



**STRUCTURAL DESIGN  
ENCLOSED BUILDING  
RISK CATEGORY I AND II**

**MAXIMUM 40'- 0" WIDE X 20'- 0" HEIGHT-  
BOX EAVE FRAME**

**7 August 2020**

**Revision 2**

**M&A Project No. 17327S/19051S/20128S**

**Prepared for:**

**Steel Building Garages  
1804 River Street  
Wilkesboro, NC 28697**

**Prepared by:**

**Moore and Associates Engineering and Consulting, Inc.**

**1009 East Avenue  
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**401 S. Main Street, Suite 200  
Mount Airy, NC 27030**



**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING**


MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: SBG

STEEL BUILDING GARAGES  
1804 RIVER STREET  
WILKESBORO, NC 28697  
40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

DATE: 8-7-20

SHT. 1

SCALE: NTS

DWG. NO SK-3

JOB NO:  
17327S/19051S/20128S

REV: 2

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	CHECKED BY: PDH	40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
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	CLIENT: SBG	SHT. 2	DVG. NO: SK-3	REV: 2

## INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 40'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE, 2009 INTERNATIONAL BUILDING CODE (IBC), 2012 IBC, 2015 IBC AND 2018 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
  - A) DEAD LOAD = 115 PSF FOR RISK CATEGORY II  
= 15 PSF FOR RISK CATEGORY I.
  - B) LIVE LOAD = 20 PSF FOR RISK CATEGORY II.  
= 12 PSF FOR RISK CATEGORY I.
  - C) GROUND SNOW LOAD = 35 PSF (MAXIMUM 45 PSF AT MAXIMUM 4'-0" O.C. RAFTER/POST SPACING)  
(UNBALANCED SNOW LOADS DUE TO DRIFTING HAVE NOT BEEN EVALUATED)
4. 3-SECOND ULTIMATE WIND SPEED ( $V_{ULT}$ ) = 115 TO 150 MPH (NOMINAL WIND SPEED = 89 TO 116 MPH) FOR RISK CATEGORY II.
5. 3-SECOND ULTIMATE WIND SPEED ( $V_{ULT}$ ) = 105 TO 150 MPH (NOMINAL WIND SPEED = 81 TO 116 MPH) FOR RISK CATEGORY I.
6. MAXIMUM RAFTER/POST AND END POST SPACING = 50 FEET (UNLESS NOTED OTHERWISE).
7. END WALL COLUMNS/POSTS ARE EQUIVALENT TO SIDE WALL COLUMNS/POSTS IN SIZE AND SPACING UNLESS NOTED OTHERWISE.
8. RISK CATEGORY I/II
9. WIND EXPOSURE CATEGORY B/C.
10. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2" x 3" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
11. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 10" O.C. (MAX.) FOR RC I AND 8" O.C. (MAX.) FOR RC II.
12. 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. ROOF SLOPES LESS THAN 3:12 REQUIRE USE OF LAP JOINT SEALANT.
13. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES.
14. STANDARD SOIL NAIL FOUNDATION SYSTEM CONSISTS OF #4 REBAR W/ WELDED NUT x 30" LONG AND ARE APPLICABLE ONLY IN MEDIUM TO STIFF (SUITABLE) SOILS. SOIL NAILS MAY BE USED FOR WIND SPEEDS  $\leq$  145 MPH. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS  $>$  145 MPH AND/OR IN UNSUITABLE SOILS AS NOTED. COORDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
15. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
  - SOIL SITE CLASS = D
  - RISK CATEGORY I/II
  - R= 3.25  $I_E= 1.0$
  - $S_{DS}= 2.039 g$   $V= C_S W$
  - $S_{D1}= 1.258 g$
16. FOR RISK CATEGORY II STRUCTURES, MAXIMUM THRESHOLD HEIGHT IS  $\leq$  1/2" FOR PERSONNEL DOORS UTILIZED AS MEANS OF EGRESS.

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**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 3**

**SCALE: NTS**

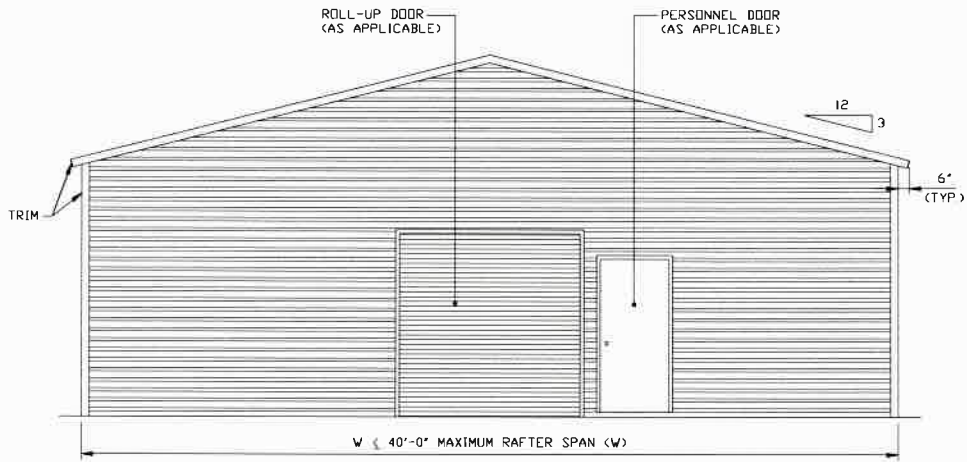
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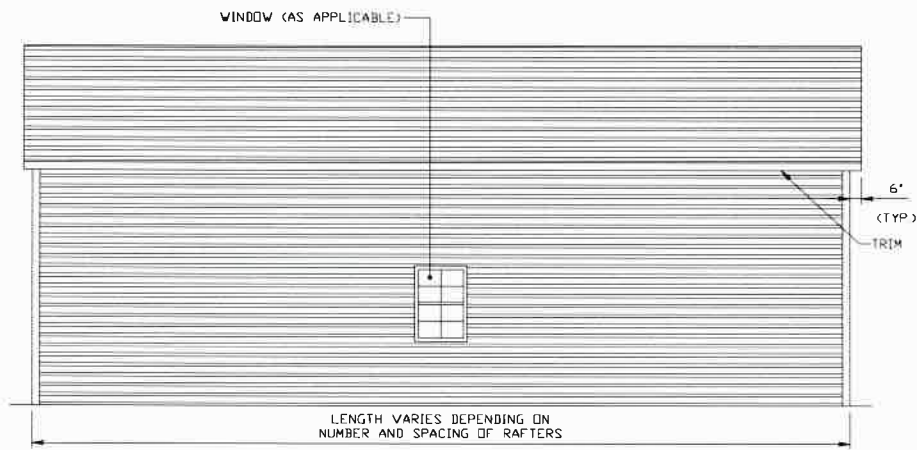
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**TYPICAL END ELEVATION**

SCALE: NTS



**TYPICAL SIDE ELEVATION**

SCALE: NTS

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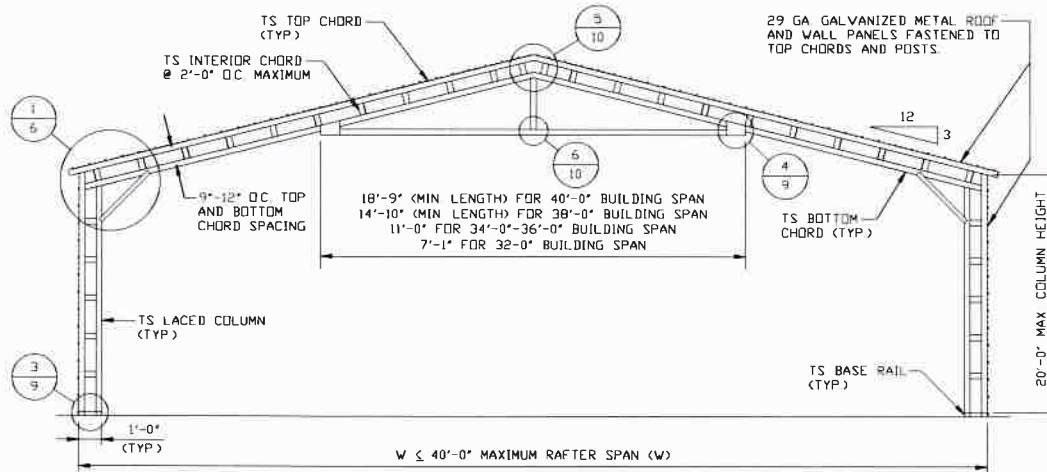
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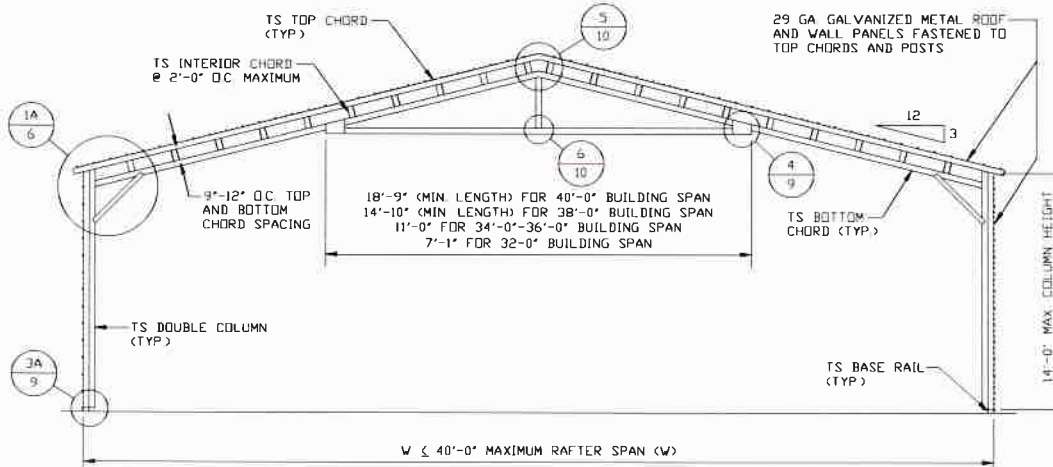
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## RISK CATEGORY II



### TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



### TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS

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**STEEL BUILDING GARAGES**

1804 RIVER STREET

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**SCALE: NTS**

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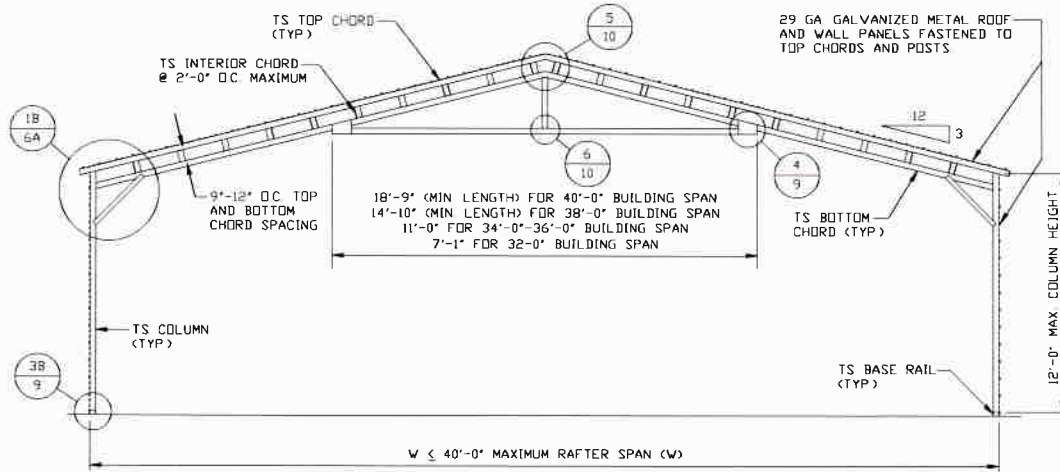
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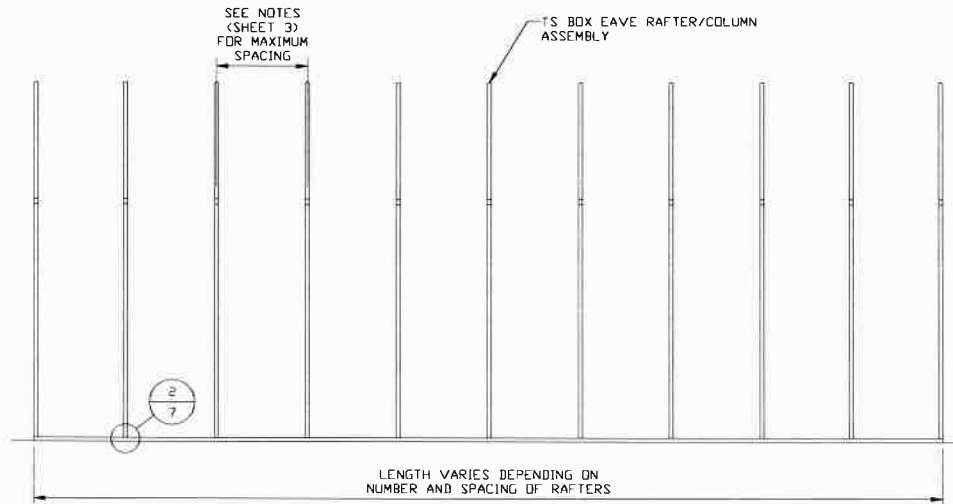
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## RISK CATEGORY II



### TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



### TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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**STEEL BUILDING GARAGES**

1804 RIVER STREET

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**SHT. 5A**

**SCALE: NTS**

**DWG. NO: SK-3**

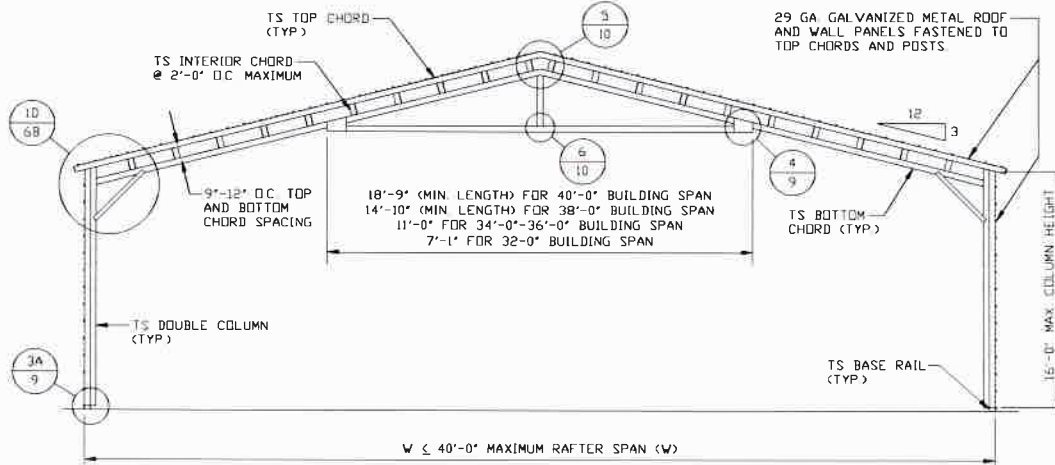
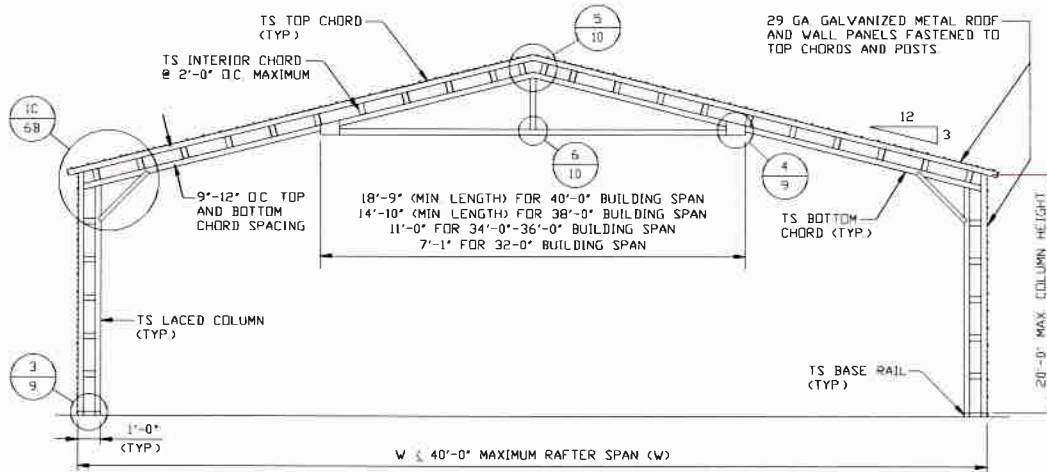
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# RISK CATEGORY I



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**SHT. 5B**

**SCALE: NTS**

**DWG. NO: SK-3**

**JOB NO**

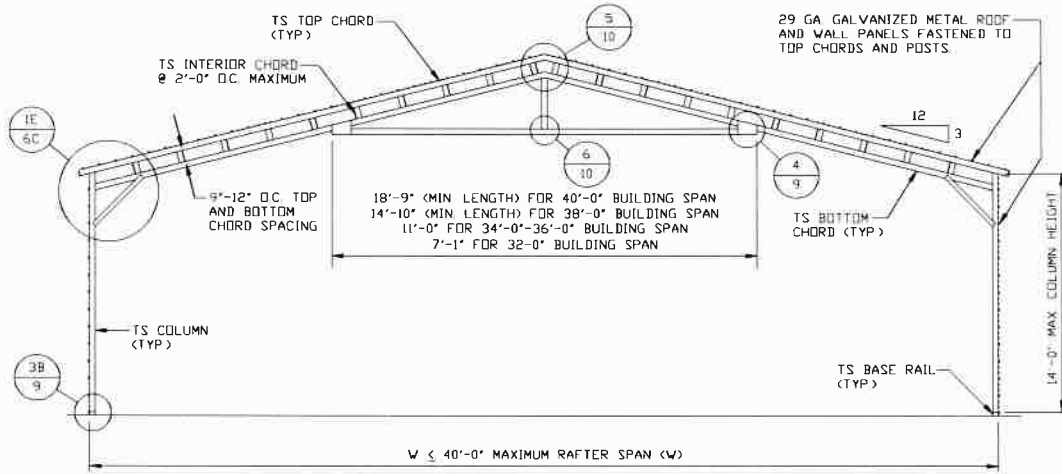
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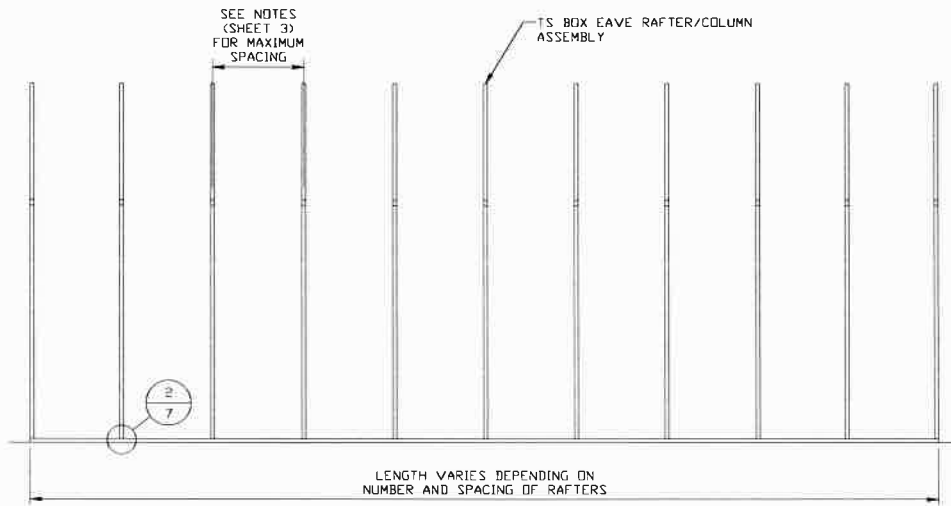


# RISK CATEGORY I



## TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



## TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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**SHT. 5C**

**SCALE: NTS**

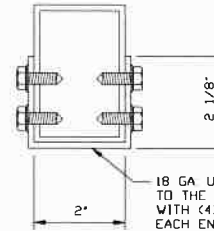
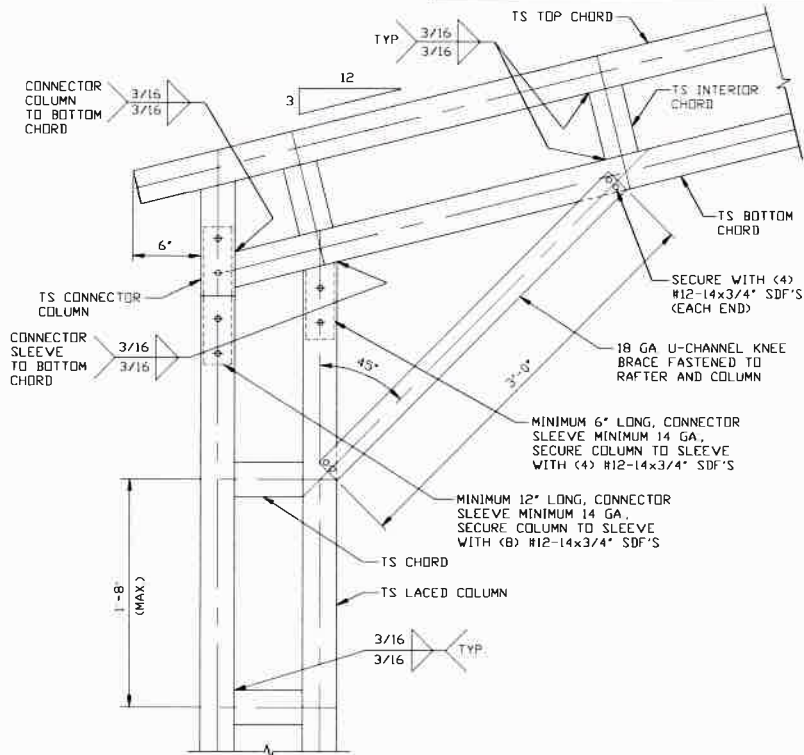
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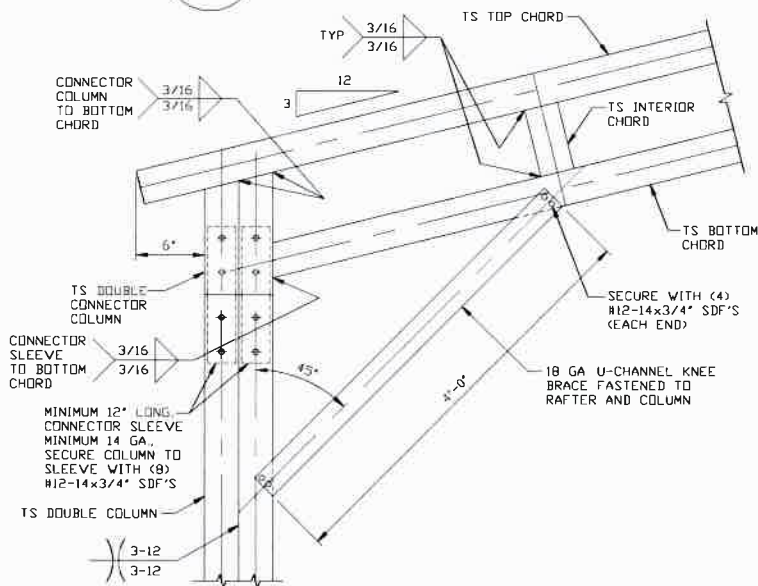
## RISK CATEGORY II COLUMN CONNECTION DETAILS



