



Louis Popielarcheck  
 9093 Highway 210 South  
 Bunn Level NC 28323

**STRUCTURAL DESIGN**

**ENCLOSED BUILDING**

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

**12 April 2019  
 Revision 0  
 M&A Project No. 18378S**

**Prepared for:**

**Carport Central, Inc.  
 737 South Main Street  
 Mount Airy, NC 27030**

**Prepared by:**

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

**1009 East Avenue  
 North Augusta, SC 29841**

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



		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.	

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ENGINEERING AND CONSULTING, INC.**

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<b>CHECKED BY:</b> PDH	<b>PROJECT MGR:</b> WSH	<b>DATE:</b> 4-12-19	<b>SCALE:</b> NTS
<b>CLIENT:</b> CC	<b>SHT:</b> 1	<b>DWG NO:</b> SK-3	<b>JOB NO:</b> 18378S
			<b>REV:</b> 0

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	<p><b>Professional Certification</b></p> <p>I hereby certify that these documents were prepared or 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 8/6/20</p>		

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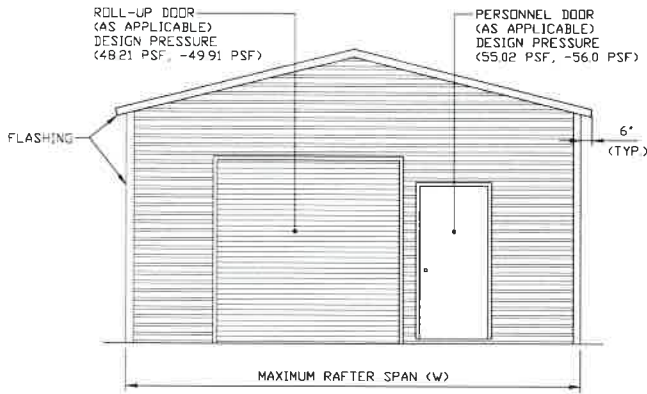
**INSTALLATION NOTES AND SPECIFICATIONS**

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE, 2017 FLORIDA BUILDING CODE (FBC) 6TH EDITION, 2018 INTERNATIONAL BUILDING CODE (IBC), 2006 IBC, 2009 IBC, 2012 IBC, 2015 IBC, AND 2018 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
  - A) DEAD LOAD = 1.5 PSF
  - B) LIVE LOAD = 12 PSF
  - C) GROUND SNOW LOAD = 33 PSF AT 5'-0" O.C. SPACING.  
 = 42 PSF AT 4'-0" O.C. SPACING.  
 30 PSF (WITH U-CHANNEL PEAK BRACE) W ≤ 26'-0"  
 (UNBALANCED SNOW LOADS DUE TO DRIFTING HAVE NOT BEEN EVALUATED.)
4. ULTIMATE WIND SPEED 105 TO 143 MPH (NOMINAL WIND SPEED 82 TO 110 MPH).  
 MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 5.0 FEET
5. ULTIMATE WIND SPEED 144 TO 155 MPH (NOMINAL WIND SPEED 111 TO 120 MPH).  
 MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 4.0 FEET
6. END WALL COLUMNS (POSTS) ARE SIMILAR TO SIDE WALL POSTS IN SIZE AND SPACING UNLESS NOTED OTHERWISE.
7. LOW HAZARD RISK CATEGORY I.
8. WIND EXPOSURE CATEGORY B.
9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/4" x 2 1/4" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 8 INCHES.
11. FASTENERS CONSIST OF #12-14x3/4" (UNLESS OTHERWISE NOTED) 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.
12. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6' OF EACH COLUMN.
13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG. SOIL NAILS MAY BE USED FOR MAXIMUM WIND V = 145 MPH AND IN SUITABLE SOIL CONDITIONS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND V > 145 MPH AND/OR IN UNSUITABLE SOILS AS NOTED.
14. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:  
 SOIL SITE CLASS = D  
 RISK CATEGORY I/II/III  
 R= 3.25                      I<sub>E</sub>= 1.0  
 S<sub>DS</sub>= 2.039 g              V= C<sub>S</sub>W  
 S<sub>DI</sub>= 1.258 g
15. DOOR AND WINDOW PRESSURES APPLICABLE TO THE STATE OF FLORIDA.

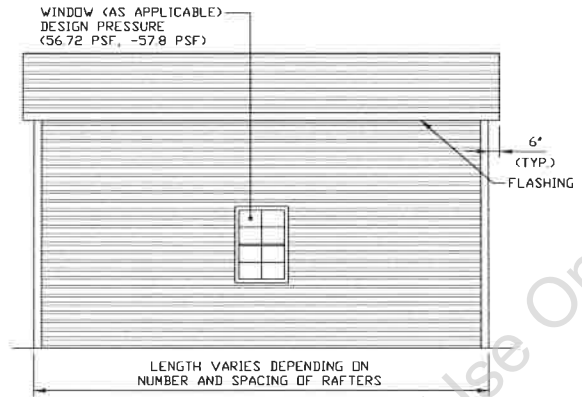
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	<b>CLIENT:</b> CC	<b>SHT.</b> 3	<b>DWG. NO:</b> SK-3	<b>REV.:</b> 0

