



**STRUCTURAL DESIGN
STANDARD PACKAGE
ENCLOSED BUILDING**

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

7 January 2020
Revision 0
M&A Project No. 19294S

Prepared for:

Best Metal Buildings, LLC
484 NW Turner Avenue
Lake City, Florida 32055

Prepared by:

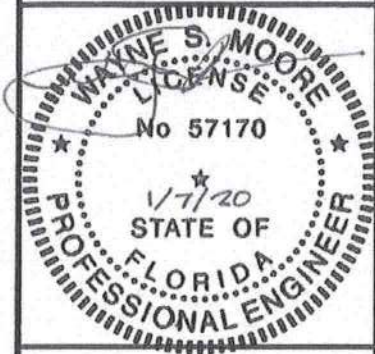
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and Consulting, Inc.

1009 East Avenue
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DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: BMB

BEST METAL BUILDINGS, LLC
484 NW TURNER AVENUE
LAKE CITY, FLORIDA 32055
30'-0" x 20'-0" SP ENCLOSED STRUCTURE

DATE: 1-7-20

SCALE: NTS

JOB NO: 19294S

SHT. 1

DWG. NO: SK-3

REV: 0

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MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	BEST METAL BUILDINGS, LLC 484 NW TURNER AVENUE LAKE CITY, FLORIDA 32055 30'-0"x20'-0" SP ENCLOSED STRUCTURE		
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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 2017 FLORIDA BUILDING CODE (FBC) 6TH EDITION, 2015 IBC, AND 2012 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
 - A) DEAD LOAD = 1.5 PSF
 - B) LIVE LOAD = 12 PSF
 - C) GROUND SNOW LOAD = 10 PSF (UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED).
4. LOW ULTIMATE WIND SPEED (LW) 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH) MAXIMUM RAFTER/POST AND END COLUMN SPACING = 5.0 FEET.
5. HIGH ULTIMATE WIND SPEED (HW) 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH) MAXIMUM RAFTER/POST AND END COLUMN SPACING = 4.0 FEET.
6. END WALL COLUMNS (POST) ARE EQUIVALENT IN SIZE AND SPACING TO SIDE WALL POSTS (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"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.
10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 10' O.C. (MAX.) FOR LOW WIND AND 6' O.C. (MAX.) FOR HIGH WIND.
11. 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.
12. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6' OF EACH RAFTER COLUMN ALONG SIDES.
13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG AND ARE APPLICABLE ONLY IN MEDIUM TO STIFF SOILS (SUITABLE SOILS). HELIX ANCHORS, SEE DETAIL 2B, MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. STANDARD GROUND ANCHORS ARE ONLY ALLOWED FOR LOW WIND APPLICATIONS.
14. 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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SHT. 3

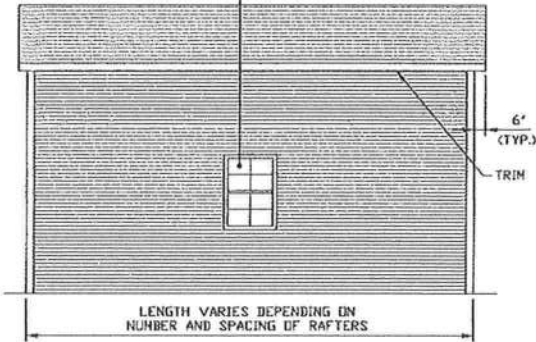
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BOX EAVE FRAME RAFTER STRUCTURE

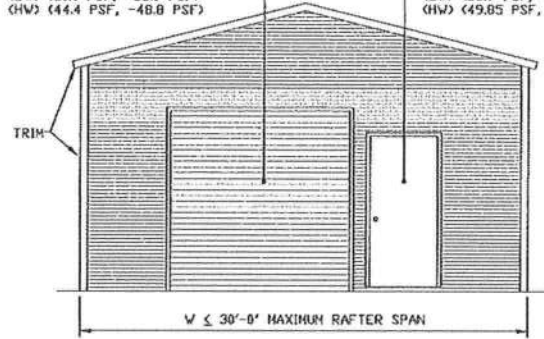
WINDOW (AS APPLICABLE)
DESIGN PRESSURE
(LV) (35.3 PSF, -38.2 PSF)
(HW) (52.2 PSF, -56.6 PSF)



TYPICAL SIDE ELEVATION

SCALE: NTS

ROLL-UP DOOR
(AS APPLICABLE)
DESIGN PRESSURE
(LV) (30.0 PSF, -33.0 PSF)
(HW) (44.4 PSF, -48.0 PSF)



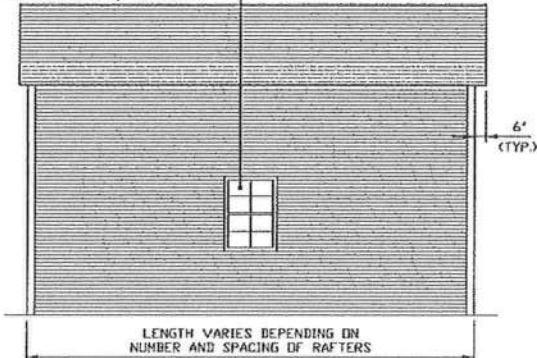
TYPICAL END ELEVATION

SCALE: NTS

SWINGING DOOR
(AS APPLICABLE)
DESIGN PRESSURE
(LV) (33.7 PSF, -36.7 PSF)
(HW) (49.85 PSF, -54.25 PSF)

BOW FRAME RAFTER STRUCTURE

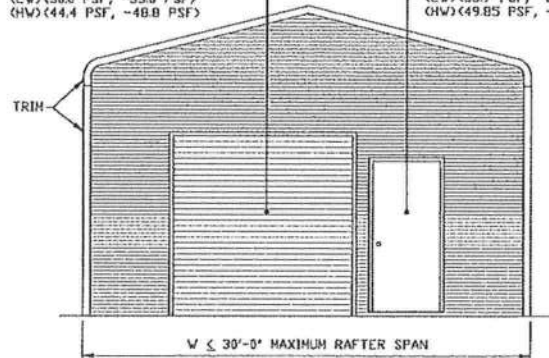
WINDOW (AS APPLICABLE)
DESIGN PRESSURE
(LV) (35.3 PSF, -38.2 PSF)
(HW) (52.2 PSF, -56.6 PSF)



TYPICAL SIDE ELEVATION

SCALE: NTS

ROLL-UP DOOR
(AS APPLICABLE)
DESIGN PRESSURE
(LV) (30.0 PSF, -33.0 PSF)
(HW) (44.4 PSF, -48.0 PSF)



TYPICAL END ELEVATION

SCALE: NTS

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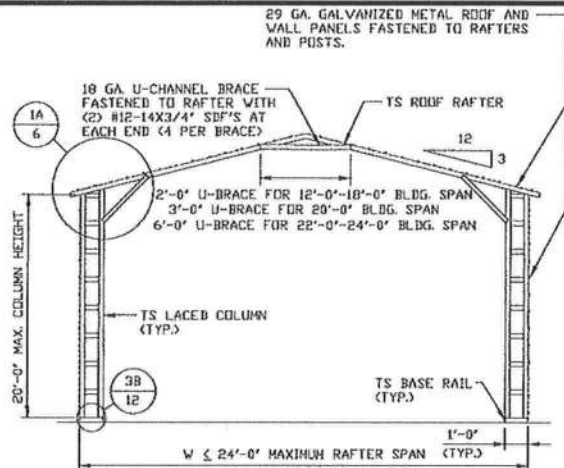
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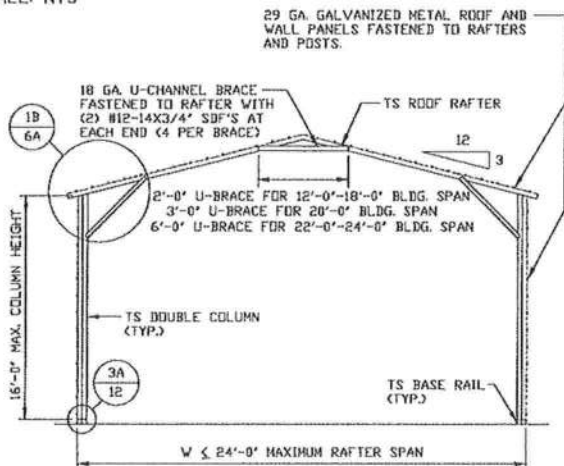
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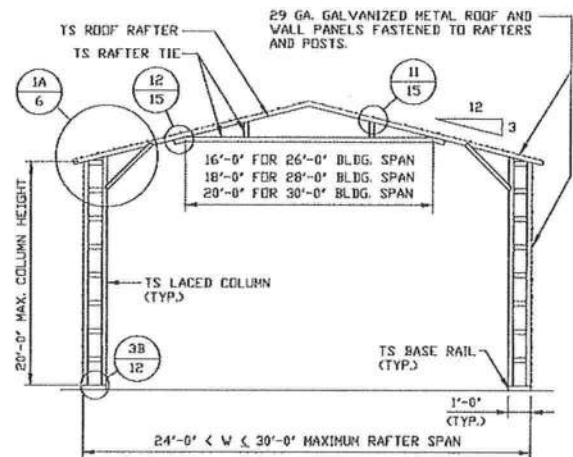
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