**BRACE SECTION**  
SCALE: NTS

**1**  
**BOX EAVE RAFTER COLUMN  
CONNECTION DETAIL FOR  
HEIGHTS 14'-0" < TO <= 20'-0"**

SCALE: NTS



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

SCALE: NTS

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**SHT. 6**

**SCALE: NTS**

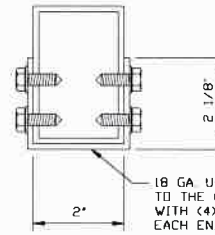
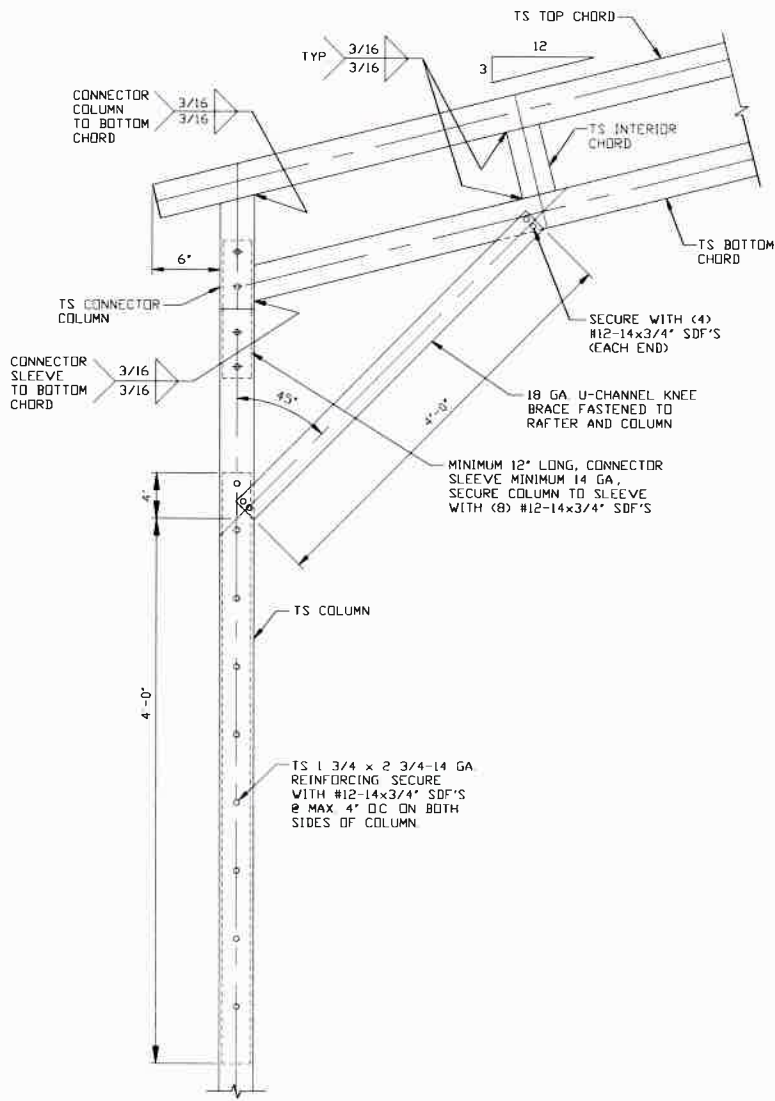
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## RISK CATEGORY II COLUMN CONNECTION DETAILS



**BRACE SECTION**  
SCALE: NTS

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

1B

SCALE: NTS

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**STEEL BUILDING GARAGES**

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**SHT. 6A**

**SCALE: NTS**

**DWG. NO: SK-3**

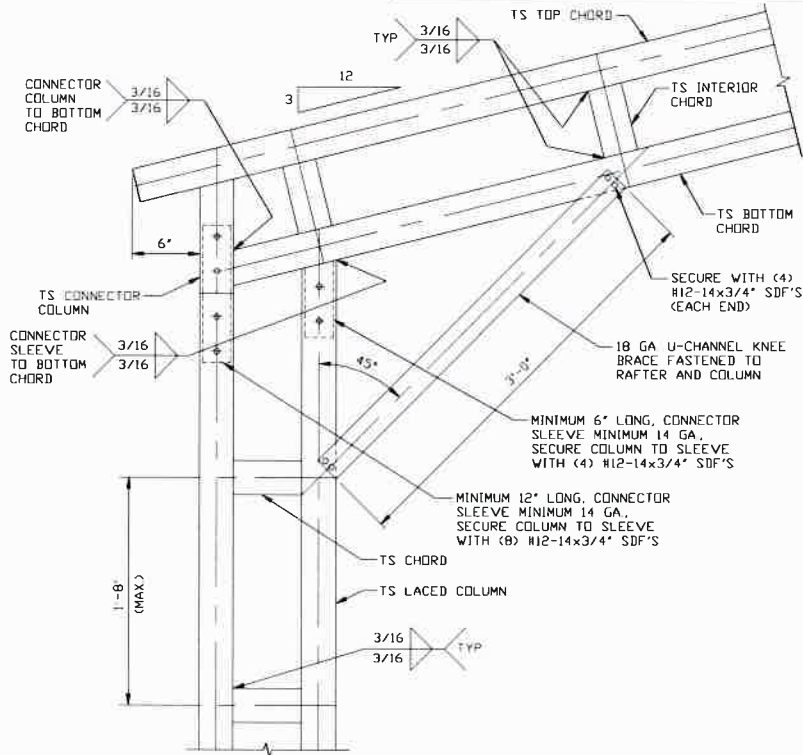
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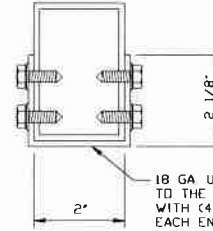
# RISK CATEGORY I COLUMN CONNECTION DETAILS



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

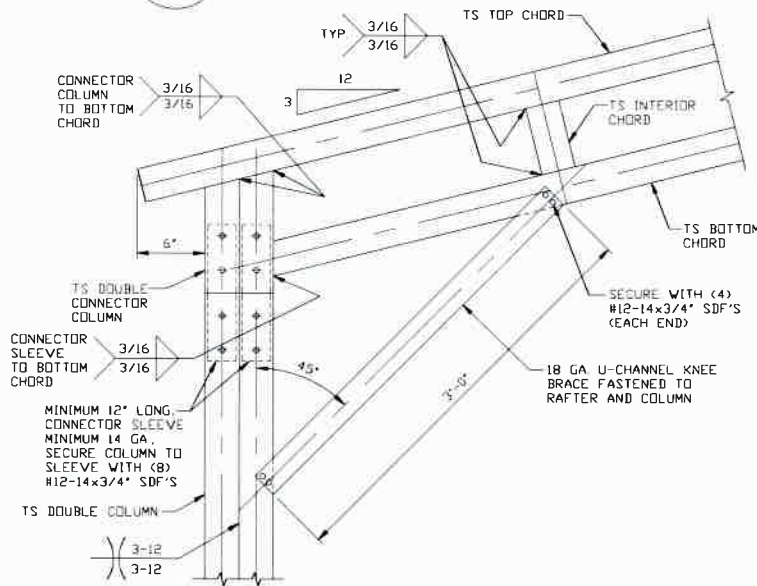
**1C**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS



**BOX EAVE RAFTER COLUMN  
CONNECTION DETAIL FOR  
HEIGHTS 14'-0" < TO ≤ 16'-0"**

**1D**

SCALE: NTS

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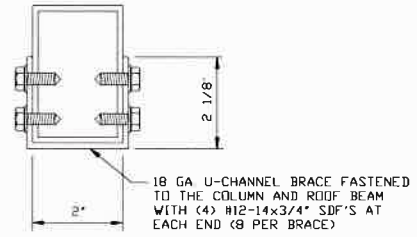
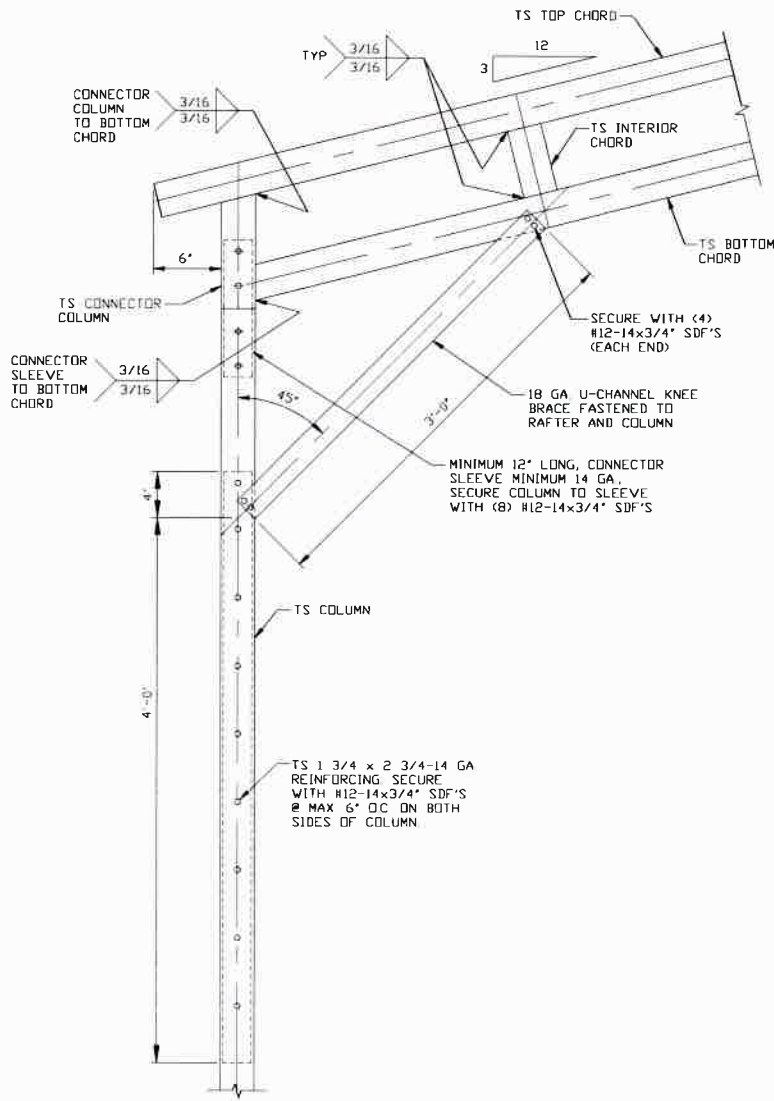
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# RISK CATEGORY I COLUMN CONNECTION DETAILS



