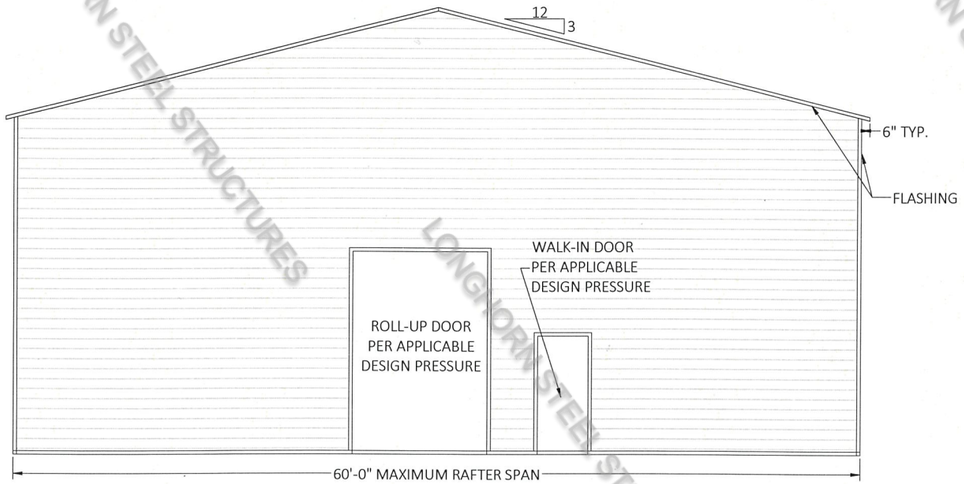
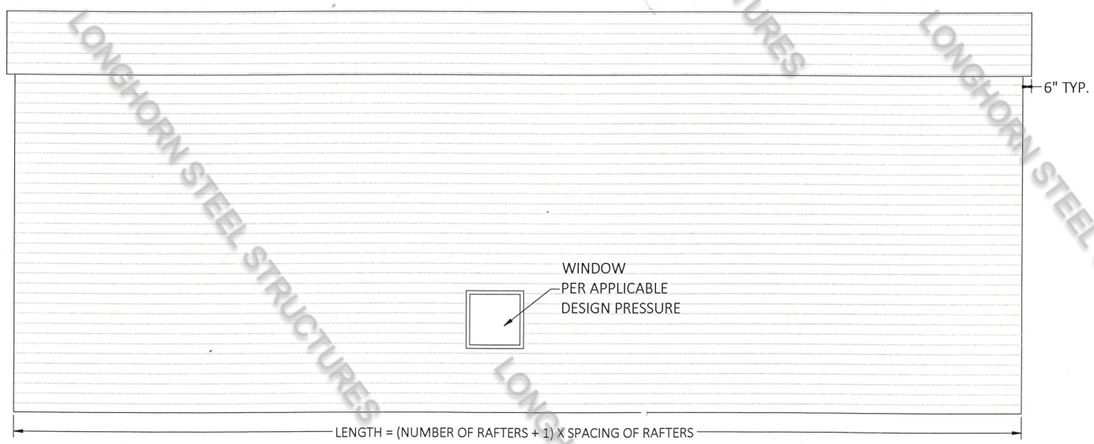
ENCLOSED METAL BUILDING DESIGN
MAXIMUM 80'-0" LONG X 60'-0" WIDE X 20'-0" HIGH (EAVE)
BOX EAVE FRAME



TYPICAL END ELEVATION - BOX EAVE



TYPICAL SIDE ELEVATION - HORIZONTAL ROOF

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LIGHTNING ENGINEERING LLC

FLORIDA ENGINEERING LLC

PROJECT NO. 2224405

CONTRACTOR:
LONGHORN STEEL STRUCTURES
109 BUCKEYE LANE,
PILOT MOUNTAIN, NC 27041

PROJECT ADDRESS:
32'-60' WIDE ENCLOSED

DESIGN DATE:	10/17/2022
REVISION 1:	DATE
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DRAWN BY:	SK
SCALE:	NTS

PAGE : 1 OF 12

APPLICABLE CODES
1. 2021 INTERNATIONAL BUILDING CODE
2. 2018 INTERNATIONAL BUILDING CODE
3. 2020 FLORIDA BUILDING CODE (7TH EDITION)
4. 2018 NORTH CAROLINA STATE BUILDING CODE
5. 2018 SOUTH CAROLINA BUILDING CODE: BUILDING

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 = 10 PSF
2. ROOF LIVE LOAD = 12 PSF
3. FLOOR LIVE LOAD = 100 PSF
4. GROUND SNOW LOAD = 35 PSF
5. WIND LOAD (SEE TABLE 1)
A. RISK CATEGORY = II
B. WIND EXPOSURE CATEGORY = C
C. ULTIMATE WIND SPEED = 110 MPH TO 150 MPH
NOMINAL WIND SPEED = 85 MPH TO 116 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 APROVED 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. 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 14° (3:12 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 145 MPH.
10. RAFTER SPACING IS 5'-0" MAX.
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

ALABAMA LICENSED No. 51051 PROFESSIONAL ENGINEER KASHISH HARISH VIG

Kashish H. Vig, P.E. #51051
CA CERT. #ECA5540

DATE: 10/17/2022

KASHISH HARISH VIG LICENSE No. 93529 STATE OF FLORIDA PROFESSIONAL ENGINEER

Kashish H. Vig, P.E. #93529
CA CERT. #30782

DATE: 10/17/2022

GEORGIA REGISTERED No. PE048585 PROFESSIONAL ENGINEER KASHISH HARISH VIG

Kashish H. Vig, P.E. #48585
CA CERT. #PEF007324

DATE: 10/17/2022

NORTH CAROLINA PROFESSIONAL SEAL 054610 ENGINEER KASHISH HARISH VIG

Kashish H. Vig, P.E. #54610
CA CERT. #P-2016

DATE: 10/17/2022

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 40439 KASHISH HARISH VIG

Kashish H. Vig, P.E. #40439
CA CERT. #6921

DATE: 10/17/2022

KASHISH HARISH VIG REGISTERED ENGINEER AGRICULTURE COMMERCE No. 126476 STATE OF TENNESSEE

Kashish H. Vig, P.E. #126476
CA CERT. #9631

DATE: 10/17/2022

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PROJECT ADDRESS: 32'-60' WIDE ENCLOSED