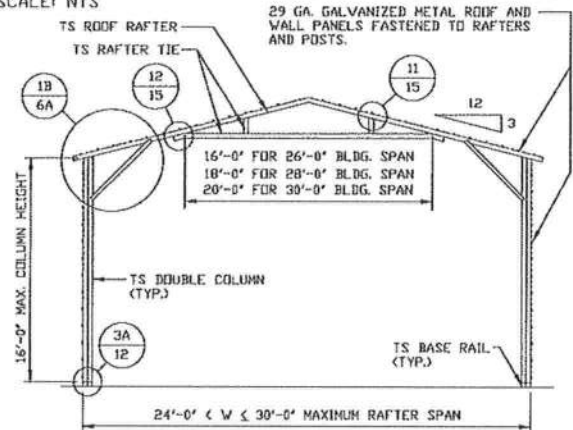
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



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SCALE: NTS



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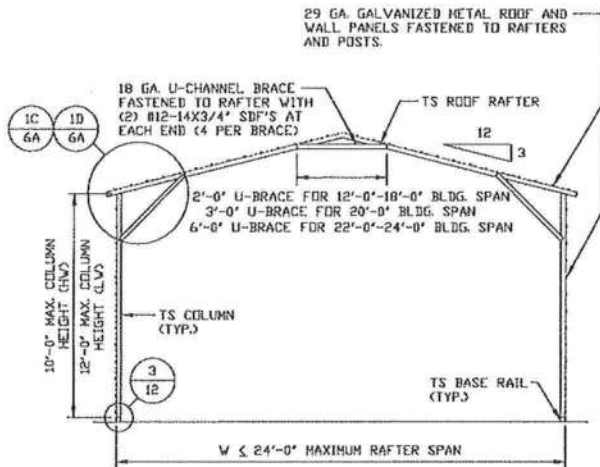
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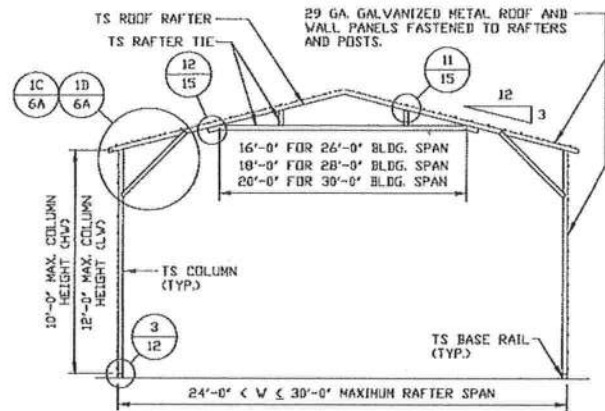
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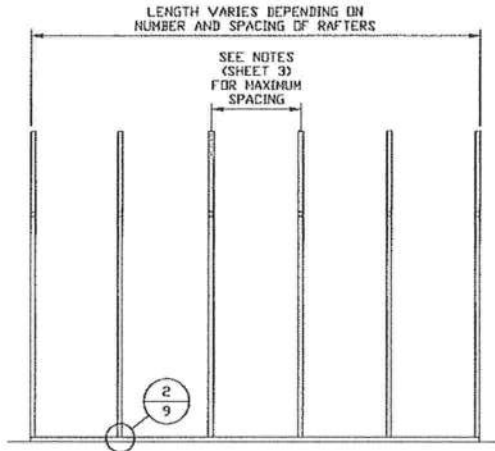
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TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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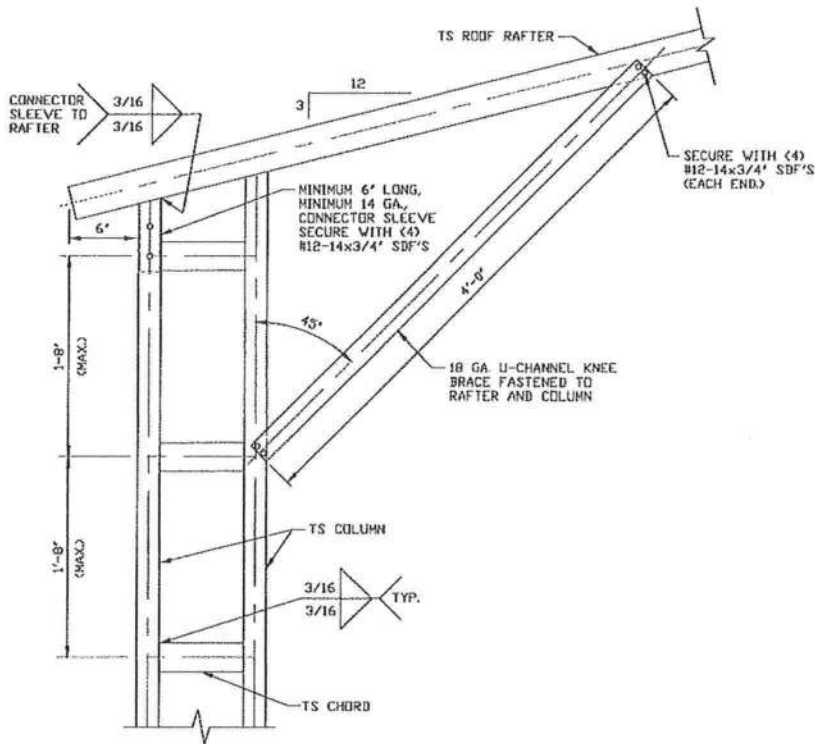
SHT. 5A

SCALE: NTS

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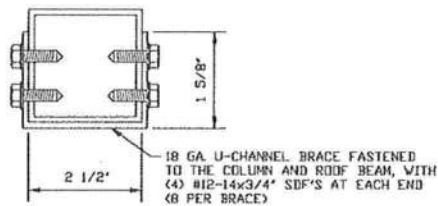
REV: 0