**BOX EAVE RAFTER STRUCTURE**

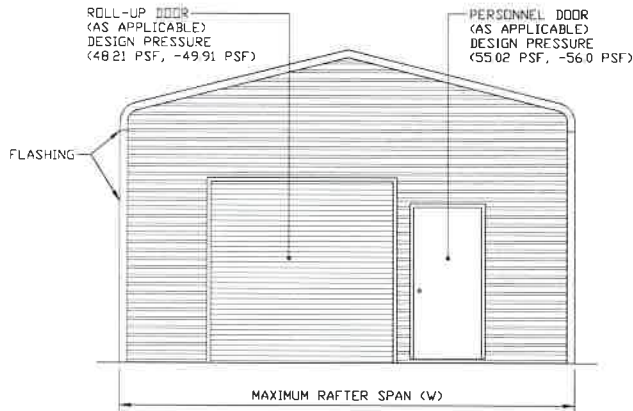


**TYPICAL END ELEVATION-HORIZONTAL ROOF**  
SCALE: NTS

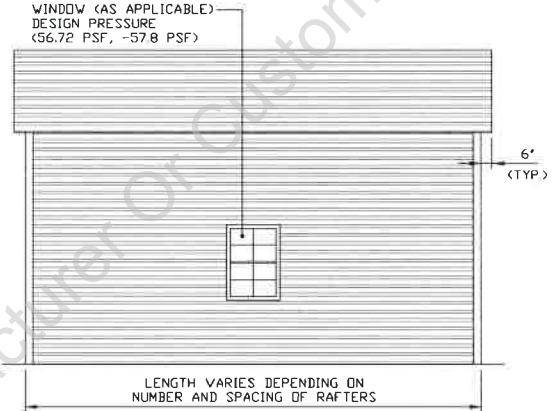


**TYPICAL SIDE ELEVATION-HORIZONTAL ROOF**  
SCALE: NTS

**BOW FRAME RAFTER STRUCTURE**



**TYPICAL END ELEVATION**  
SCALE: NTS



**TYPICAL END ELEVATION**  
SCALE: NTS

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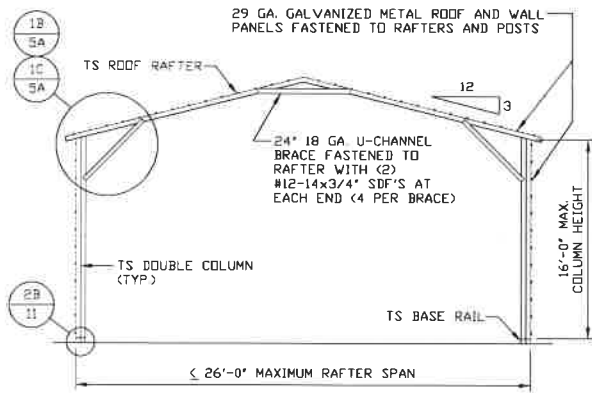
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**SHT. 3A**

**DWG. NO: SK-3**

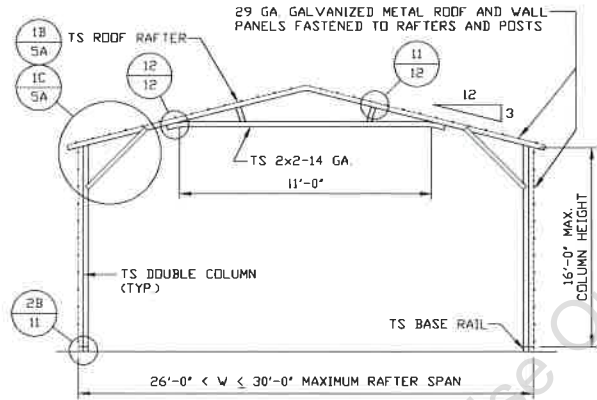
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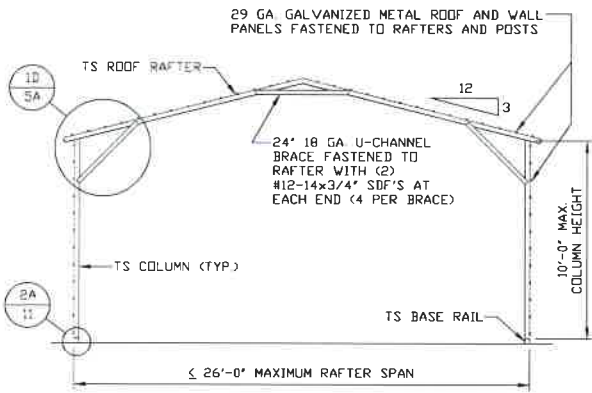
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



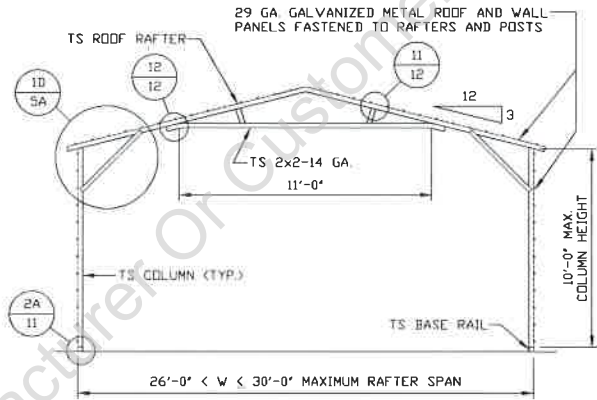
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



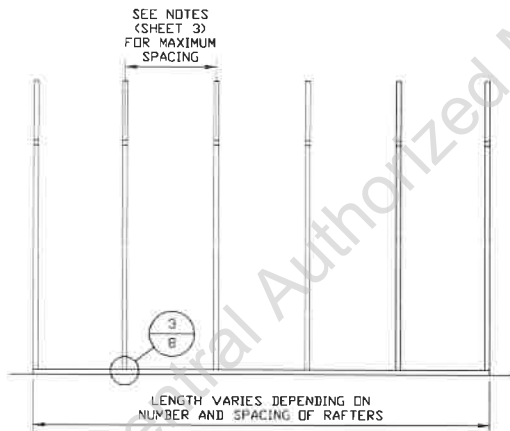
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**

