



**STRUCTURAL DESIGN  
ENCLOSED BUILDING**

**MAXIMUM 30'-0" WIDE X 14'-0" EAVE HEIGHT-  
BOX EAVE FRAME AND BOW FRAME**

**HIGH WIND SPEED (140 MPH < VULT ≤ 170 MPH) PACKAGE FOR  
THE STATES OF FLORIDA, SOUTH CAROLINA AND GEORGIA**

**12 February 2021  
Revision 6**

**M&A Project No. 15079S/16195S/17155S/17200S/18068S/20019S/20324S**

**Prepared for:**

**Steel Buildings and Structures, Inc.  
P.O. Box 1287  
Mt. Airy, NC 27030**

**Prepared by:**

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**Wayne  
S Moore**

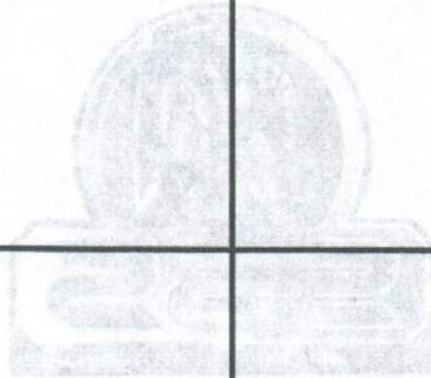
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STRUCTURAL DESIGN  
ENCLOSED BUILDING

MAXIMUM 30'-0" WIDE X 14'-0" EAVE HEIGHT

BOX EAVE FRAME AND ROW FRAME

HIGH WIND SPEEDS (40 MPH < UTL < 170 MPH) BACKLASH FOR  
THE STATES OF FLORIDA, SOUTH CAROLINA AND GEORGIA

12 February 2021

Revision 6

FILE # Project No. 15075216152A / 15521710821808 / 150018520124



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PROJECT MGR: WSM

CLIENT: SBSI

STEEL BUILDINGS AND STRUCTURES, INC.  
P.O. BOX 1287,  
MOUNT AIRY, NC 27030  
30'-0"x14'-0" HW ENCLOSED STRUCTURE

DATE: 2-12-21

SHT. 1

SCALE: NTS

DWG. NO SK-3

JOB NO 17200S/  
18068S/20019S/20324S

REV: 6

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	CLIENT: SBSI	SHT. 2	DWG. NO: SK-3	REV: 6	

## INSTALLATION NOTES AND SPECIFICATIONS

- 1 DESIGN IS FOR MAXIMUM 30'-0" WIDE x 14'-0" EAVE HEIGHT ENCLOSED STRUCTURES
- 2 DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2012 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC AND 2018 IBC
- 3 DESIGN LOADS ARE AS FOLLOWS:
  - A) DEAD LOAD = 15 PSF
  - B) LIVE LOAD = 12 PSF
  - C) GROUND SNOW LOAD = 10 PSF

NOTE: (UNBALANCED SNOW LOADS DUE TO DRIFTING HAVE NOT BEEN EVALUATED)
- 4 3-SECOND GUST HIGH ULTIMATE WIND SPEED = 141 TO 170 MPH (NOMINAL WIND SPEED = 108 TO 132 MPH)
- 5 MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 40 FEET (UNLESS NOTED OTHERWISE)
6. END WALL COLUMNS (POSTS) ARE EQUIVALENT TO SIDE WALL POSTS IN SIZE AND SPACING (UNLESS NOTED OTHERWISE)
- 7 RISK CATEGORY I
8. WIND EXPOSURE CATEGORY B.
9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS. (UNLESS NOTED OTHERWISE)
- 10 AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR AND EDGE) = 8 INCHES; 6 INCHES (FL)
- 11 FASTENERS CONSIST OF 1/4"x3/4" 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 ROOF SLOPES LESS THAN 3:12 REQUIRE USE OF LAP JOINT SEALANT
- 12 GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6' OF EACH RAFTER COLUMN ALONG SIDES.
13. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
  - SOIL SITE CLASS = D
  - RISK CATEGORY I
  - R = 3.25                      I<sub>E</sub> = 1.0
  - S<sub>DS</sub> = 2.039 g              V = C<sub>s</sub>W
  - S<sub>D1</sub> = 1.258 g
- 14 WINDOW AND DOOR DESIGN PRESSURES ARE APPLICABLE TO THE STATE OF FLORIDA ONLY



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**DATE: 2-12-21**

**SCALE: NTS**

**SHT. 3**

**DWG. NO: SK-3**

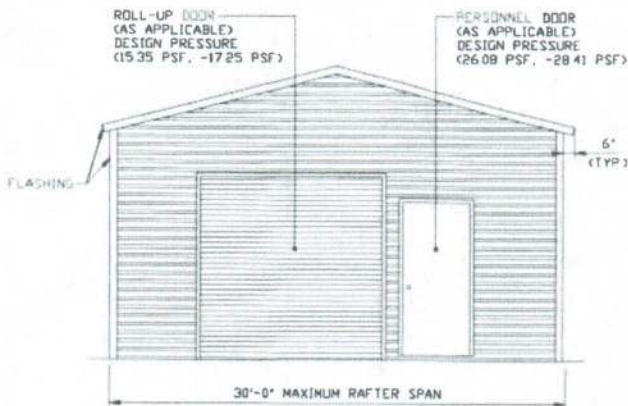
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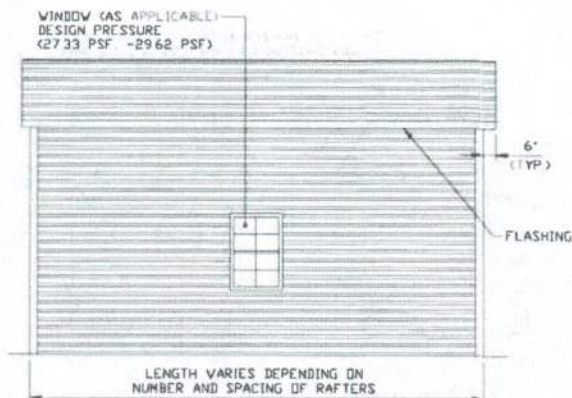
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### BOX EAVE FRAME RAFTER STRUCTURE