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

1A

SCALE: NTS



BRACE SECTION

SCALE: NTS

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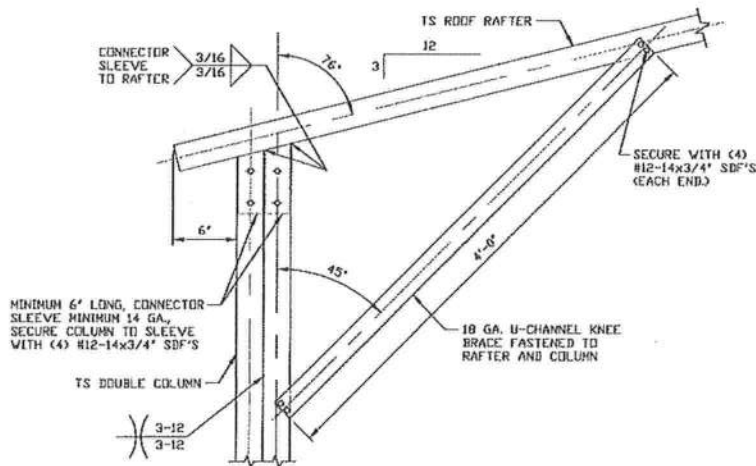
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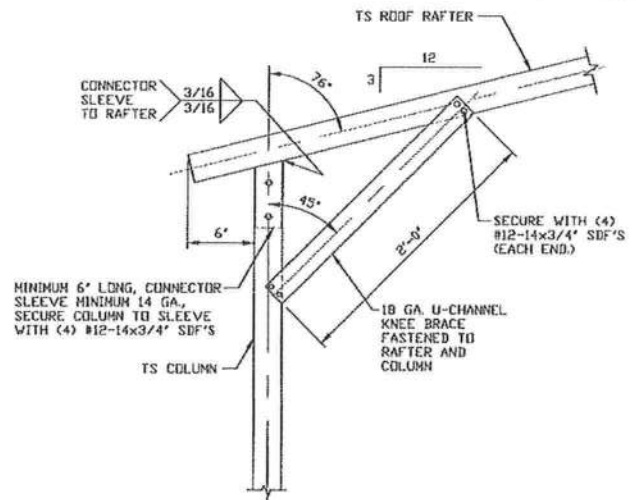
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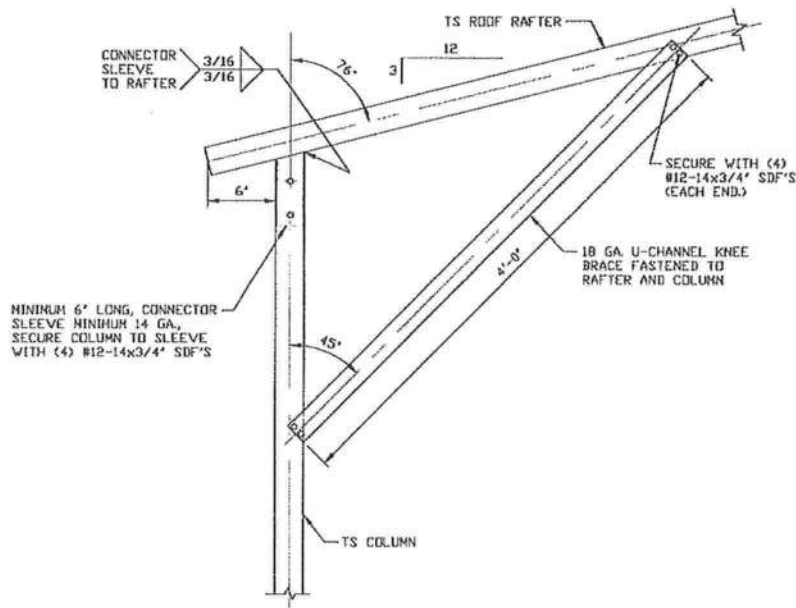
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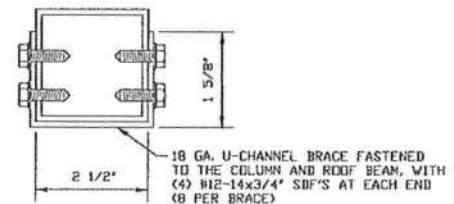
**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 10'-0" < TO ≤ 16'-0" (HW)
AND HEIGHTS 12'-0" < TO ≤ 16'-0" (LW)**
SCALE: NTS



**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS ≤ 8'-0" (HW),
AND HEIGHTS ≤ 10'-0" (LW)**
SCALE: NTS



**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 8'-0" < TO ≤ 10'-0" (HW)
AND HEIGHTS 10'-0" < TO ≤ 12'-0" (LW)**
SCALE: NTS



BRACE SECTION
SCALE: NTS

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SHT. 6A

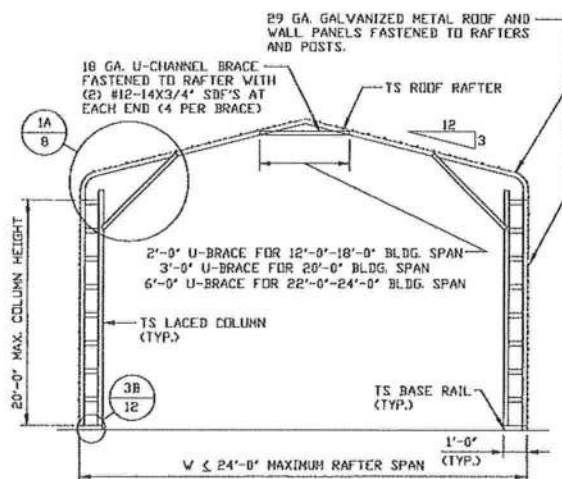
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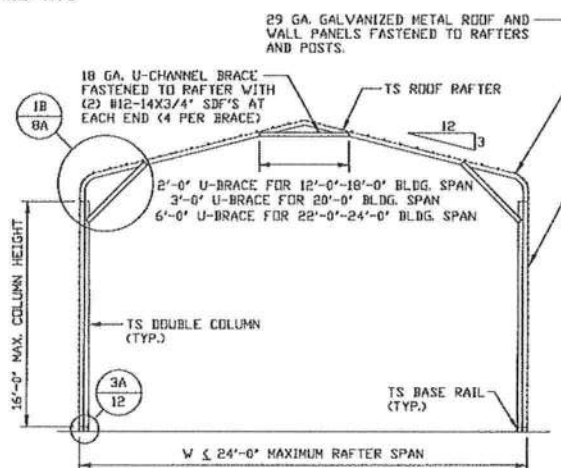
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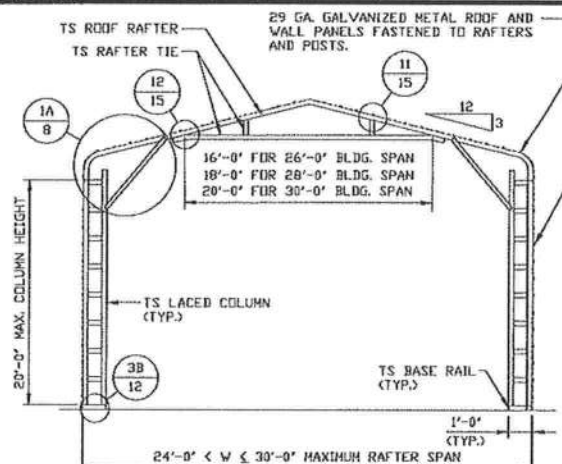
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



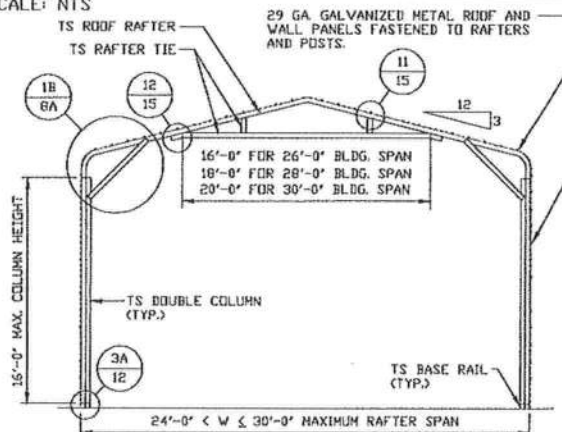
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TYPICAL RAFTER/COLUMN END FRAME SECTION

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TYPICAL RAFTER/COLUMN END FRAME SECTION