SCALE: NTS

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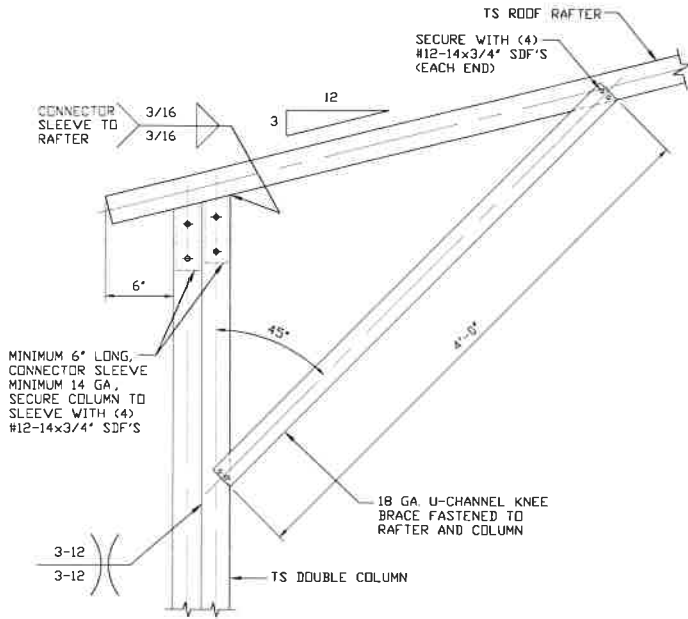
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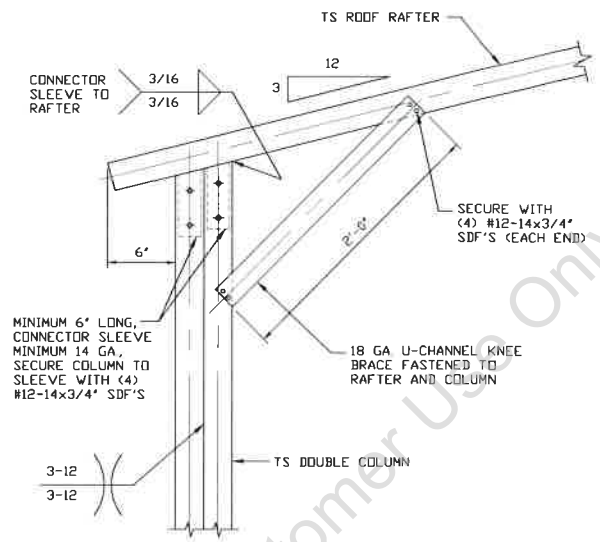
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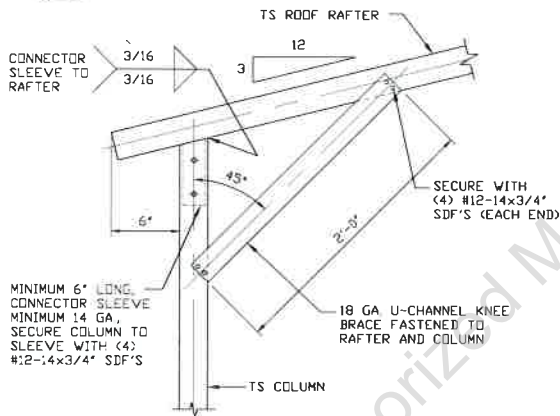
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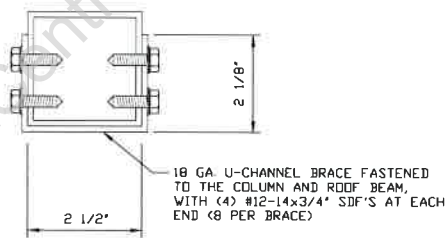
**1B**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"**  
 SCALE: NTS



**1C**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 12'-0"**  
 SCALE: NTS



**1D**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0"**  
 SCALE: NTS



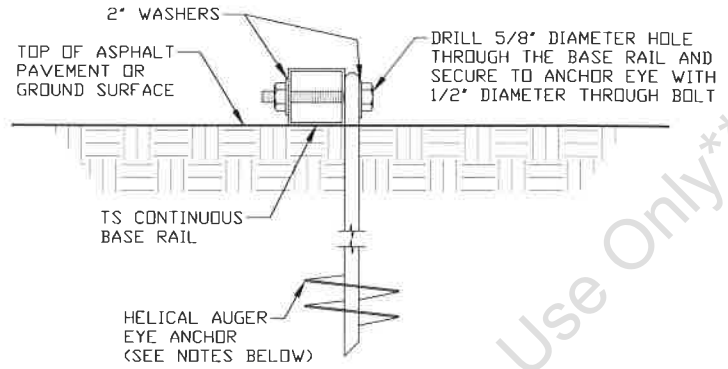
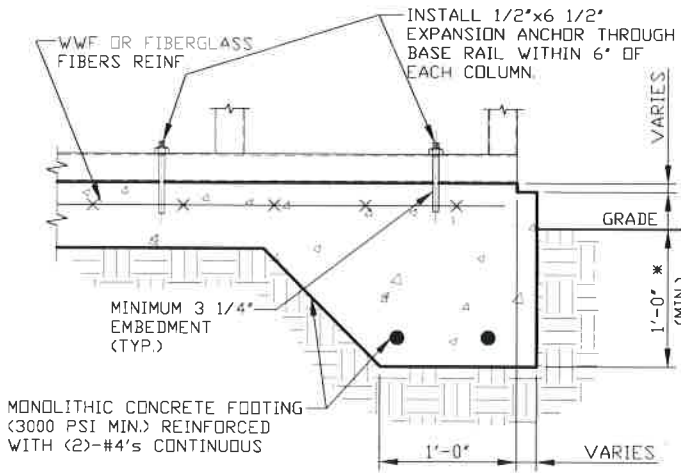
**BRACE SECTION**  
 SCALE: NTS

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### BASE RAIL ANCHORAGE OPTIONS



**3A CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE**  
 SCALE: NTS  
 MINIMUM ANCHOR EDGE DISTANCE IS 4".  
 \* COORDINATE WITH LOCAL CODES/ORD.