**BRACE SECTION**  
SCALE: NTS

**BOX EAVE RAFTER COLUMN  
CONNECTION DETAIL FOR  
HEIGHTS  $\leq 14'-0''$**

**1E**

SCALE: NTS

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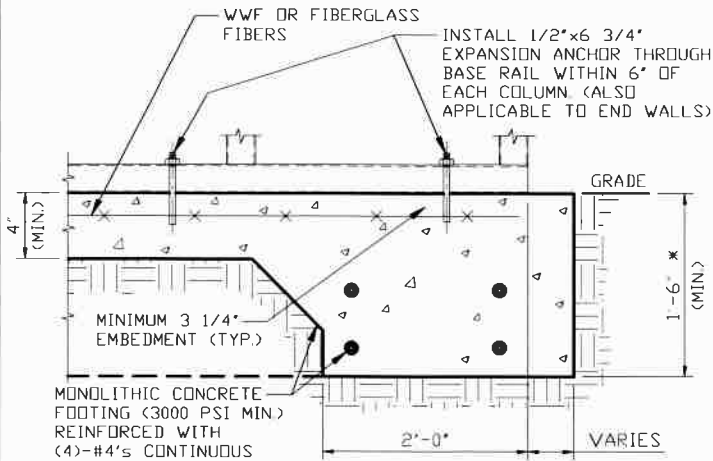
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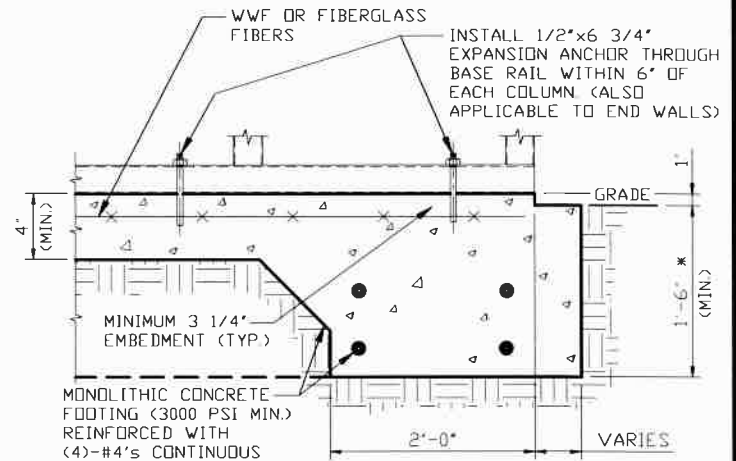
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## BASE RAIL ANCHORAGE OPTIONS



**2 CONCRETE MONOLITHIC SLAB  
BASE RAIL ANCHORAGE**

SCALE: NTS  
NOTE: MIN. ANCHOR EDGE DISTANCE IS 4"  
\* COORDINATE WITH LOCAL BUILDING CODE ORD.  
REGARDING REQUIRED FROST DEPTH (LENGTH).



**2A CONCRETE MONOLITHIC SLAB BASE  
RAIL ANCHORAGE WITH NOTCH**

SCALE: NTS  
NOTE: MIN. ANCHOR EDGE DISTANCE IS 4"  
\* COORDINATE WITH LOCAL BUILDING CODE ORD.  
REGARDING REQUIRED FROST DEPTH (LENGTH).

### 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:

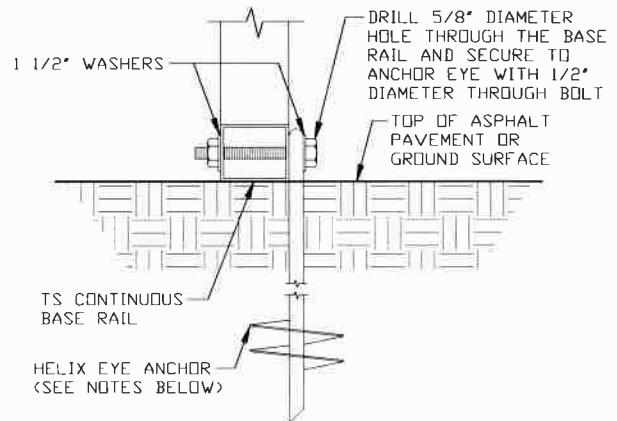
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

#### 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 CBRAL 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.



**2B GROUND BASE HELIX ANCHORAGE**

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

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: SBG

STEEL BUILDING GARAGES

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

DATE: 8-7-20

SHT. 7

SCALE: NTS

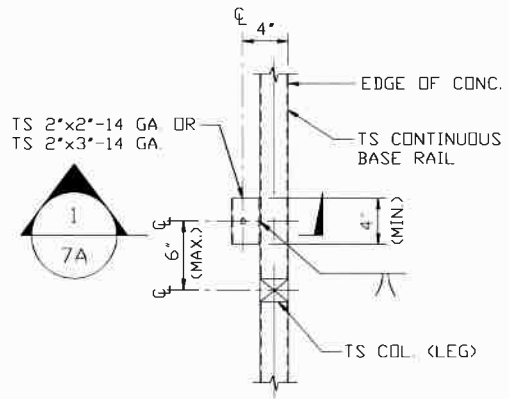
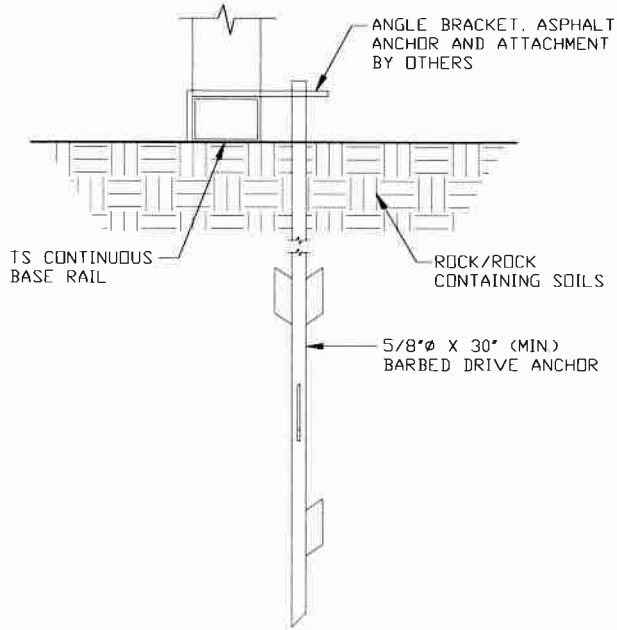
DWG. NO SK-3

JOB NO:  
17327S/19051S/20128S

REV: 2

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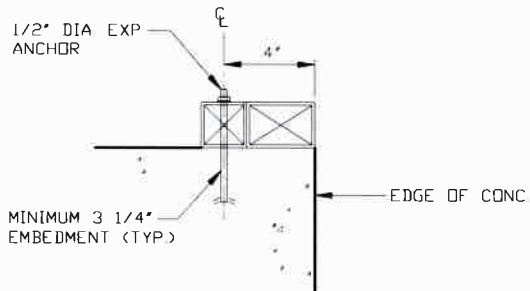
# BASE RAIL ANCHORAGE OPTIONS



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

SCALE: NTS

**2C BARBED DRIVE ANCHORAGE**  
 SCALE: NTS  
 \* COORDINATE WITH LOCAL CODES/ORD. REGARDING MIN. FROST DEPTH (LENGTH).



**1 SECTION**  
 SCALE: NTS

**MOORE AND ASSOCIATES  
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CLIENT: SBG

STEEL BUILDING GARAGES  
 1804 RIVER STREET  
 WILKESBORO, NC 28697  
 40'-0"x20'-0" RC I/II ENCLOSED STRUCTURE

DATE: 8-7-20

SHT. 7A

SCALE: NTS

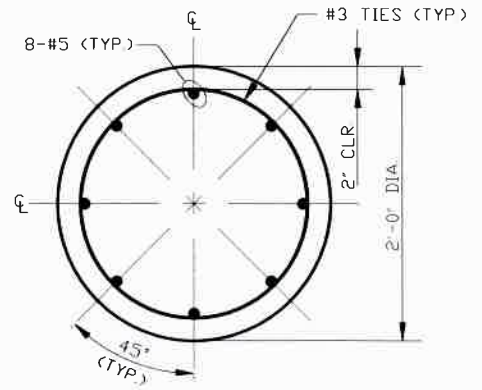
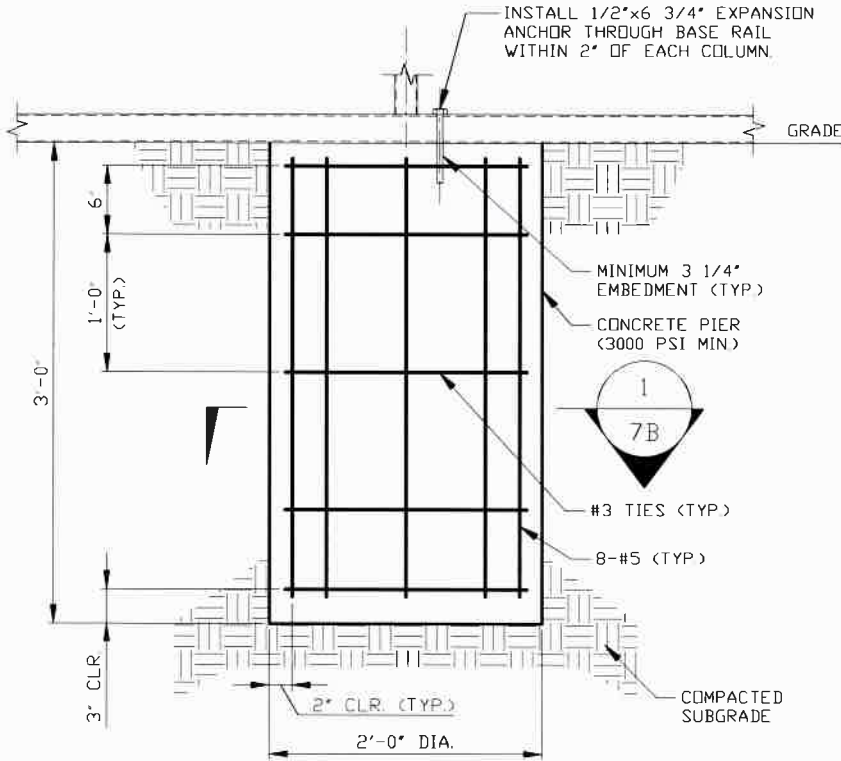
DWG. NO: SK-3

JOB NO:  
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## BASE RAIL ANCHORAGE OPTIONS