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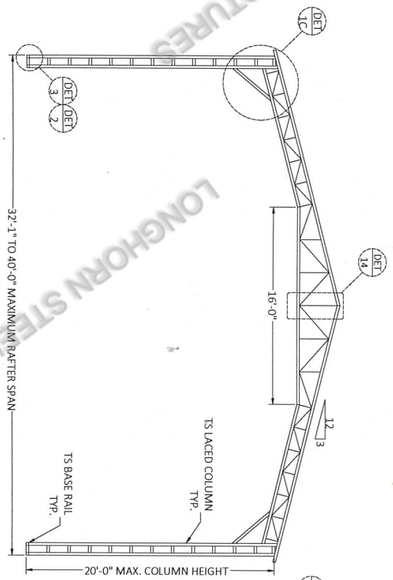
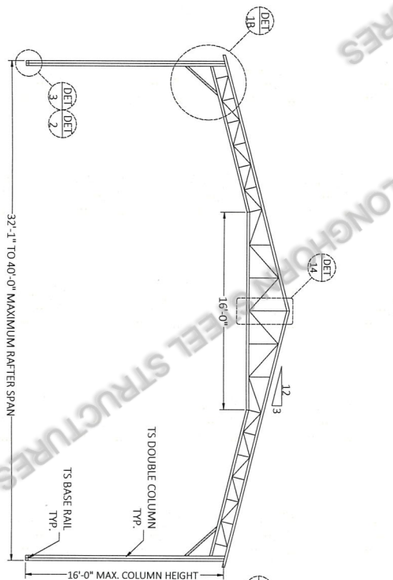
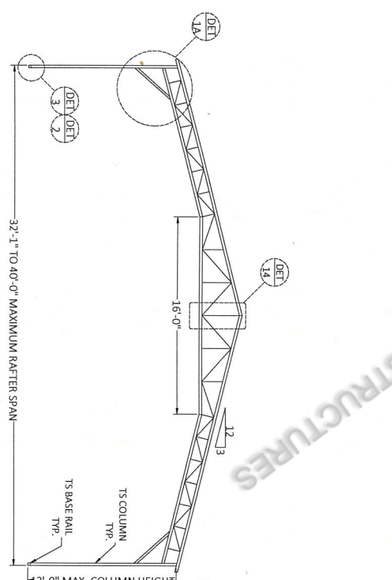
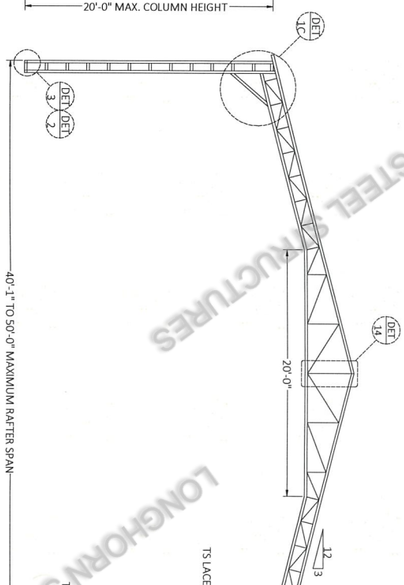
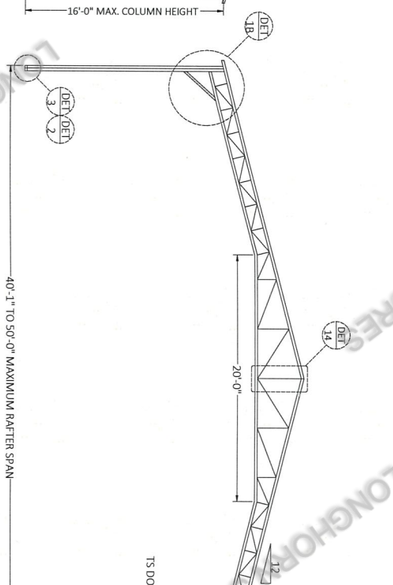
FOR ALL POST HEIGHT	
BUILDING LENGTH	TRUSS BOTTOM CHORD
<= 60'-0"	2.5X2.5X14 GA
60'-1" TO 80'-0"	(2)2.5X2.5X14 GA