**3B HELICAL AUGER 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

#### HELICAL AUGER ANCHOR NOTES:

- 1 FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE MINIMUM (2) 4' HELICES WITH MINIMUM 30' EMBEDMENT OR SINGLE 6' HELIX WITH MINIMUM 50' EMBEDMENT
- 2 FOR CORAL USE MINIMUM (2) 4' HELICES WITH MINIMUM 30' EMBEDMENT OR SINGLE 6' HELIX WITH MINIMUM 50' EMBEDMENT.
- 3 FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH EMBEDMENT OR SINGLE 6' HELIX WITH MINIMUM 50' EMBEDMENT
- 4 FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6' HELICES WITH MINIMUM 50' EMBEDMENT
- 5 FOR VERY LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8' HELICES WITH MINIMUM 60' EMBEDMENT.

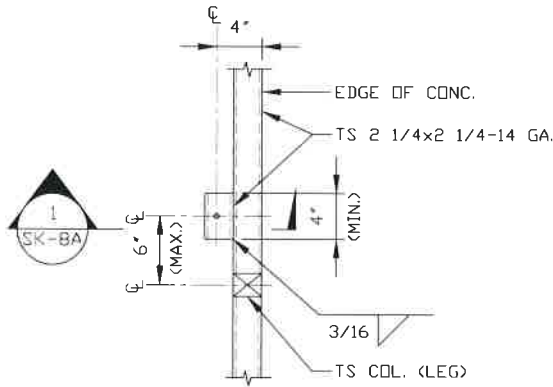
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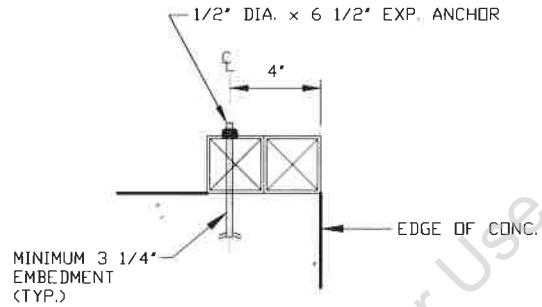


### BASE RAIL ANCHORAGE OPTIONS



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

SCALE: NTS



**SECTION 1**  
SCALE: NTS

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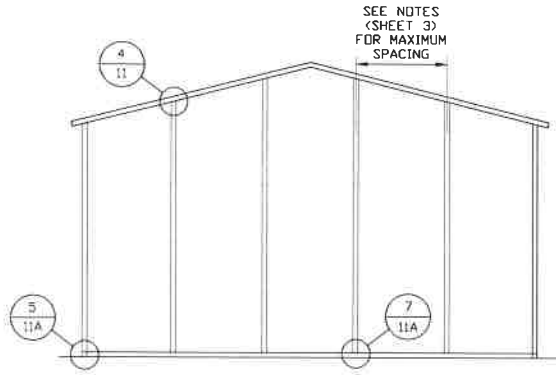
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**DWG. NO: SK-3**

**REV: 0**

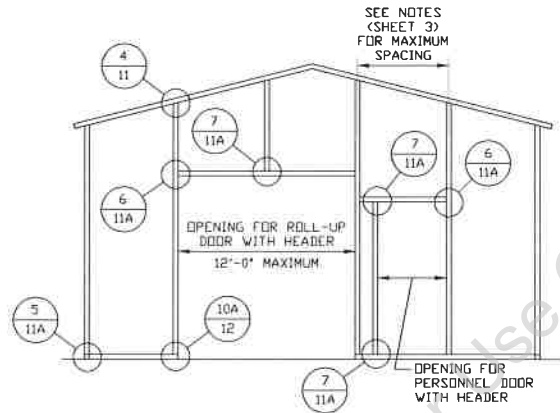
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**BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS**



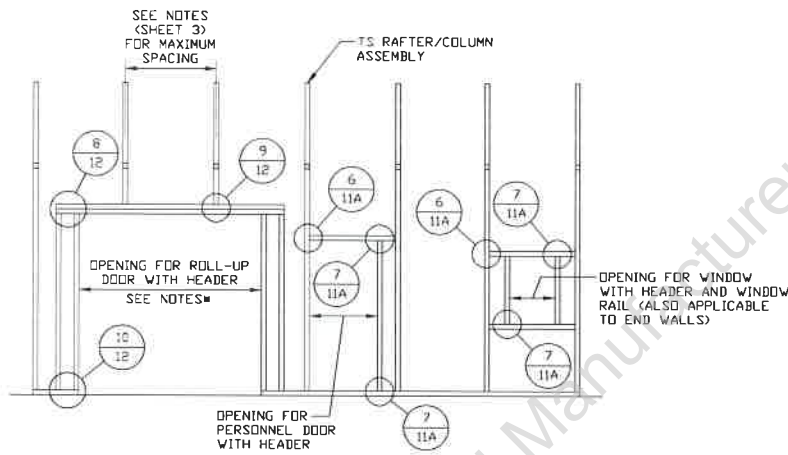
**TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION**

SCALE: NTS



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

SCALE: NTS



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

SCALE: NTS

NOTES:

- \* 10'-0" MAX. FOR 5'-0" O.C. RAFTER/COLUMN SPACING.
- \* 9'-0" MAX. FOR 4'-0" O.C. RAFTER/COLUMN SPACING.

