



**Carolina Carports, Inc.**

Carports · Buildings · Garages

## **STRUCTURAL DESIGN**

## **ENCLOSED BUILDING**

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

**15 January 2018**

**Revision 7**

**M&A Project No. 15156S, 16135S & 17324S**

**Prepared for:**

**Carolina Carports, Inc.  
187 Cardinal Ridge Trail  
Dobson, NC 27017**

**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**

**MAY 09 2018**



**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING**


MAY 09 2018



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

DRAWN BY: JRS

CHECKED BY: PDM

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

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PROJECT MGR: WSM

CLIENT: CAROLINA  
CARPORTS

DATE: 1-15-18

SHT. 1

SCALE: NTS

DWG. NO: SK-3

JOB NO: 15156S 16135S  
17324S

REV: 7

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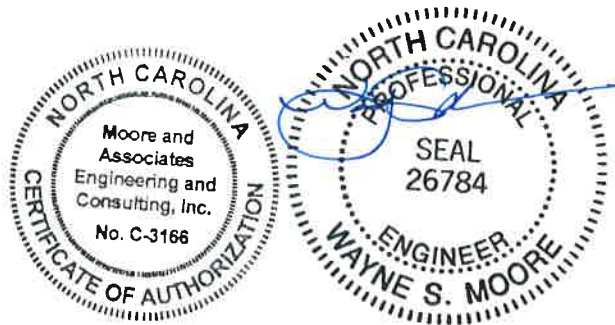


**MAY 09 2018**

<b>MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
	CHECKED BY: PDH	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S
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	CLIENT: CAROLINA CARPORTS			

## 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, 2012 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 = 15 PSF
  - B) LIVE LOAD = 12 PSF
  - C) GROUND SNOW LOAD = 30 PSF (< 24'), 35 PSF (24' < W < 30'), 35 PSF @ 4'-0" OC SPACING (< 24')  
(MAXIMUM 45 PSF FOR EXPOSURE B AND 55 PSF FOR EXPOSURE C AT 4'-0" OC SPACING)
- 4 LOW ULTIMATE WIND SPEED (LW) 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH) MAXIMUM RAFTER/POST AND END POST SPACING = 50 FEET
- 5 HIGH ULTIMATE WIND SPEED (HW) 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH) MAXIMUM RAFTER/POST AND END POST SPACING = 40 FEET
- 6 RISK CATEGORY I
- 7 WIND EXPOSURE CATEGORY B OR C
- 8 SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAGE 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" OC (MAX) 6" OC (MAX) FOR HIGH WIND APPLICATIONS
- 10 FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF) USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS AND ROOF SLOPES OF 14" (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY
- 11 ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES
- 12 GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 30" LONG IN SUITABLE SOIL CONDITIONS OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. NOT ALLOWED FOR HIGH WIND APPLICATION
- 13 WIND FORCES GOVERN OVER SEISMIC FORCES SEISMIC PARAMETERS ANALYZED ARE  
 SOIL SITE CLASS = I  
 RISK CATEGORY I/II/III  
 R = 325                      I<sub>e</sub> = 10  
 S<sub>IS</sub> = 1522                V = C<sub>S</sub>W  
 S<sub>D</sub> = 0839



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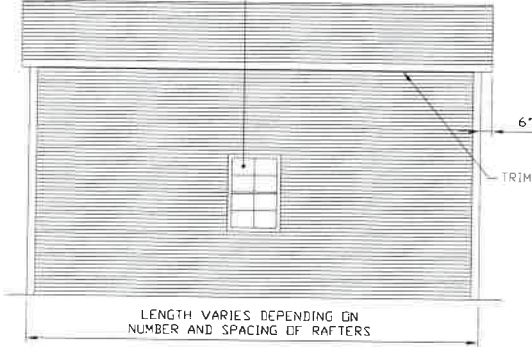
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ENGINEERING AND CONSULTING, INC.**

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<b>CLIENT:</b> CAROLINA CARPORTS	<b>SHT.</b> 3A	<b>DWG. NO:</b> SK-3	<b>REV.:</b> 7

