



Mark Blanton
2251 Bastist Grove Rd.
Fuquay Varina, NC 27526

STRUCTURAL DESIGN

ENCLOSED BUILDING

**MAXIMUM 30'- 0" WIDE X 16'- 0" EAVE HEIGHT-
BOX EAVE FRAME AND BOW FRAME**

24 October 2018

Revision 1

M&A Project No. 17171S/18253S

Prepared for:

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



**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING**

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

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CHECKED BY: PDH

PROJECT MGR: WSM

DATE: 10-24-18

SCALE: NTS

JOB NO:
17171S/18253S

CLIENT: CC

SHT. 1

DWG. NO: SK-3

REV: 1

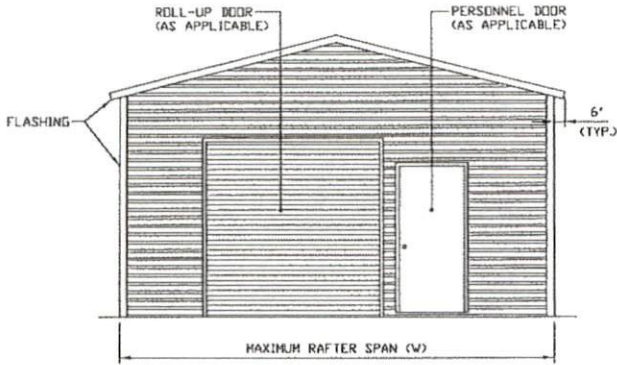
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	<p>Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 49744, Expiration Date <u>8/8/17</u></p>		
			
			

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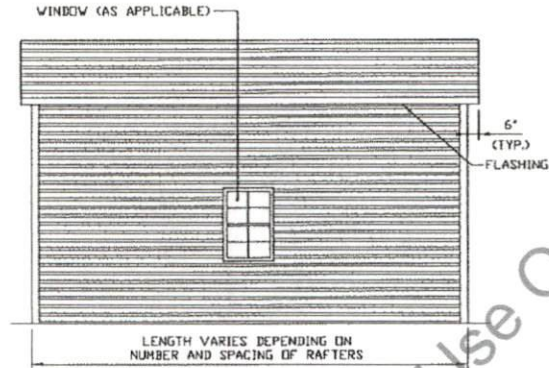
<p align="center">MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</p>	<p>DRAWN BY: LT</p>	<p>Mark Blanton 2251 Bastist Grove Rd.</p>		
	<p>CHECKED BY: PDH</p>	<p>Fuquay Varina, NC 27526</p>		
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	<p>CLIENT: CC</p>	<p>SHT. 1A</p>	<p>DWG. NO: SK-3</p>	<p>REV: 1</p>

BOX EAVE FRAME RAFTER STRUCTURE (Sheets 4, 5, 8, 9, 11, 12, 13, AND 15)



TYPICAL END ELEVATION-HORIZONTAL ROOF

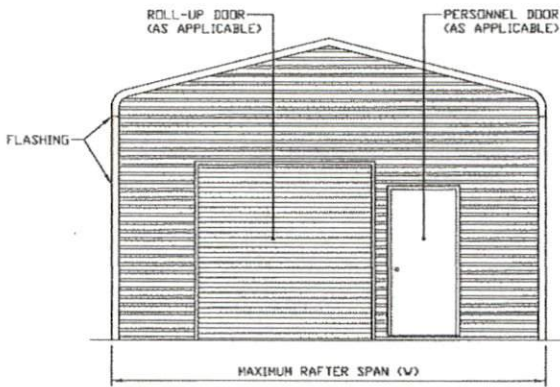
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TYPICAL SIDE ELEVATION-HORIZONTAL ROOF

