

**STRUCTURAL DESIGN
STANDARD PACKAGE
ENCLOSED BUILDING**

**MAXIMUM 30'- 0" WIDE X 20'- 0" HEIGHT-
BOX EAVE FRAME AND BOW FRAME**

**23 June 2020
Revision 0
M&A Project No. 20126S**

Prepared by:

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and Consulting, Inc.**

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**MOORE AND ASSOCIATES
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		<p>I HAVE RESEARCHED THIS CHAPTER AND THE LOUISIANA STATE UNIFORM CONSTRUCTION CODE AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, THESE DRAWINGS ARE IN COMPLIANCE THEREWITH. I TAKE FULL RESPONSIBILITY FOR THE CONTENTS OF THESE PLANS.</p>	
			<p>Professional Certification. I hereby certify that these documents were prepared and approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 49744, Expiration Date. 6/6/20</p>

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	CLIENT:	SHT. 1	DWG. NO SK-3	REV: 0

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	<p>CLIENT:</p>	<p>SHT. 1A</p>	<p>DWG. NO: SK-3</p>	<p>REV: 0</p>

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	CLIENT:	SHT. 2	DWG. NO: SK-3	REV: 0

INSTALLATION NOTES AND SPECIFICATIONS

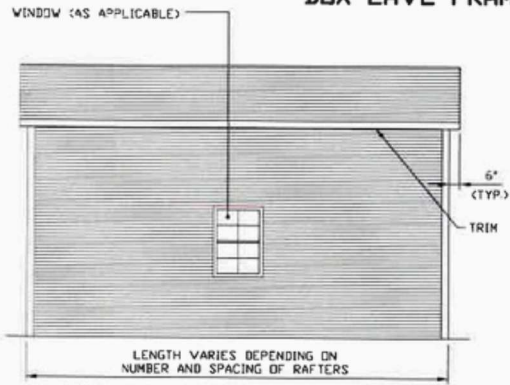
1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE (NCBC), 2018 IBC, 2015 IBC, 2012 IBC, 2009 IBC, AND 2006 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
 - A) DEAD LOAD = 1.5 PSF
 - B) LIVE LOAD = 12 PSF
 - C) GROUND SNOW LOAD = 35 PSF (UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED).
4. ULTIMATE WIND SPEED 105 TO 145 MPH (NOMINAL WIND SPEED 81 TO 112 MPH); MAXIMUM RAFTER/POST AND END COLUMN SPACING = 50 FEET.
5. END WALL COLUMNS (PDST) ARE EQUIVALENT IN SIZE AND SPACING TO SIDE WALL POSTS (UNLESS NOTED OTHERWISE).
6. RISK CATEGORY I.
7. WIND EXPOSURE CATEGORY B.
8. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2"x2 1/2"-14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE). WHERE TS 2 1/2" x 2 1/2" - 14 GAUGE IS SPECIFIED, TS 2 1/4" x 2 1/4" - 12 GAUGE MAY BE USED AS AN OPTION.
9. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 10" O.C. (MAX.)
10. FASTENERS CONSIST OF #12-14x3/4" 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. ROOFING WITH SLOPES LESS THAN 3:12 MUST BE LAP SEALANT.
11. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES.
12. GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG AND MAY ONLY BE USED IN SUITABLE SOILS. HELIX ANCHORS, SEE DETAIL 2B, MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED.
13. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:

SOIL SITE CLASS = D
RISK CATEGORY I

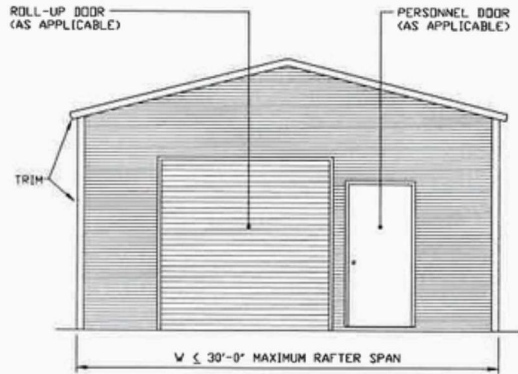
R= 3.25	I _E = 1.0
S _{DS} = 2.039	V= C _S W
S _{D1} = 1.258	

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BOX EAVE FRAME RAFTER STRUCTURE

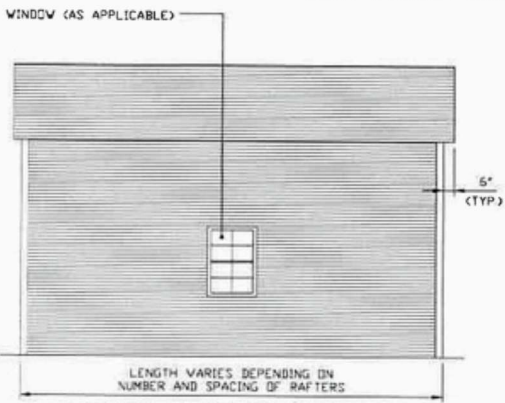


TYPICAL SIDE ELEVATION
SCALE: NTS

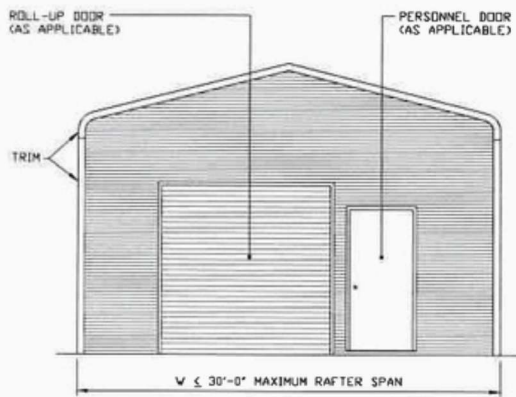


TYPICAL END ELEVATION
SCALE: NTS

BOW FRAME RAFTER STRUCTURE



TYPICAL SIDE ELEVATION
SCALE: NTS



TYPICAL END ELEVATION
SCALE: NTS

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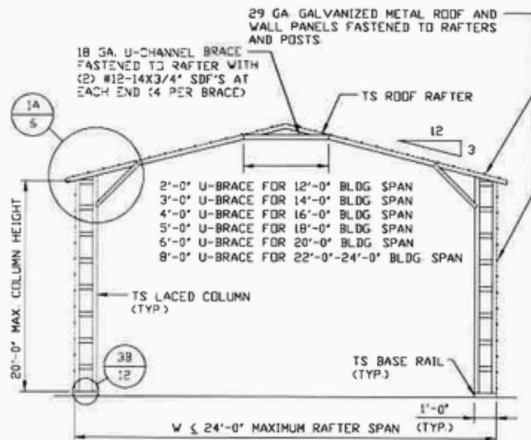
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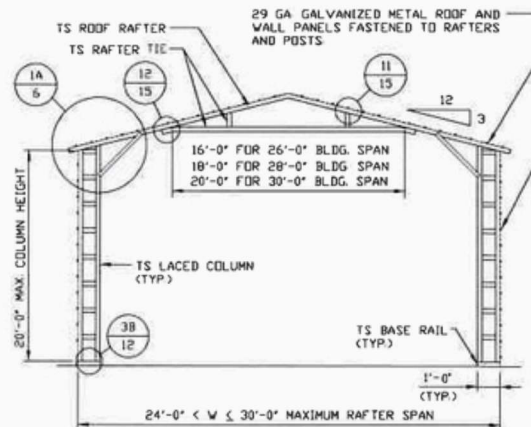
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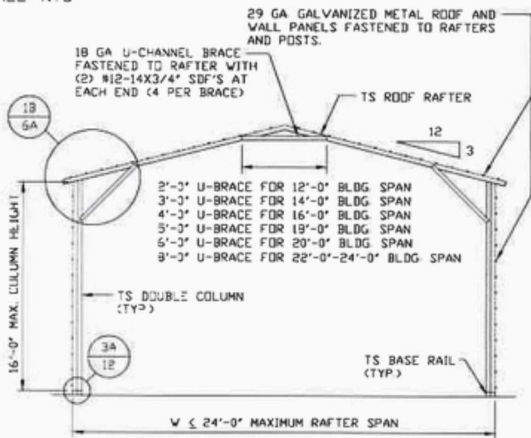
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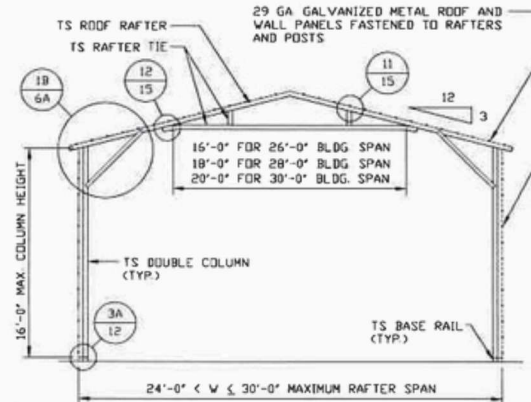
TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS