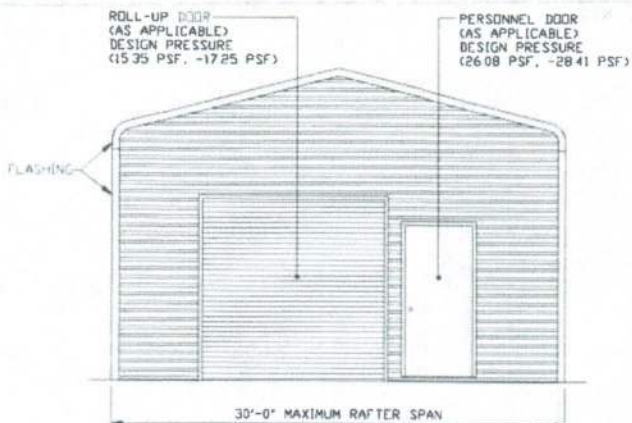


**TYPICAL END ELEVATION-HORIZONTAL ROOF**  
SCALE: NTS

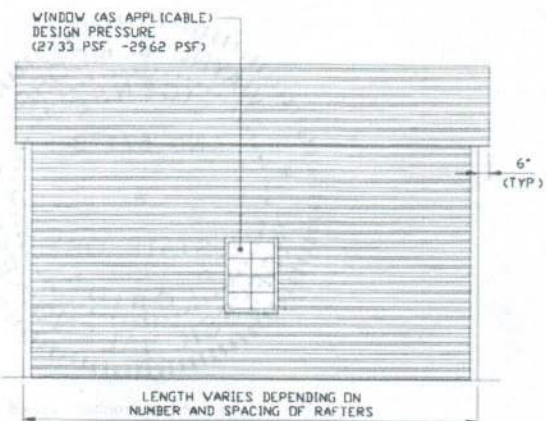


**TYPICAL SIDE ELEVATION-HORIZONTAL ROOF**  
SCALE: NTS

### BOX EAVE FRAME RAFTER STRUCTURE



**TYPICAL END ELEVATION**  
SCALE: NTS



**TYPICAL SIDE ELEVATION**  
SCALE: NTS



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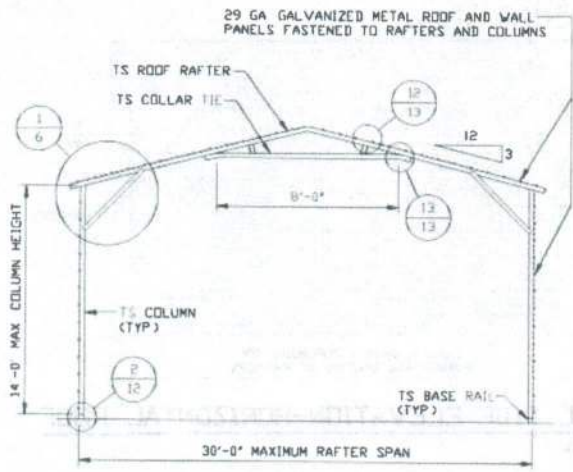
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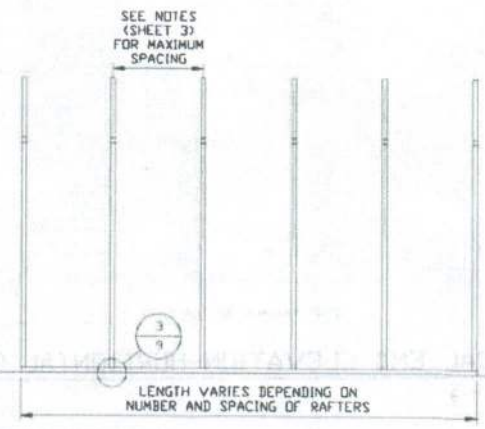
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**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS

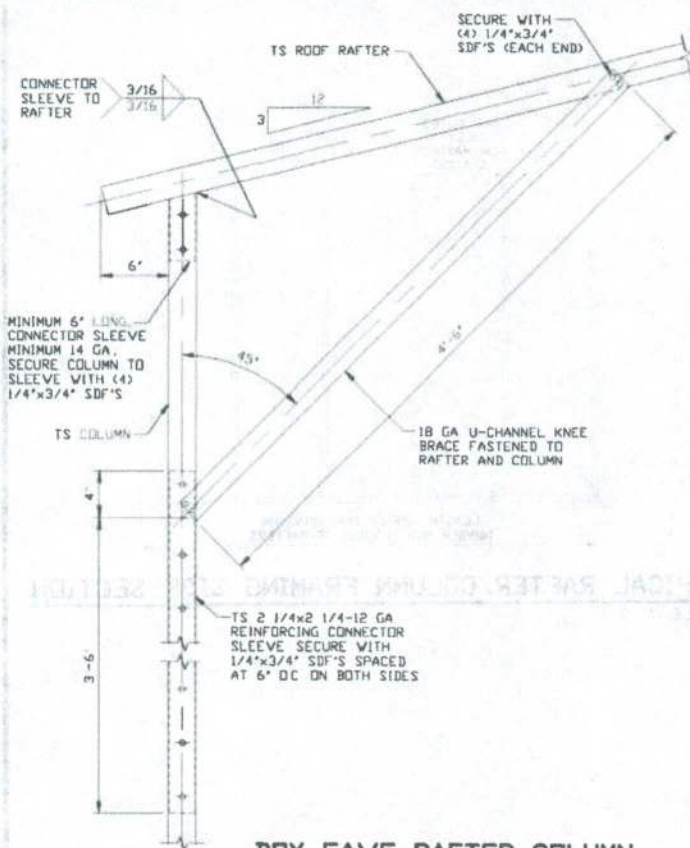


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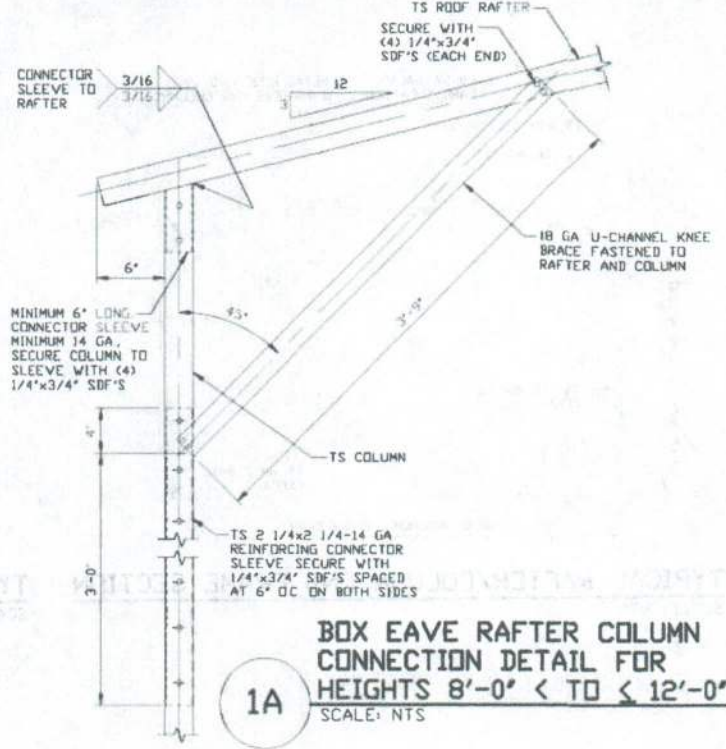
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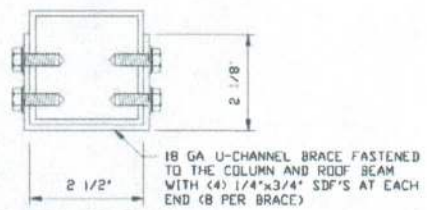




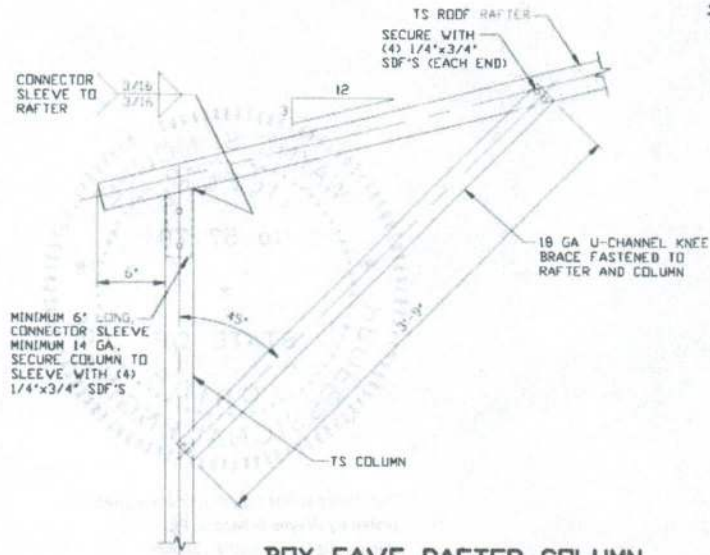
**1**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO <= 14'-0"**  
 SCALE: NTS