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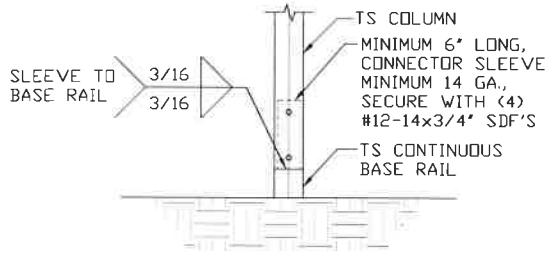
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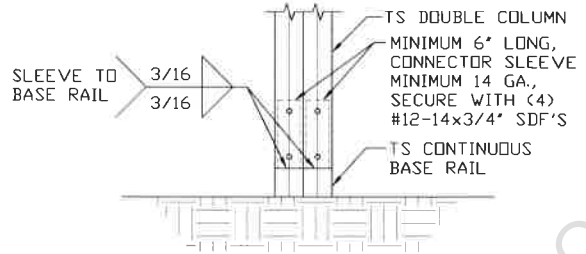
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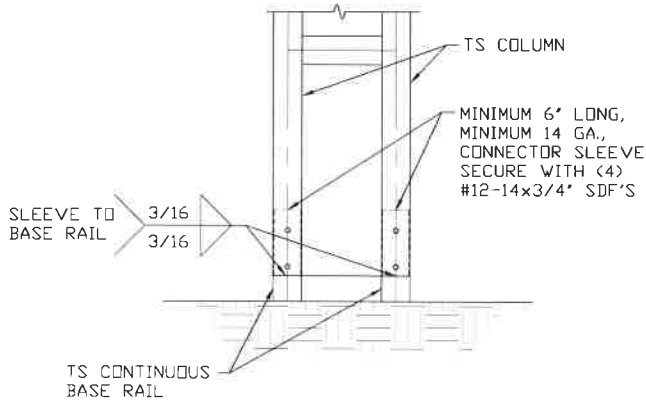
**CONNECTION DETAILS**



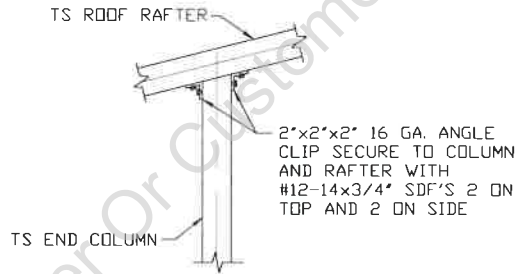
**2A** RAFTER COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS



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



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



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

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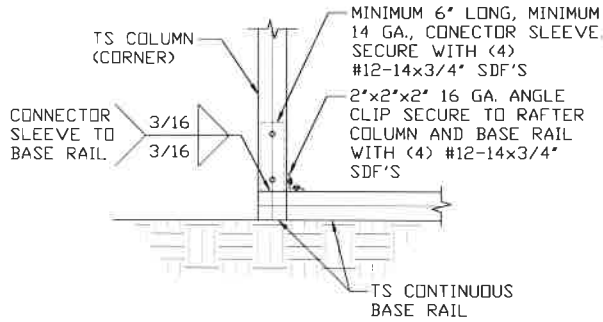
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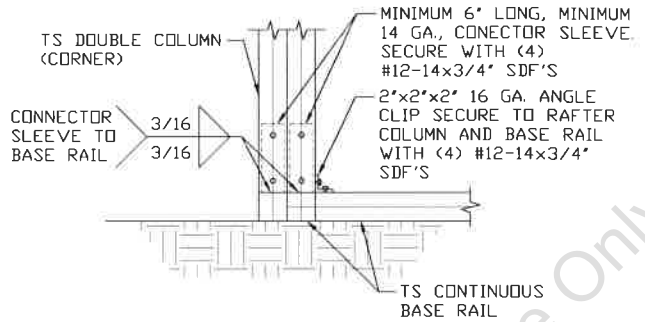
### CONNECTION DETAILS



**5**

#### **END COLUMN/BASE RAIL CONNECTION DETAIL**

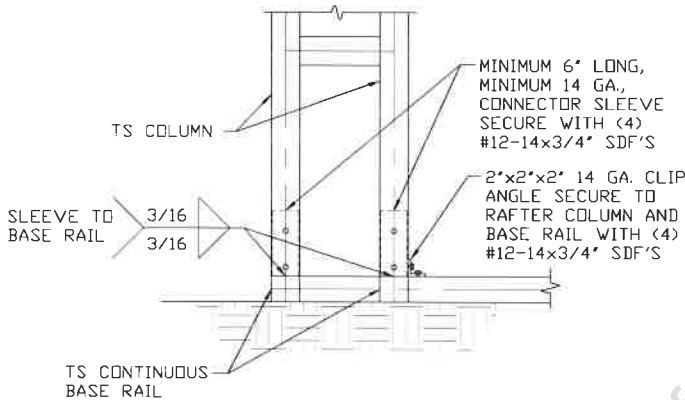
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**5A**

#### **END COLUMN/BASE RAIL CONNECTION DETAIL**

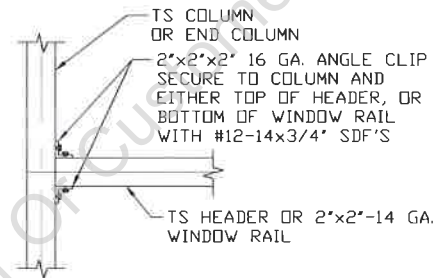
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**5B**