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**BOX EAVE FRAME RAFTER STRUCTURE (Sheets 4, 4A, 4B, 4C, 4D, 4E, 5, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 8, 9, 11, 12, 13, AND 15)**

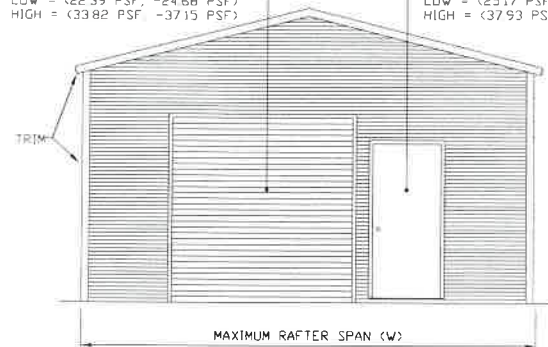
WINDOW (AS APPLICABLE)  
DESIGN PRESSURE  
LOW = (26.38 PSF, -35.21 PSF)  
HIGH = (39.75 PSF, -49.55 PSF)



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

ROLL-UP DOOR  
(AS APPLICABLE)  
DESIGN PRESSURE  
LOW = (22.39 PSF, -24.68 PSF)  
HIGH = (33.82 PSF, -37.15 PSF)

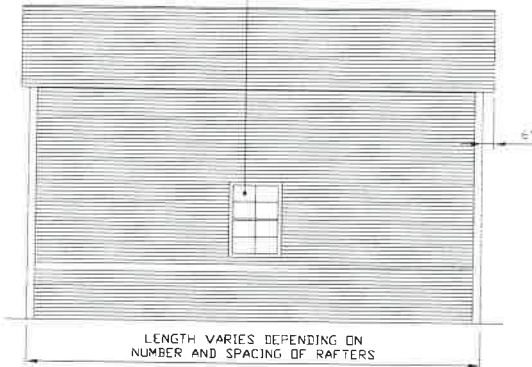
SWINGING DOOR  
(AS APPLICABLE)  
DESIGN PRESSURE  
LOW = (25.17 PSF, -27.35 PSF)  
HIGH = (37.93 PSF, -41.32 PSF)



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

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

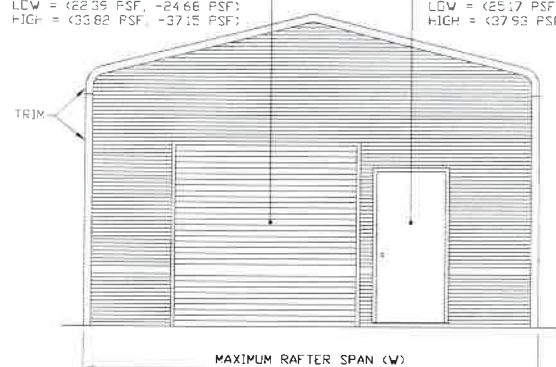
WINDOW (AS APPLICABLE)  
DESIGN PRESSURE  
LOW = (26.38 PSF, -35.21 PSF)  
HIGH = (39.75 PSF, -49.55 PSF)



**TYPICAL SIDE ELEVATION**  
SCALE: NTS

ROLL-UP DOOR  
(AS APPLICABLE)  
DESIGN PRESSURE  
LOW = (22.39 PSF, -24.68 PSF)  
HIGH = (33.82 PSF, -37.15 PSF)

SWINGING DOOR  
(AS APPLICABLE)  
DESIGN PRESSURE  
LOW = (25.17 PSF, -27.35 PSF)  
HIGH = (37.93 PSF, -41.32 PSF)