**1A**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO <= 12'-0"**  
 SCALE: NTS



**BRACE SECTION**  
 SCALE: NTS



**1B**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 8'-0"**  
 SCALE: NTS

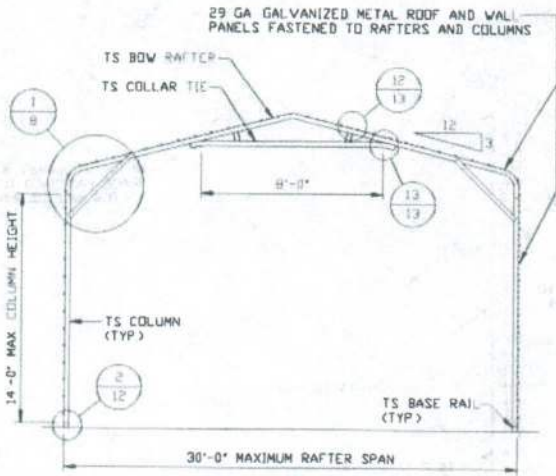


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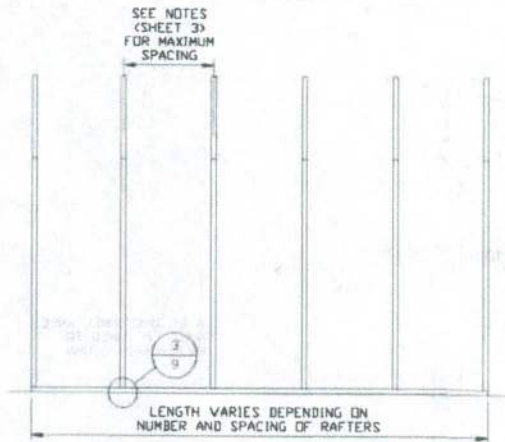
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PROJECT MGR: VSM	DATE: 2-12-21	SCALE: NTS	JOB NO: 17200S/ 18068S/20019S/20324S	
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**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN FRAMING SIDE SECTION**  
SCALE: NTS



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SHT. 7

SCALE: NTS

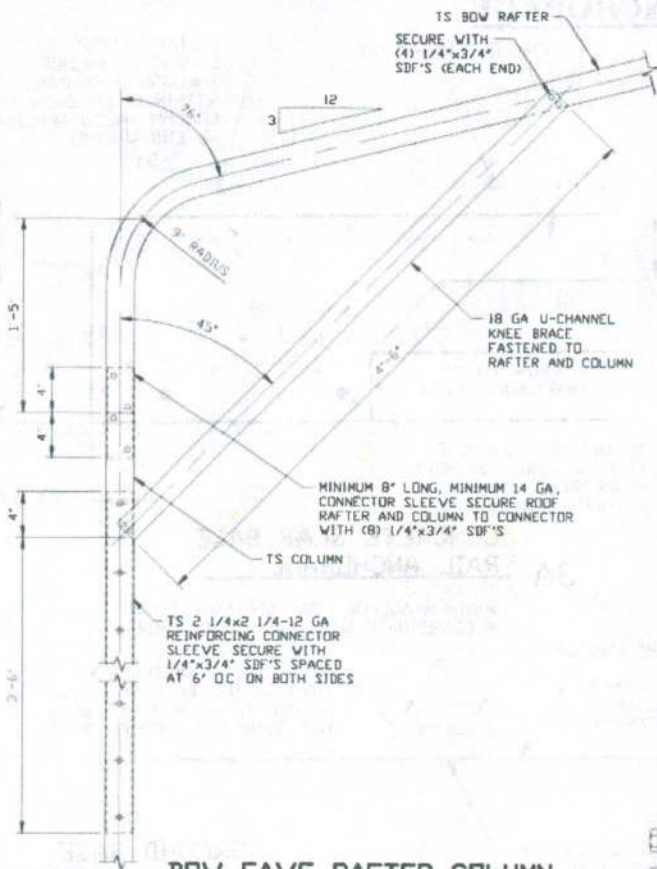
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18068S/20019S/20324S

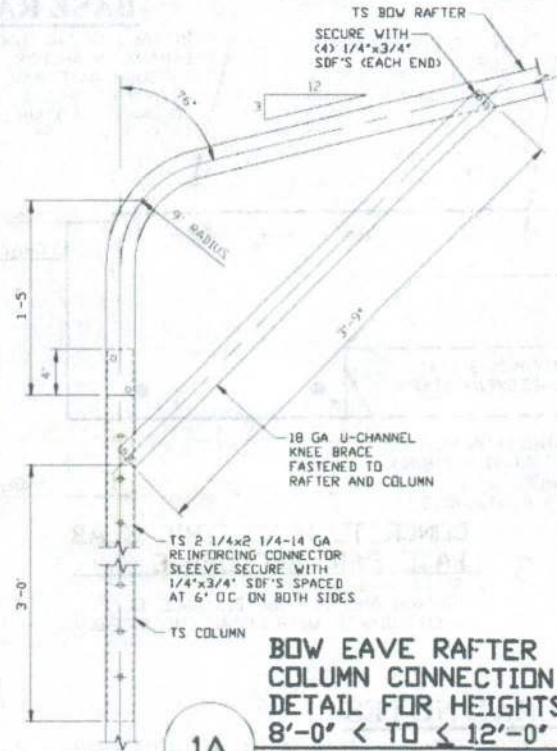
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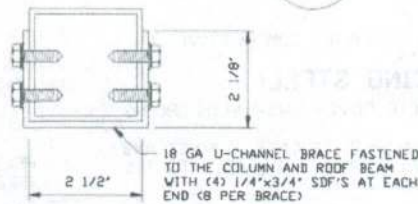




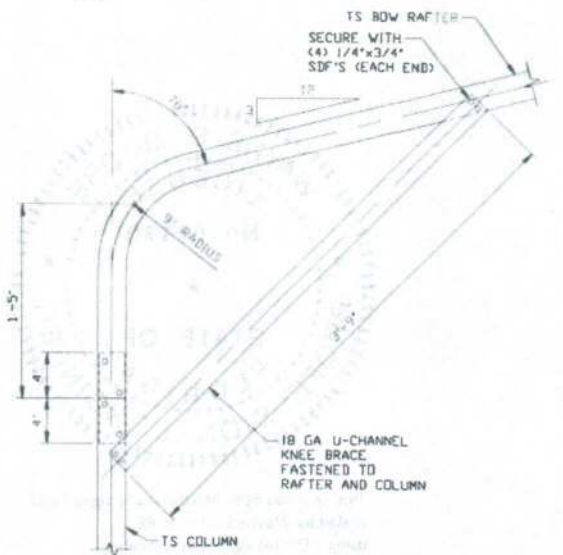
**1**  
**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO <= 14'-0"**  
 SCALE: NTS



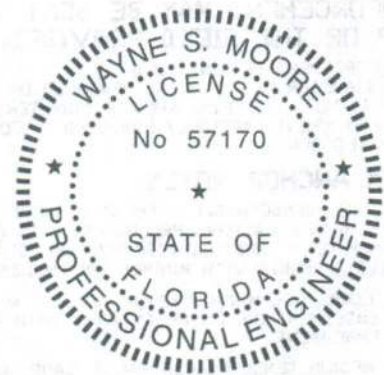
**1A**  
**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO <= 12'-0"**  
 SCALE: NTS