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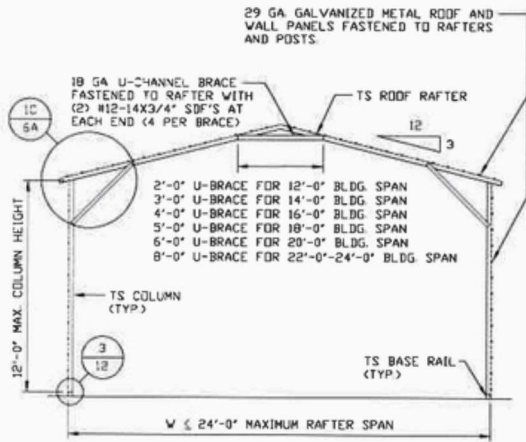
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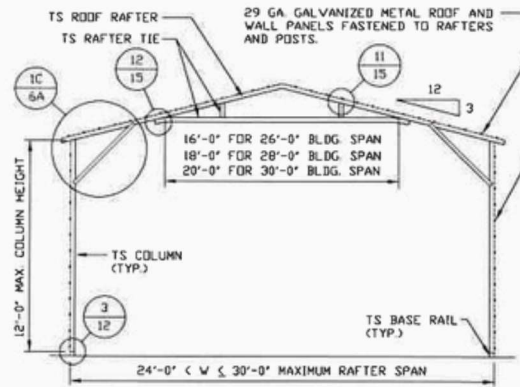
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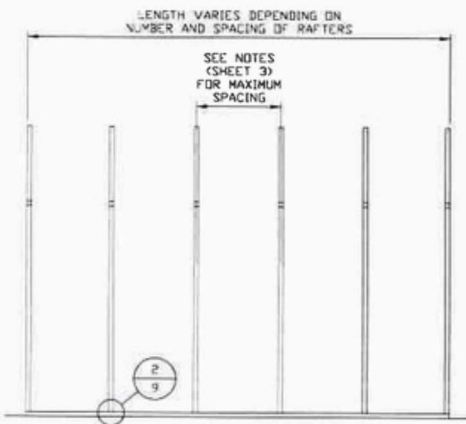
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TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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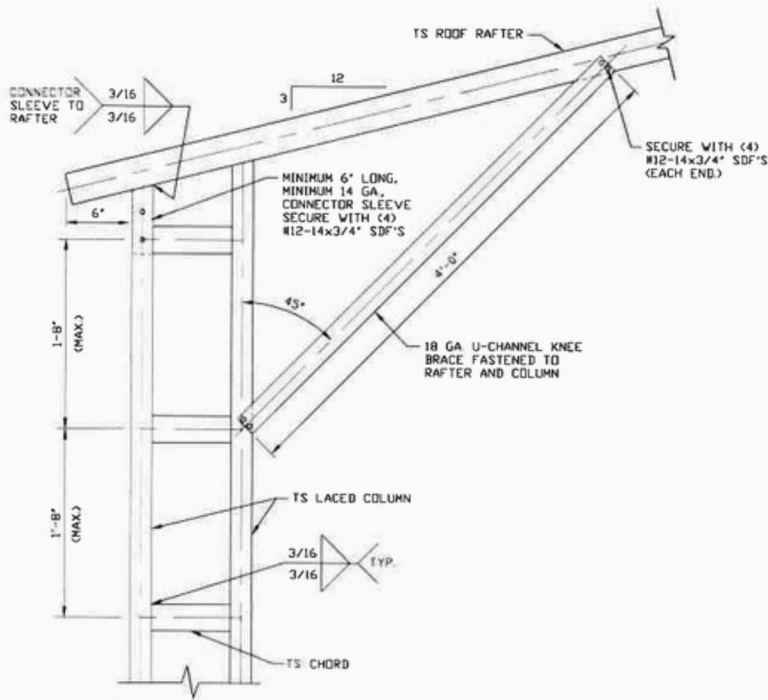
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SHT. 5A

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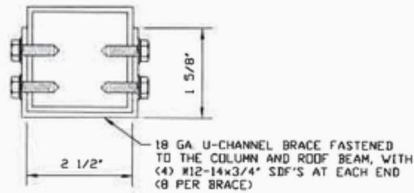
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1A

**BOX EAVE RAFTER COLUMN CONNECTION
DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**

SCALE: NTS



BRACE SECTION

SCALE: NTS

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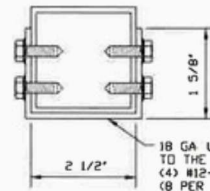
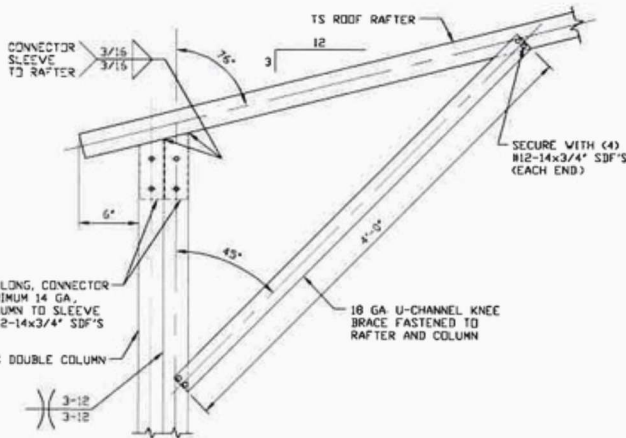
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DWG. NO: SK-3

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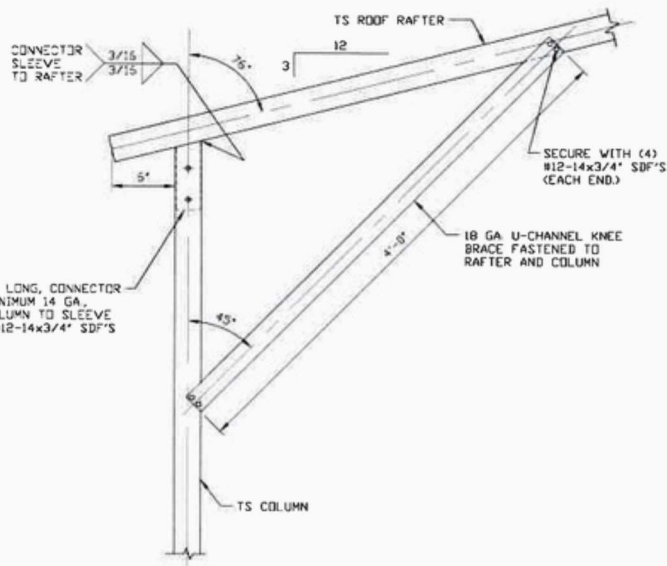


BRACE SECTION
SCALE: NTS

1B

**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 12'-0" < TO ≤ 16'-0"**

SCALE: NTS



1C

**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS ≤ 12'-0"**

SCALE: NTS

NOTE: 2'-0" KNEE BRACE MAY BE USED
FOR BUILDING WIDTHS < 24'-0".

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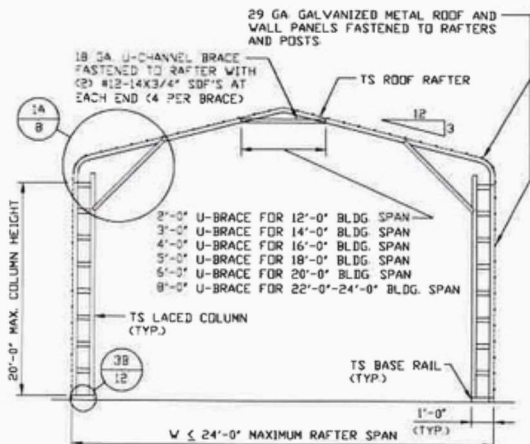
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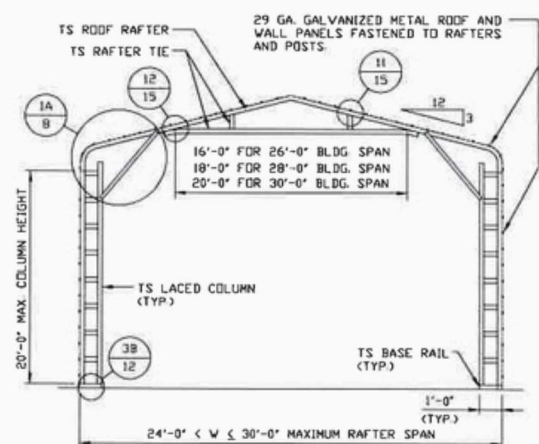
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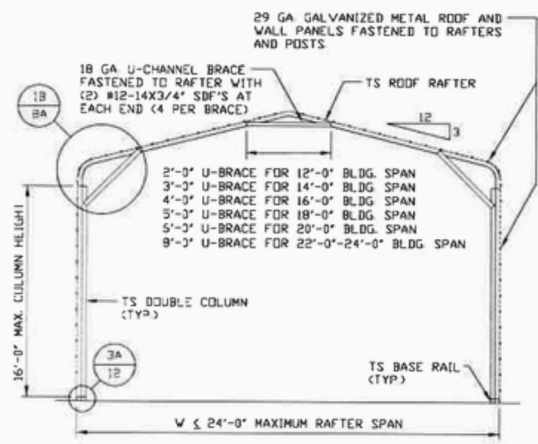
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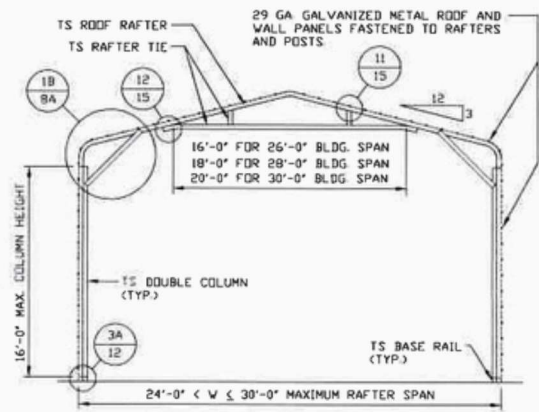
TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS