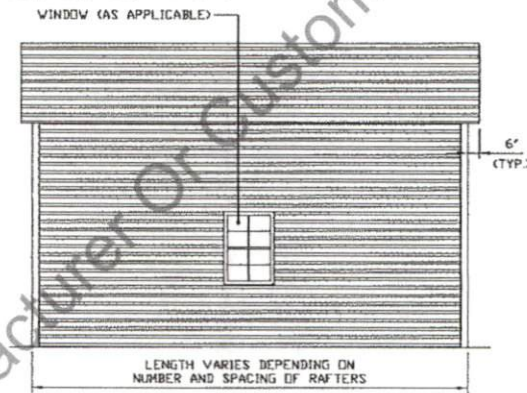
SCALE: NTS

BOX FRAME RAFTER STRUCTURE (Sheets 6, 7, 8, 10, 11, 12, AND 14)



TYPICAL END ELEVATION

SCALE: NTS



TYPICAL END ELEVATION

SCALE: NTS

INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 16'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE, 2006 INTERNATIONAL BUILDING CODE (IBC), 2009 IBC, 2012 IBC, AND 2015 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
 - A) DEAD LOAD = 1.5 PSF
 - B) LIVE LOAD = 12 PSF
 - C) GROUND SNOW LOAD = 30 PSF ($L \leq 26'-0"$), 35 PSF ($26'-0" < L \leq 30'-0"$)
4. ULTIMATE WIND SPEED 105 TO 145 MPH (NOMINAL WIND SPEED 82 TO 113 MPH); MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 5.0 FEET (UNLESS NOTED OTHERWISE).
5. END WALL COLUMNS (POST) ARE SIMILAR TO SIDE WALL POSTS UNLESS NOTED OTHERWISE.
6. LOW HAZARD RISK CATEGORY I (WIND).
7. WIND EXPOSURE CATEGORY B.
8. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
9. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 8 INCHES.
10. FASTENERS CONSIST OF 1/4"x3/4" (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.
11. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6' OF EACH COLUMN.
12. GROUND ANCHORS CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG IN SUITABLE SOIL CONDITIONS. OPTIONAL ANCHORAGE MAY BE USED IN UNSUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED.
13. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
 - SOIL SITE CLASS = D
 - RISK CATEGORY I/II/III
 - R = 3.25 I_E = 1.0
 - S₀₅ = 2.039 g V = C_sW
 - S₀₁ = 1.258 g

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171715/18253S**

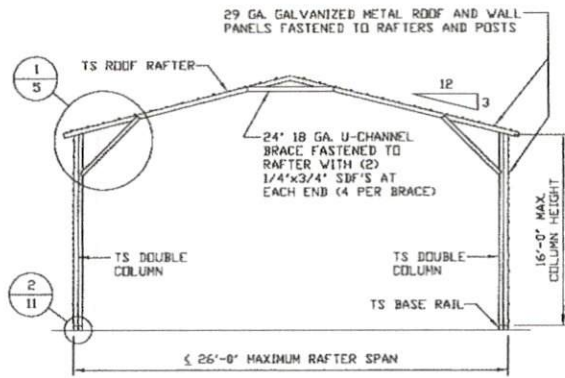
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SHT. 3

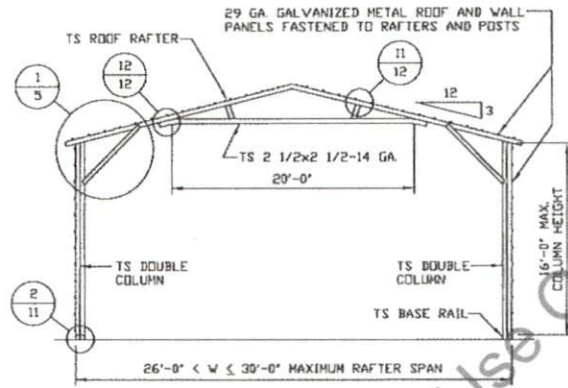
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REV: 1