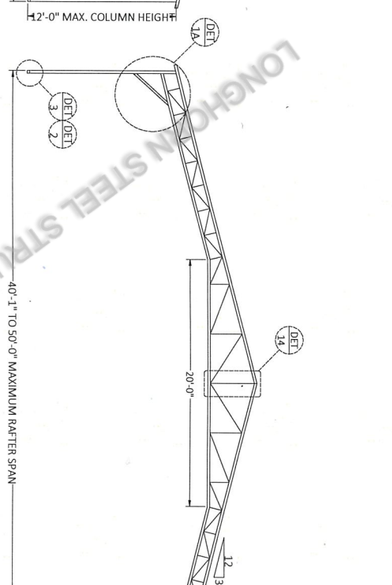


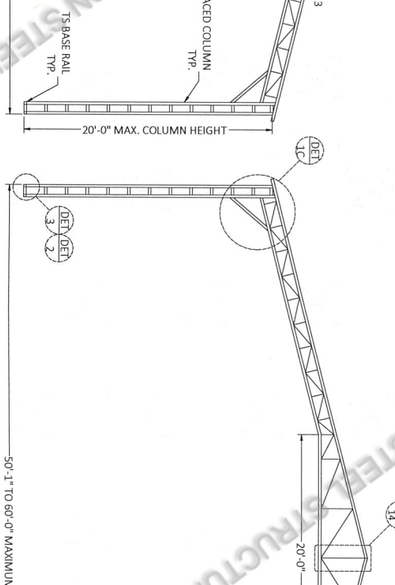


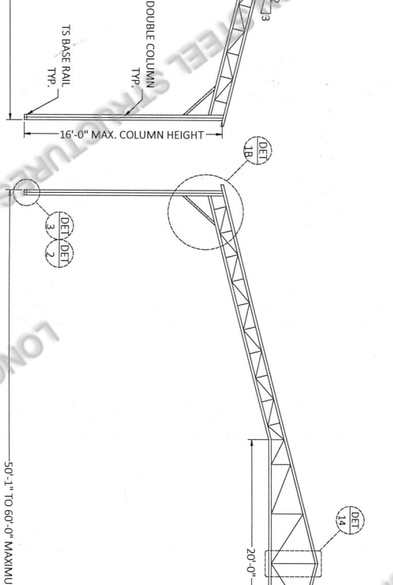


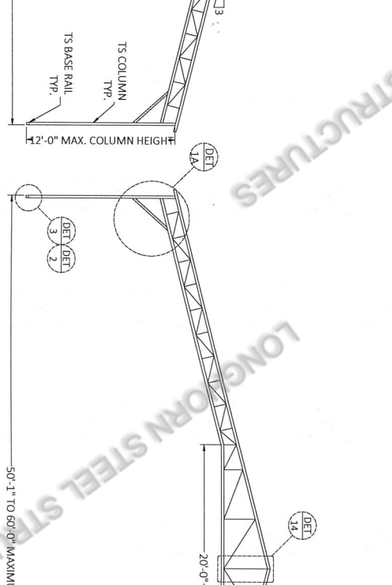












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GUNDERSON ENGINEERING

PROJECT NO. 2224405

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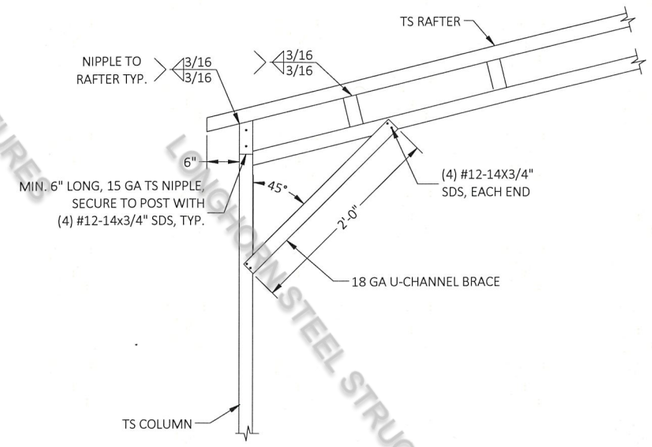
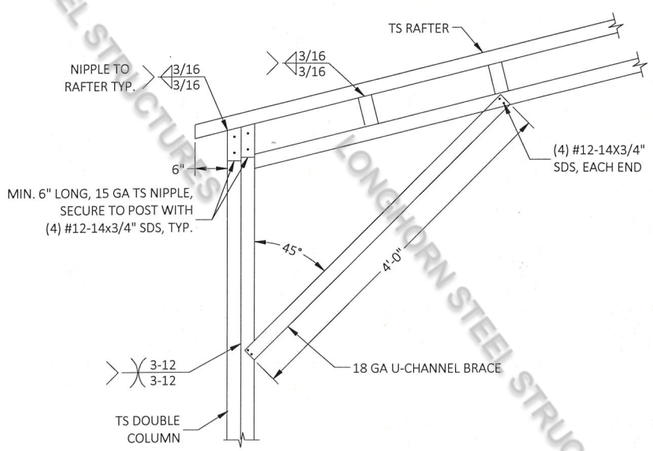
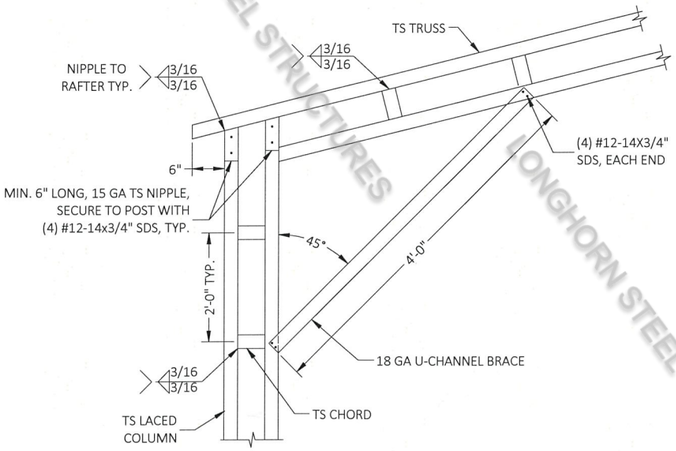


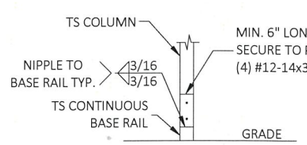
DETAIL 1A
BOX EAVE RAFTER/CORNER POST CONNECTION
60'(MAX.)W X 12'H



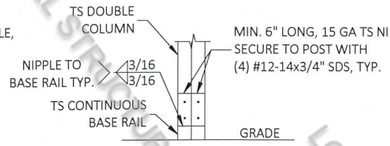
DETAIL 1B
BOX EAVE RAFTER/CORNER POST CONNECTION
60'(MAX.)W X 16'H



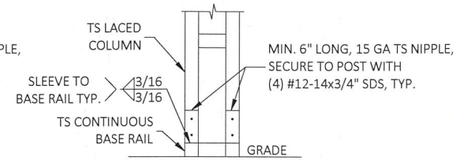
DETAIL 1C
BOX EAVE RAFTER/CORNER POST CONNECTION
60'(MAX.)W X 20'H



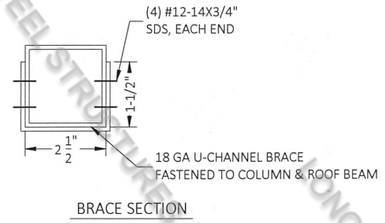
DETAIL 2A
POST/BASE RAIL CONNECTION



DETAIL 2B
POST/BASE RAIL CONNECTION



DETAIL 2C
POST/BASE RAIL CONNECTION



BRACE SECTION

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GENERAL NOTES

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

CONCRETE

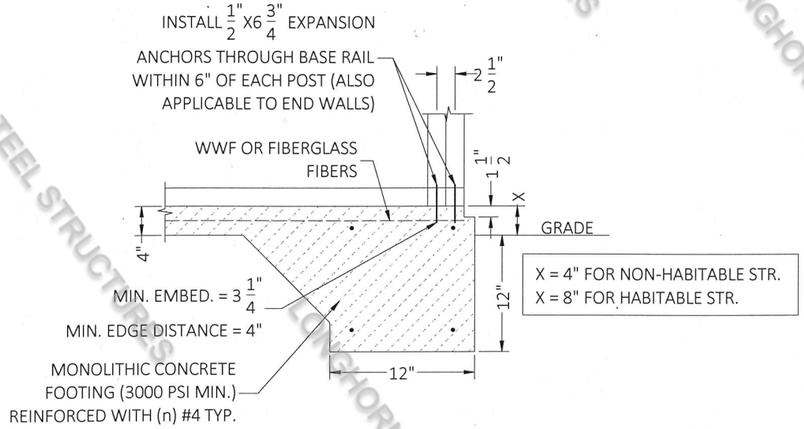
MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI

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 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.