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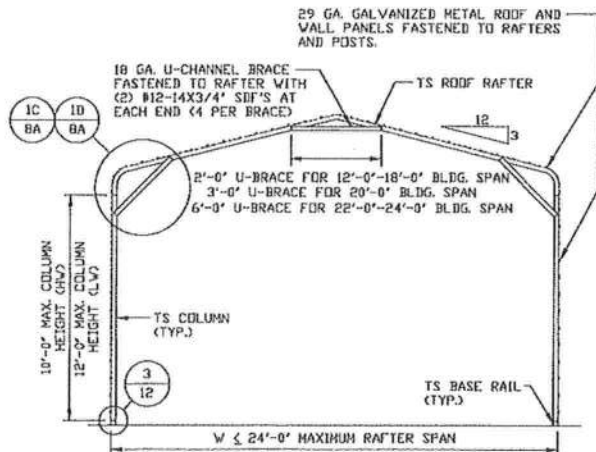
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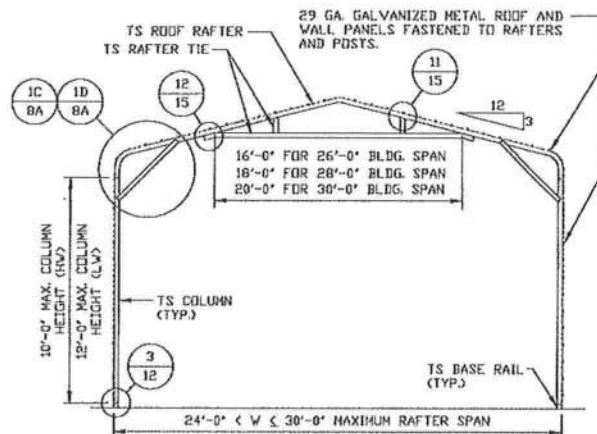
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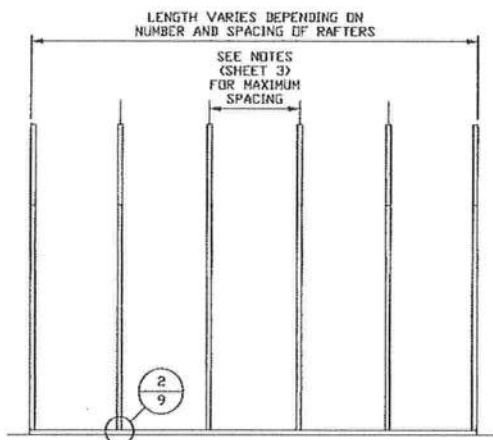
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TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAMING SIDE SECTION
SCALE: NTS

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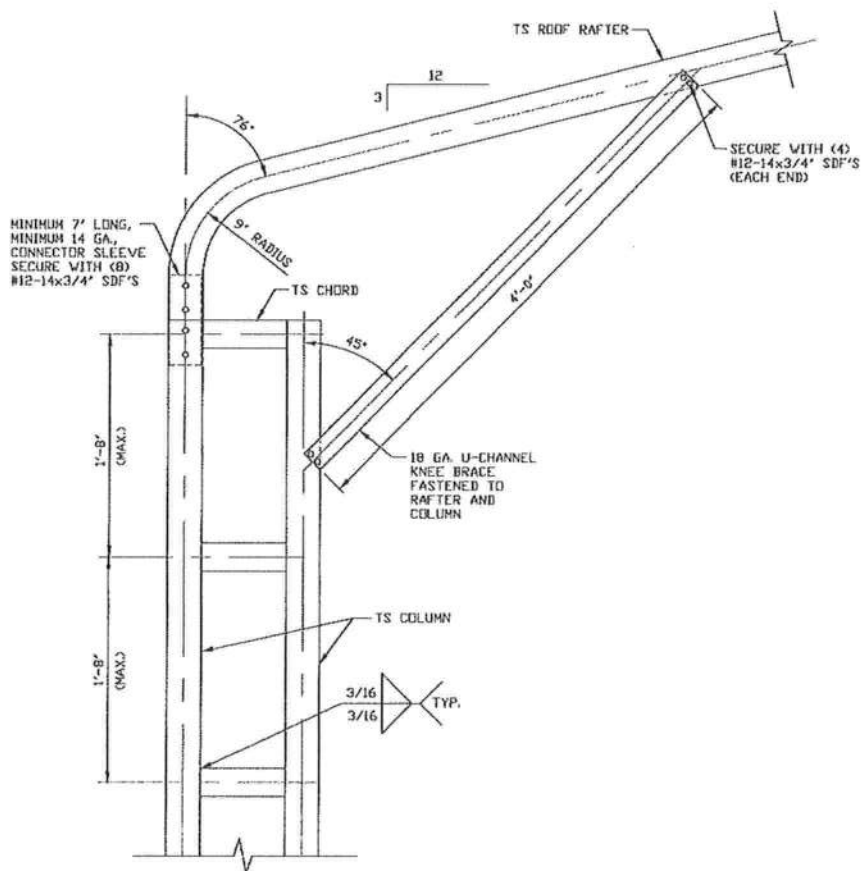
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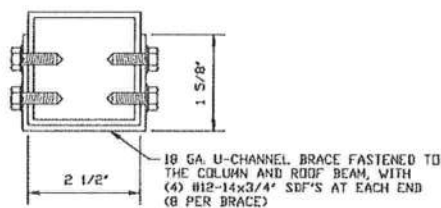
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BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

SCALE: NTS

1A



BRACE SECTION

SCALE: NTS

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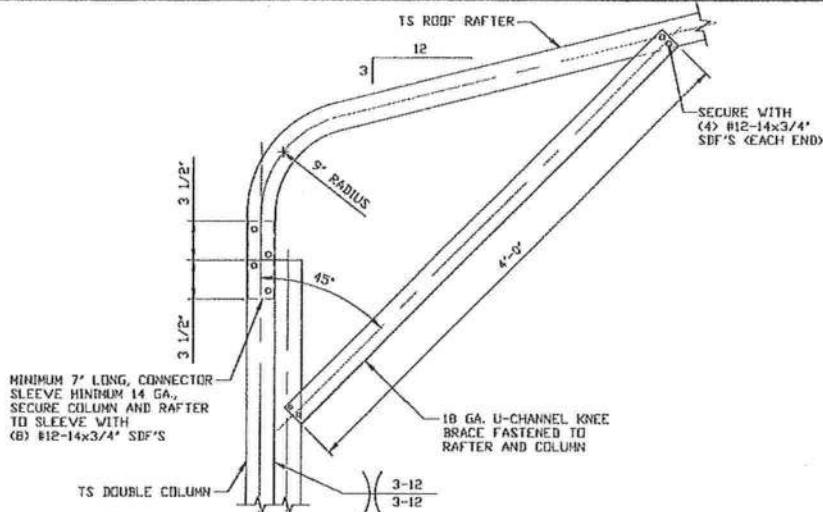
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SHT. 8

DWG. NO: SK-3

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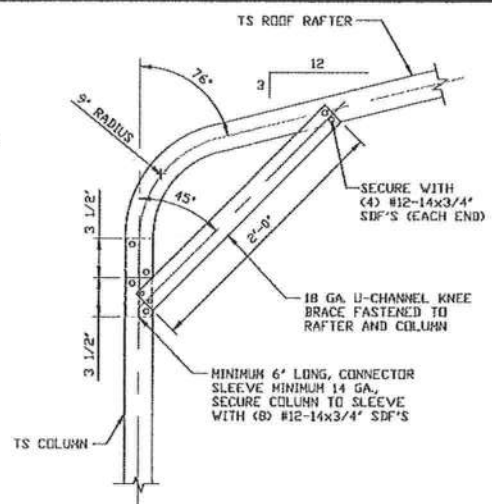
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**BOW EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 10'-0" < TO ≤ 16'-0" (HW)
AND HEIGHTS 12'-0" < TO ≤ 16'-0" (LW)**

1B

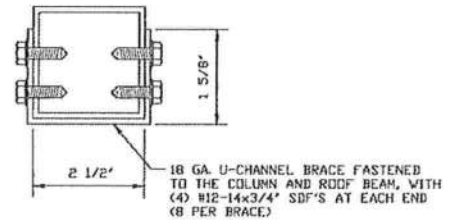
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**BOW EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS ≤ 8'-0" (HW)
AND HEIGHTS < 10'-0" (LW)**