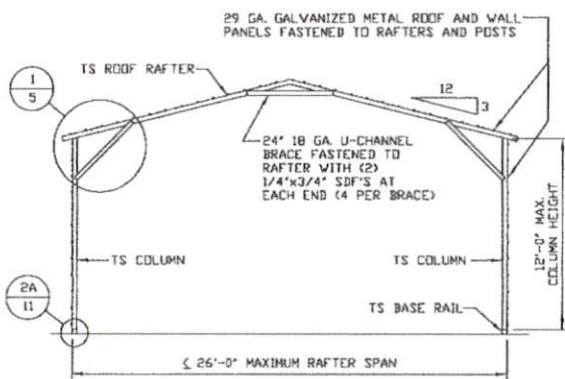
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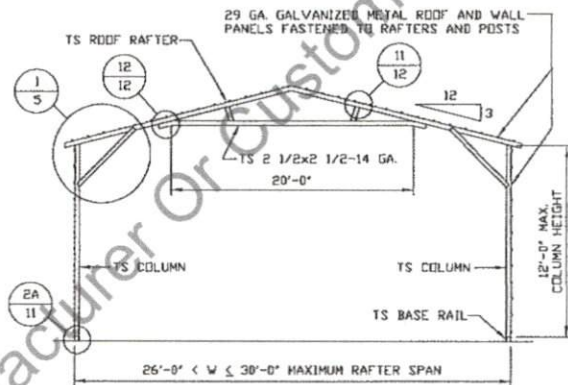
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



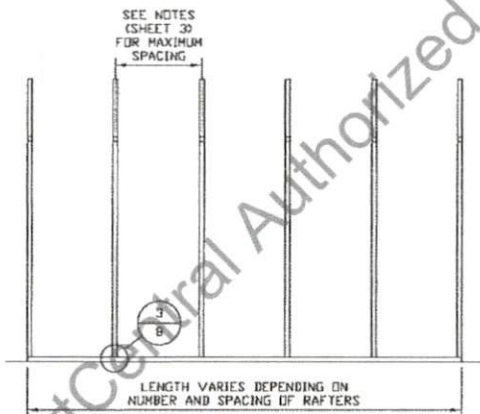
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS