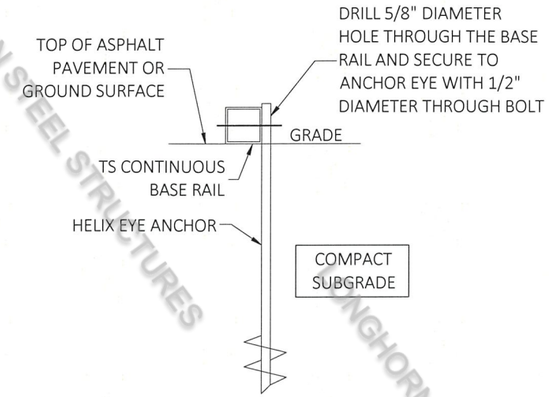
HELIX ANCHOR NOTES

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.
2. FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" EMBEDMENT.
3. FOR VERY LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT.



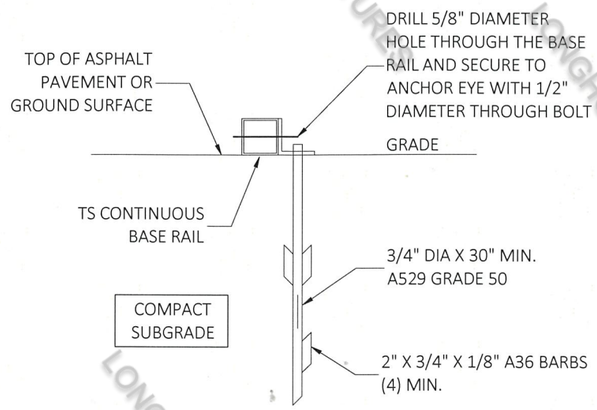
DETAIL 3A

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE



DETAIL 3B

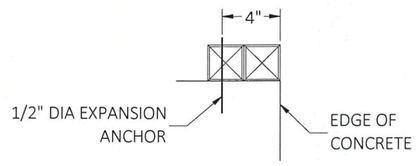
GROUND BASE HELIX ANCHORAGE



DETAIL 3C

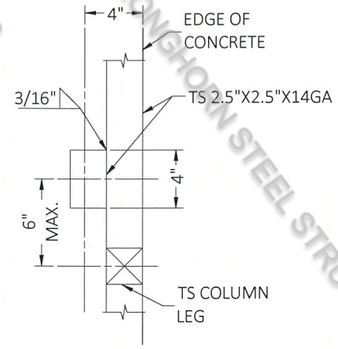
ASPHALT BASE ANCHORAGE

(HP 9 BARBED DRIVE ANCHOR)



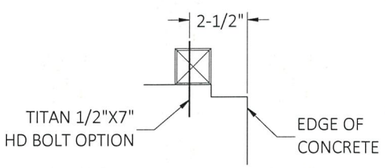
SECTION

(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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*SEE PAGE 11 FOR
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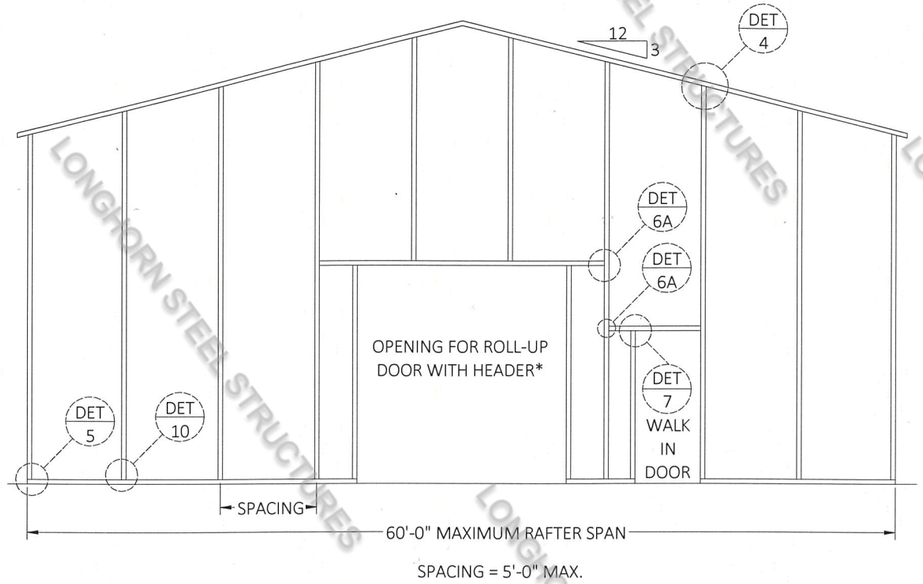
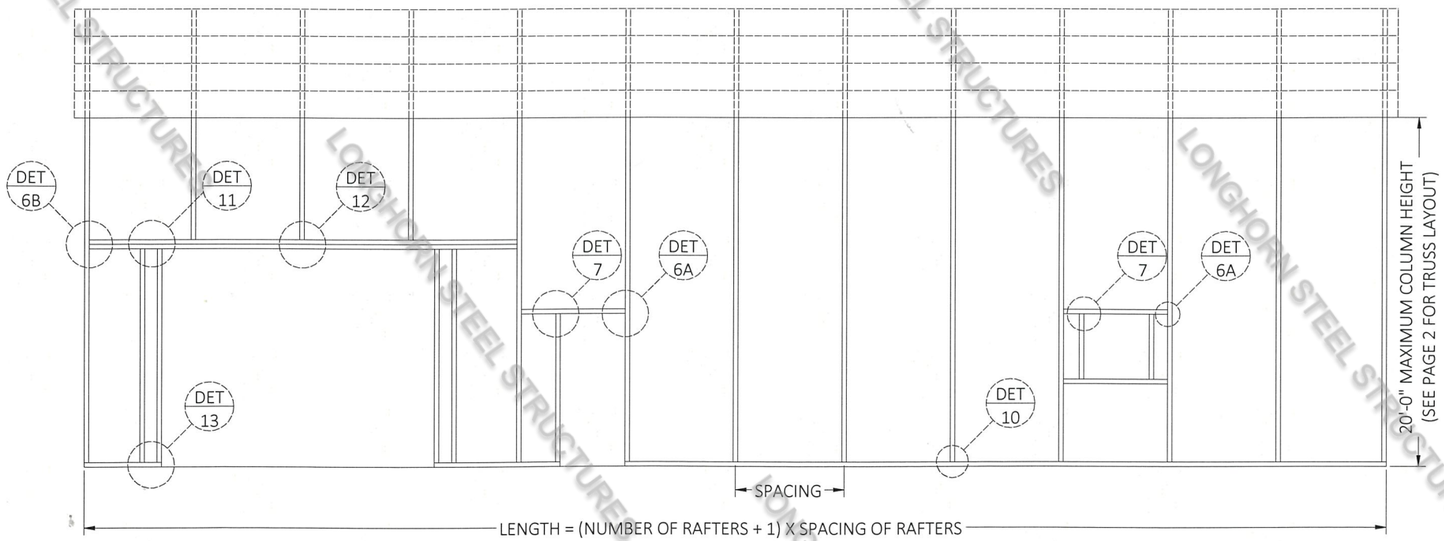


SPACING = 5'-0" MAX.

TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION



SPACING = 5'-0" MAX.

TYPICAL BOX EAVE RAFTER SIDE WALL FRAMING SECTION

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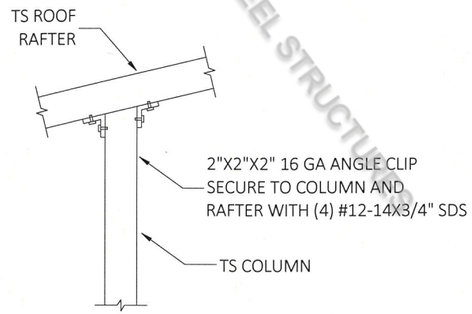
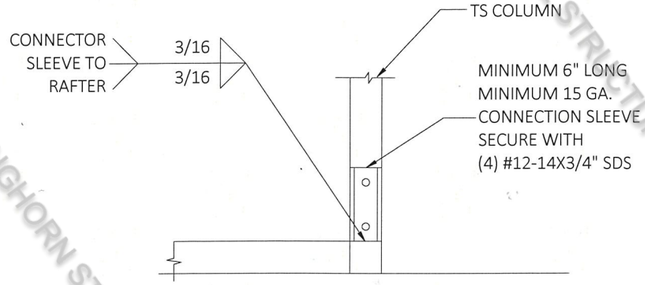
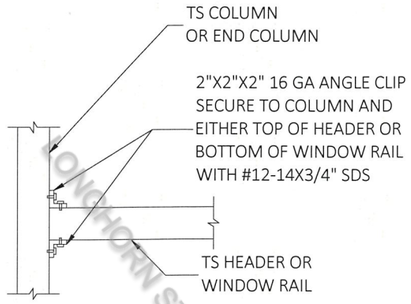
CONNECTION DETAILS



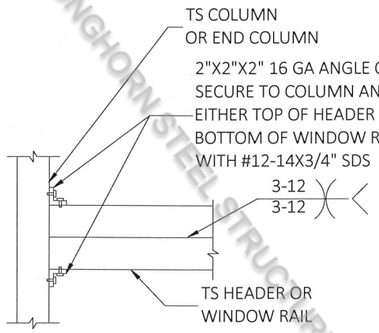
DETAIL 4
END COLUMN/RAFTER CONNECTION



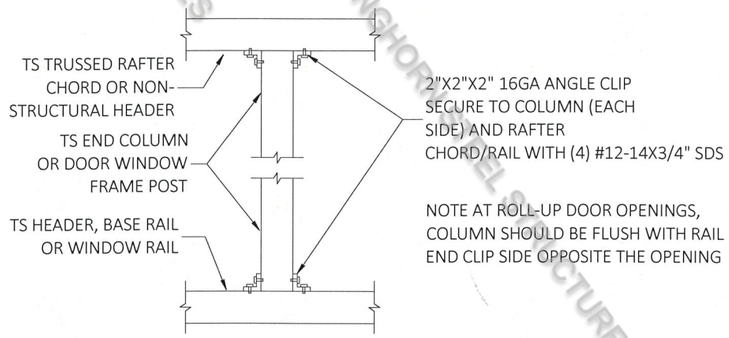
DETAIL 5
END POST/BASE RAIL CONNECTION



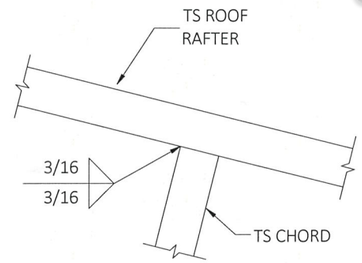
DETAIL 6A
HEADER TO COLUMN CONNECTION



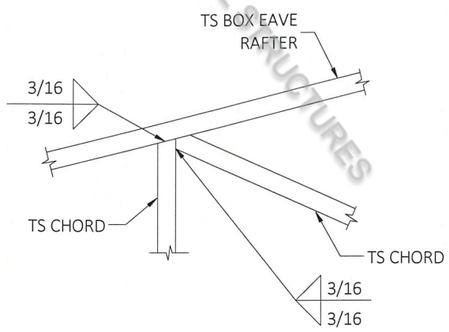
DETAIL 6B
DOUBLE HEADER TO COLUMN CONNECTION



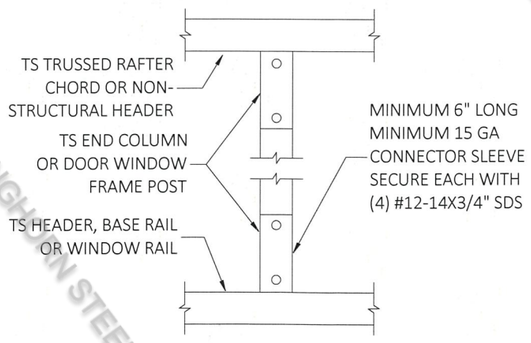
DETAIL 7
POST TO HEADER, BASE RAIL OR WINDOW RAIL CONNECTION



DETAIL 8
RAFTER TO CHORD CONNECTION



DETAIL 9
TRUSS POST AND CHORD TO RAFTER CONNECTION



DETAIL 10
POST TO HEADER, BASE RAIL CONNECTION

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PROJECT NO. 2224405

CONTRACTOR:
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109 BUCKEYE LANE,
PILOT MOUNTAIN, NC 27041

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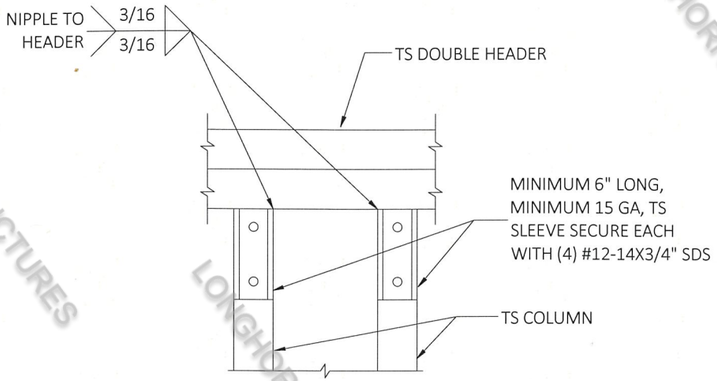
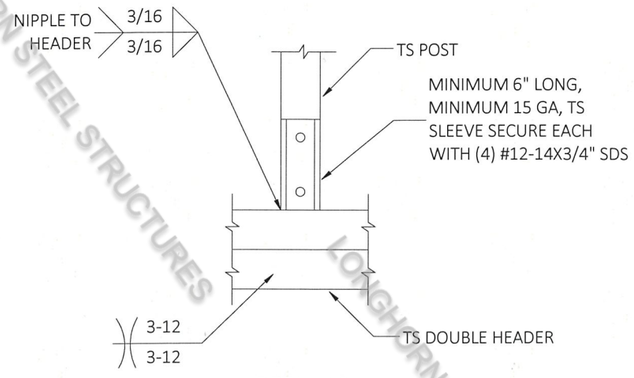
SCALE:	NTS