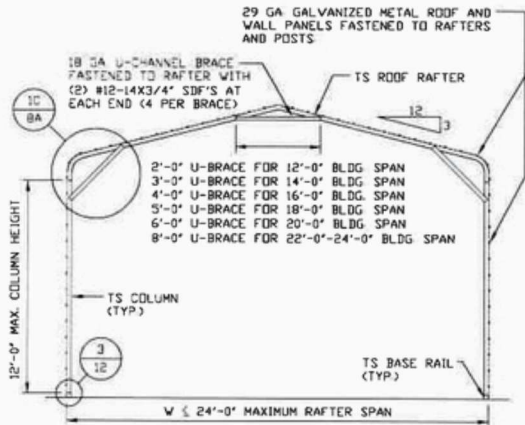


TYPICAL RAFTER/COLUMN END FRAME SECTION
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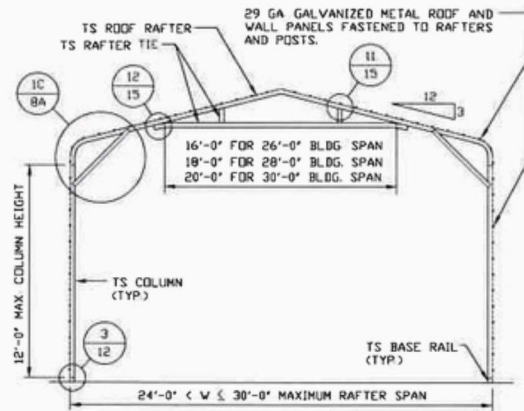
TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS

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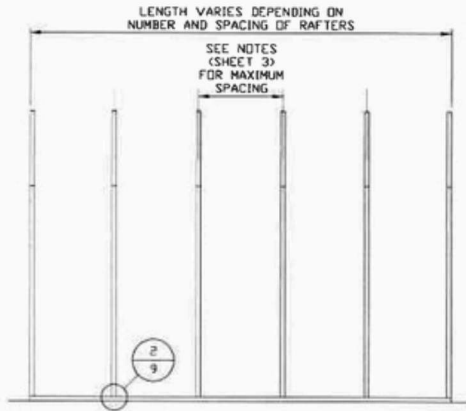
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN FRAMING SIDE SECTION

SCALE: NTS

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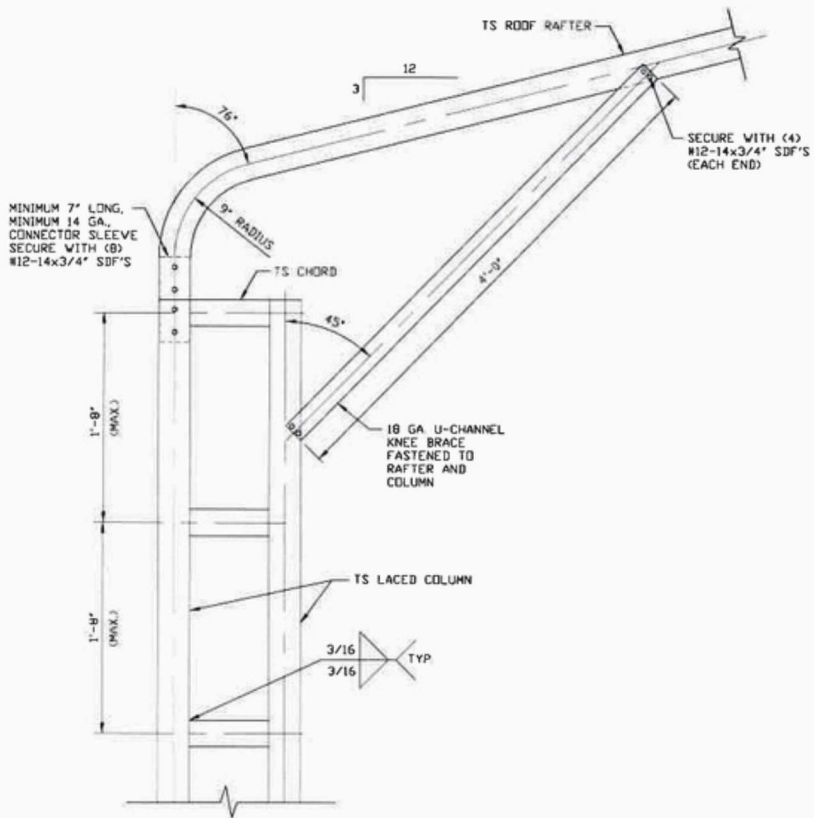
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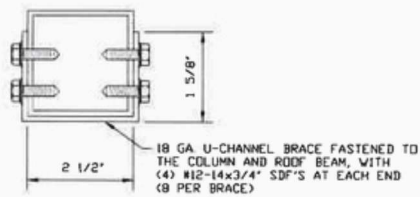
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1A

**BOW EAVE RAFTER COLUMN CONNECTION
DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**

SCALE: NTS



BRACE SECTION

SCALE: NTS

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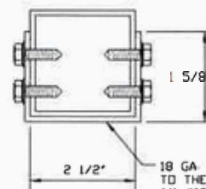
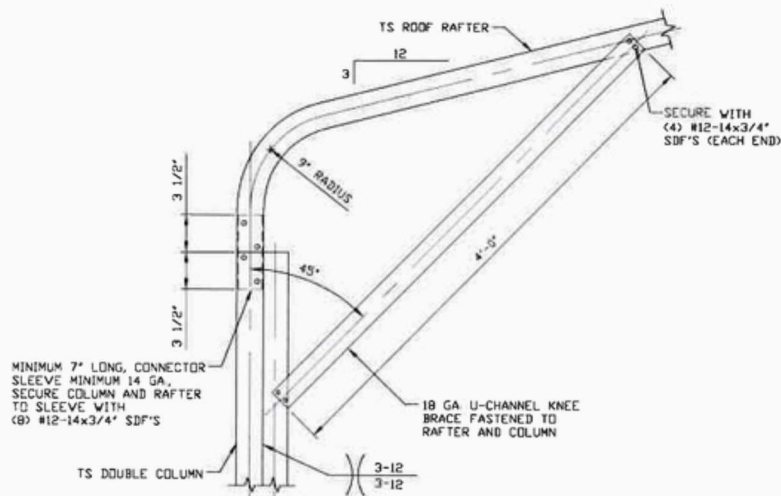
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18 GA U-CHANNEL BRACE FASTENED TO THE COLUMN AND ROOF BEAM, WITH (4) #12-14x3/4" SDF'S AT EACH END (8 PER BRACE)

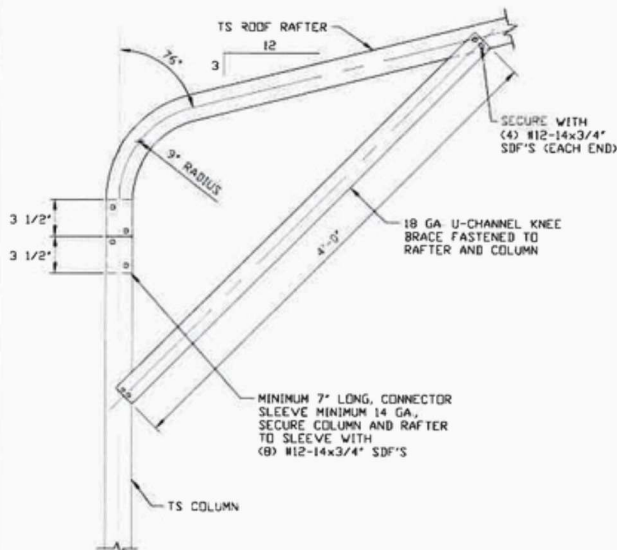
BRACE SECTION

SCALE: NTS

BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"

1B

SCALE: NTS



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"

1C

SCALE: NTS

NOTE: 2'-0" KNEE BRACE MAY BE USED FOR BUILDING WIDTHS < 24'-0".

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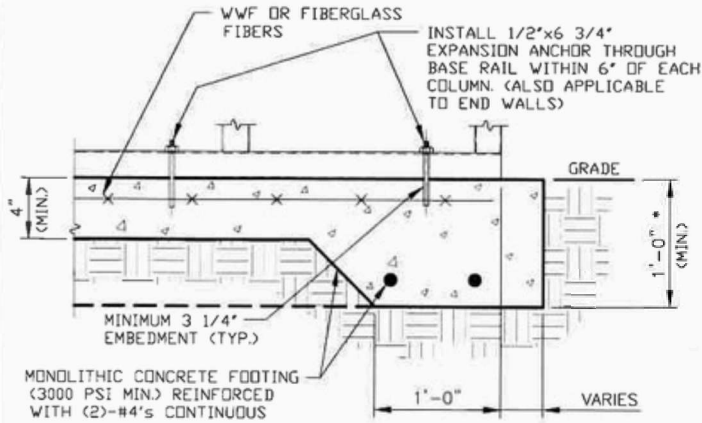
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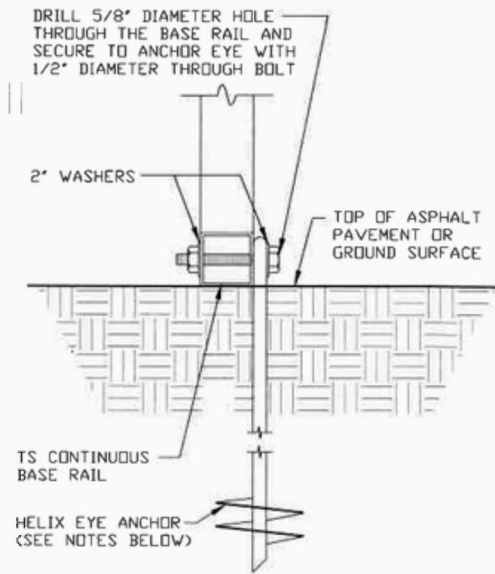
BASE RAIL ANCHORAGE OPTIONS



2A CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
MINIMUM ANCHOR EDGE DISTANCE IS 4\"/>

* COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH.