#### **END COLUMN/BASE RAIL CONNECTION DETAIL**

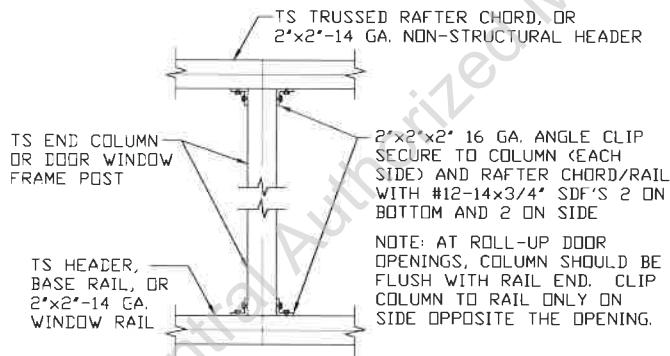
SCALE: NTS



**6**

#### **COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL**

SCALE: NTS



**7**

#### **COLUMN TO HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL**

SCALE: NTS

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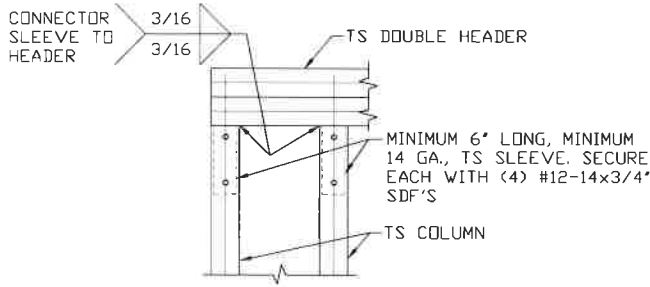
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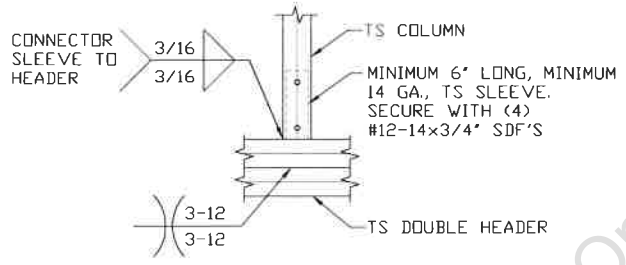
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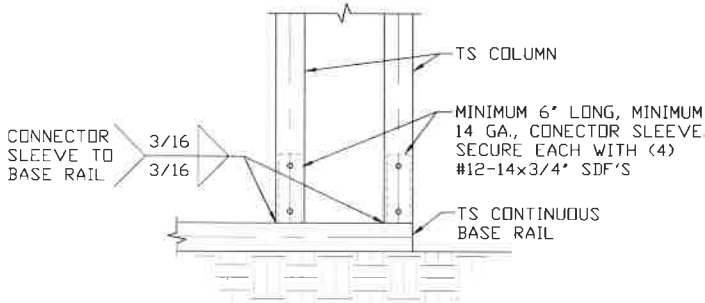
### CONNECTION DETAILS



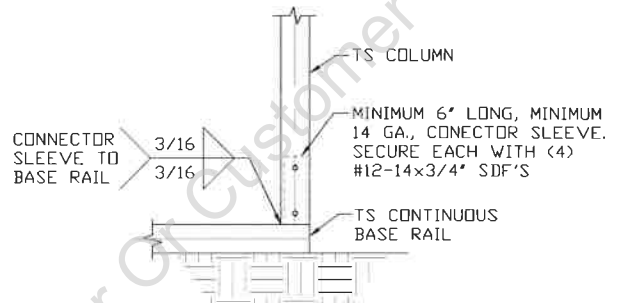
**8** DOUBLE HEADER/COLUMN CONNECTION DETAIL  
SCALE: NTS



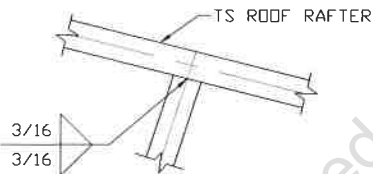
**9** COLUMN/DOUBLE HEADER CONNECTION DETAIL  
SCALE: NTS



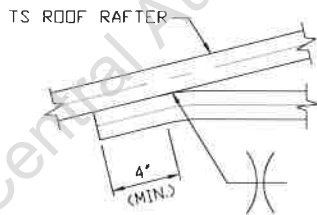
**10** COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS



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



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



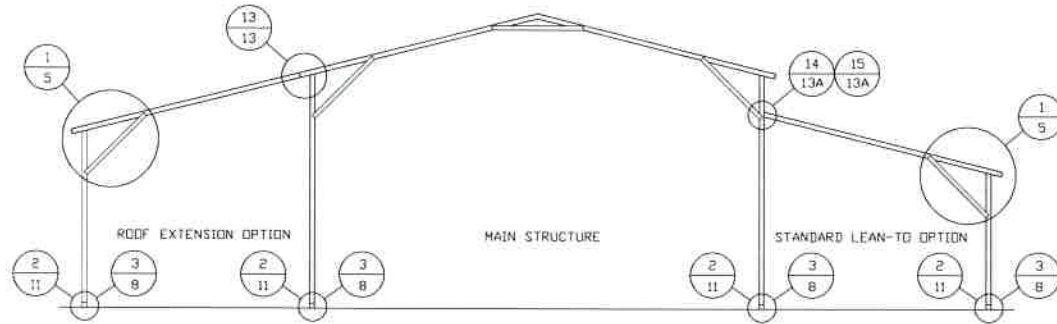
**12** COLLAR TIE CONNECTION DETAIL  
SCALE: NTS

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<b>CHECKED BY:</b> PDH			
<b>PROJECT MGR:</b> WSM	<b>DATE:</b> 4-12-19	<b>SCALE:</b> NTS	<b>JOB NO:</b> 16378S
<b>CLIENT:</b> CC	<b>SHT.</b> 12	<b>DWG. NO:</b> SK-3	<b>REV:</b> 0

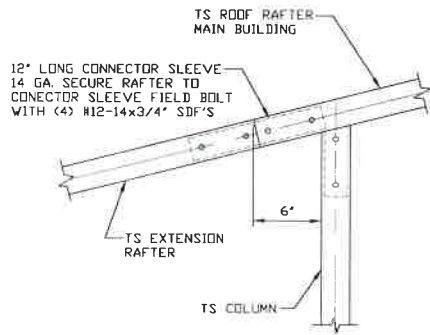
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### BOX EAVE RAFTER LEAN-TO OPTIONS