PAGE : 7 OF 12

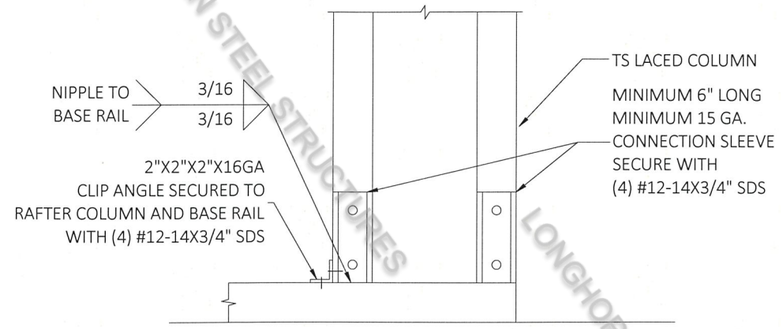
CONNECTION DETAILS



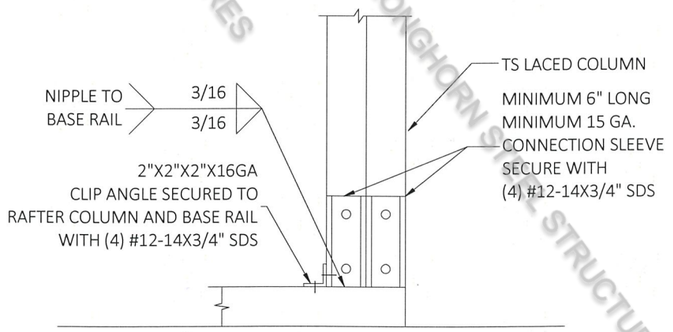
DETAIL 11
DOUBLE HEADER TO POST CONNECTION



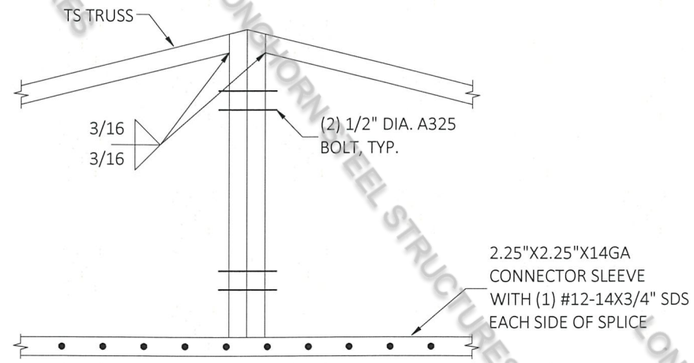
DETAIL 12
POST/DOUBLE HEADER CONNECTION



DETAIL 13A
POST/BASE RAIL CONNECTION



DETAIL 13B
POST/BASE RAIL CONNECTION



DETAIL 14
SPLICE CONNECTION

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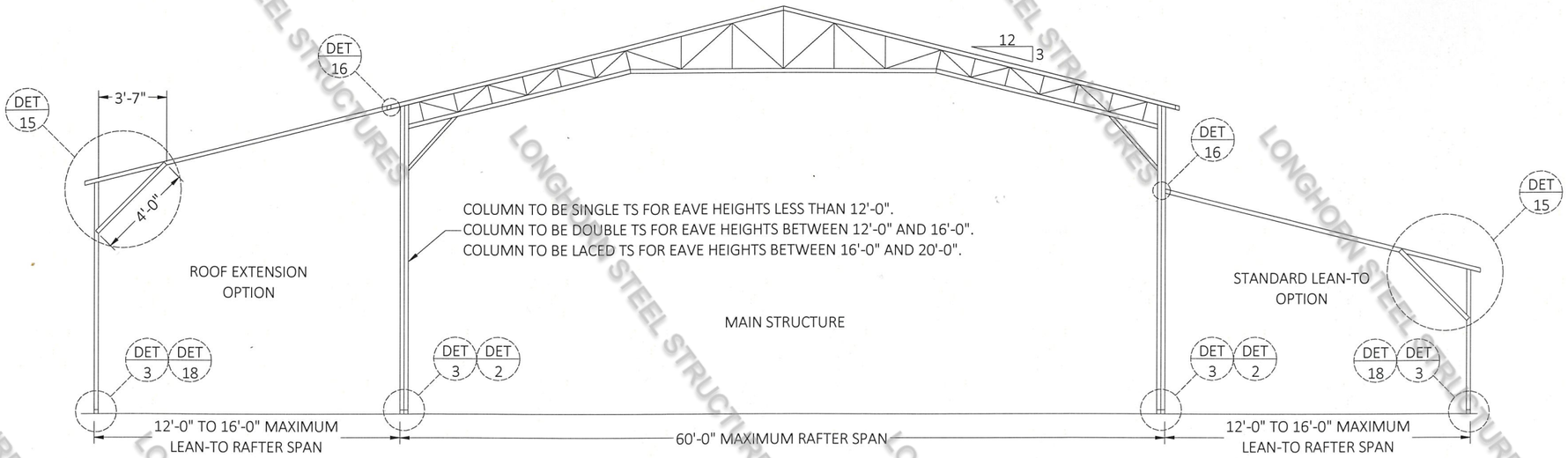
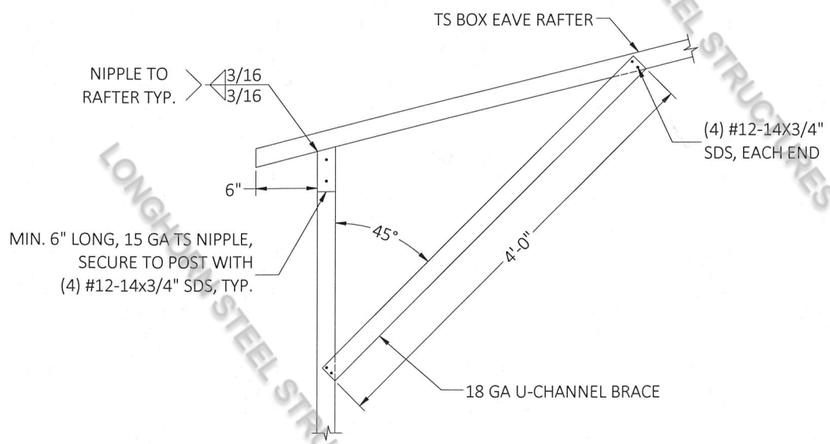


TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION



DETAIL 15
LEAN-TO RAFTER/CORNER POST CONNECTION

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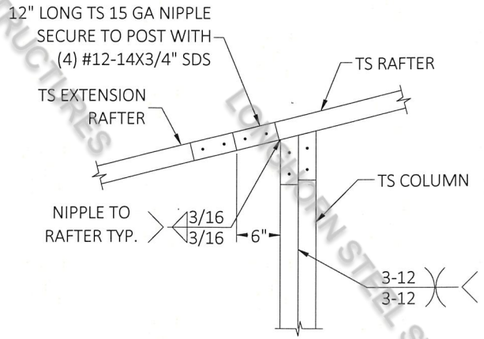
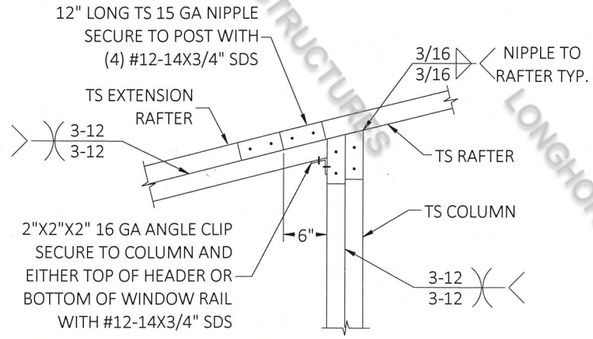


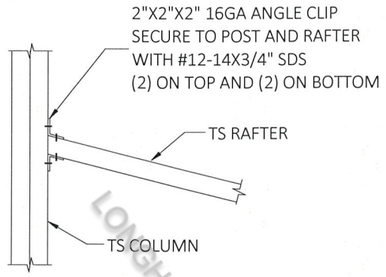
DETAIL 16A

SIDE EXTENSION RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS LESS THAN 12'-0"



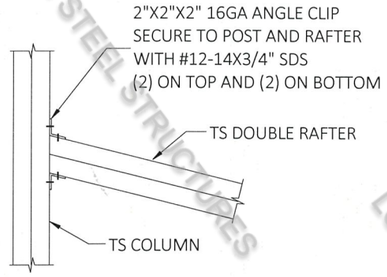
DETAIL 16B

SIDE EXTENSION RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS BETWEEN 12'-0" AND 16'-0"



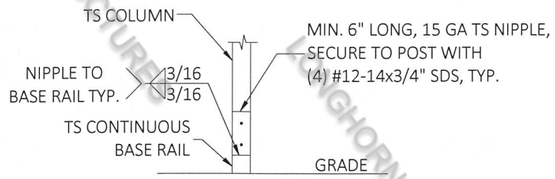
DETAIL 17A

LEAN TO RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS LESS THAN 12'-0"



DETAIL 17B

LEAN TO RAFTER/COLUMN CONNECTION
FOR RAFTER SPANS BETWEEN 12'-0" AND 16'-0"



DETAIL 18

LEAN-TO POST CONNECTION

COLUMN TO BE SINGLE TS FOR EAVE HEIGHTS LESS THAN 10'-0".
COLUMN TO BE DOUBLE TS FOR EAVE HEIGHTS BETWEEN 10'-0" AND 16'-0".
COLUMN TO BE LACED TS FOR EAVE HEIGHTS BETWEEN 16'-0" AND 20'-0".

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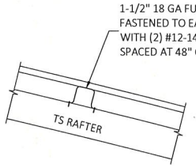
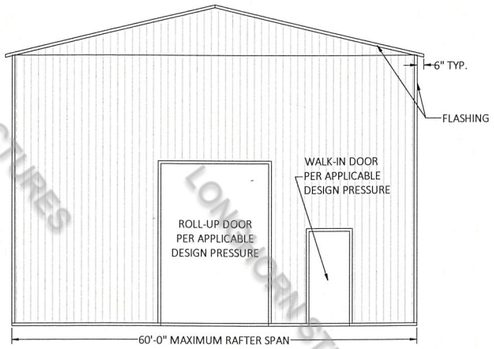
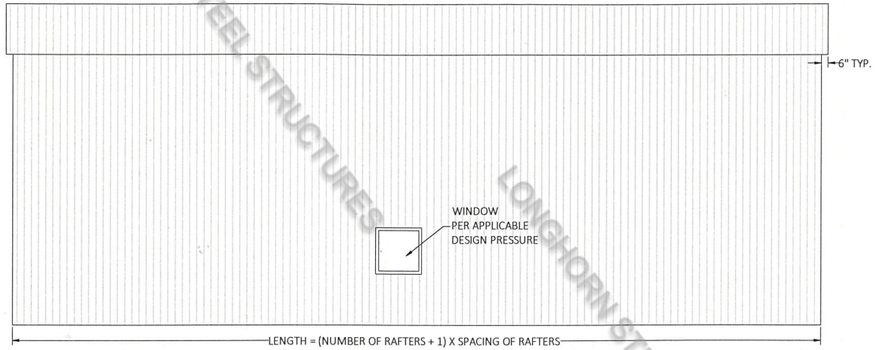


PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)