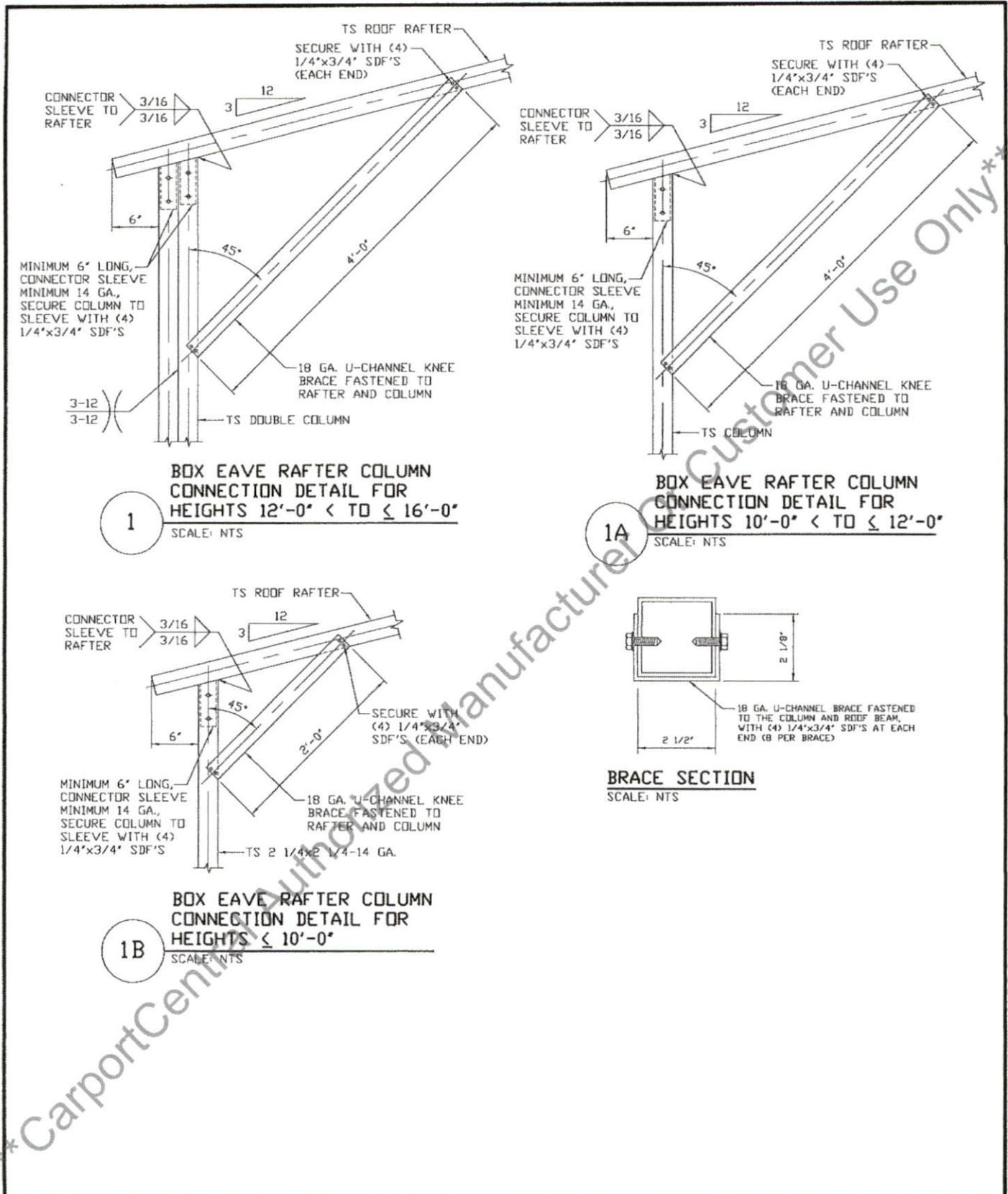


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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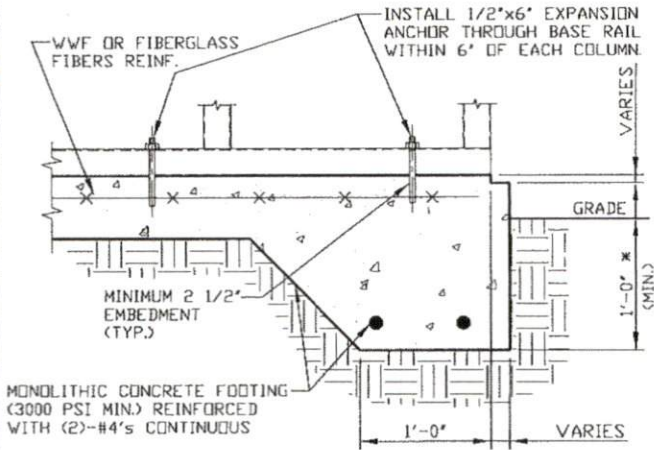
SHT. 5

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BASE RAIL ANCHORAGE OPTIONS



3A

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
MINIMUM ANCHOR EDGE DISTANCE IS 4\".

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:

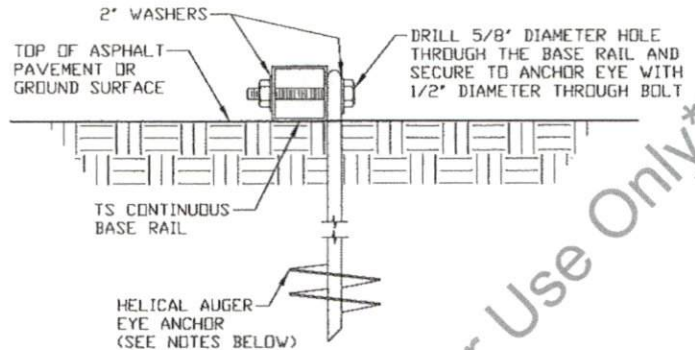
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

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:

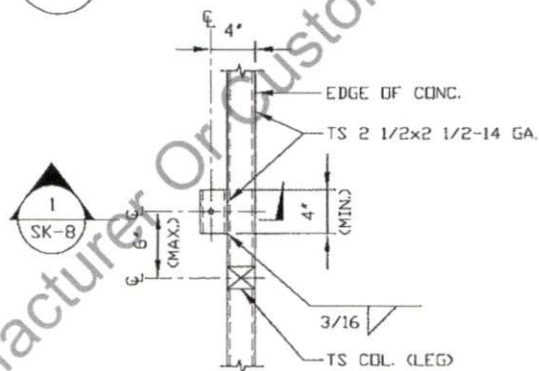
1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE MINIMUM (2) 4\" HELICES WITH MINIMUM 30\" EMBEDMENT OR SINGLE 6\" HELIX WITH MINIMUM 50\" EMBEDMENT.
2. FOR CORAL USE MINIMUM (2) 4\" HELICES WITH MINIMUM 30\" EMBEDMENT OR SINGLE 6\" HELIX WITH 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.



3B

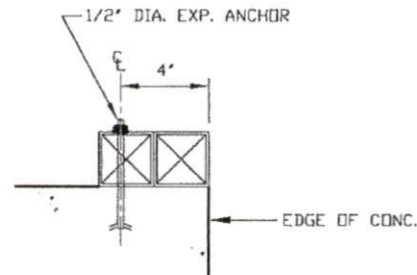
HELICAL AUGER ANCHORAGE

SCALE: NTS (CAN BE USED FOR ASPHALT)



TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

SCALE: NTS



SECTION 1 SK-B
SCALE: NTS

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SHT. 8

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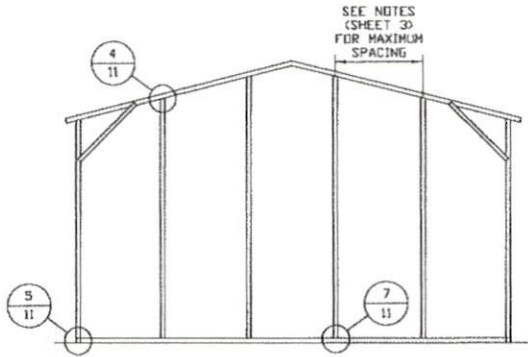
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JOB NO: 171713/182535

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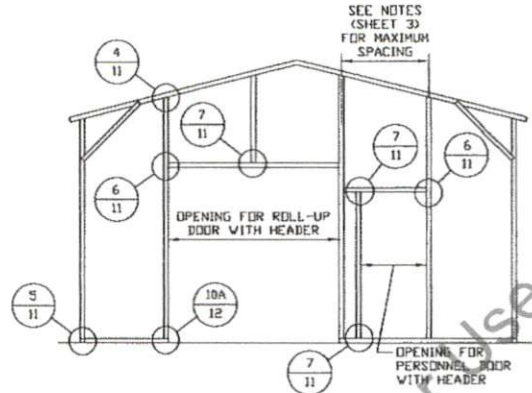
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BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



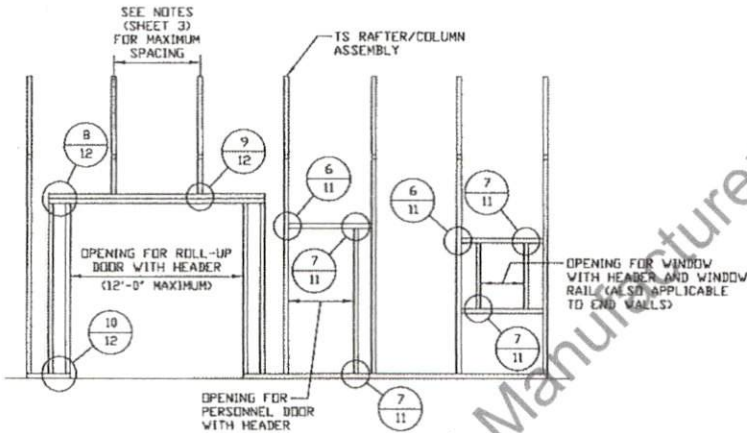
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

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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SCALE: NTS