2B GROUND BASE HELIX ANCHORAGE

SCALE: NTS (CAN BE USED FOR ASPHALT)

* COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH.

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\"/>

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\"/>
- 2 FOR CORAL USE MINIMUM (2) 4\"/>
- 3 FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4\"/>
- 4 FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6\"/>
- 5 FOR VERY LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8\"/>

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SHT. 9

SCALE: NTS

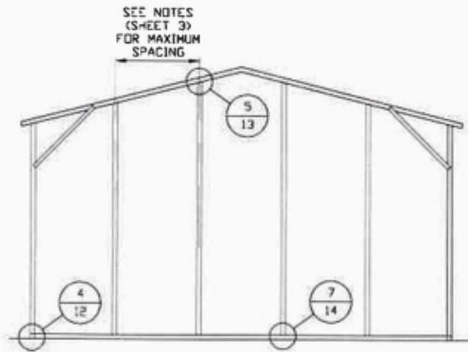
DWG. NO: SK-3

JOB NO: 20126S

REV: 0

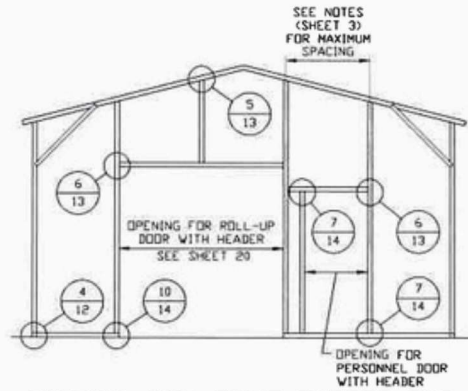
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BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



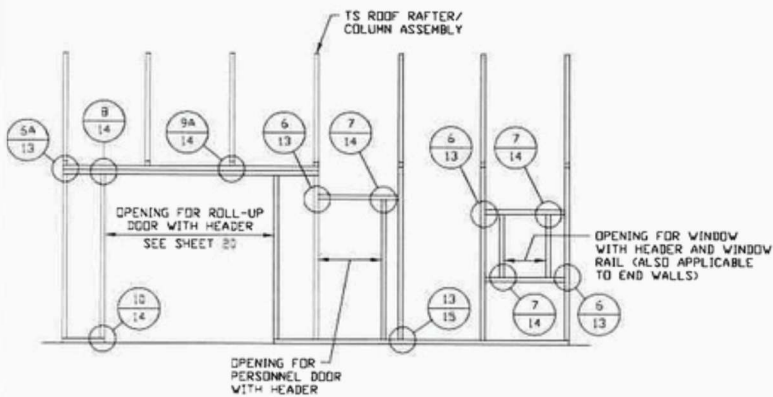
**TYPICAL BOX EAVE RAFTER
END WALL FRAMING SECTION**

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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JOB NO: 20126S

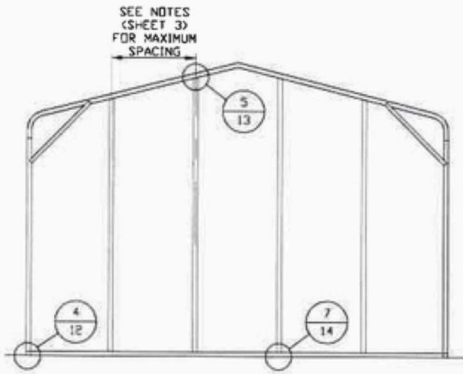
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DWG. NO: SK-3

REV: 0

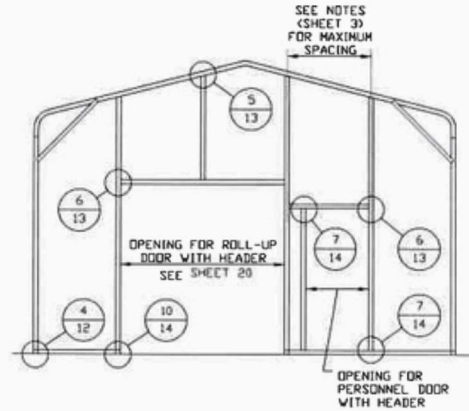
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BOW RAFTER END WALL AND SIDE WALL OPENINGS



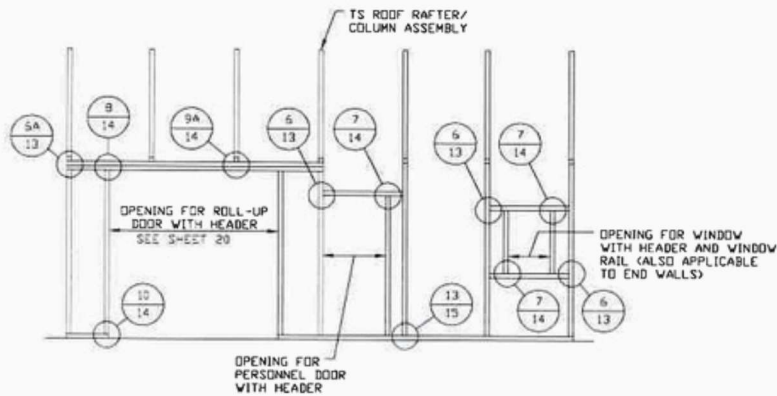
**TYPICAL BOW RAFTER
END WALL FRAMING SECTION**

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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SCALE: NTS

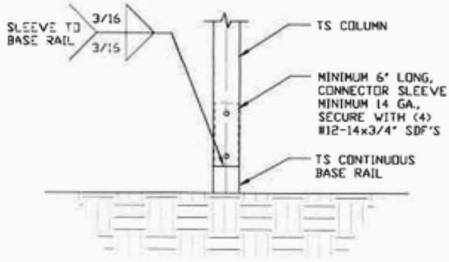
DWG. NO: SK-3

JOB NO: 20126S

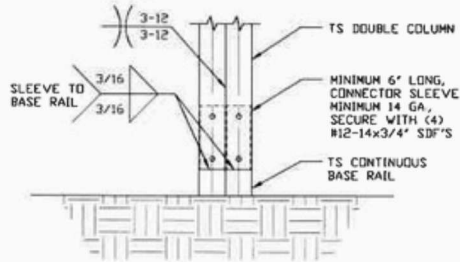
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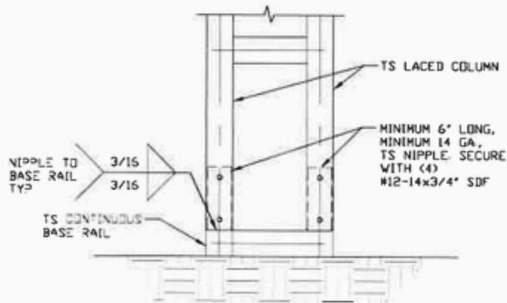
CONNECTION DETAILS



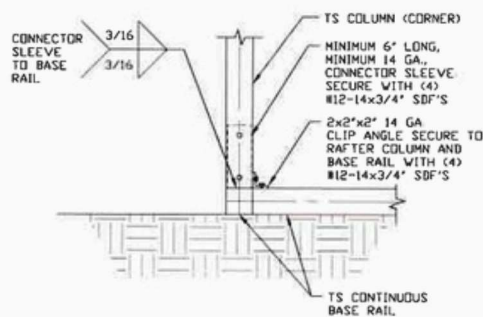
3 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



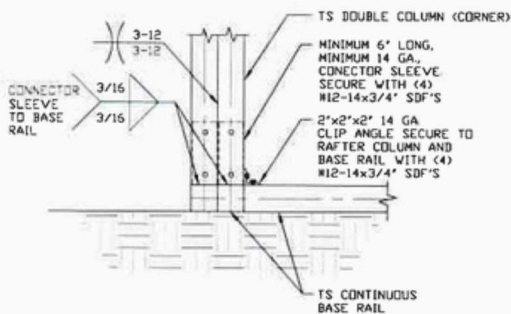
3A RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



3B RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



4 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



4A END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS

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SCALE: NTS

JOB NO: 20126S

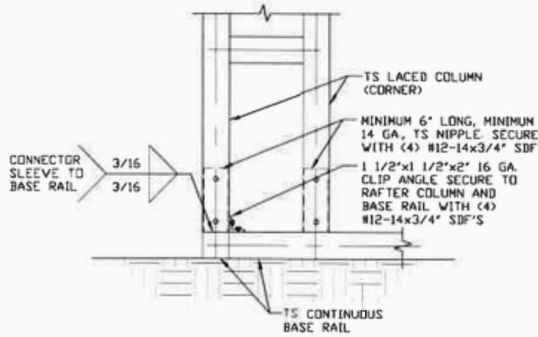
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DWG. NO: SK-3

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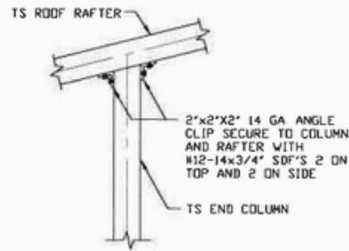
CONNECTION DETAILS