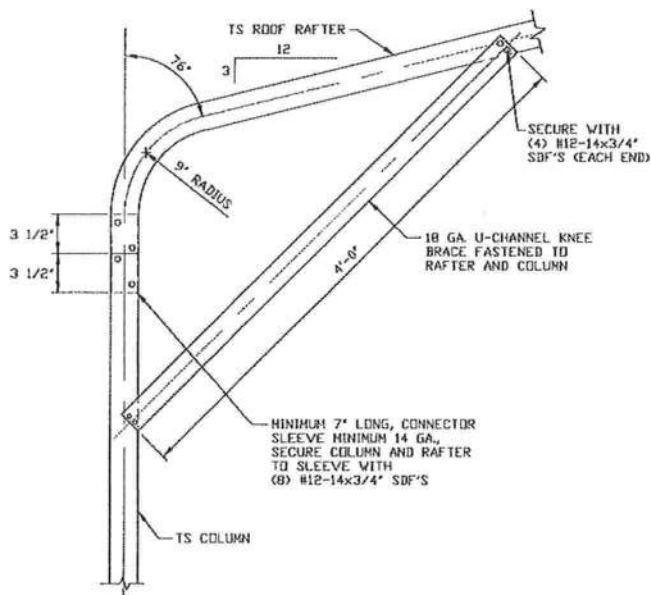
1D

SCALE: NTS



BRACE SECTION

SCALE: NTS



**BOW EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 8'-0" < TO ≤ 10'-0" (HW)
AND HEIGHTS 10'-0" < TO ≤ 12'-0" (LW)**

1C

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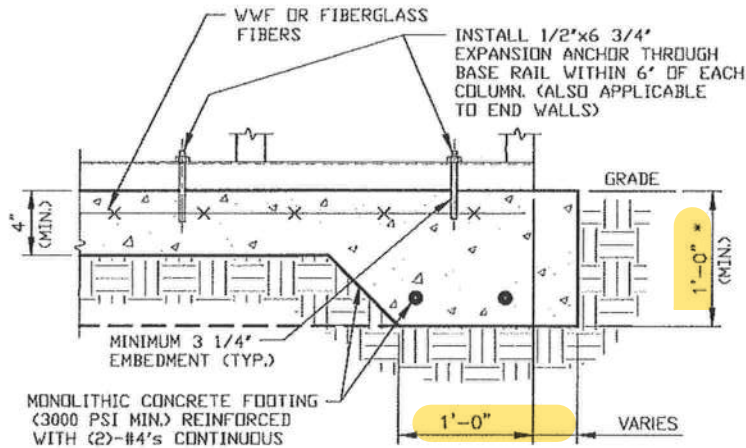
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JOB NO: 19294S

REV: 0

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BASE RAIL ANCHORAGE OPTIONS

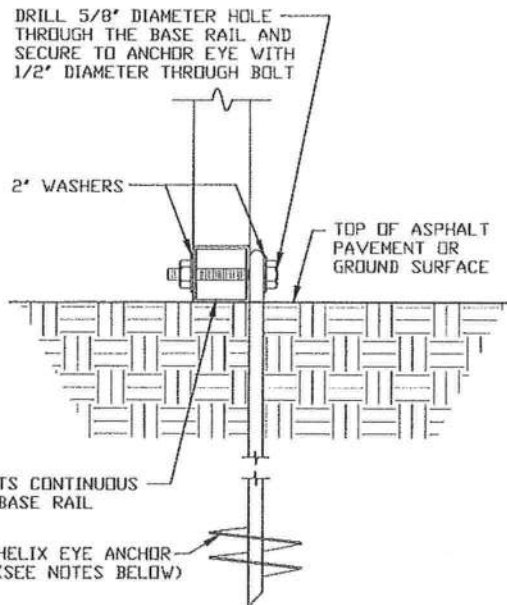


2A

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)

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

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CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: BMB

BEST METAL BUILDINGS, LLC
484 NW TURNER AVENUE
LAKE CITY, FLORIDA 32055
30-0"x20'-0" SP ENCLOSED STRUCTURE

DATE: 1-7-20

SHT. 9

SCALE: NTS

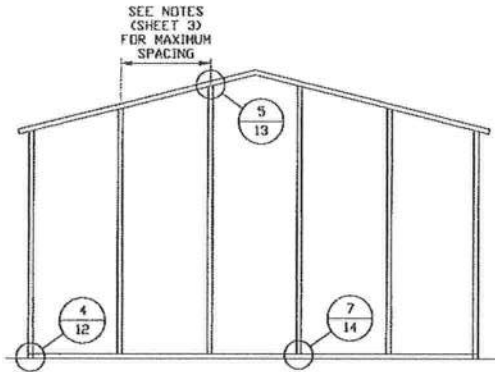
DWG. NO: SK-3

JOB NO: 19294S

REV: 0

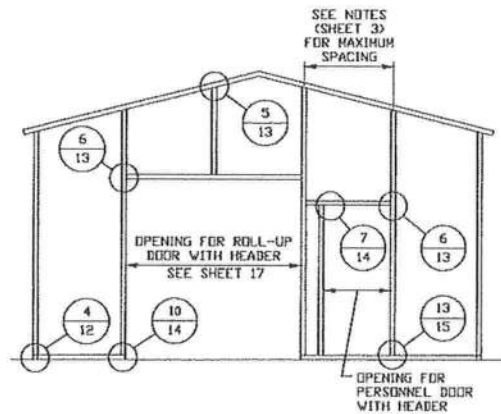
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BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



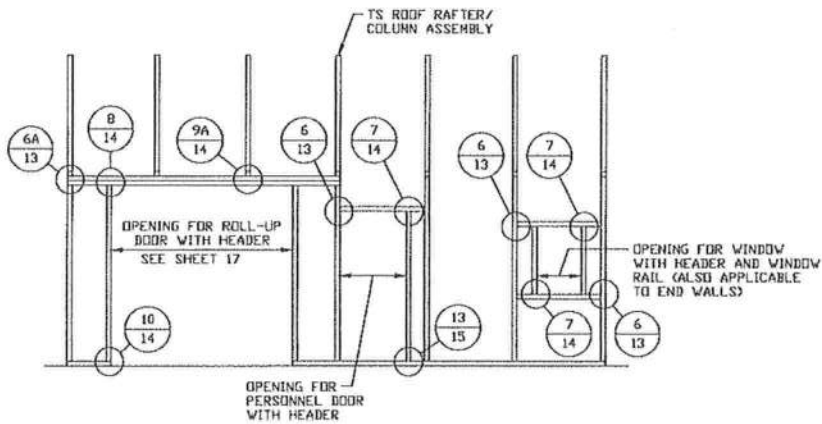
**TYPICAL BOX EAVE RAFTER
END WALL FRAMING SECTION**

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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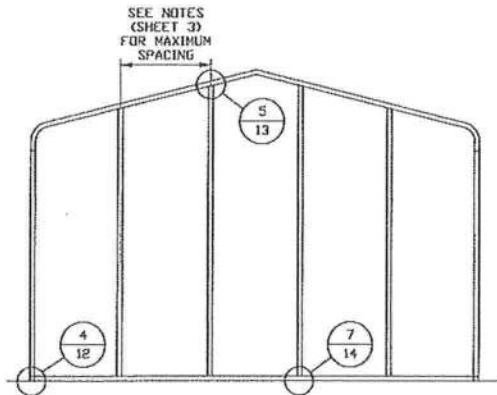
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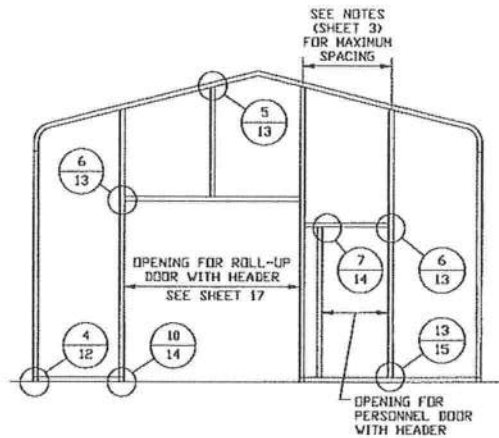
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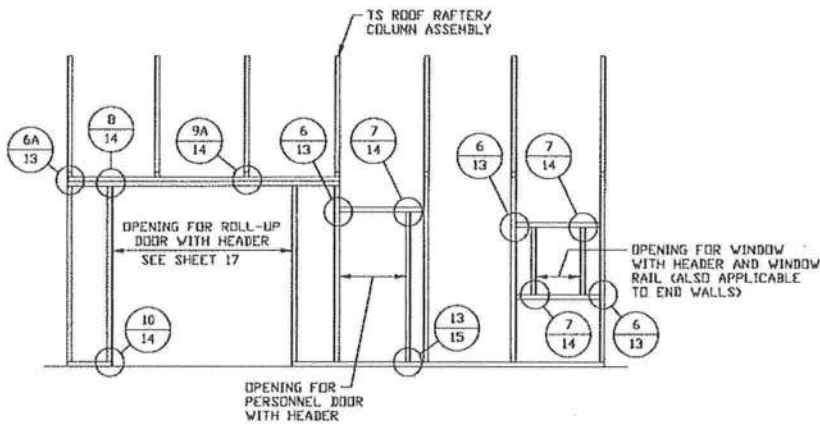
BOW RAFTER END WALL AND SIDE WALL OPENINGS