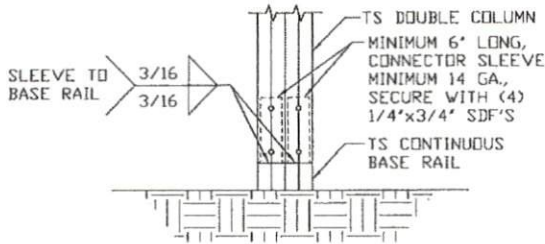
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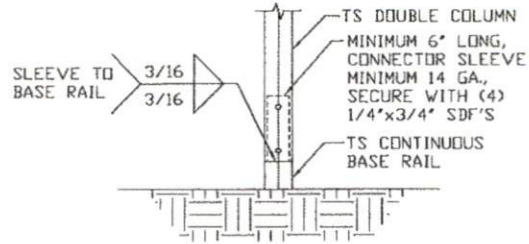
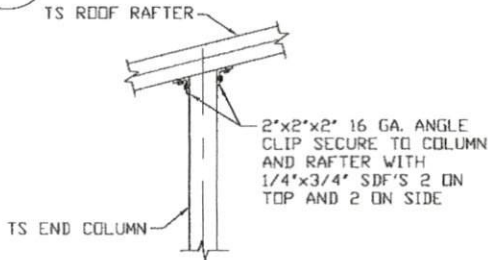
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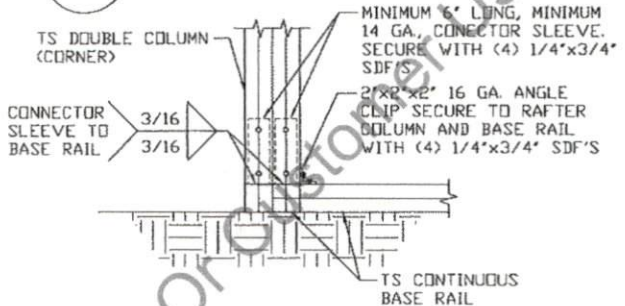
BOW AND BOX EAVE RAFTER WALL OPENING DETAILS



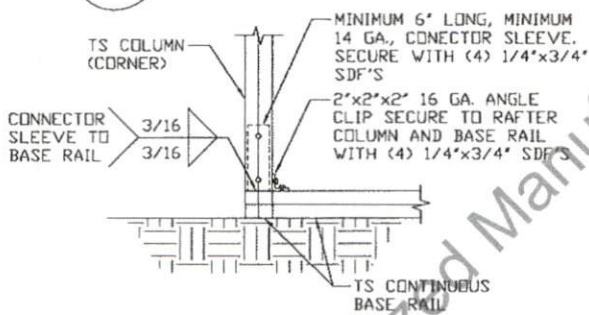
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



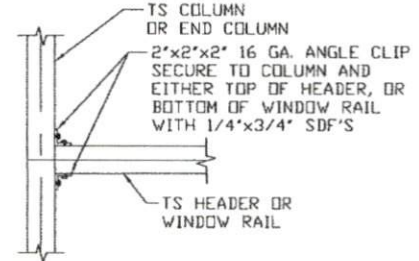
2A RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



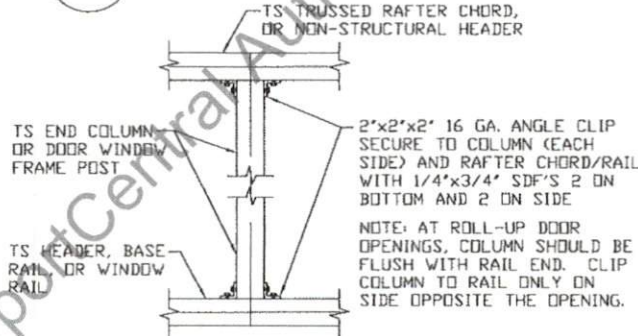
4 END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS



5 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



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



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

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SHT. 11

SCALE: NTS

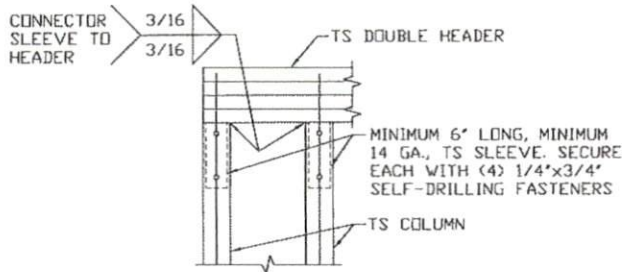
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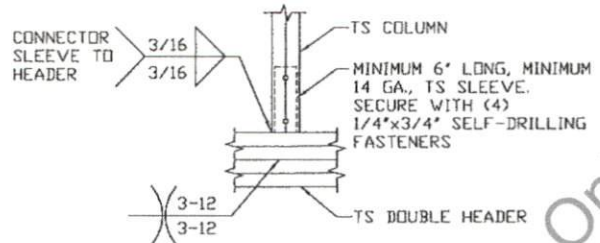
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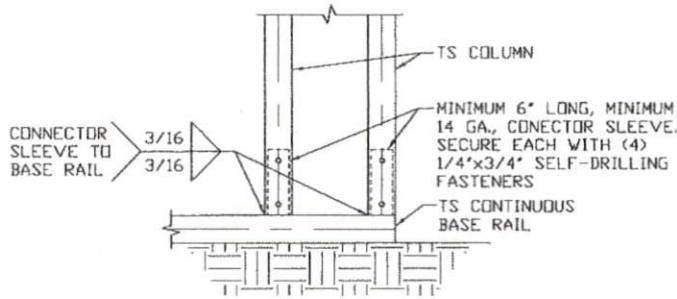
BOW AND BOX EAVE RAFTER WALL OPENING DETAILS



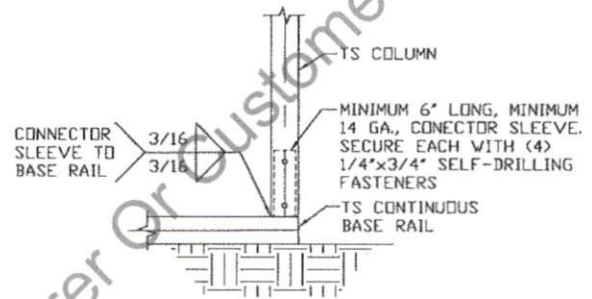
8 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS



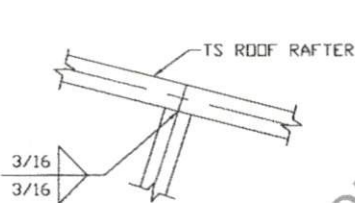
9 COLUMN/DOUBLE HEADER CONNECTION DETAIL
SCALE: NTS



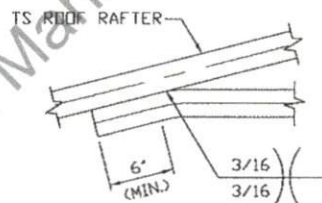
10 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



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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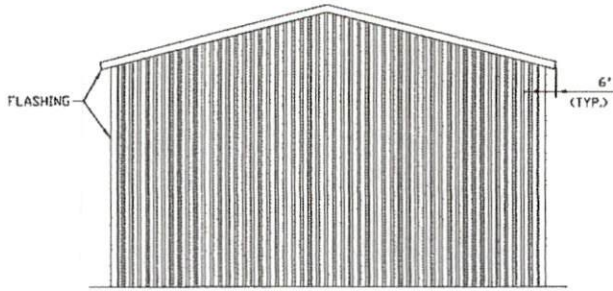
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DWG. NO: SK-3

REV: 1

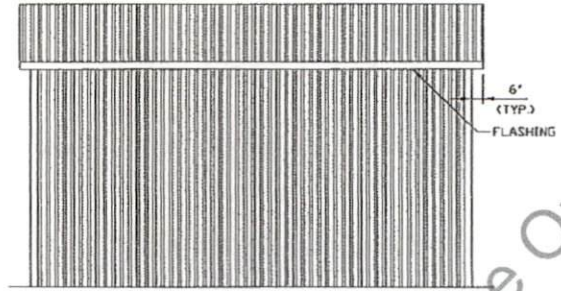
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BOX EAVE RAFTER VERTICAL ROOF OPTION