4B

END COLUMN/BASE RAIL CONNECTION DETAIL

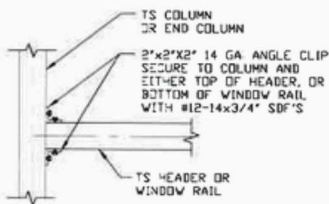
SCALE: NTS



5

END COLUMN/RAFTER CONNECTION DETAIL

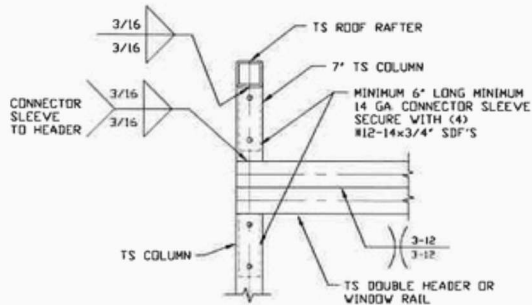
SCALE: NTS



6

COLUMN OR WINDOW RAIL/GIRT TO POST CONNECTION DETAIL

SCALE: NTS



6A

COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL

SCALE: NTS

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SHT. 13

SCALE: NTS

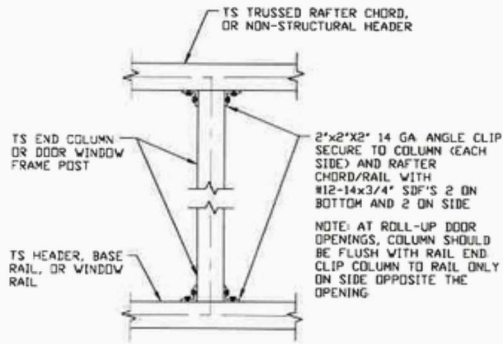
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JOB NO: 20126S

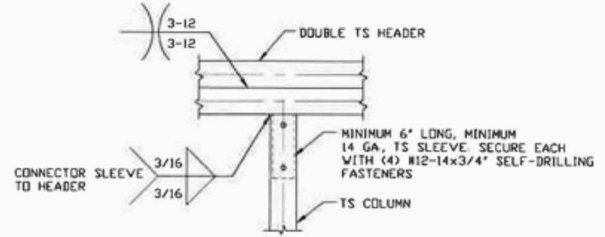
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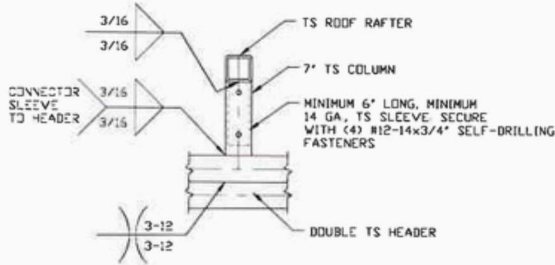
CONNECTION DETAILS



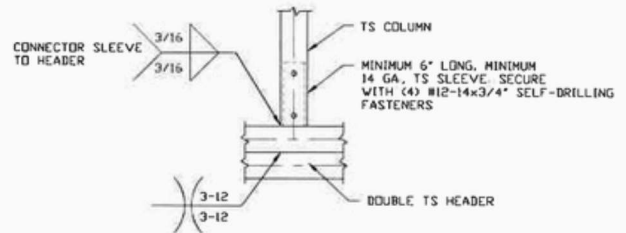
7 COLUMN TO WINDOW RAIL CONNECTION DETAIL
SCALE: NTS



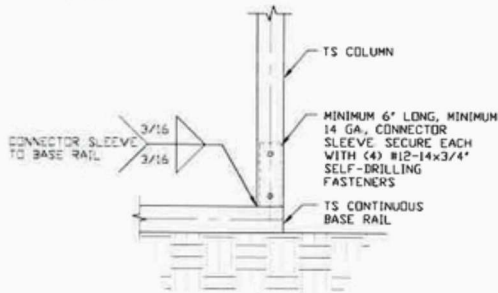
8 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS



9A COLUMN/DOUBLE HEADER CONNECTION DETAIL
SCALE: NTS



9B COLUMN/DOUBLE HEADER CONNECTION DETAIL
SCALE: NTS



10 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS

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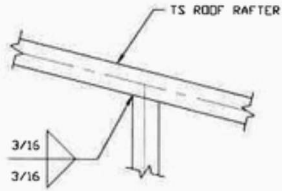
SHT. 14

DWG. NO: SK-3

REV: 0

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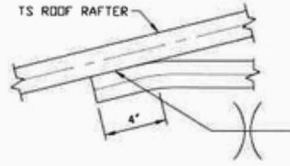
CONNECTION DETAILS



11

RAFTER TO CHORD CONNECTION DETAIL

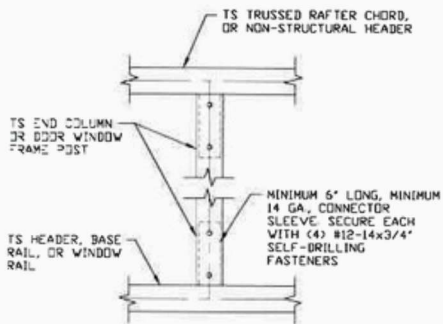
SCALE: NTS



12

COLLAR TIE CONNECTION DETAIL

SCALE: NTS



13

COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL

SCALE: NTS

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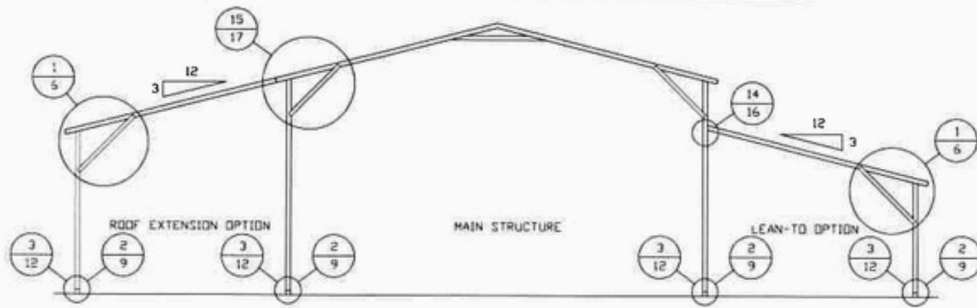
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DWG. NO: SK-3

REV: 0

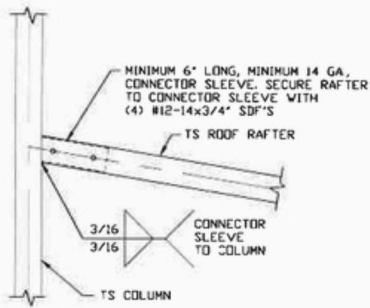
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BOX EAVE RAFTER LEAN-TO OPTIONS



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

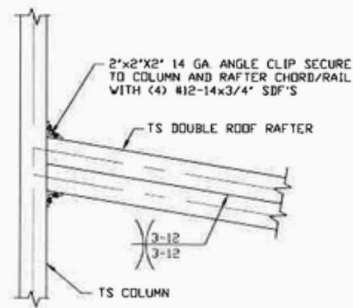
SCALE: NTS



**LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL
FOR RAFTER SPANS $\leq 12'-0''$**

SCALE: NTS

14A



**LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL
FOR RAFTER SPANS $12'-0'' < \text{TO } \leq 16'-0''$**

SCALE: NTS

14B

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SCALE: NTS

JOB NO: 20126S

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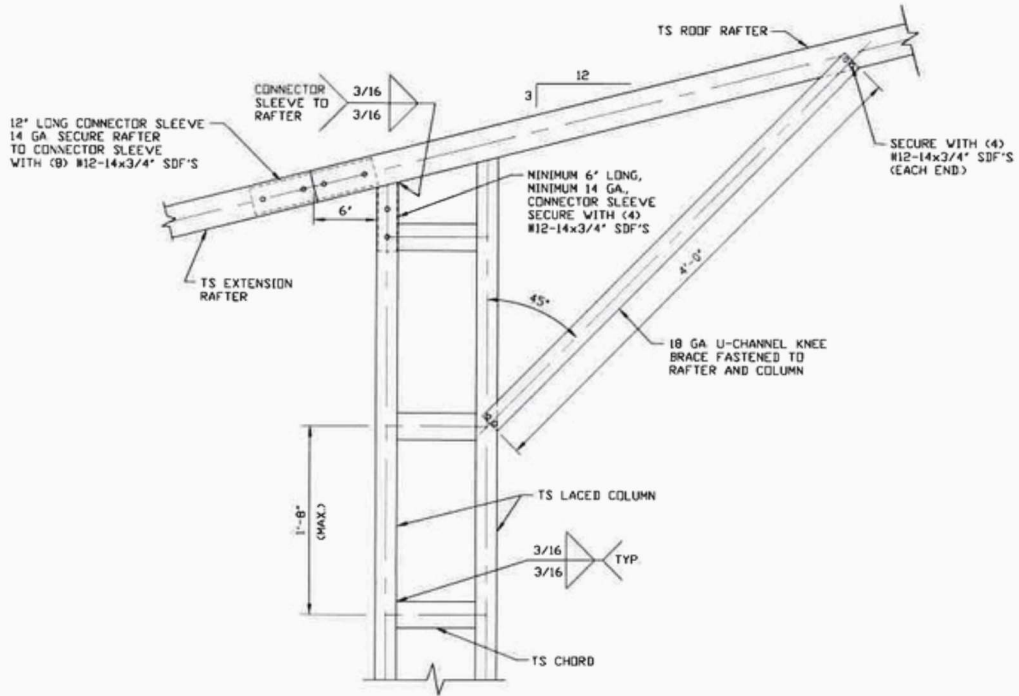
SHT. 16