**1** SECTION  
SCALE: NTS

**2E**

### DRILLED CONCRETE PIER BASE RAIL ANCHORAGE

SCALE: NTS  
 (NOTE: MIN. ANCHOR EDGE DISTANCE IS 4")  
 \* COORDINATE WITH LOCAL CODES/ORD.  
 REGARDING MIN. FROST DEPTH (LENGTH)

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**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES  
 1804 RIVER STREET  
 WILKESBORO, NC 28697**

**40'-0" x 20'-0" RC I / II ENCLOSED STRUCTURE**

**DATE: 8-7-20**

**SHT. 7B**

**SCALE: NTS**

**DWG. NO: SK-3**

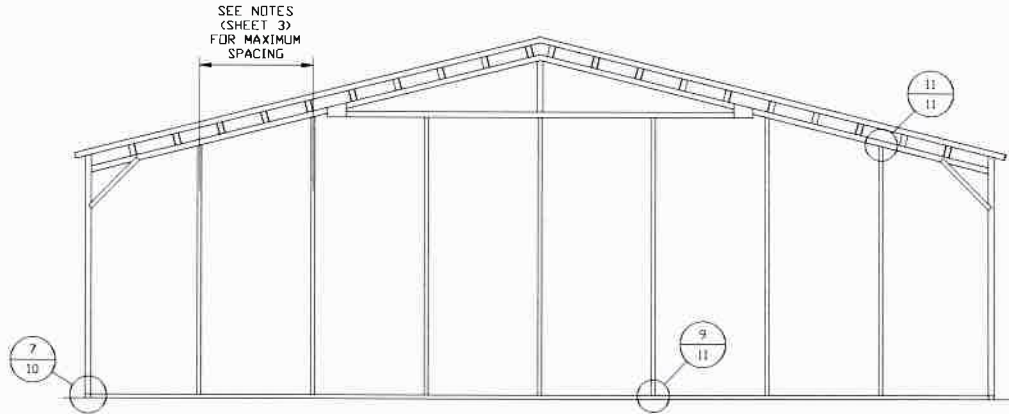
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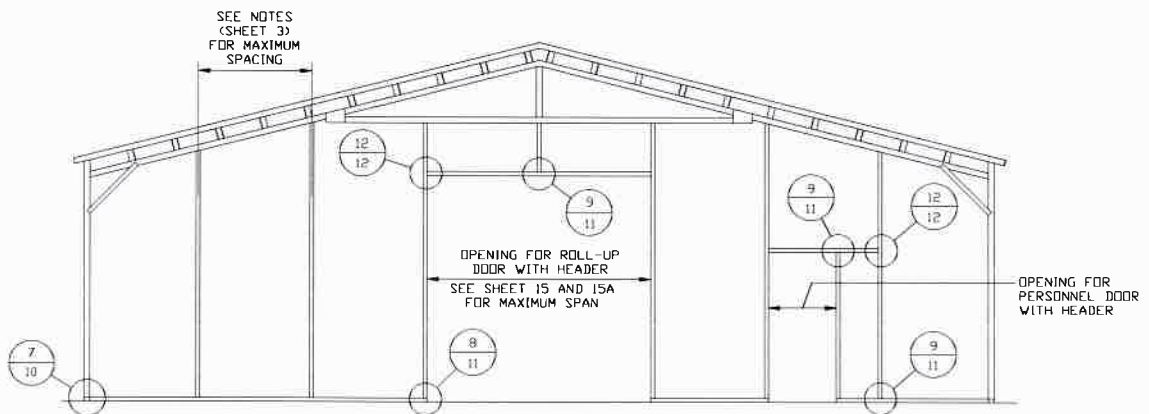


## BOX EAVE RAFTER END WALL AND END WALL OPENINGS



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

SCALE: NTS



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

SCALE: NTS

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ENGINEERING AND CONSULTING, INC.**

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**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0" x 20'-0" RC 1 / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 8**

**SCALE: NTS**

**DWG. NO: SK-3**

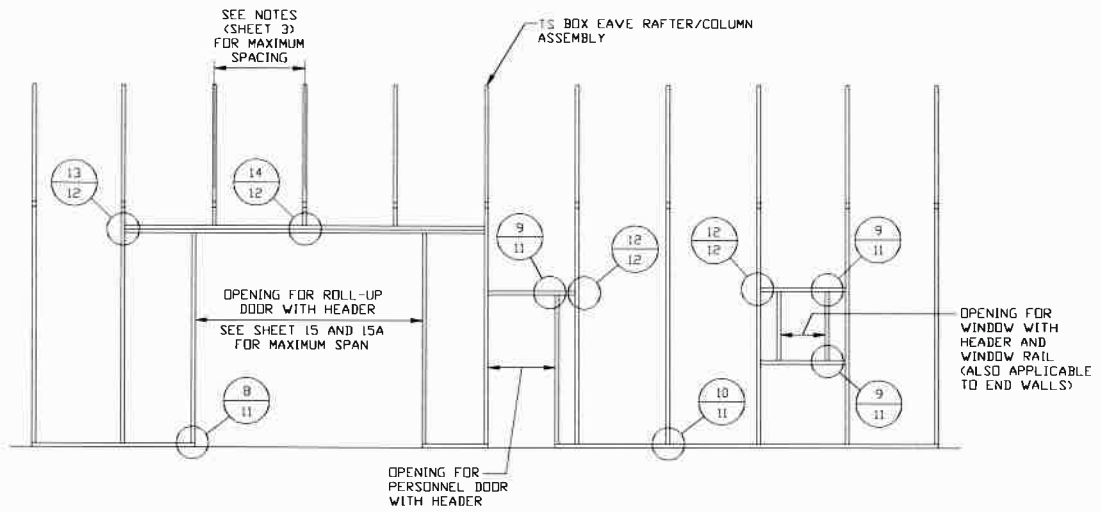
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## BOX EAVE RAFTER SIDE WALL OPENINGS



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

SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0" x 20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 8A**

**SCALE: NTS**

**DWG. NO: SK-3**

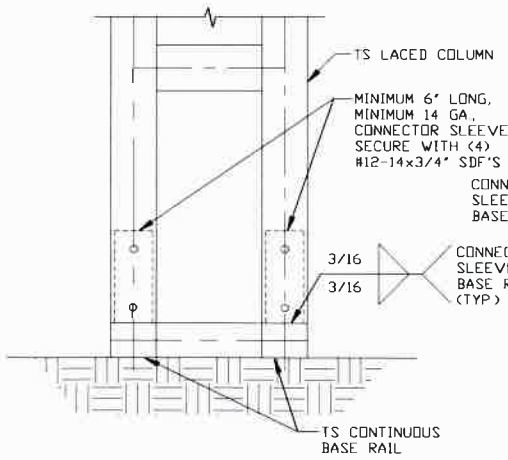
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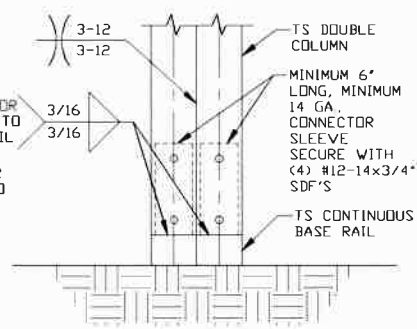
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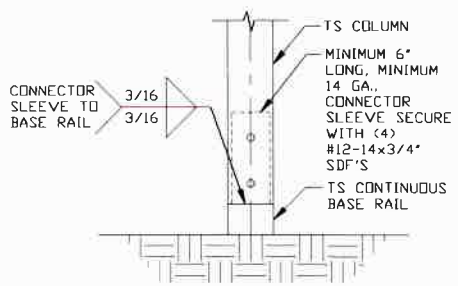
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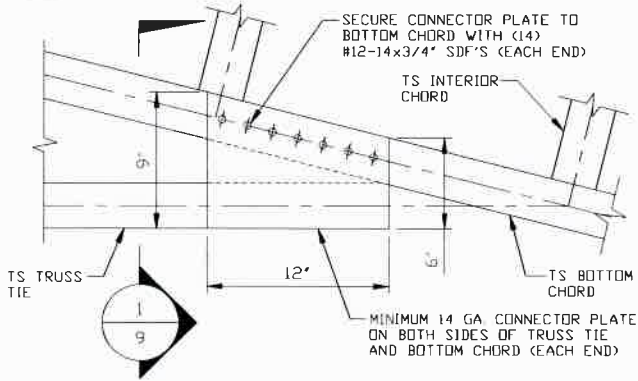
**3**  
**RAFTER COLUMN/  
 BASE RAIL  
 CONNECTION DETAIL**  
 SCALE: NTS



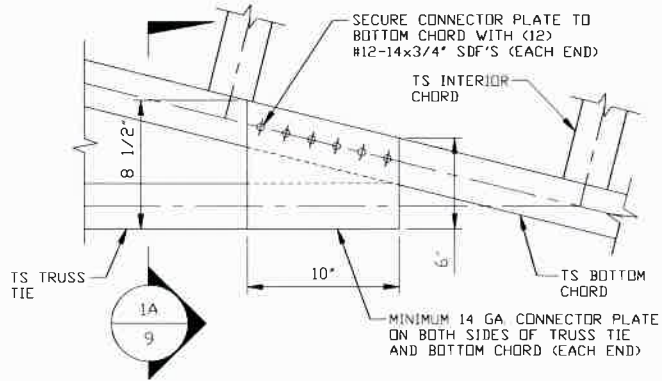
**3A**  
**RAFTER COLUMN/  
 BASE RAIL  
 CONNECTION DETAIL**  
 SCALE: NTS  
 NOTE: SINGLE CONTINUOUS TS BASE RAIL ANCHORED  
 IN THE INTERIOR OF CONCRETE SLAB IS  
 ADEQUATE AS AN OPTION.