**BRACE SECTION**  
 SCALE: NTS



**1B**  
**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 8'-0"**  
 SCALE: NTS



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**SHT. 8**

**SCALE: NTS**

**DWG. NO: SK-3**

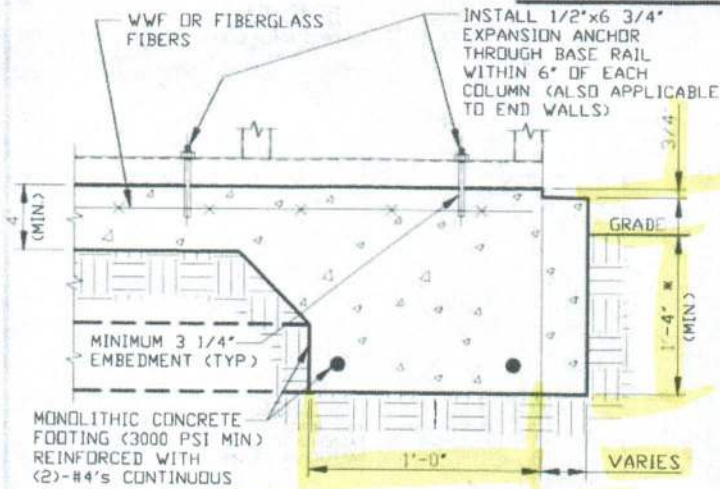
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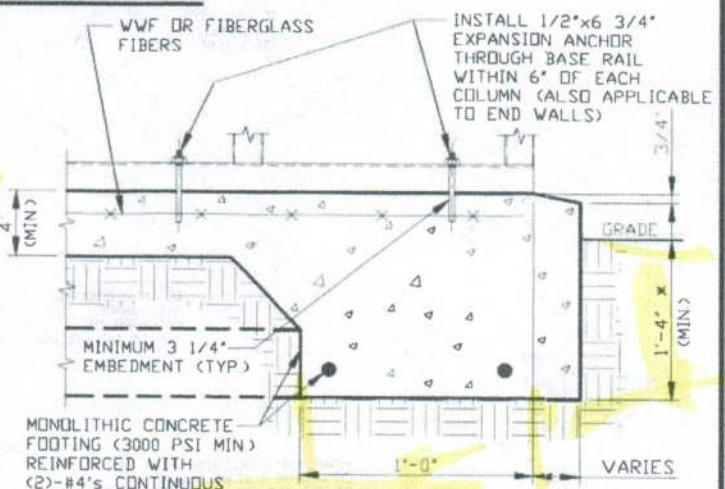
## BASE RAIL ANCHORAGE



3

### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS  
MINIMUM ANCHOR EDGE DISTANCE IS 4".  
\* COORDINATE WITH LOCAL CODES/ORD



3A

### CONCRETE SLAB BASE RAIL ANCHORAGE

SCALE: NTS  
MINIMUM ANCHOR EDGE DISTANCE IS 4".  
\* COORDINATE WITH LOCAL CODES/ORD

## GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED ON MINIMUM SOIL BEARING CAPACITY OF 1,500 PSF

### CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS

### COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318:

3" IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2" ELSEWHERE

### REINFORCING STEEL:

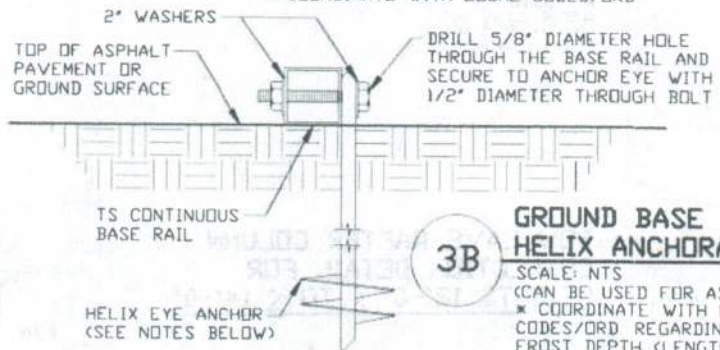
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT

### REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

- 1 REINFORCEMENT IS BENT COLD
- 2 THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS
- 3 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, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 2 FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 3 FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
- 4 FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" 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" EMBEDMENT



3B

### GROUND BASE HELIX ANCHORAGE

SCALE: NTS  
(CAN BE USED FOR ASPHALT)  
\* COORDINATE WITH LOCAL CODES/ORD REGARDING MIN FROST DEPTH (LENGTH)



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SHT. 9

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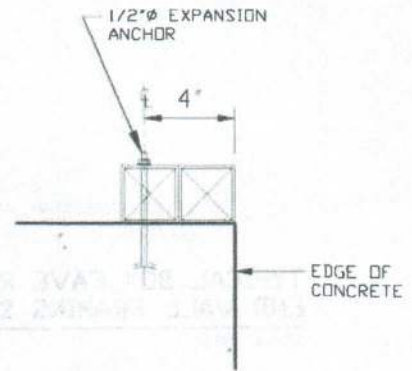
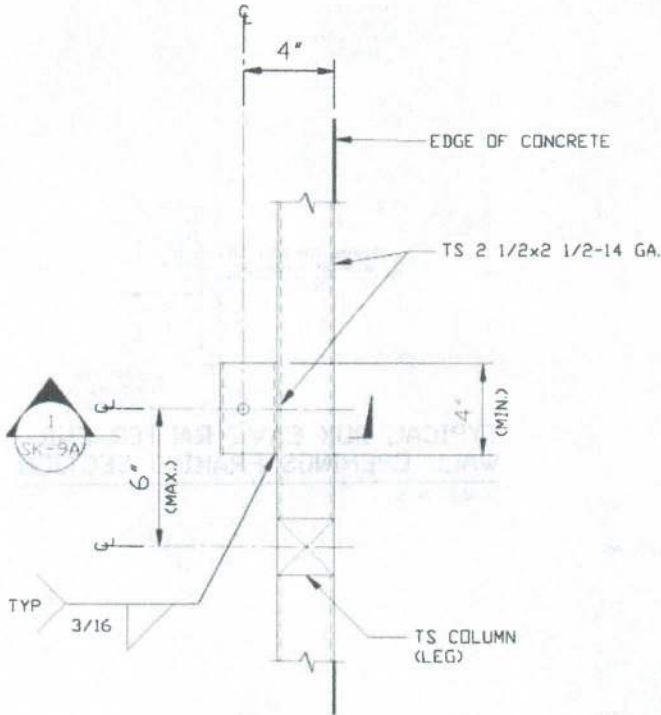
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# BASE RAIL ANCHORAGE OPTION



**SECTION 1**  
SCALE: NTS SK-9A

**TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE**

SCALE: NTS

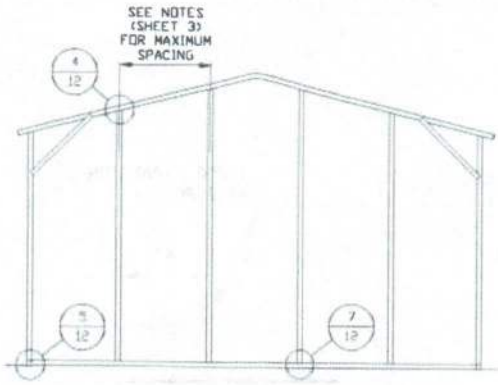


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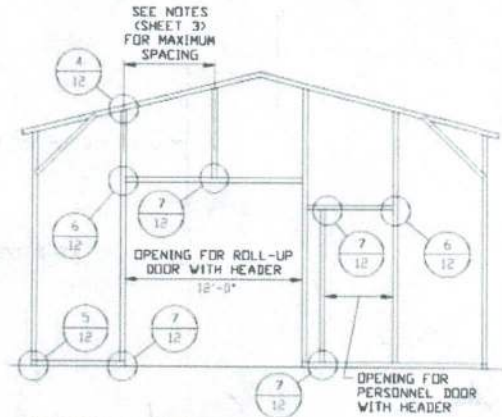
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	CHECKED BY: PDH	PROJECT MGR: VSM	DATE: 2-12-21	SCALE: NTS
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# BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