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

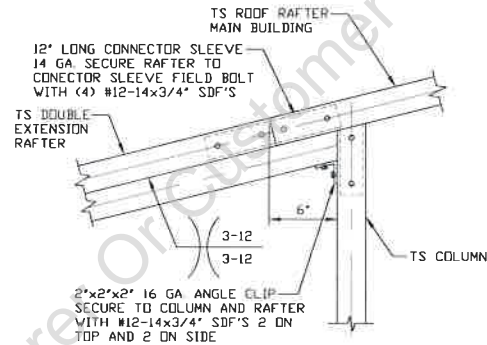
SCALE: NTS



13

**SIDE EXTENSION RAFTER/COLUMN  
DETAIL FOR SPAN  $L \le 12'-0''$**

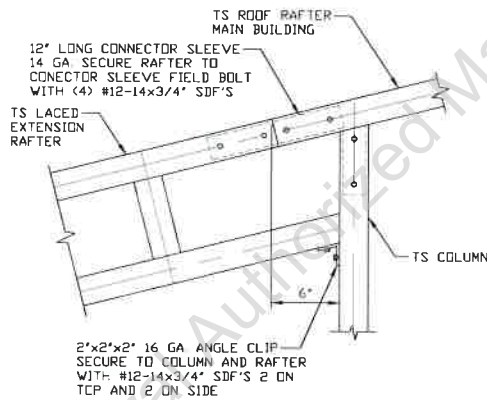
SCALE: NTS



13A

**SIDE EXTENSION RAFTER/COLUMN  
DETAIL FOR SPAN  $12'-0'' < L \le 16'-0''$**

SCALE: NTS



13B

**SIDE EXTENSION RAFTER/COLUMN  
DETAIL FOR SPAN  $16'-0'' < L \le 20'-0''$**

SCALE: NTS

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Louis Popielarcheck  
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Bunn Level NC 28323

**CHECKED BY:** PDH

**PROJECT MGR:** VSM

**DATE:** 4-12-19

**SCALE:** NTS

**JOB NO:** 18378S

**CLIENT:** CC

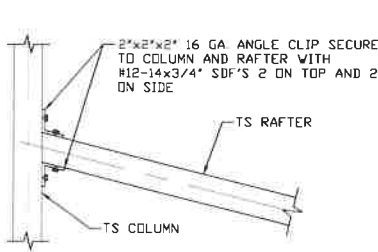
**SHT.** 13

**DWG. NO:** SK-3

**REV.** 0

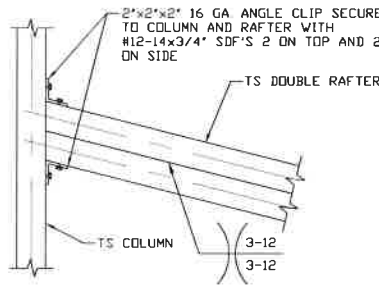
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**LEAN-TO OPTIONS**



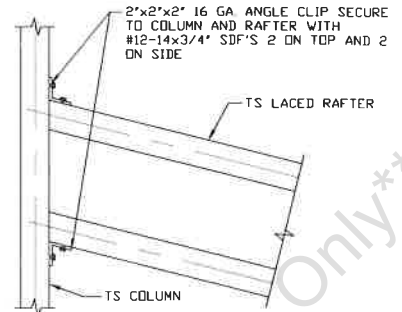
**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN  $\leq 12'-0''$**   
SCALE: NTS

14



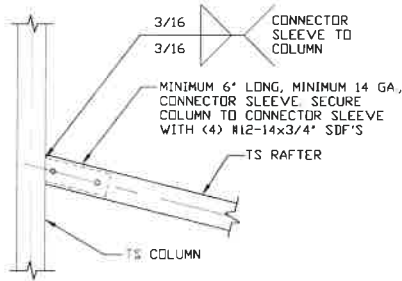
**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN  $12'-0'' < L \leq 16'-0''$**   
SCALE: NTS

14A



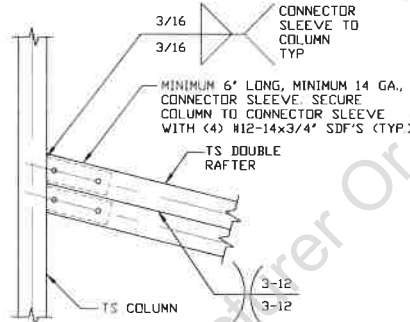
**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN  $16'-0'' < L \leq 20'-0''$**   
SCALE: NTS

14B



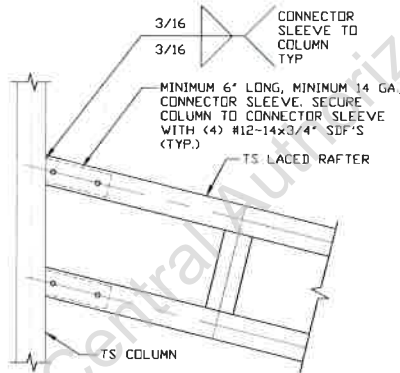
**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN  $\leq 12'-0''$**   
SCALE: NTS

15



**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN  $12'-0'' < L \leq 16'-0''$**   
SCALE: NTS

15A



**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN  $16'-0'' < L \leq 20'-0''$**   
SCALE: NTS

15B

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<b>CLIENT:</b> CC	<b>SHT:</b> 13A	<b>DWG. NO:</b> SK-3	<b>JOB NO:</b> 18378S
		<b>REV:</b> 0	