DWG. NO: SK-3

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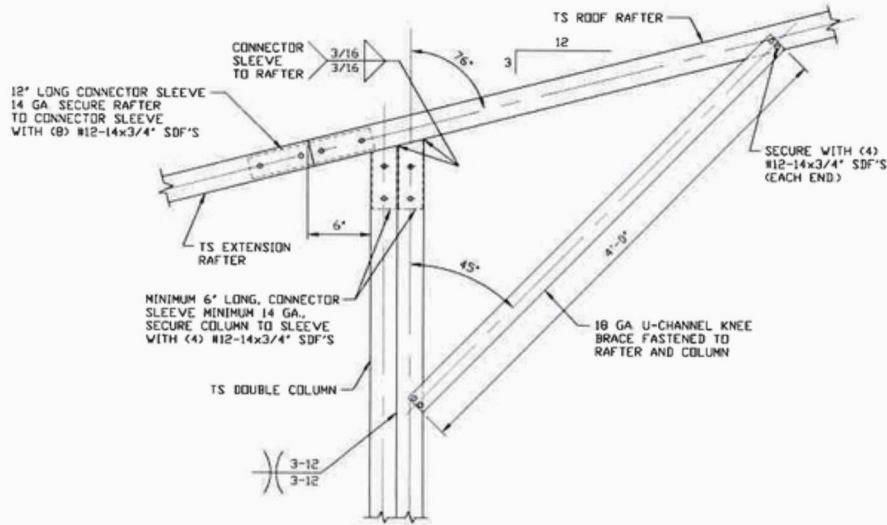
BOX EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS $\leq 12'-0''$



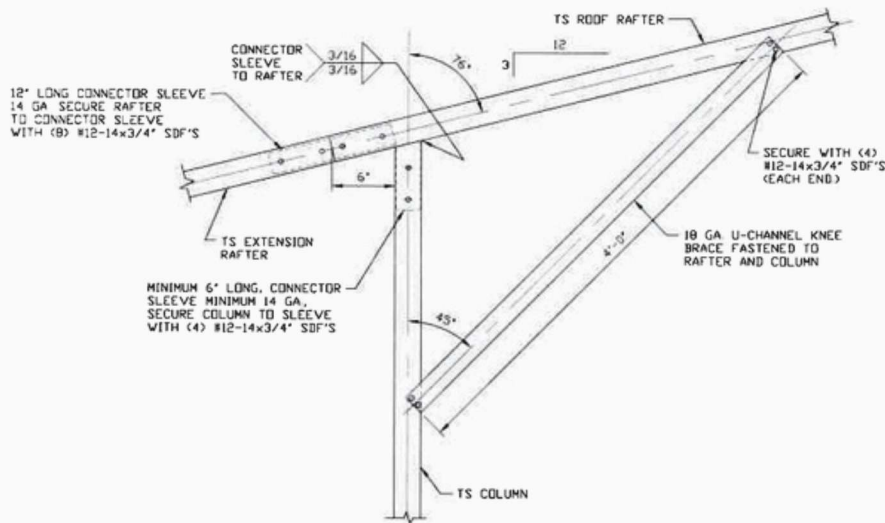
15A SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 16'-0" < TO $\leq 20'-0''$
SCALE: NTS

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	CLIENT:	SHT. 17	DWG. NO SK-3	REV: 0

BOX EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS $\leq 12'-0''$



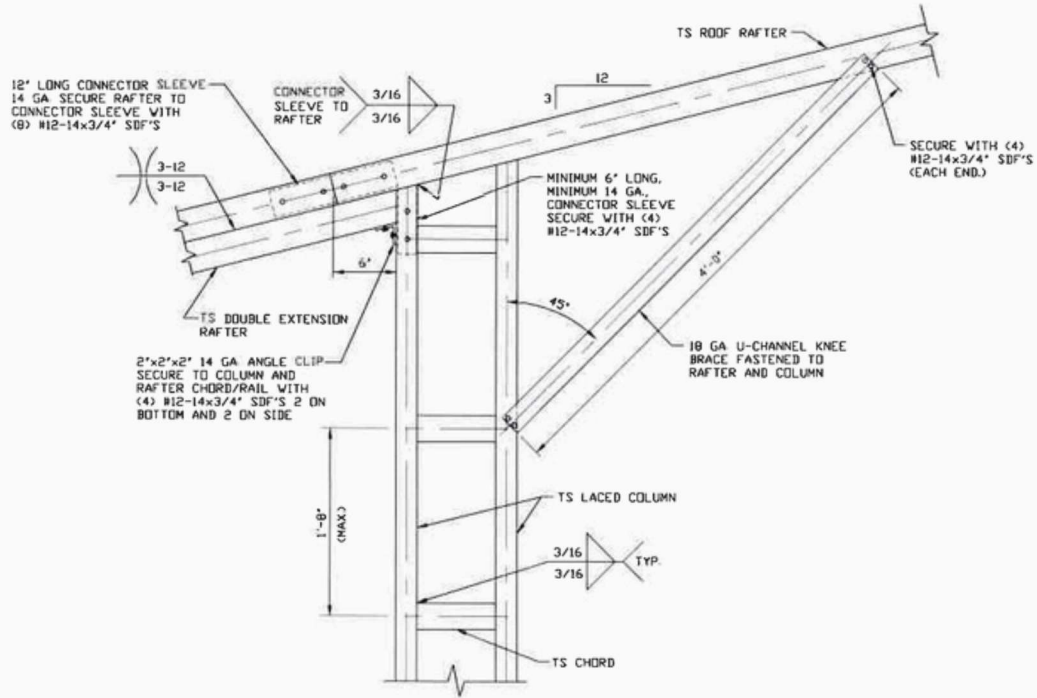
15B SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS



15C SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS $\leq 12'-0''$
SCALE: NTS
NOTE: 2'-0" KNEE BRACE MAY BE USED
FOR BUILDING WIDTHS $< 24'-0''$.

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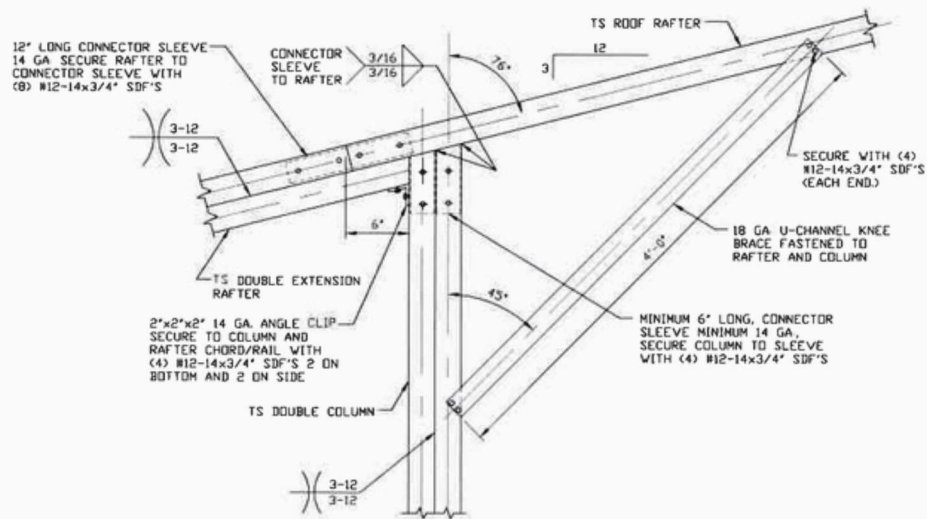
BOX EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS 12'-0" < TO ≤ 16'-0"



15D SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 16'-0" < TO ≤ 20'-0"
SCALE: NTS

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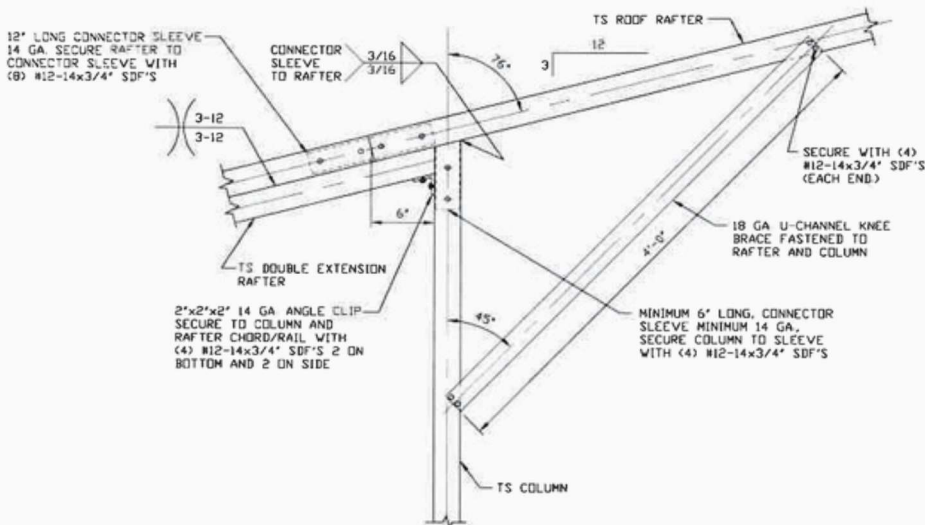
BOX EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS 12'-0" < TO ≤ 16'-0"



15E

**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 12'-0" < TO ≤ 16'-0"**

SCALE: NTS



15F

**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS ≤ 12'-0"**

SCALE: NTS

NOTE: 2'-0" KNEE BRACE MAY BE USED
FOR BUILDING WIDTHS < 24'-0".