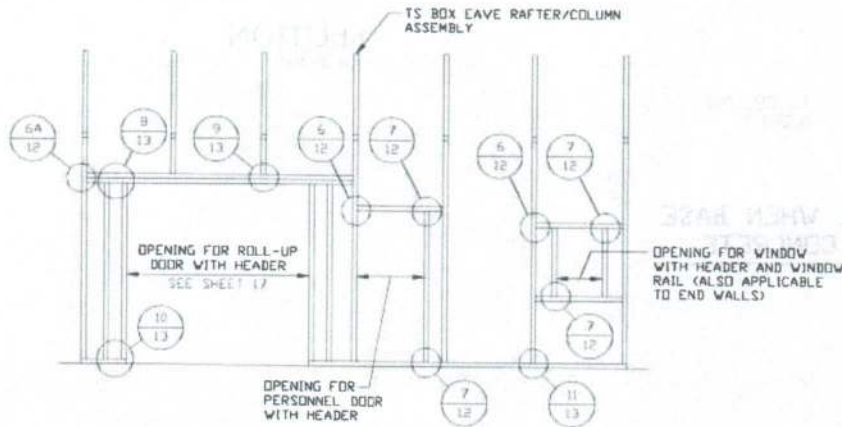
**TYPICAL BOX EAVE RAFTER  
END WALL FRAMING SECTION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER END  
WALL OPENINGS FRAMING SECTION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER  
SIDE WALL OPENINGS FRAMING SECTION**

SCALE: NTS



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**CLIENT: SBST**

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**DATE: 2-12-21**

**SCALE: NTS**

**SHT. 10**

**DWG. NO: SK-3**

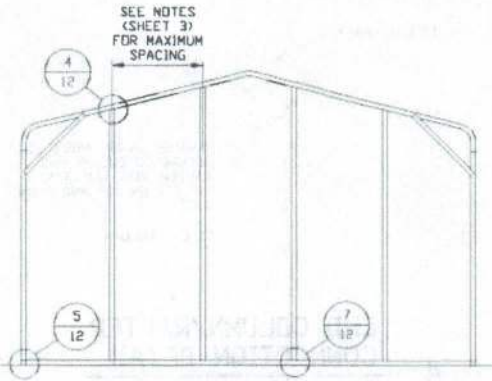
**JOB NO: 17200S/  
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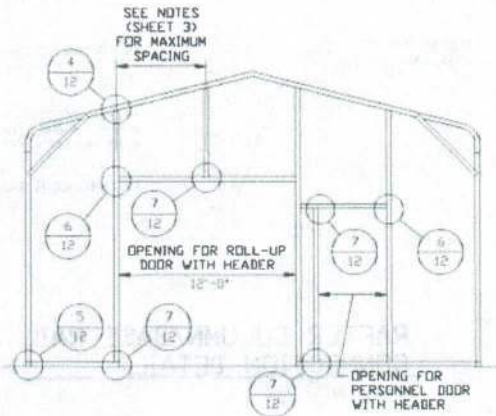


# BOW EAVE RAFTER END WALL AND SIDE WALL OPENINGS



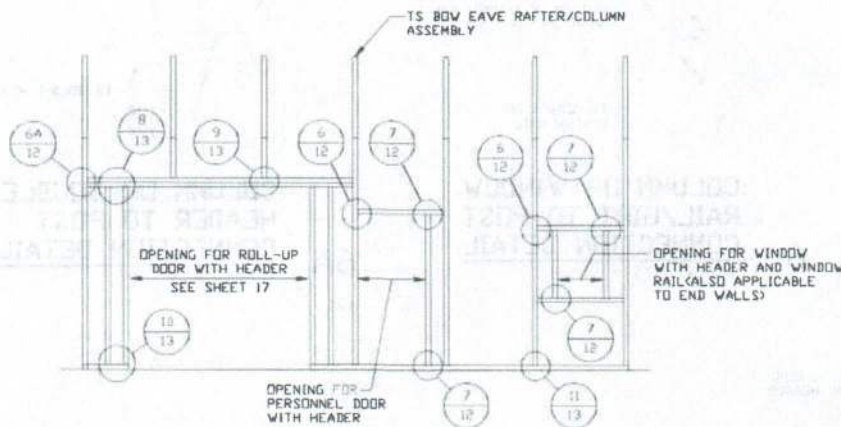
**TYPICAL BOW RAFTER  
END WALL FRAMING SECTION**

SCALE: NTS



**TYPICAL BOW RAFTER END  
WALL OPENINGS FRAMING SECTION**

SCALE: NTS



**TYPICAL BOW RAFTER SIDE  
WALL OPENINGS FRAMING SECTION**

SCALE: NTS



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SHT. 11

SCALE: NTS

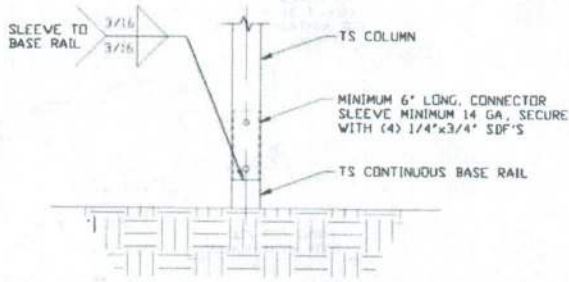
DWG. NO. SK-3

JOB NO: 17200S/  
18068S/20019S/20324S

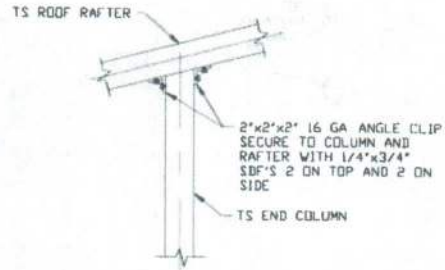
REV: 6

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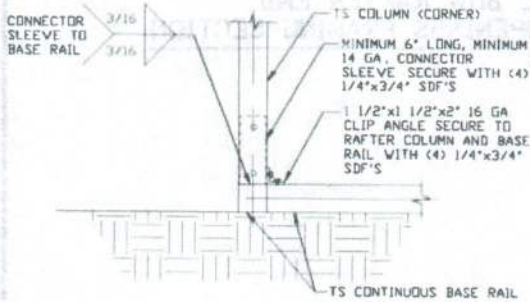
# CONNECTION DETAILS



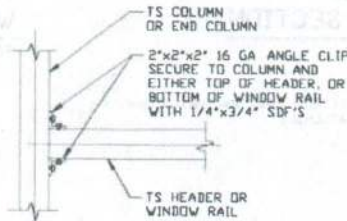
**2** RAFTER COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS



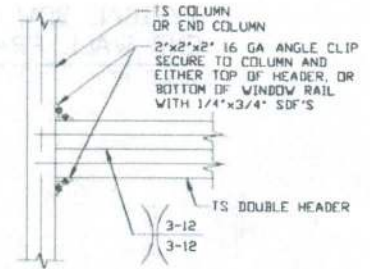
**4** END COLUMN/Rafter CONNECTION DETAIL  
SCALE: NTS



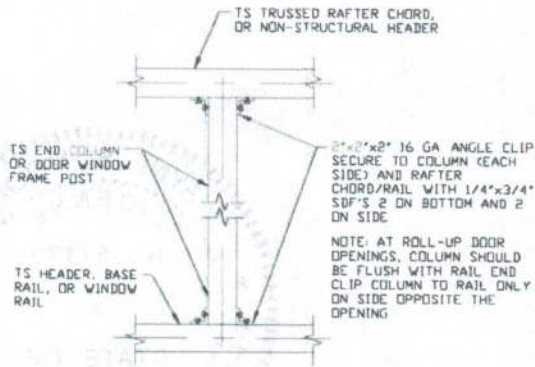
**5** END COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS