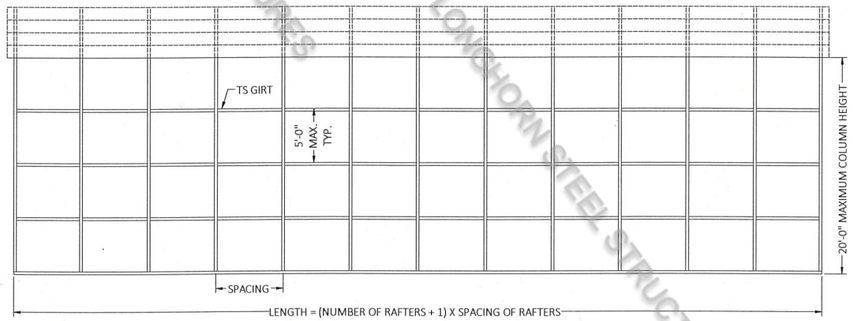


TYPICAL END ELEVATION - VERICAL ROOF/SIDING



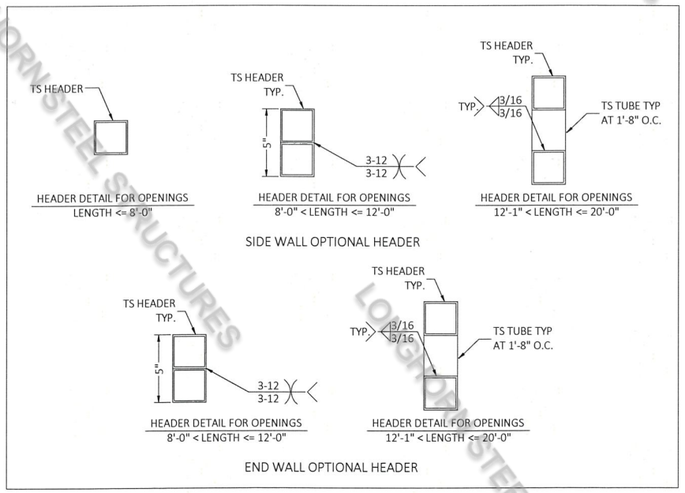
TYPICAL SIDE ELEVATION - VERTICAL ROOF/SIDING

BOX EAVE FRAME RAFTER ENCLOSED BUILDING



SPACING = 5'-0" MAX.
1-1/2" 18 GA HAT CHANNELS CAN BE USED IN LIEU OF TS FOR GIRTS.

TYPICAL RAFTER/POST SIDE FRAME SECTION



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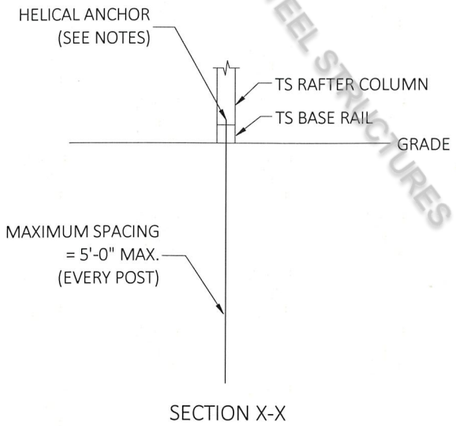
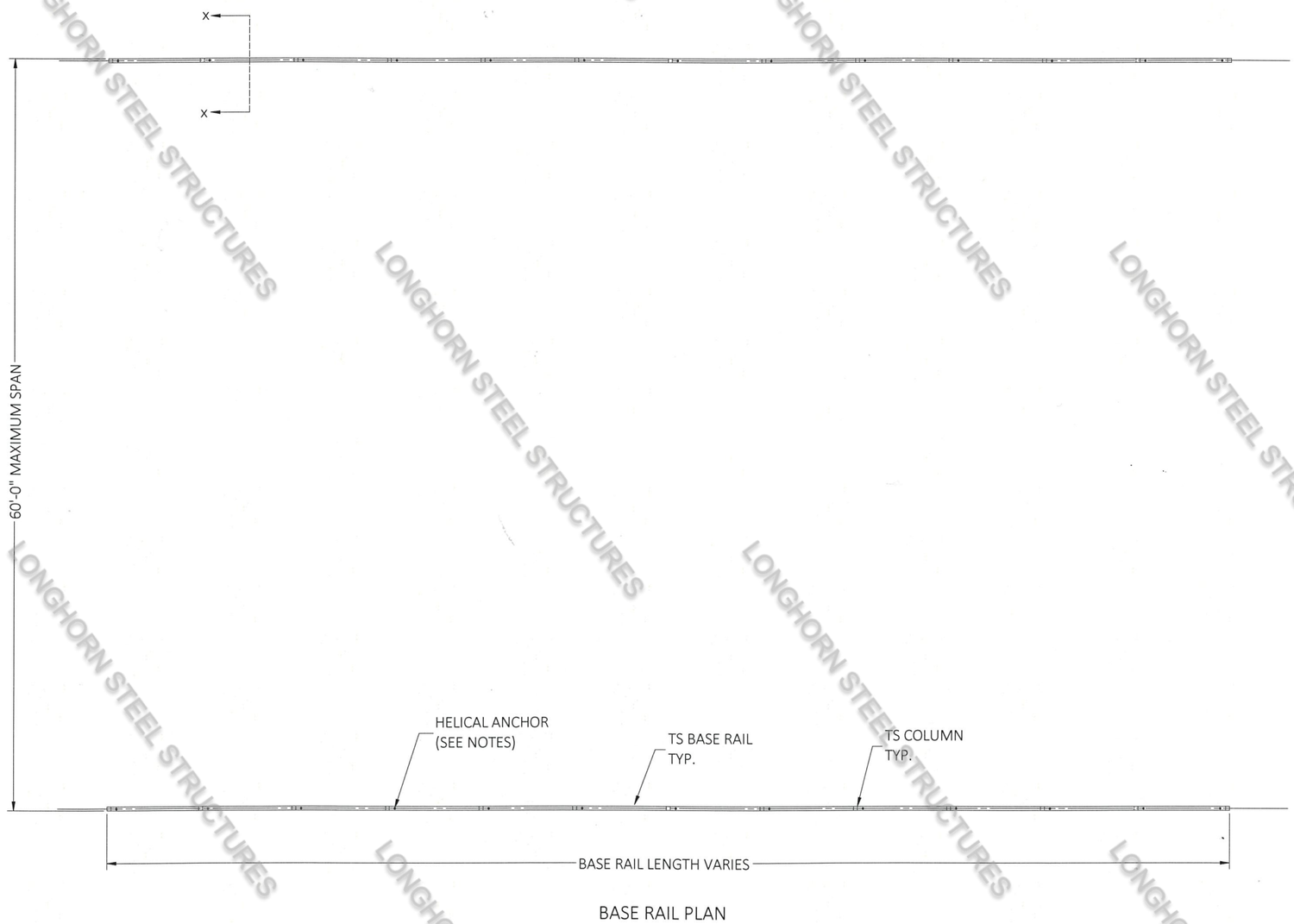
OPTIONAL HELICAL ANCHORING DETAIL

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.
2. FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" EMBEDMENT.
3. FOR VERY LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT.



SECTION X-X



BASE RAIL PLAN

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