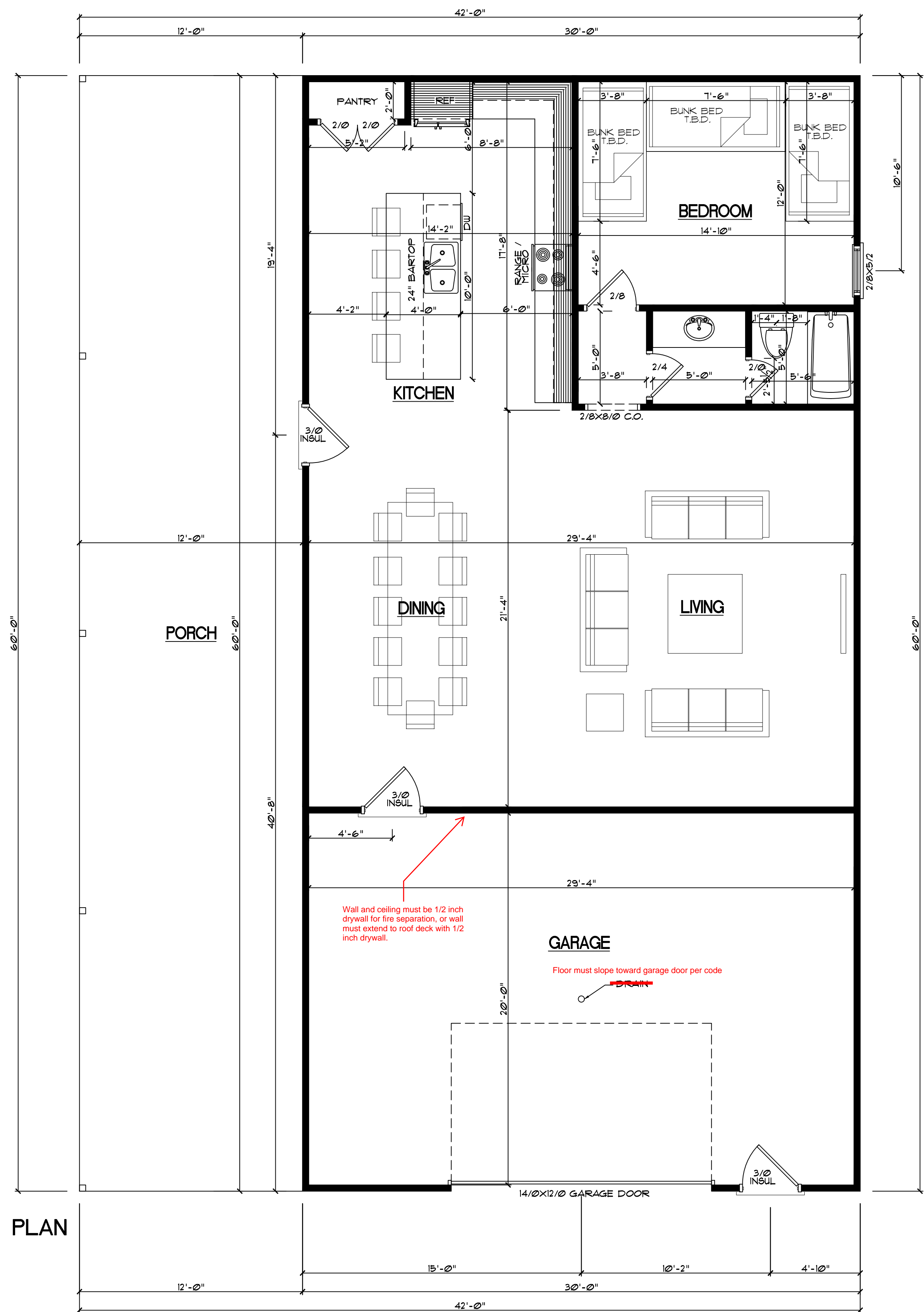
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# Design Meister

P.O. Box 447 Holly Springs, NC 27540 • 919-263-4047 • plans@thedesignmeister.com

## WSP FARM LLC CLUB HOUSE

Drawn by: KM
Date: 04/23/2020
Revision:
<b>FIRST FLOOR</b>
Sheet: <b>A1</b>



**FIRST FLOOR PLAN**  
SCALE: 1/4" = 1'

PLANS ARE DESIGNED TO MEET THE REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION

**GENERAL NOTES**

**WALLS:**  
ALL WALLS ARE DRAIN 4" THICK UNO.  
ANGLED WALL ARE DRAIN #48" UNO.

**SMOKE DETECTORS:**  
LOCATION AND NUMBER OF DETECTORS SHALL CONFORM TO NEC.

**EGRESS:**  
ALL BEDROOMS MUST HAVE AT LEAST ONE WINDOW WHICH CONFORMS TO R-310 OF THE NC BLDG CODE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY CHOSEN WINDOWS MEET EGRESS REQUIREMENTS AS MANUFACTURERS VARY.

**ATTIC ACCESS:**  
MIN. ATTIC ACCESS SHALL BE PROVIDED BY BUILDER AND LOCATED ON SITE.

**WALL/CEILING HGT:**  
WALL AND CEILING HEIGHT NOTES ARE BASED ON NOMINAL WALL SIZE.  
KNEE WALL HEIGHT LABELS FOR WALLS UNDER RAFTERS ASSUME AN EXTRA 2" FOR FURRING (IN HEATED SPACES) FOR INSULATION. THE WALL HEIGHT REFERS TO THE HGT. FROM THE FLOOR DECKING TO THE BOTTOM OF THE FURRING.

DIMENSIONS MAY VARY TO FIT IN PREFABRICATED METAL BUILDING. CONTRACTOR TO CONFIRM EXTERIOR WALL DIMENSIONS BEFORE CONSTRUCTION