**6** COLUMN OR WINDOW RAIL/GIRT TO POST CONNECTION DETAIL  
SCALE: NTS



**6A** COLUMN OR DOUBLE HEADER TO POST CONNECTION DETAIL  
SCALE: NTS



**7** COLUMN TO HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL  
SCALE: NTS



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SCALE: NTS

SHT. 12

DWG. NO: SK-3

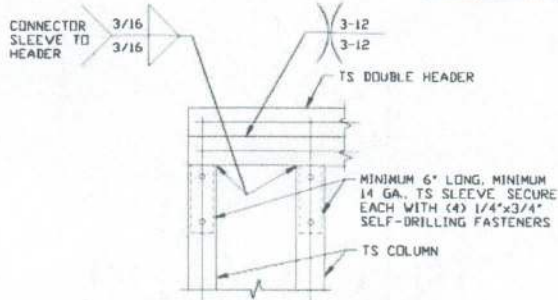
JOB NO: 17200S/  
19069S/20019S/20324S

REV: 6

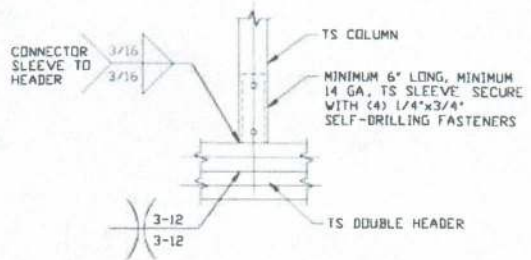
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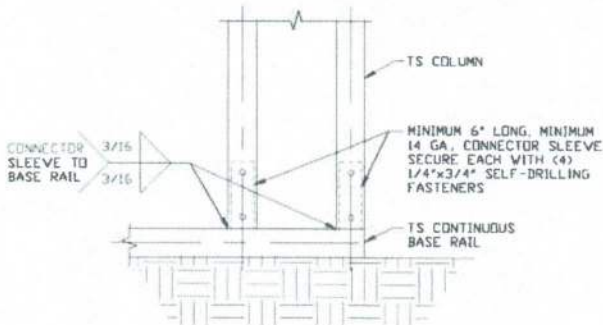
# CONNECTION DETAILS



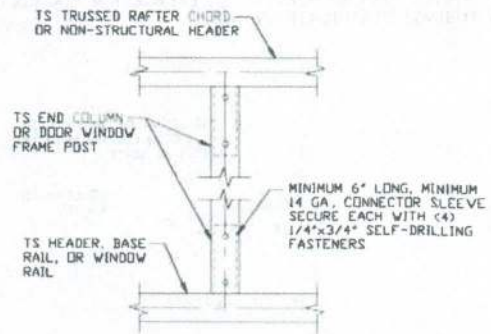
**8** DOUBLE HEADER/COLUMN CONNECTION DETAIL  
SCALE: NTS



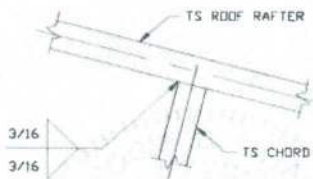
**9** COLUMN/DOUBLE HEADER CONNECTION DETAIL  
SCALE: NTS



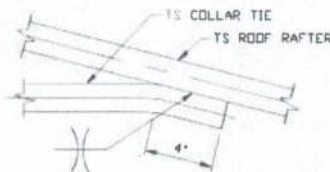
**10** COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS



**11** COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL  
SCALE: NTS



**12** RAFTER TO CHORD CONNECTION DETAIL  
SCALE: NTS



**13** COLLAR TIE CONNECTION DETAIL  
SCALE: NTS



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30'-0" x 14'-0" HW ENCLOSED STRUCTURE

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SHT. 13

SCALE: NTS

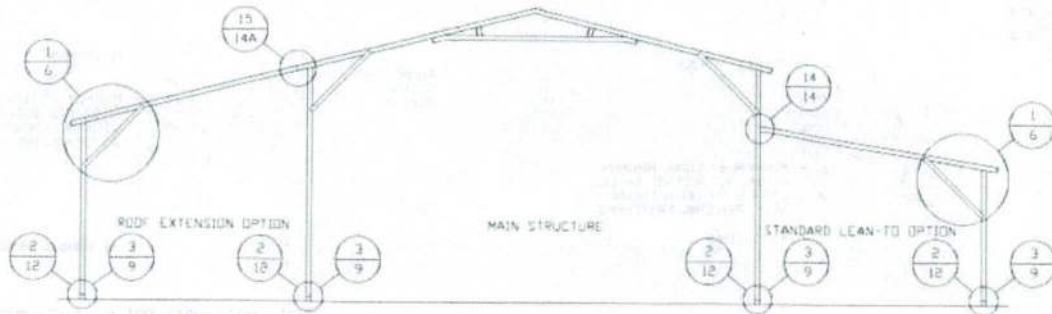
DWG. NO: SK-3

JOB NO: 17200S/  
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REV: 6

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# BOX EAVE RAFTER LEAN-TO OPTIONS

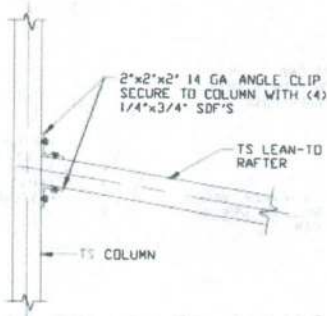


## TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)

SCALE: NTS

MAXIMUM WIDTH OF STANDARD ROOF EXTENSION AND LEAN-TO IS 12'-0"

FOR SHARED COLUMN HEIGHTS REFERENCE RAFTER COLUMN CONNECTION DETAILS FOR APPROPRIATE COLUMN HEIGHT AND TUBING SPECIFICATIONS



14

### LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS



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30'-0" x 14'-0" HW ENCLOSED STRUCTURE

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**SHT. 14**

**SCALE: NTS**

**DWG. NO: SK-3**

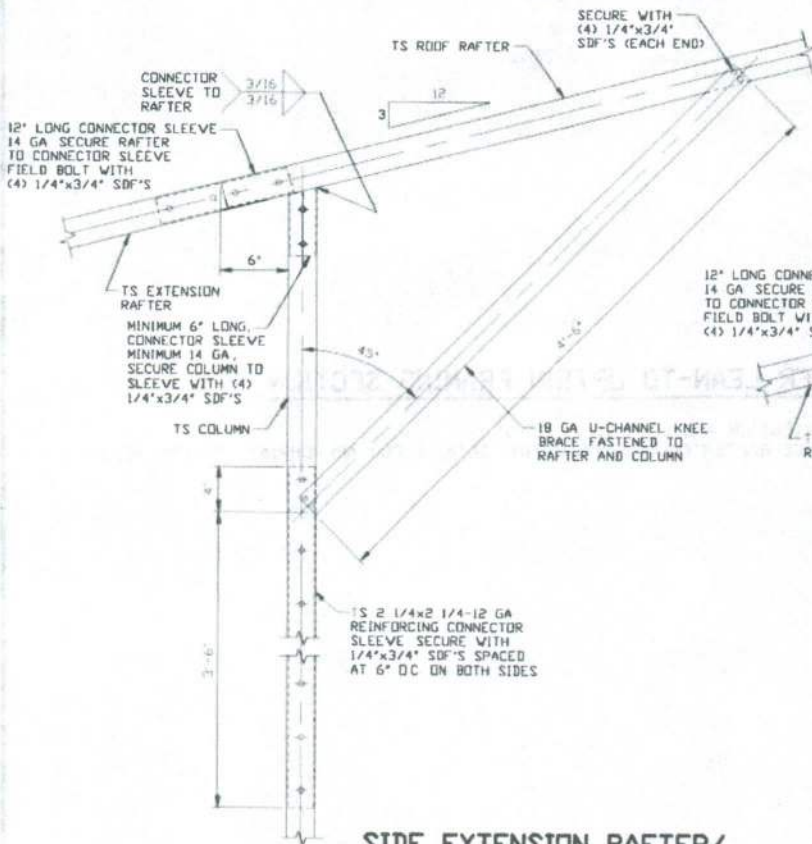
**JOB NO: 17200S/  
18069S/20019S/20324S**