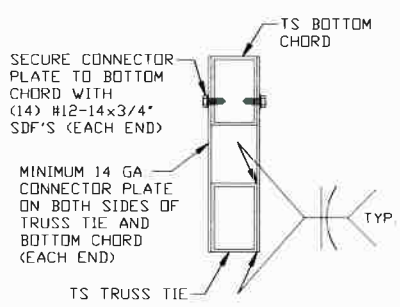
**3B**  
**RAFTER COLUMN/  
 BASE RAIL  
 CONNECTION DETAIL**  
 SCALE: NTS



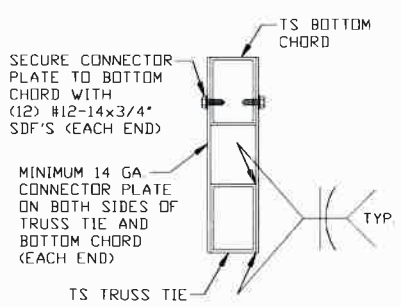
**4**  
**TRUSS TIE CONNECTION DETAIL  
 FOR RISK CATEGORY II**  
 SCALE: NTS



**4A**  
**TRUSS TIE CONNECTION DETAIL  
 FOR RISK CATEGORY I**  
 SCALE: NTS



**1**  
**SECTION**  
 SCALE: NTS

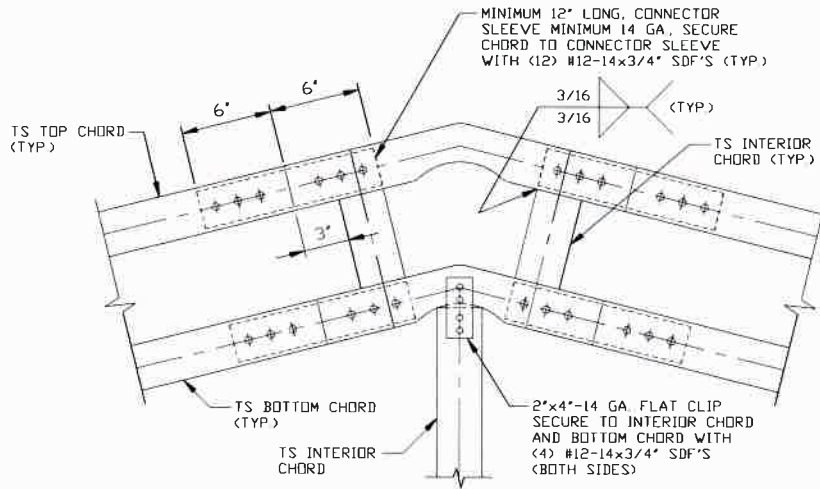


**1A**  
**SECTION**  
 SCALE: NTS

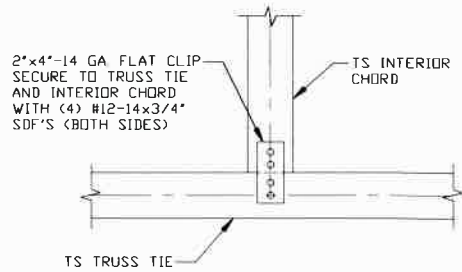
<b>MOORE AND ASSOCIATES                  ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: LT	<b>STEEL BUILDING GARAGES</b> 1804 RIVER STREET WILKESBORO, NC 28697 40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 8-7-20	SCALE: NTS	JOB NO: 17327S/19051S/20128S	
CLIENT: SBG	SHT. 9	DWG. NO: SK-3	REV. 2	

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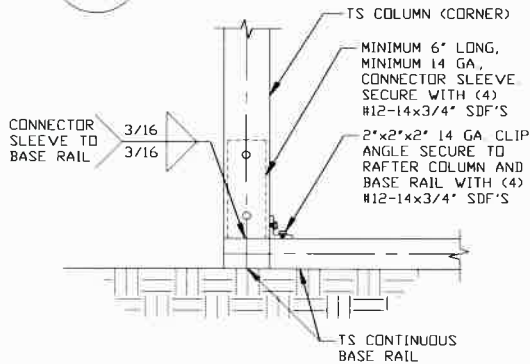
## CONNECTION DETAILS



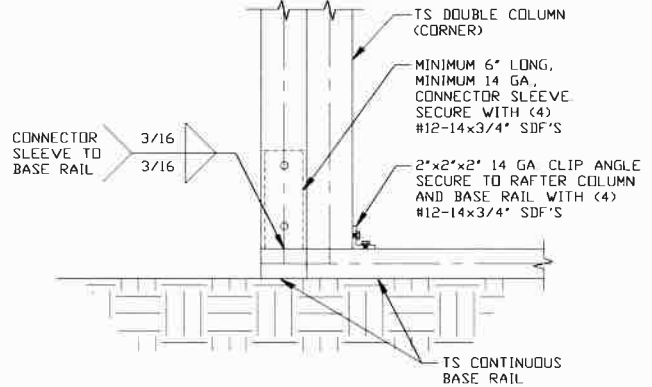
**5 TRUSS SPLICE CONNECTION DETAIL**  
SCALE: NTS



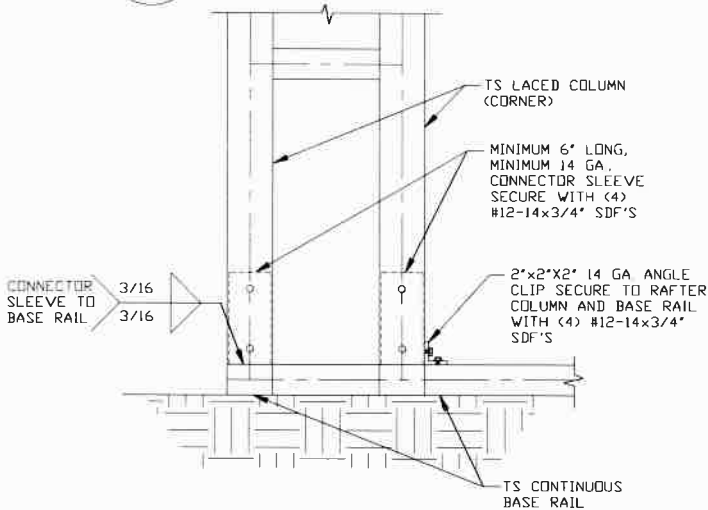
**6 TRUSS TIE/INTERIOR CHORD CONNECTION DETAIL**  
SCALE: NTS



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



**7A END COLUMN/BASE RAIL CONNECTION DETAIL**  
SCALE: NTS



**7B END COLUMN/BASE RAIL CONNECTION DETAIL**  
SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES  
1804 RIVER STREET  
WILKESBORO, NC 28697**

**40'-0"x20'-0" RC 1 / II ENCLOSED STRUCTURE**

**DATE: 8-7-20**

**SHT. 10**

**SCALE: NTS**

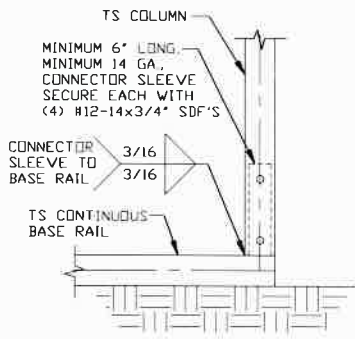
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**JOB NO:  
17327S/19051S/20128S**

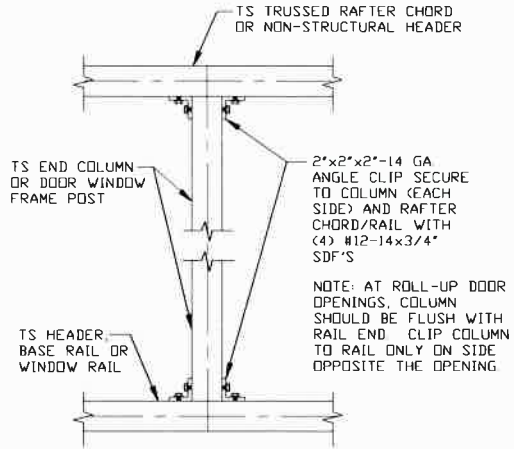
**REV: 2**

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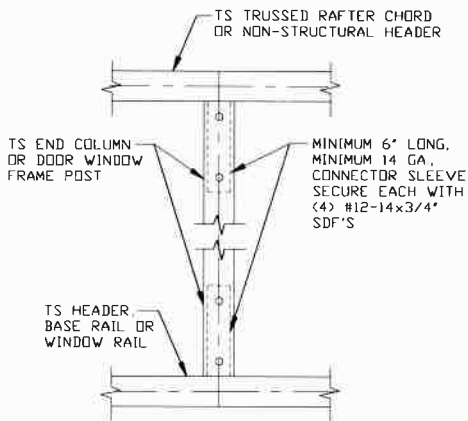
# CONNECTION DETAILS



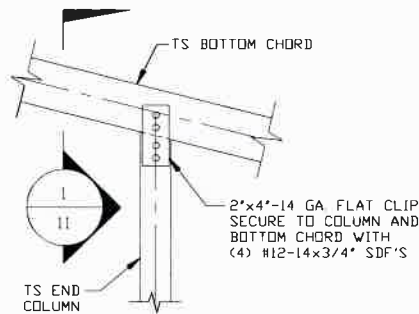
**8** COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS



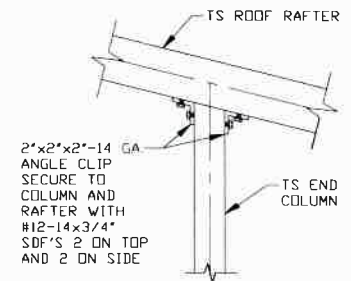
**9** COLUMN TO WINDOW RAIL CONNECTION DETAIL  
SCALE: NTS



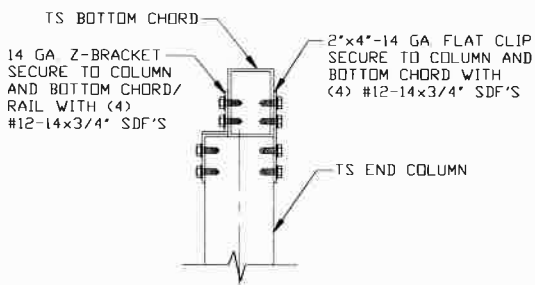
**10** COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL  
SCALE: NTS



**11** CHORD TO POST CONNECTION DETAIL  
SCALE: NTS



**11A** CHORD TO POST CONNECTION DETAIL  
SCALE: NTS



**1** SECTION  
SCALE: NTS

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ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**  
**CHECKED BY: PDH**

**STEEL BUILDING GARAGES**  
1804 RIVER STREET  
WILKESBORO, NC 28697  
40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

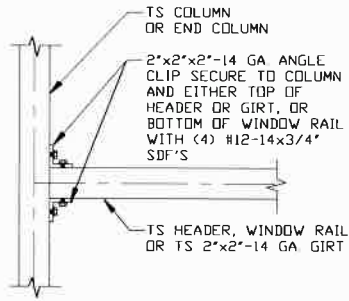
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**CLIENT: SBG**

**DATE: 8-7-20**  
**SHT. 11**

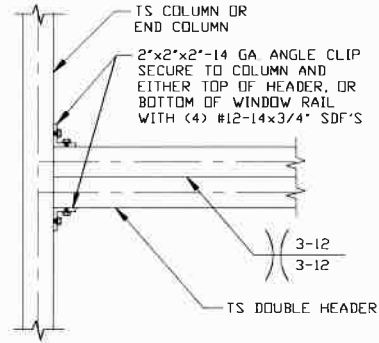
**SCALE: NTS**  
**DWG. NO: SK-3**  
**JOB NO: 17327S/19051S/20128S**  
**REV: 2**

## CONNECTION DETAILS



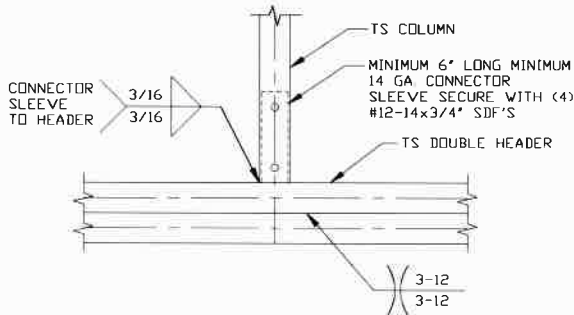
**12** COLUMN OR WINDOW RAIL/WALL GIRT TO POST CONNECTION DETAIL

SCALE: NTS



**13** HEADER TO COLUMN CONNECTION DETAIL

SCALE: NTS



**14** COLUMN TO HEADER CONNECTION DETAIL

SCALE: NTS

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CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: SBG