**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

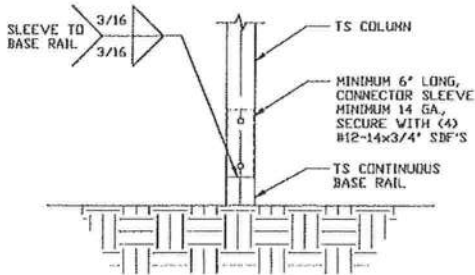
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SHT. 11

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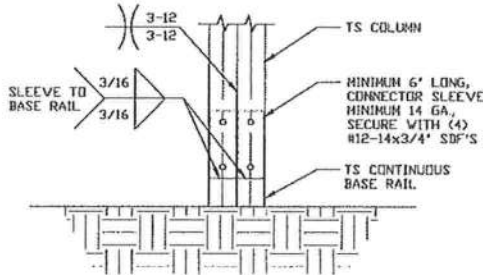
CONNECTION DETAILS



3

RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

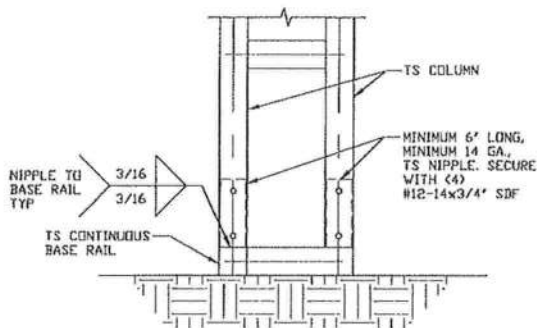
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3A

RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

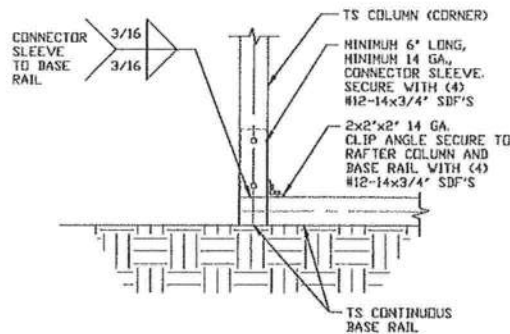
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3B

END COLUMN/BASE RAIL CONNECTION DETAIL

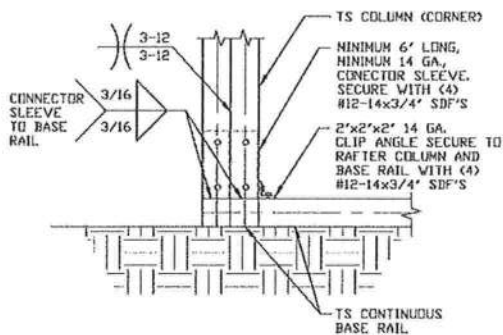
SCALE: NTS



4

END COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



4A

END COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS

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SHT. 12

SCALE: NTS

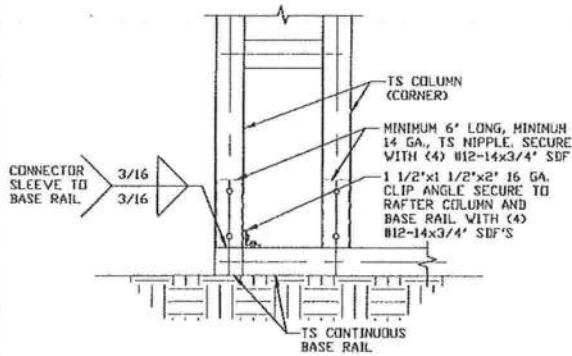
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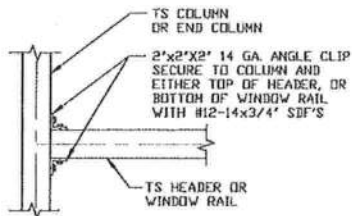
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CONNECTION DETAILS



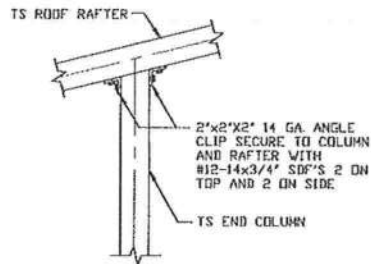
4B
END COLUMN/BASE RAIL
CONNECTION DETAIL

SCALE: NTS



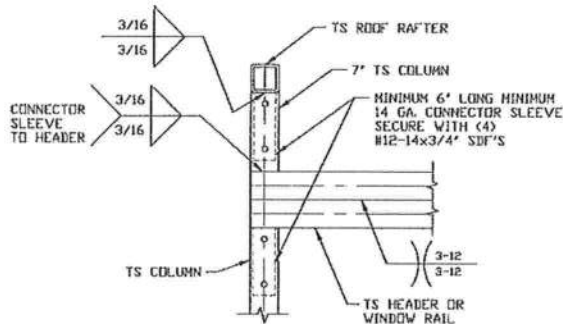
6
COLUMN OR WINDOW
RAIL/GIRT TO POST
CONNECTION DETAIL

SCALE: NTS



5
END COLUMN/RAFTER
CONNECTION DETAIL

SCALE: NTS



6A
COLUMN OR WINDOW
RAIL TO POST
CONNECTION DETAIL

SCALE: NTS

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SCALE: NTS

JOB NO: 19294S

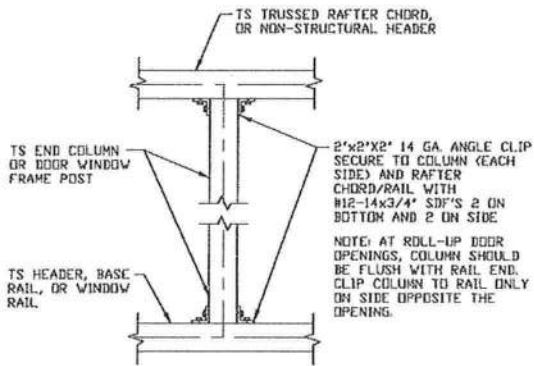
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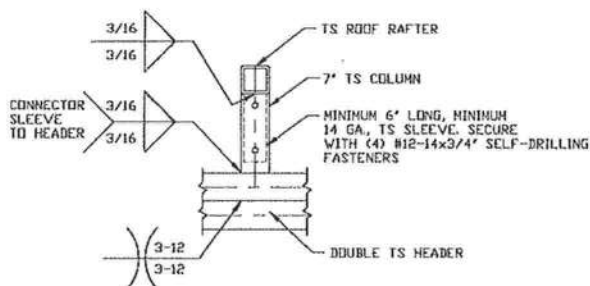
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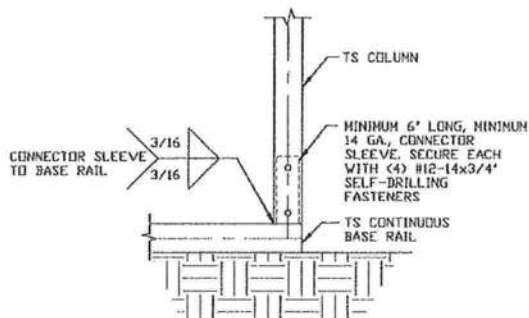
CONNECTION DETAILS



