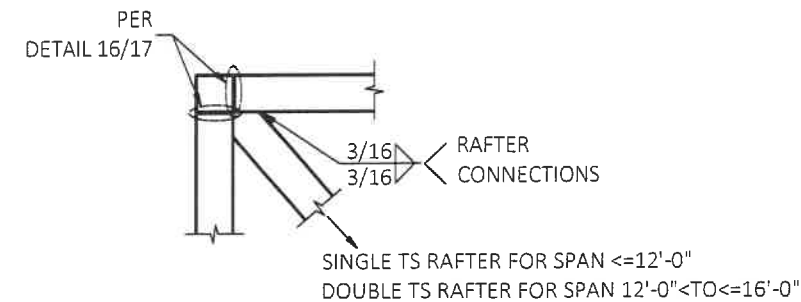
DETAIL 16B
LEAN TO RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS 12'-0" < TO <= 16'-0"



DETAIL 17
LEAN-TO RAFTER/CORNER POST CONNECTION



DETAIL 18
LEAN-TO POST CONNECTION



DETAIL 19
WRAP AROUND LEAN-TO RAFTER/COLUMN CONNECTION

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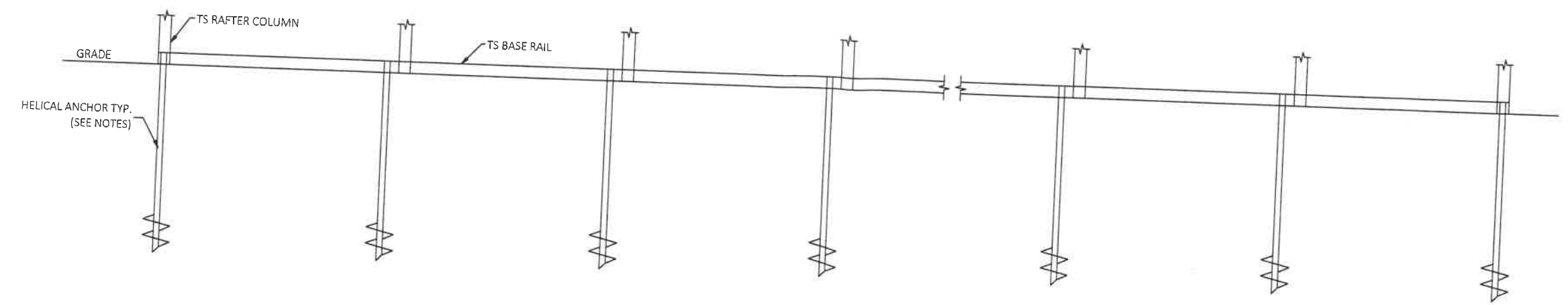
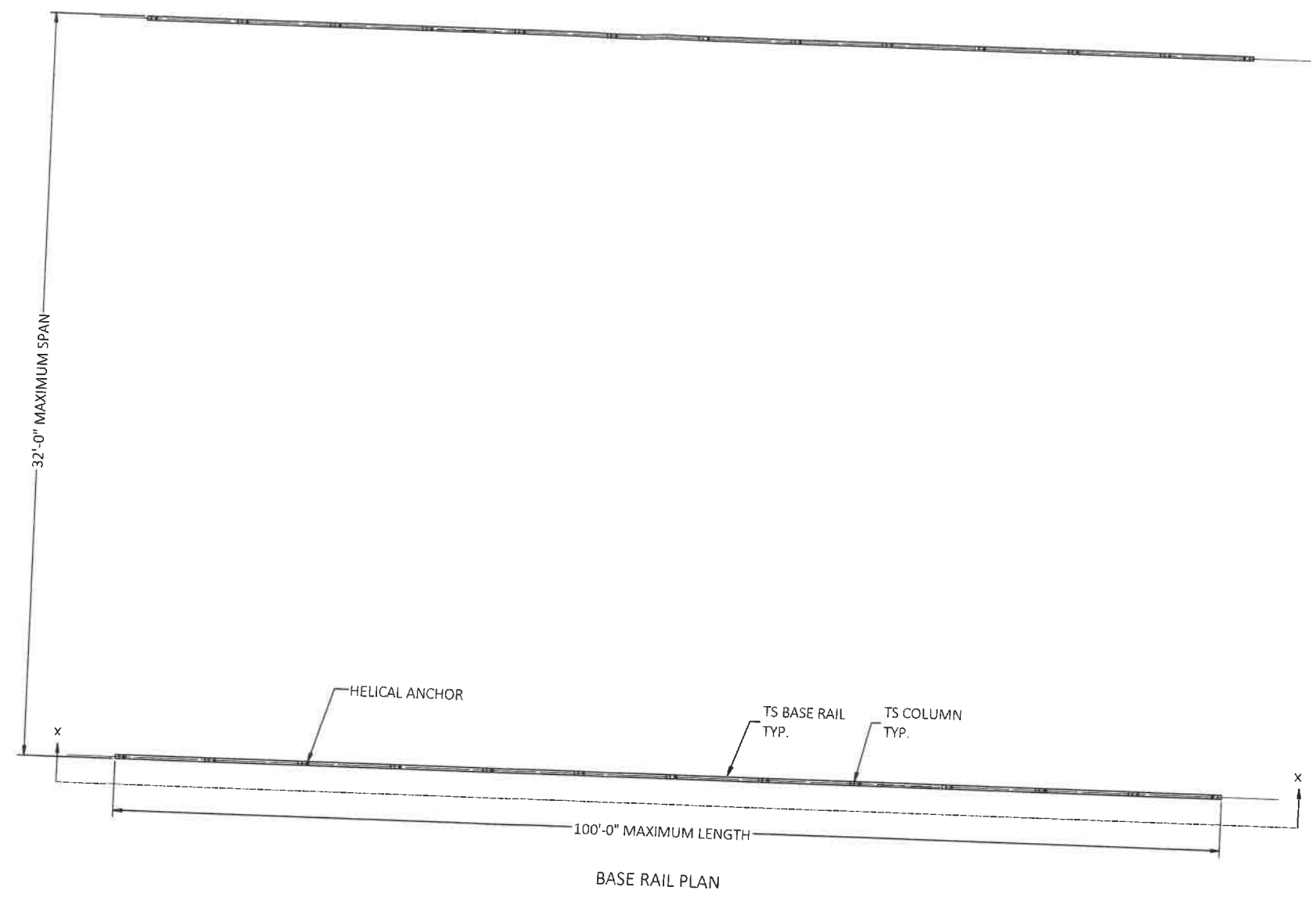
SCALE: NTS

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HELIX ANCHOR NOTES

1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 10'.
2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 5' OR EVERY POST (LEG).
3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.

OPTIONAL HELICAL ANCHORING DETAIL



SECTION X-X

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