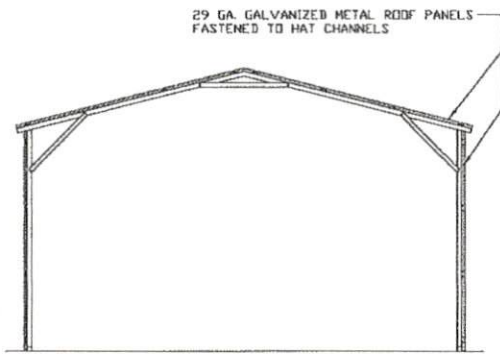
**TYPICAL END ELEVATION
VERTICAL ROOF**

SCALE: NTS



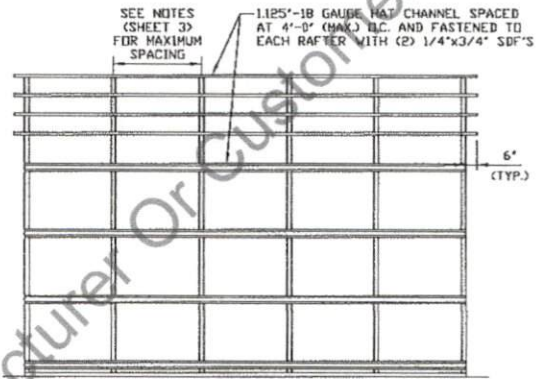
**TYPICAL SIDE ELEVATION
VERTICAL ROOF**

SCALE: NTS



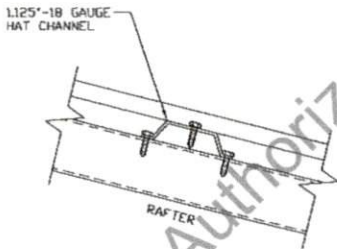
**TYPICAL SECTION
VERTICAL ROOF OPTION**

SCALE: NTS



**TYPICAL FRAMING SECTION
VERTICAL ROOF OPTION**

SCALE: NTS



ROOF PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)

SCALE: NTS

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Front and Left Side, Small entry door on front facing the street.



Right Side double doors. Street side is to the left.

Howerton Services, PLLC
License # P-1716
3513 Cathedral Bell Road
Raleigh, NC 27614
(919) 270-3460

June 13, 2019

Subject: Blanton Residence
2251 Baptist Grove Road
Fuquay Varina, NC 27526
Detached Metal Building Slab Design

The proposed Detached Metal Building will be 26' x 38'. The engineered metal building will be constructed on 3000 psi 6" monolithic concrete slab with a thickened footing on the perimeter under all 4 walls. The thickened footing will be 12" wide by 12" deep. Place 6x6 welded wire fabric in the slab. Place 2 - #4 bars continuously in the thickened perimeter footing. Anchor the metal bottom plate with 1/2" x 6" anchors bolts within 6" of each column.

The slab and footings meet all the requirements of the 2018 North Carolina Building Code for Residences.



Joel S. Howerton

06 13 2019

Signature Certificate

Folder Ref: 8029563a749de30ad32a1d3947800b34e960b06e



Author: Joel S. Howerton Creation Date: 13 Jun 2019, 22:00:19, EDT Completion Date: 13 Jun 2019, 22:02:04, EDT

Document Details:



Name: Blanton Residence Metal Building Slab Design Letter

Type:

Document Ref: 75698efa66743c6209bcec28e2d1b49ba6b7333feb881dcd24a99296396b290

Document 1
Total Pages:

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Name: Joel S. Howerton
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Date: 13 Jun 2019, 22:02:04, EDT

Document History:

Folder Created Joel S. Howerton created this folder on 13 Jun 2019, 22:00:19, EDT
Invitation Sent Invitation sent to Joel S. Howerton on 13 Jun 2019, 22:01:18, EDT
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Date	Description	Fee:
6/13/2019	Blanton Residence Detached Metal Building Slab Design Letter	\$250.00
<p>PAID CK# 1011 \$250 MBS 6/14/19</p>		
Total:		\$250.00