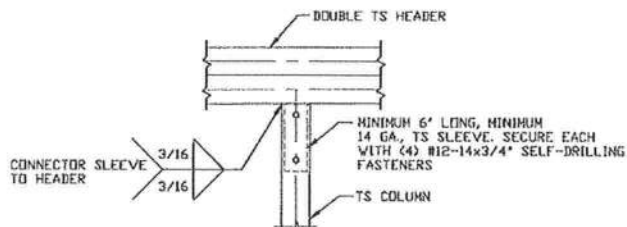
7 COLUMN TO WINDOW RAIL
CONNECTION DETAIL
SCALE: NTS



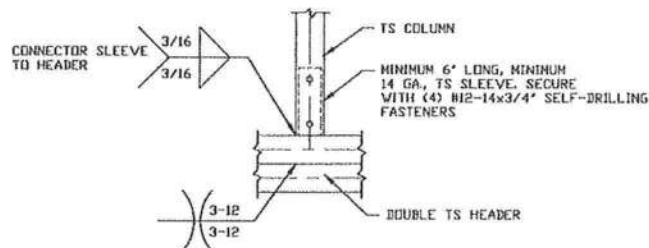
9A COLUMN/DOUBLE HEADER
CONNECTION DETAIL
SCALE: NTS



10 COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE: NTS



8 DOUBLE HEADER/COLUMN
CONNECTION DETAIL
SCALE: NTS



9B COLUMN/DOUBLE HEADER
CONNECTION DETAIL
SCALE: NTS

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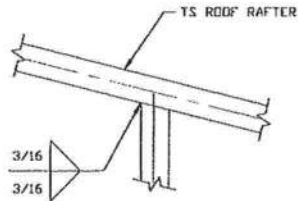
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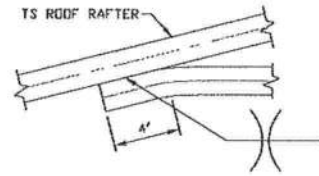
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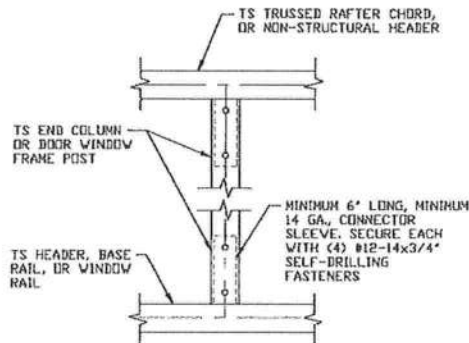
CONNECTION DETAILS



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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SHT. 15

SCALE: NTS

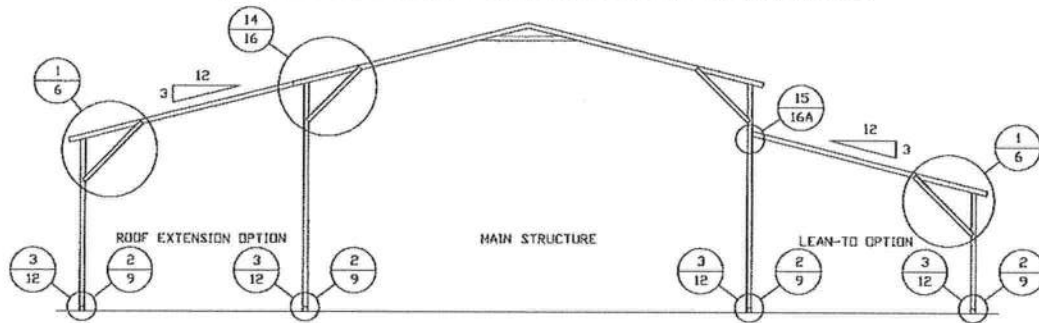
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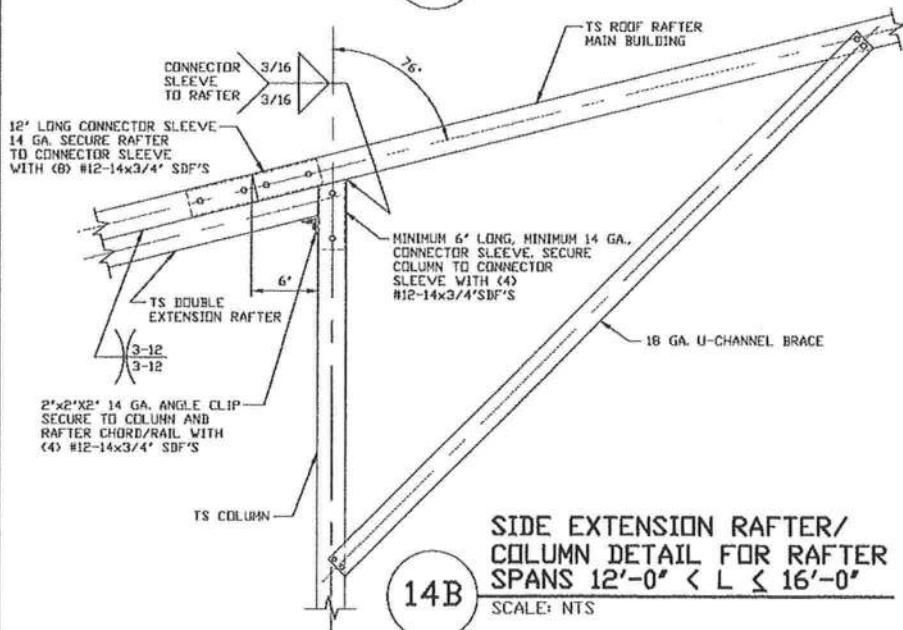
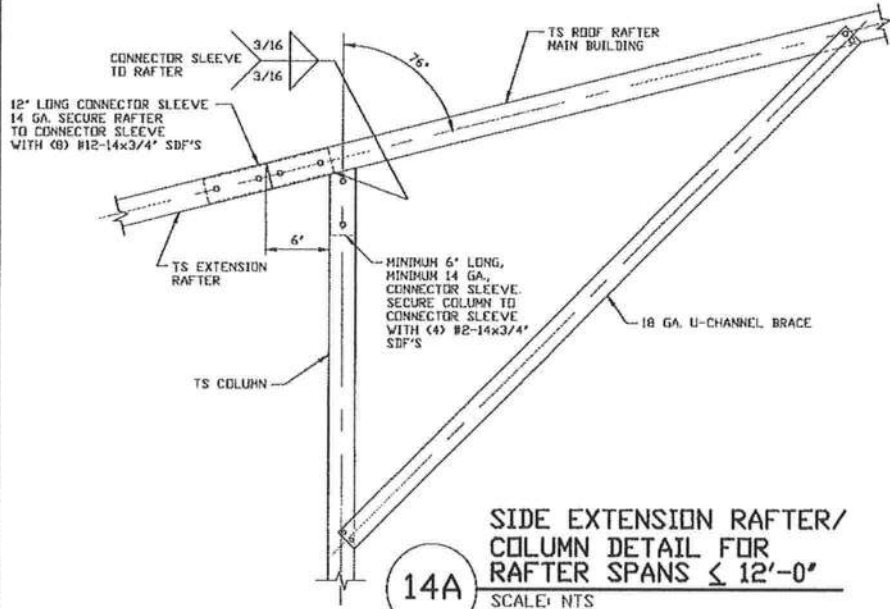
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BOX EAVE RAFTER LEAN-TO OPTIONS