STEEL BUILDING GARAGES  
1804 RIVER STREET  
WILKESBORO, NC 28697

40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

DATE: 8-7-20

SHT. 12

SCALE: NTS

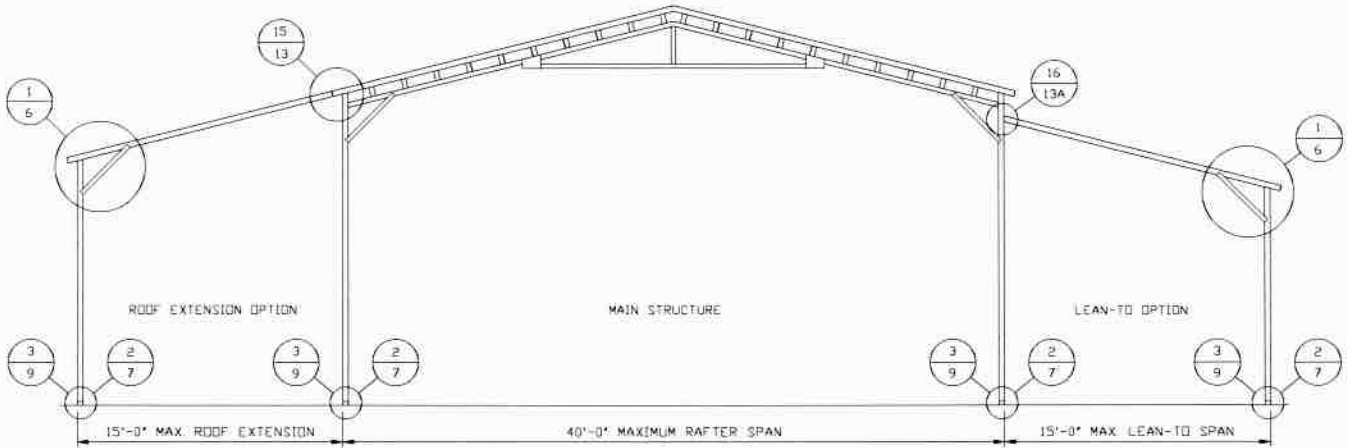
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JOB NO:  
17327S/19051S/20128S

REV: 2

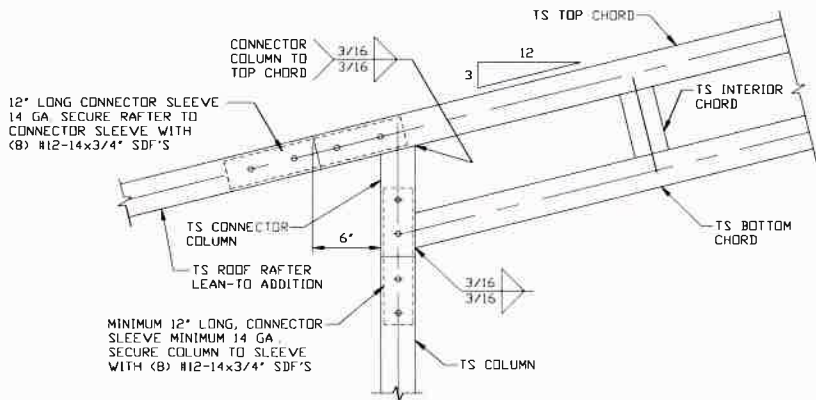
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# BOX EAVE RAFTER LEAN-TO OPTIONS



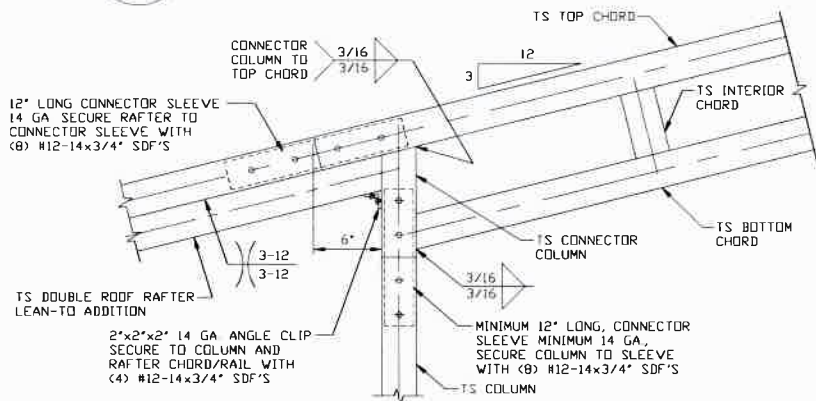
**TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)**

SCALE: NTS



**15 SIDE EXTENSION RAFTER/COLUMN  
DETAIL FOR RAFTER SPANS  $\leq 12'-0"$**

SCALE: NTS



**15A SIDE EXTENSION RAFTER/COLUMN  
DETAIL FOR RAFTER SPANS  $12'-0" < \text{TO} \leq 15'-0"$**

SCALE: NTS

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**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 13**

**SCALE: NTS**

**DWG. NO: SK-3**

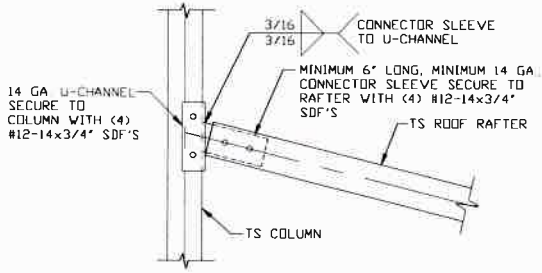
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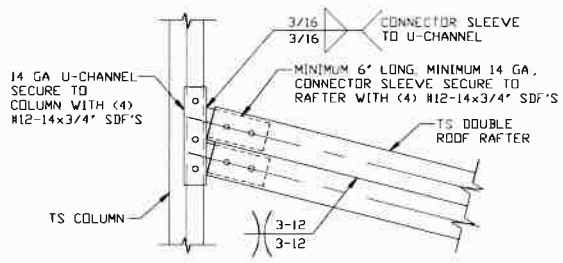
## BOX EAVE RAFTER LEAN-TO OPTIONS



16

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

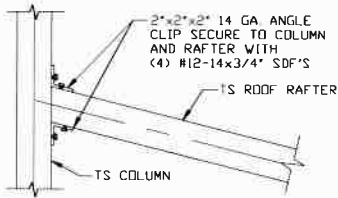
SCALE: NTS



16A

**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS  $12'-0'' < \text{TO} \leq 15'-0''$**

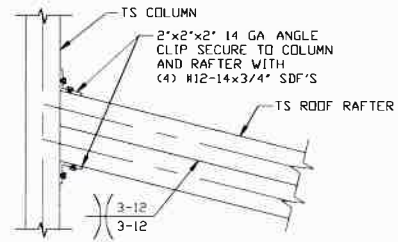
SCALE: NTS



16B

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

SCALE: NTS



16C

**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS  $12'-0'' < \text{TO} \leq 15'-0''$**

SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0" x 20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 13A**

**SCALE: NTS**

**DWG. NO: SK-3**

**JOB NO:**

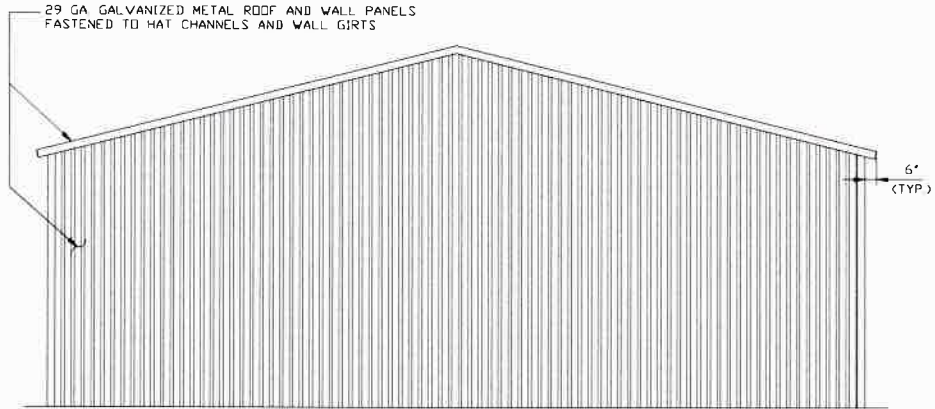
17327S/19051S/20126S

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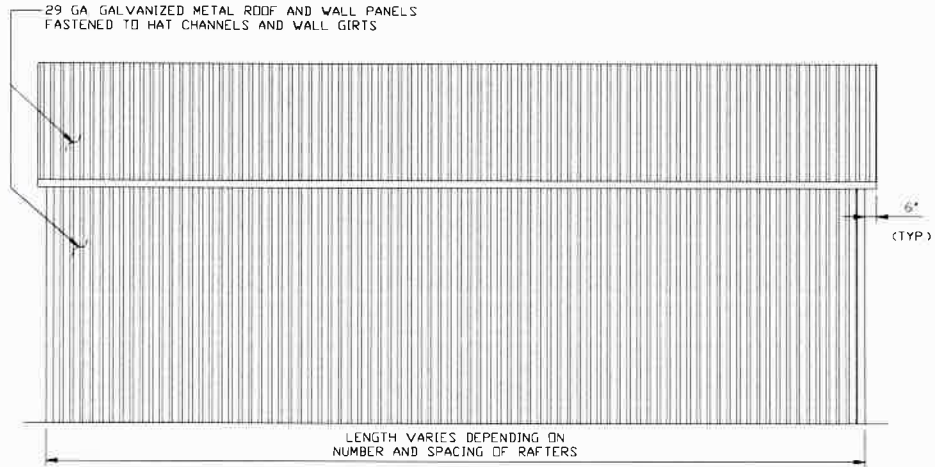


## BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



**TYPICAL END ELEVATION VERTICAL ROOF/SIDING**

SCALE: NTS



**TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING**

SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0" x 20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 14**