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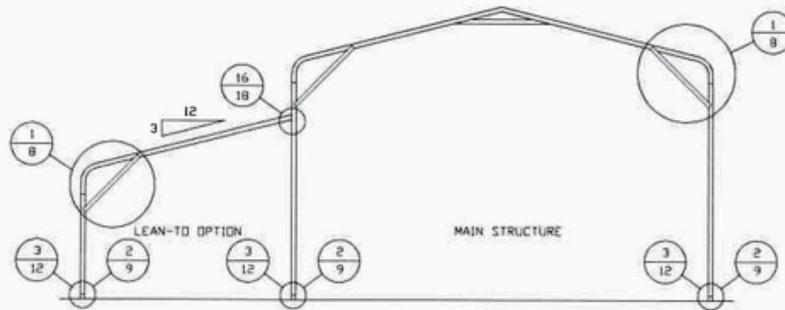
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DWG. NO: SK-3

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BOW EAVE RAFTER LEAN-TO OPTION



TYPICAL BOW RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

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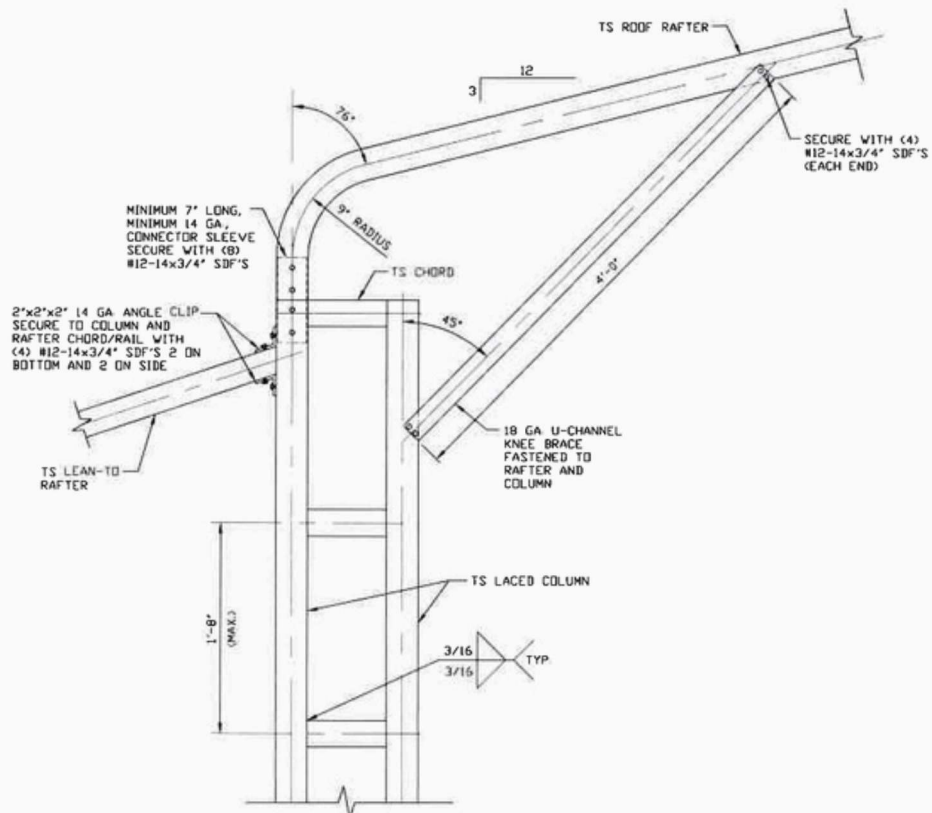
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BOW EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS $\leq 12'-0''$



**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 16'-0" < TO \leq 20'-0"**

16A

SCALE: NTS

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JOB NO: 20126S

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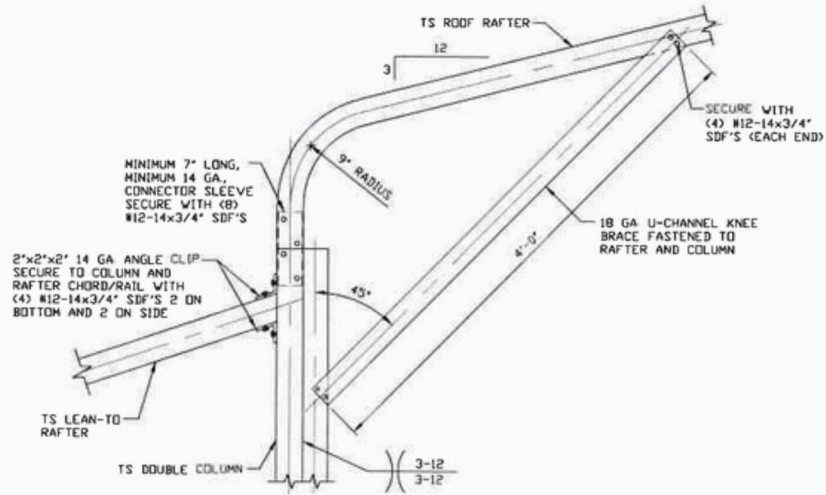
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DWG. NO: SK-3

REV: 0

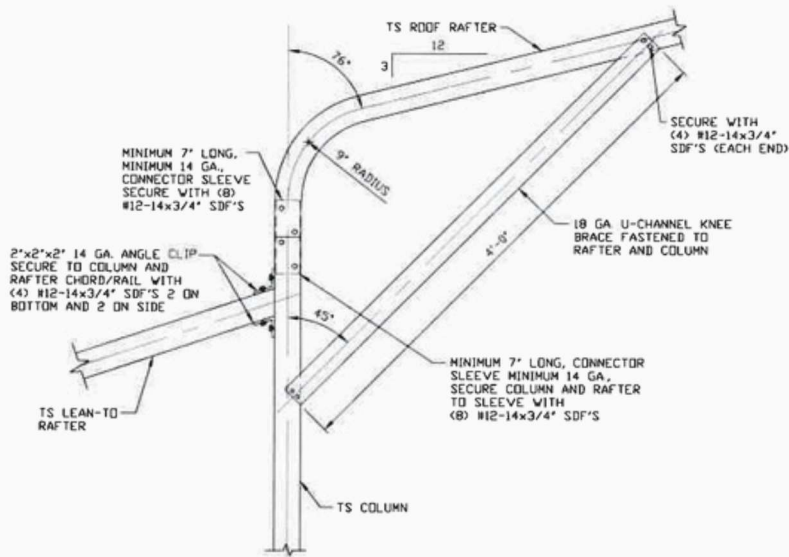
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BOW EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS $\leq 12'-0''$



16B

**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 12'-0" < TO \leq 16'-0"**
SCALE: NTS



16C

**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS $\leq 12'-0''$**
SCALE: NTS

NOTE: 2'-0" KNEE BRACE MAY BE USED
FOR BUILDING WIDTHS $< 24'-0''$.

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JOB NO: 20126S

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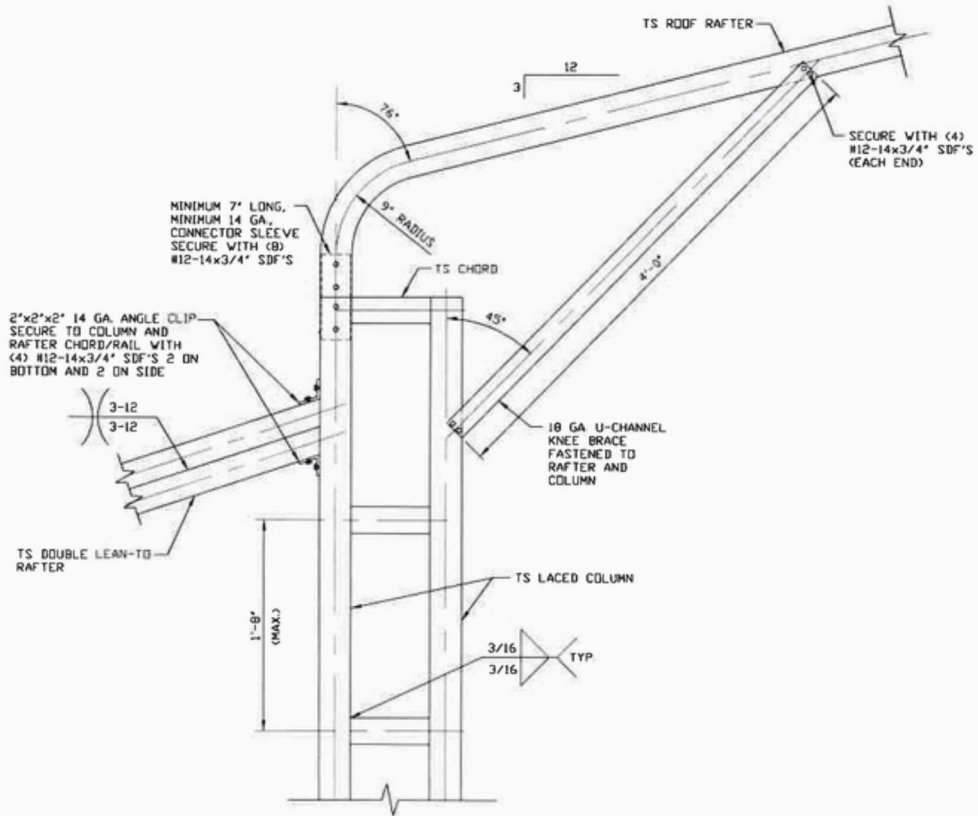
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DWG. NO: SK-3

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BOW EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS 12'-0" < TO ≤ 16'-0"



**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 16'-0" < TO ≤ 20'-0"**

16D

SCALE: NTS

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ENGINEERING AND CONSULTING, INC.