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

SCALE: NTS



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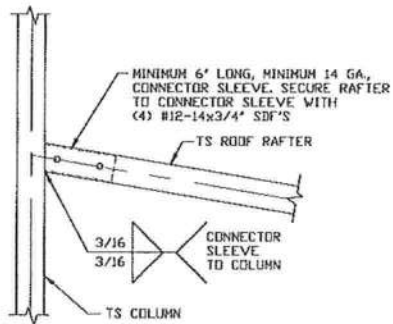
SHT. 16

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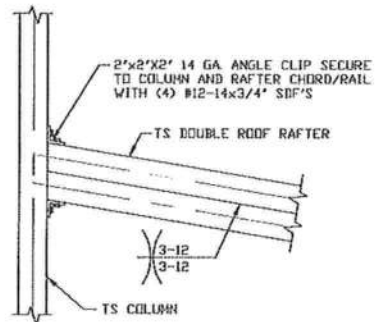
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BOX EAVE RAFTER LEAN-TO OPTIONS



15A LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL
FOR RAFTER SPANS $\leq 12'-0''$
SCALE: NTS



15B LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL
FOR RAFTER SPANS $12'-0'' < \text{TO} \leq 16'-0''$
SCALE: NTS

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SCALE: NTS

JOB NO: 19294S

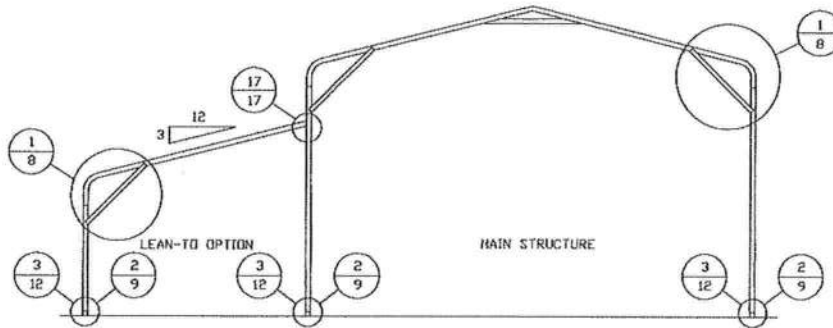
SHT. 16A

DWG. NO: SK-3

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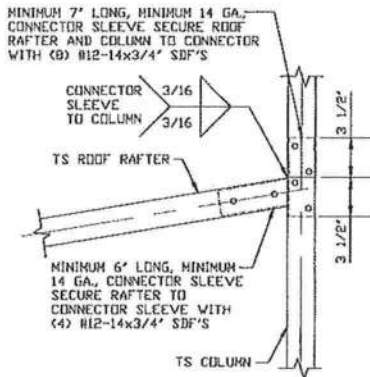
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BOW EAVE RAFTER LEAN-TO OPTION



TYPICAL BOW RAFTER LEAN-TO OPTION FRAMING SECTION

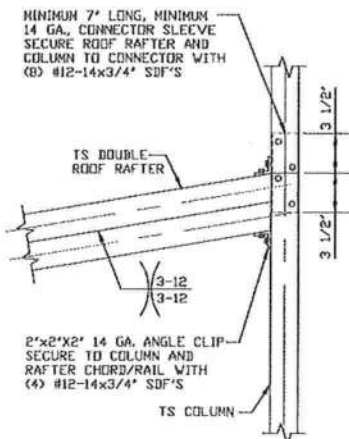
SCALE: NTS



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

17A

SCALE: NTS



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

17B

SCALE: NTS

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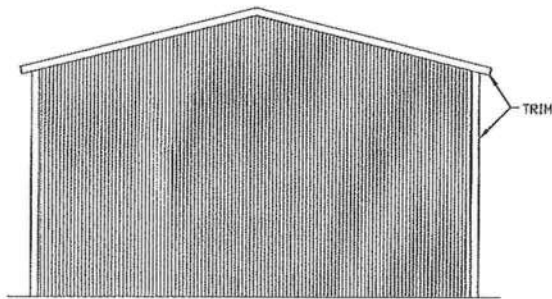
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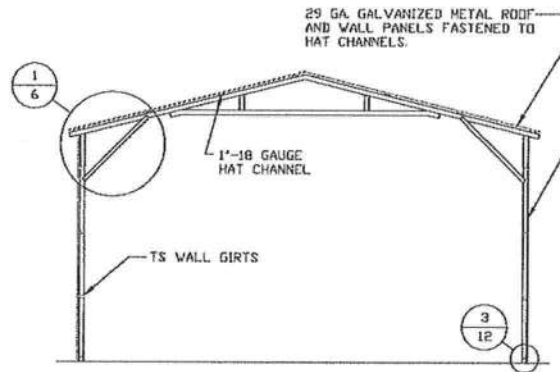
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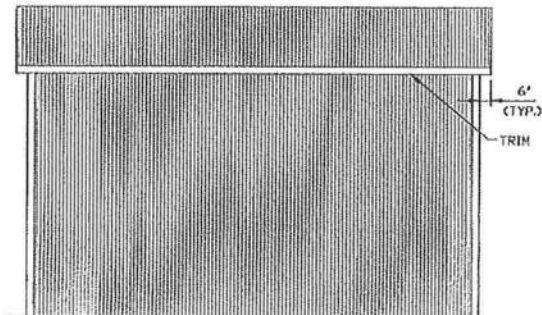
BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



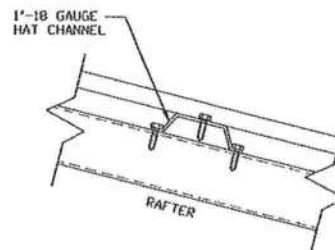
**TYPICAL END ELEVATION
VERTICAL ROOF/SIDING**
SCALE: NTS



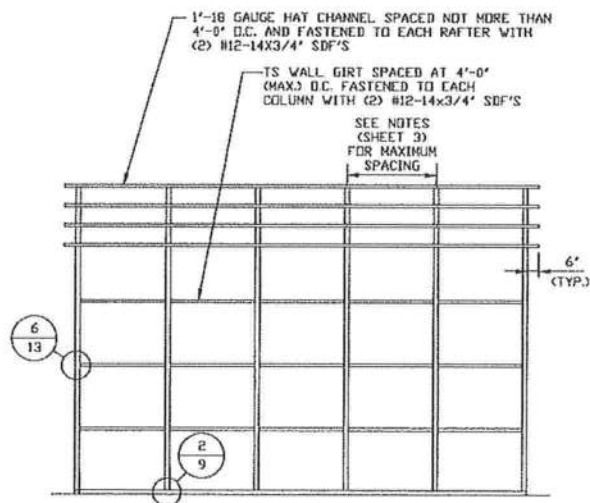
**TYPICAL SECTION VERTICAL
ROOF/SIDING OPTION**
SCALE: NTS



**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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DATE: 1-7-20

SHT. 18

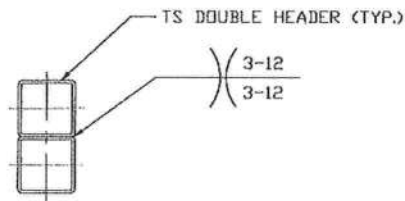
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DWG. NO: SK-3

JOB NO: 19294S

REV: 0

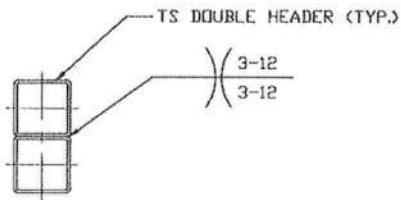
SIDE WALL HEADER OPTION



HEADER DETAIL FOR LENGTHS $\leq 16'-0"$

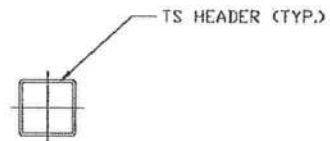
SCALE: NTS

END WALL HEADER OPTIONS



HEADER DETAIL FOR LENGTHS $14'-0" < \text{TO} \leq 16'-0"$

SCALE: NTS



HEADER DETAIL FOR LENGTHS $\leq 14'-0"$

SCALE: NTS

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