**SCALE: NTS**

**DWG. NO: SK-3**

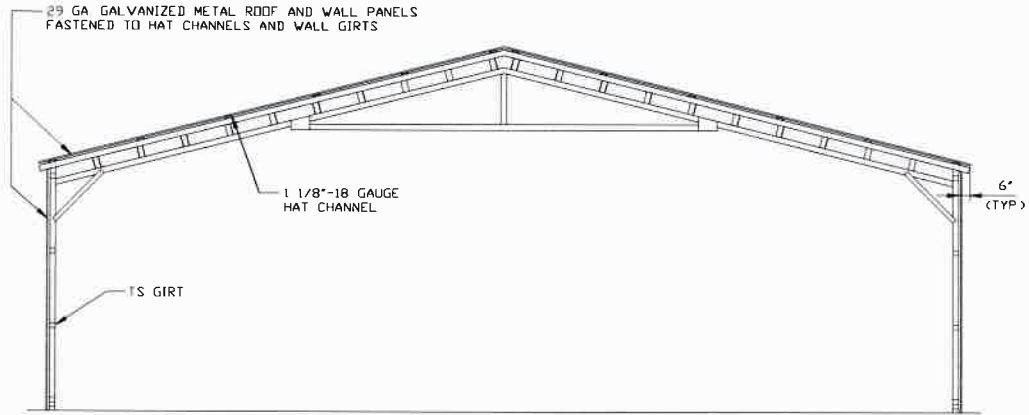
**JOB NO:**

17327S/19051S/20128S

**REV: 2**

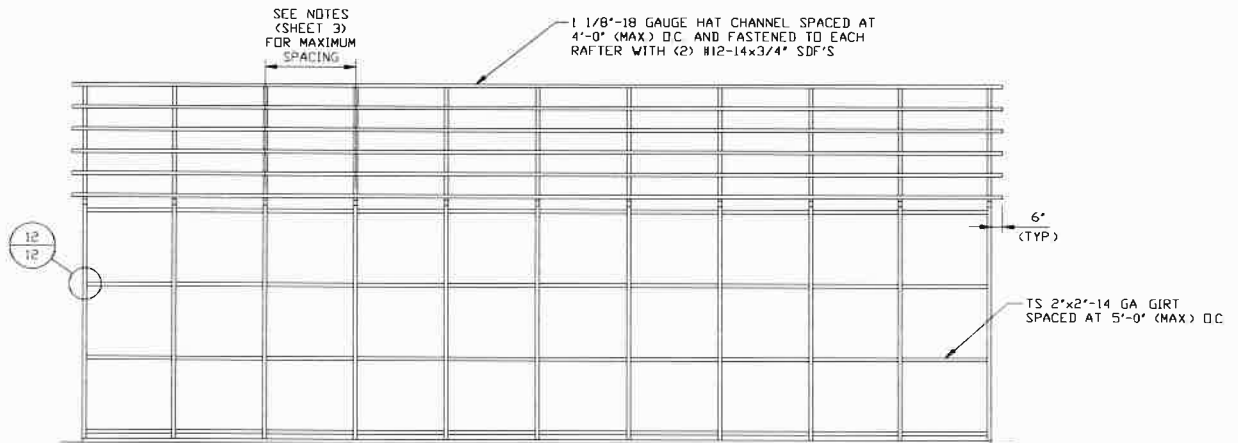
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## BOX EAVE RAFTER VERTICAL ROOF/SIDING



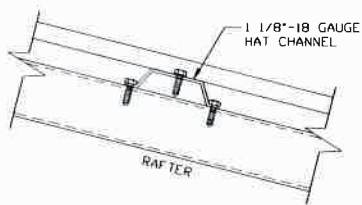
### TYPICAL SECTION VERTICAL ROOF/SIDING

SCALE: NTS



### TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING

SCALE: NTS



### PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)

SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0" x 20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 14A**

**SCALE: NTS**

**DVG. NO: SK-3**

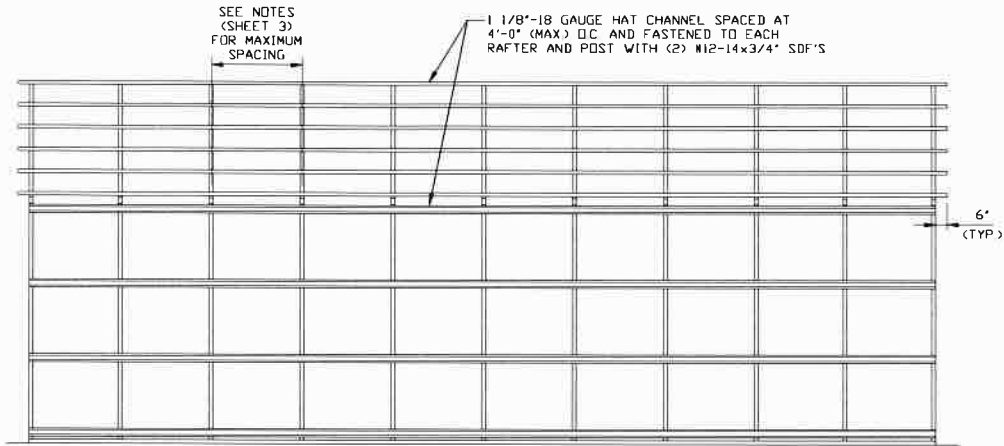
**JOB NO:**

17327S/19051S/20126S

**REV: 2**

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## BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



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

SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES**

1804 RIVER STREET

WILKESBORO, NC 28697

40'-0" x 20'-0" RC I / II ENCLOSED STRUCTURE

**DATE: 8-7-20**

**SHT. 14B**

**SCALE: NTS**

**DWG. NO: SK-3**

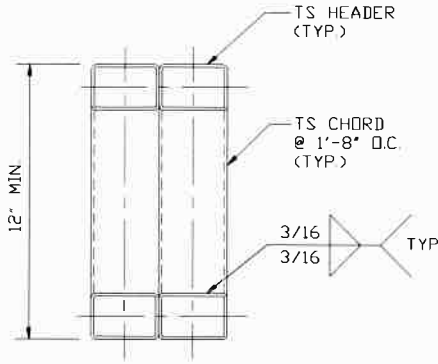
**JOB NO:**

17327S/19051S/20128S

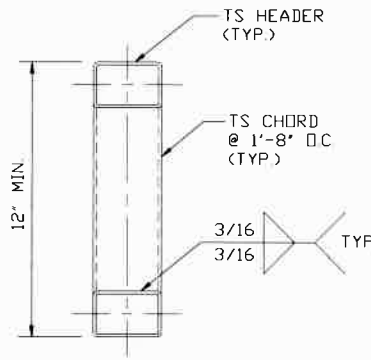
**REV: 2**

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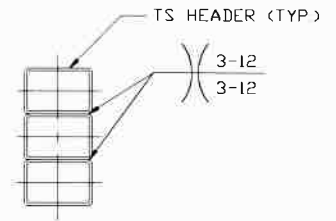
## RISK CATEGORY II SIDE WALL HEADER OPTIONS



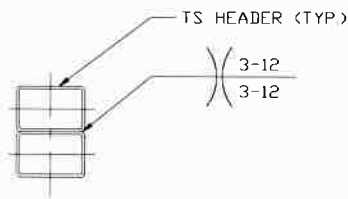
**HEADER DETAIL FOR SPANS 14'-0" < TO <= 20'-0"**  
SCALE: NTS



**HEADER DETAIL FOR SPANS 11'-0" < TO <= 14'-0"**  
SCALE: NTS

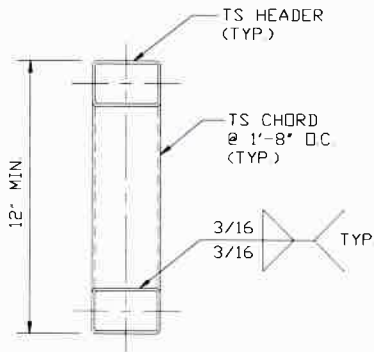


**HEADER DETAIL FOR SPANS 8'-0" < TO <= 11'-0"**  
SCALE: NTS

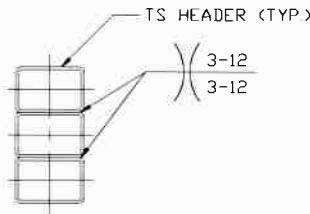


**HEADER DETAIL FOR SPANS: <= 8'-0" (GROUND SNOW LOAD <= 45 PSF)**  
SCALE: NTS

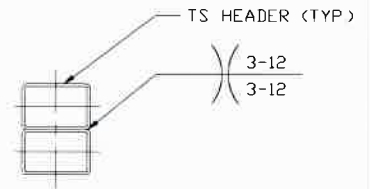
## END WALL HEADER OPTIONS



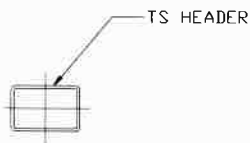
**HEADER DETAIL FOR SPANS 16'-0" < TO <= 20'-0"**  
SCALE: NTS



**HEADER DETAIL FOR SPANS 10'-0" < TO <= 16'-0"**  
SCALE: NTS



**HEADER DETAIL FOR SPANS 6'-0" < TO <= 10'-0"**  
SCALE: NTS



**HEADER DETAIL FOR SPANS <= 6'-0"**  
SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES  
1804 RIVER STREET  
WILKESBORO, NC 28697  
40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE**

**DATE: 8-7-20**

**SHT. 15**

**SCALE: NTS**

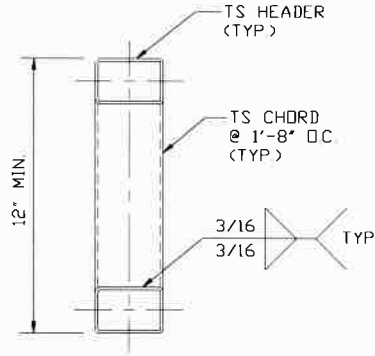
**DWG. NO: SK-3**

**JOB NO:  
17327S/19051S/20128S**

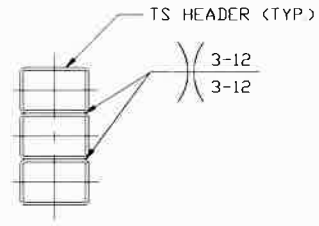
**REV: 2**

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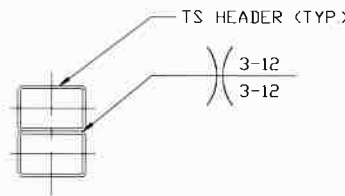
**RISK CATEGORY I**  
**SIDE WALL HEADER OPTIONS**



**HEADER DETAIL FOR  
SPANS 11'-0" < TO ≤ 16'-0"**  
SCALE: NTS

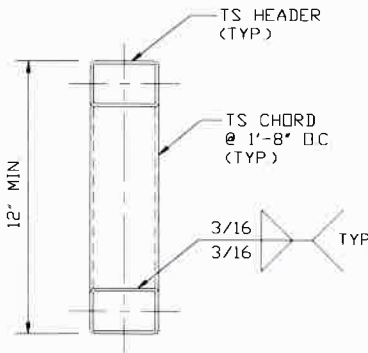


**HEADER DETAIL FOR  
SPANS 8'-0" < TO ≤ 11'-0"**  
SCALE: NTS

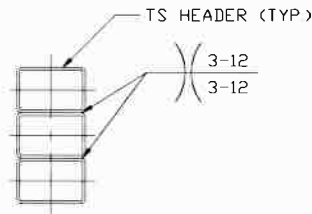


**HEADER DETAIL FOR SPANS:  
≤ 9'-0" (GROUND SNOW LOAD ≤ 35 PSF)  
≤ 8'-0" (GROUND SNOW LOAD 35 PSF < TO ≤ 45 PSF)**  
SCALE: NTS

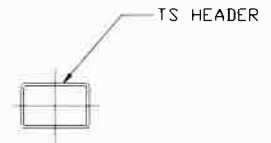
**END WALL HEADER OPTIONS**



**HEADER DETAIL FOR  
SPANS 16'-0" < TO ≤ 20'-0"**  
SCALE: NTS



**HEADER DETAIL FOR  
SPANS 14'-0" < TO ≤ 16'-0"**  
SCALE: NTS



**HEADER DETAIL FOR  
SPANS ≤ 14'-0"**  
SCALE: NTS

**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: SBG**

**STEEL BUILDING GARAGES  
1804 RIVER STREET  
WILKESBORO, NC 28697  
40'-0"x20'-0" RC I / II ENCLOSED STRUCTURE**

**DATE: 8-7-20**

**SHT. 15A**

**SCALE: NTS**

**DWG NO: SK-3**

**JOB NO:  
17327S/19051S/20128S**

**REV: 2**

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