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CHECKED BY: PDH

PROJECT MGR: VSM

DATE: 6-23-20

SCALE: NTS

JOB NO: 20126S

CLIENT:

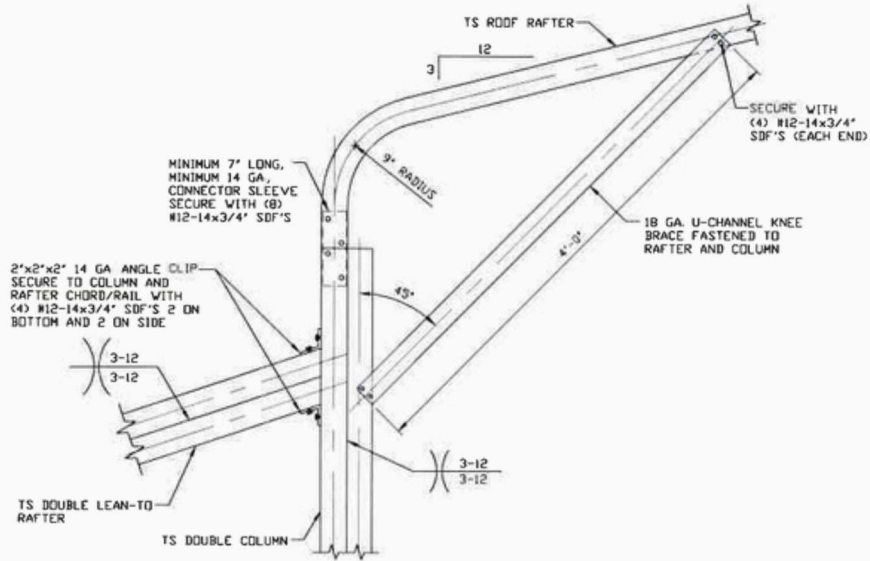
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DWG. NO: SK-3

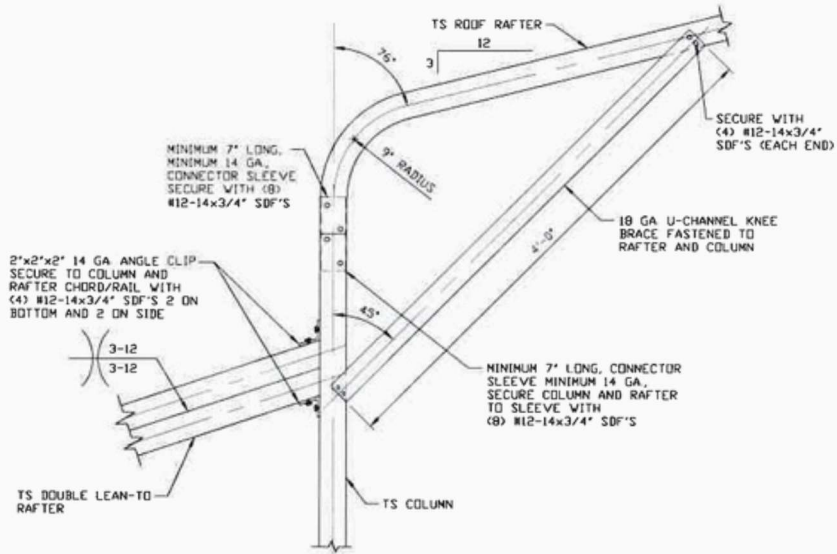
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BOW EAVE RAFTER LEAN-TO OPTIONS FOR RAFTER SPANS 12'-0" < TO ≤ 16'-0"



16E SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS



16F SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS < 12'-0"
SCALE: NTS
NOTE: 2'-0" KNEE BRACE MAY BE USED
FOR BUILDING WIDTHS < 24'-0".

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JOB NO: 20126S

CLIENT:

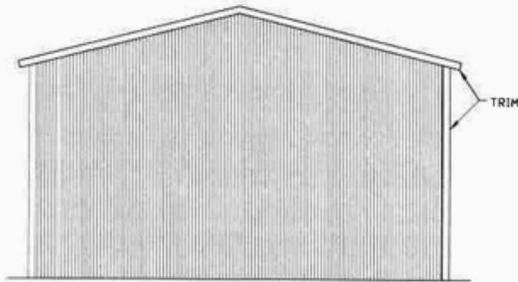
SHT. 18D

DWG. NO: SK-3

REV: 0

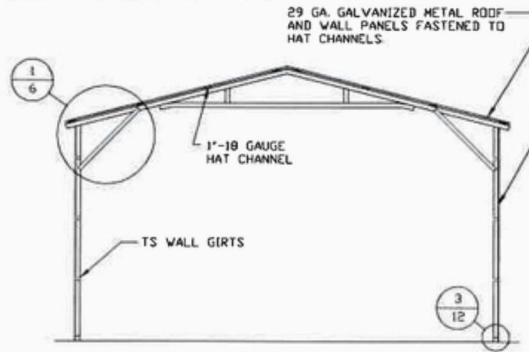
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BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



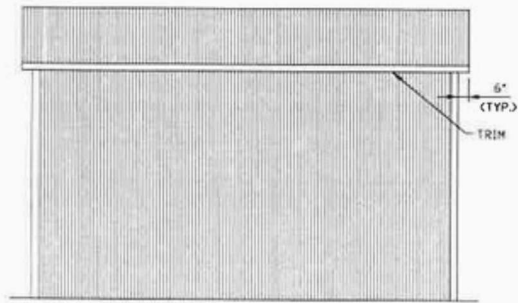
**TYPICAL END ELEVATION
VERTICAL ROOF/SIDING**

SCALE: NTS



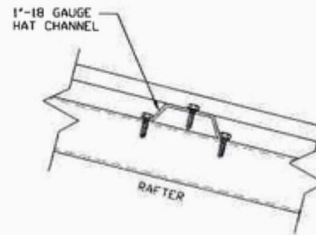
**TYPICAL SECTION VERTICAL
ROOF/SIDING OPTION**

SCALE: NTS



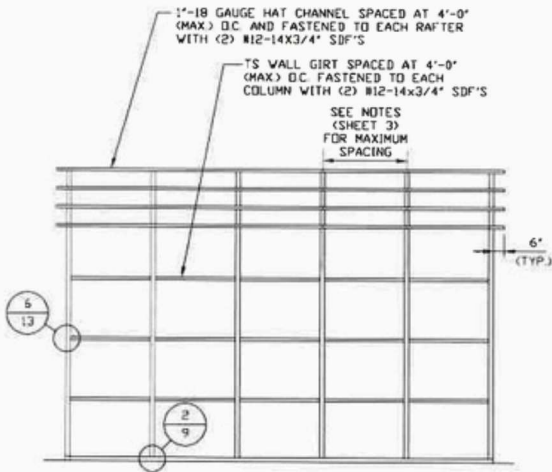
**TYPICAL SIDE ELEVATION
VERTICAL ROOF/SIDING**

SCALE: NTS



PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS



**TYPICAL FRAMING SECTION
VERTICAL ROOF/SIDING OPTION**

SCALE: NTS

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PROJECT MGR: WSM

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DATE: 6-23-20

SHT. 19

SCALE: NTS

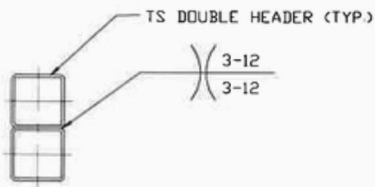
DWG. NO: SK-3

JOB NO: 20126S

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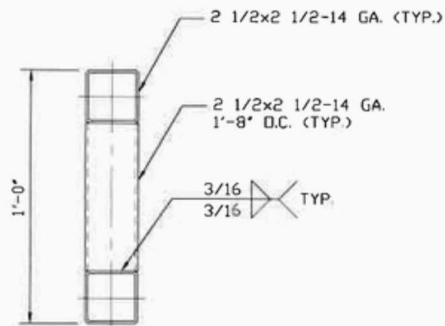
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SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR LENGTHS $\leq 12'-0''$

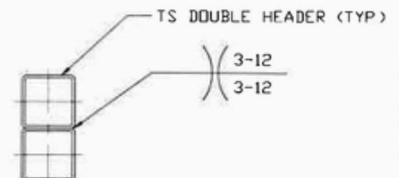
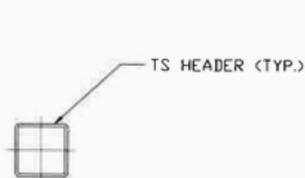
SCALE: NTS



HEADER DETAIL FOR LENGTHS $12'-0'' < \text{TO} \leq 14'-0''$

SCALE: NTS

END WALL HEADER OPTION



HEADER DETAIL FOR LENGTHS $\leq 12'-0''$

SCALE: NTS

HEADER DETAIL FOR LENGTHS $12'-0'' < \text{TO} \leq 14'-0''$

SCALE: NTS

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