**REV: 6**

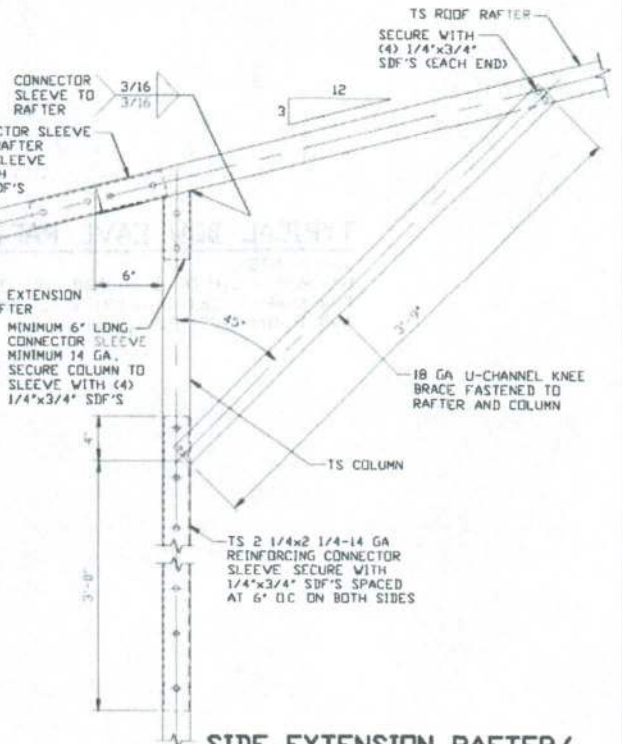
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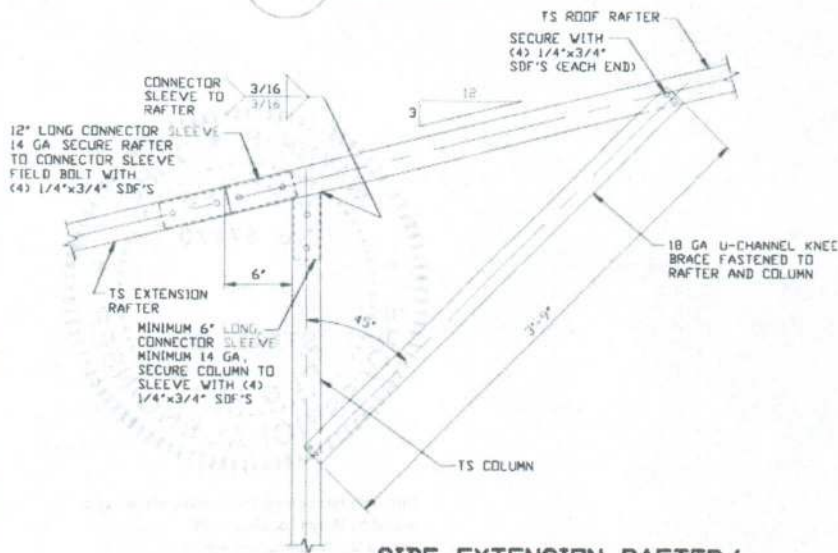
# BOX EAVE RAFTER LEAN-TO OPTIONS



**15** SIDE EXTENSION RAFTER/  
COLUMN DETAIL FOR  
HEIGHTS 12'-0" < TO < 14'-0"  
SCALE: NTS



**15A** SIDE EXTENSION RAFTER/  
COLUMN DETAIL FOR  
HEIGHTS 8'-0" < TO < 12'-0"  
SCALE: NTS



**15B** SIDE EXTENSION RAFTER/  
COLUMN DETAIL FOR  
HEIGHTS < 8'-0"  
SCALE: NTS



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**SCALE: NTS**

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18069S/20019S/20324S**

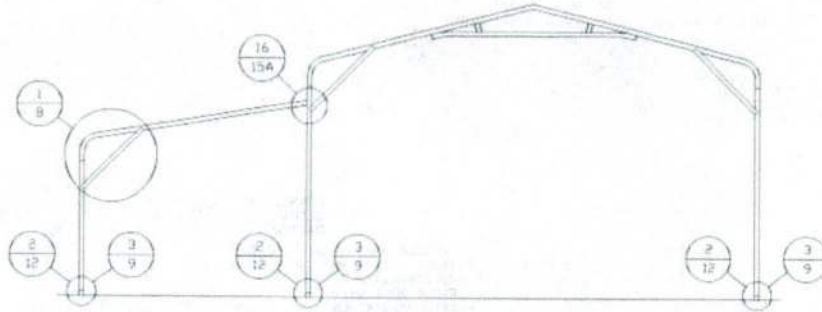
**SHT. 14A**

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## BOW RAFTER LEAN-TO OPTION



### TYPICAL BOW EAVE RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

MAXIMUM WIDTH OF STANDARD ROOF EXTENSION AND LEAN-TO IS 12'-0"

FOR SHARED COLUMN HEIGHTS REFERENCE RAFTER COLUMN CONNECTION DETAILS FOR APPROPRIATE COLUMN HEIGHT AND TUBING SPECIFICATIONS



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SCALE: NTS

DWG. NO: SK-3

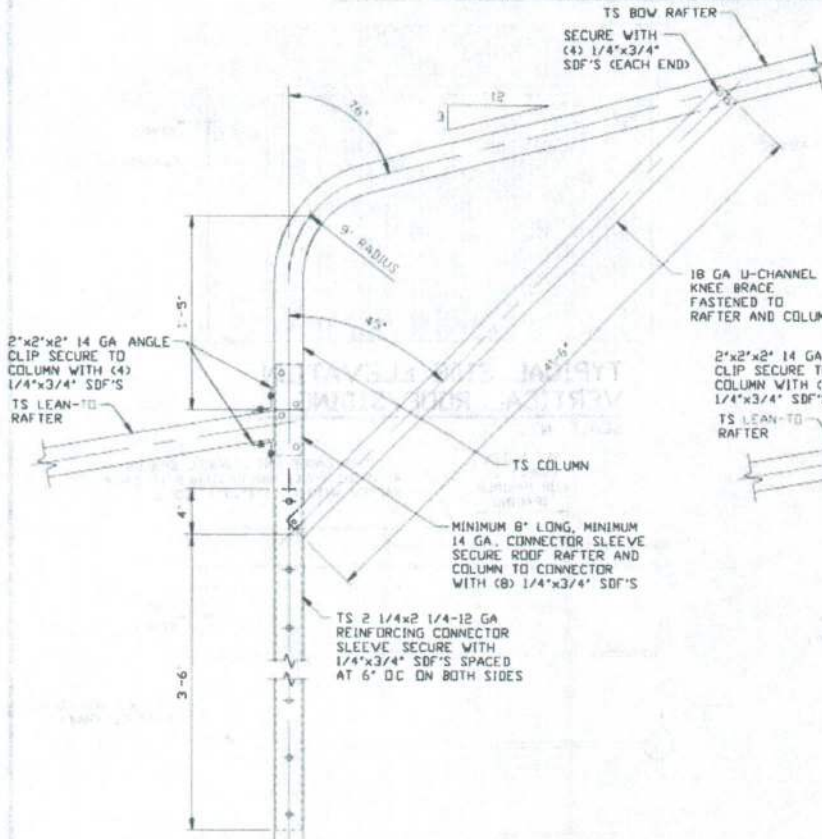
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REV: 6

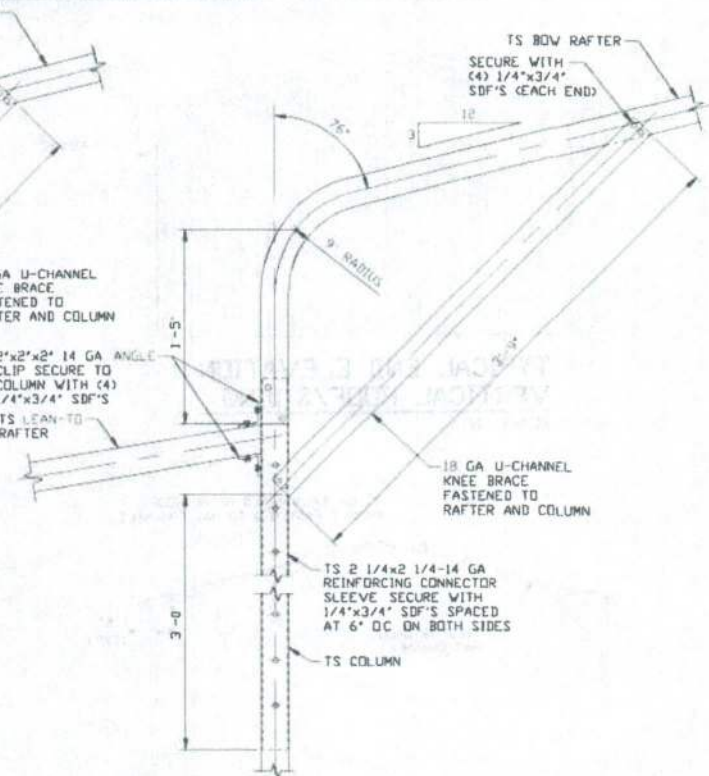
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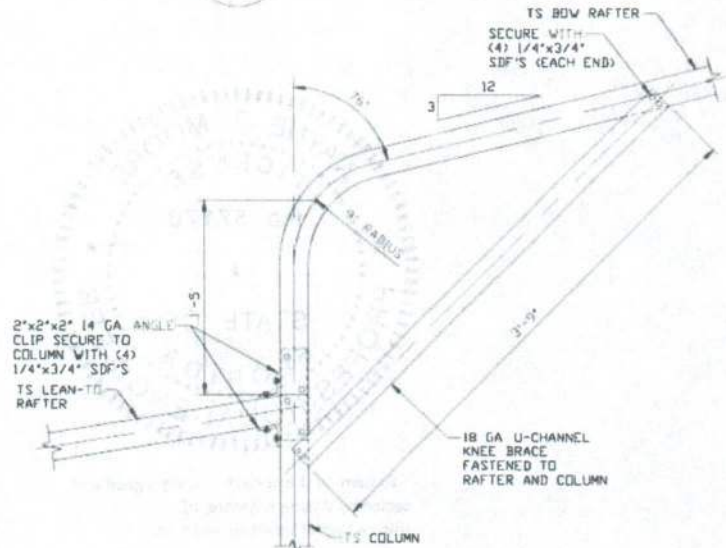
# BOW RAFTER LEAN-TO OPTION



**16** LEAN-TO RAFTER TO RAFTER COLUMN DETAIL FOR HEIGHTS 12'-0" < TO ≤ 14'-0"  
SCALE: NTS



**16A** LEAN-TO RAFTER TO RAFTER COLUMN DETAIL FOR HEIGHTS 8'-0" < TO ≤ 12'-0"  
SCALE: NTS



**16B** LEAN-TO RAFTER TO RAFTER COLUMN DETAIL FOR HEIGHTS ≤ 8'-0"  
SCALE: NTS



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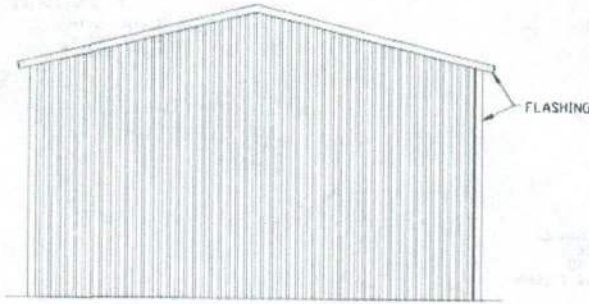
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CHECKED BY: PDH	30'-0"x14'-0" HW ENCLOSED STRUCTURE		
PROJECT MGR: VSM	DATE: 2-12-21	SCALE: NTS	JOB NO: 17200S/ 18068S/20019S/20324S
CLIENT: SBSI	SHT. 15A	DWG. NO: SK-3	REV. 6

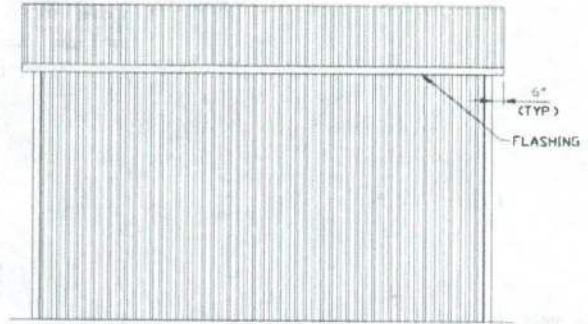
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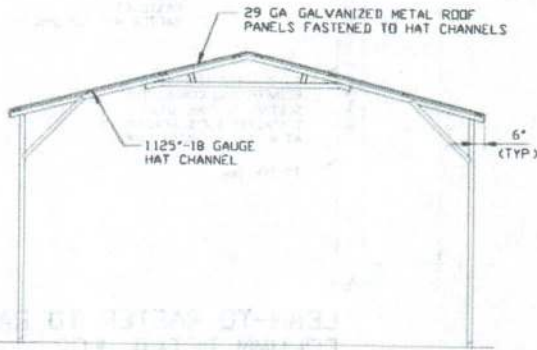
# BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



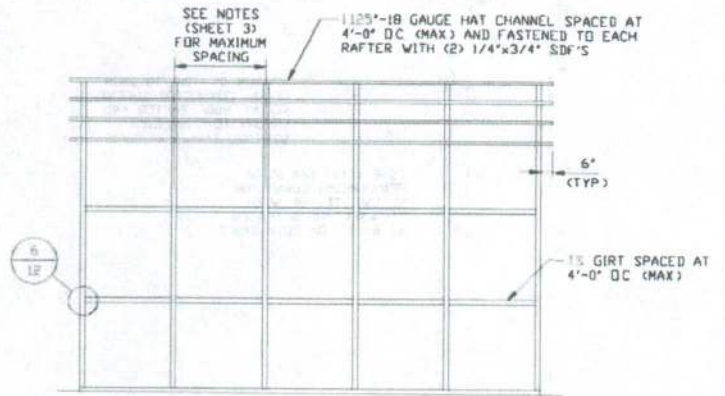
**TYPICAL END ELEVATION  
VERTICAL ROOF/SIDING**  
SCALE: NTS



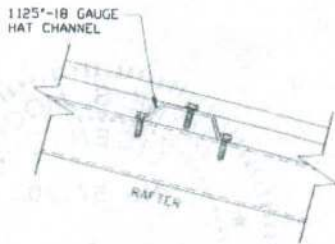
**TYPICAL SIDE ELEVATION  
VERTICAL ROOF/SIDING**  
SCALE: NTS



**TYPICAL SECTION  
VERTICAL ROOF/SIDING OPTION**  
SCALE: NTS



**TYPICAL FRAMING SECTION  
VERTICAL ROOF/SIDING OPTION**  
SCALE: NTS



**PANEL ATTACHMENT**  
(ALTERNATE FOR VERTICAL ROOF PANELS)  
SCALE: NTS



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DWG. NO: SK-3

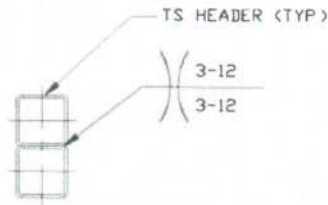
JOB NO: 17200S/  
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REV: 6

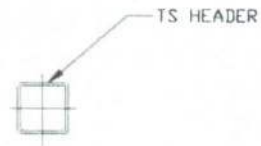
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## OPTIONAL HEADERS



**DOUBLE HEADER DETAIL FOR DOOR  
OPENINGS 10'-0" < LENGTH < 12'-0"**  
SCALE: NTS



**SINGLE HEADER DETAIL FOR  
DOOR OPENINGS LENGTH < 10'-0"**  
SCALE: NTS



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**SHT. 17**

**DWG. NO SK-3**

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