**TYPICAL END ELEVATION**  
SCALE: NTS



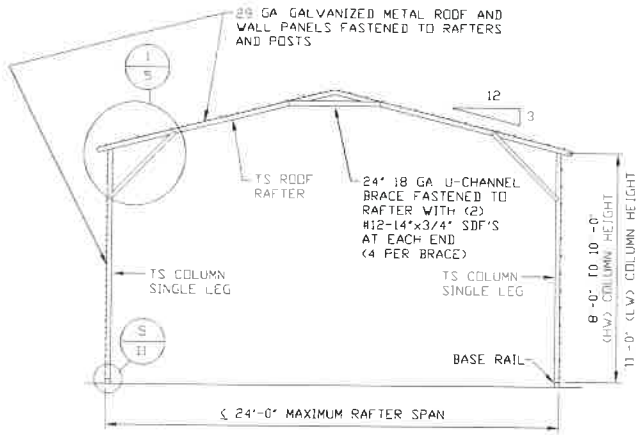
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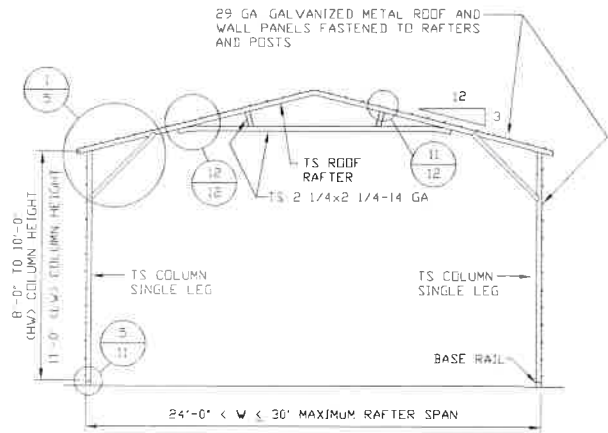
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CHECKED BY: PDH		DATE: 1-15-18	JOB NO: 15156S 16135S 17324S
PROJECT MGR: VSM	CLIENT: CAROLINA CARPORTS	SHT. 3B	DWG. NO: SK-3
		SCALE: NTS	REV: 7

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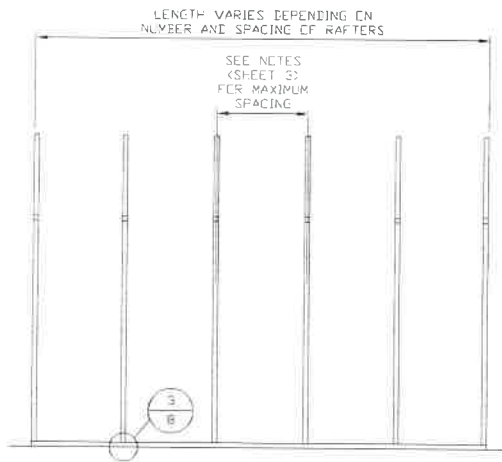
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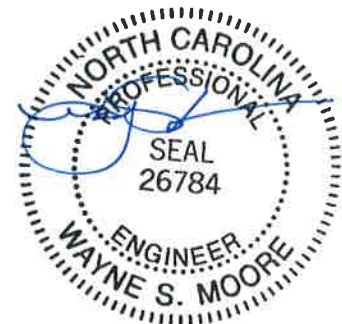
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



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



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS



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**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

**DATE: 1-15-18**

**SHT. 4**

**SCALE: NTS**

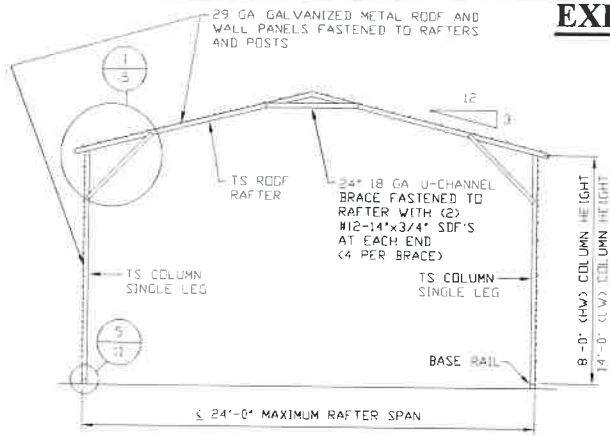
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**JOB NO: 15156S 16135S  
17324S**

**REV: 7**

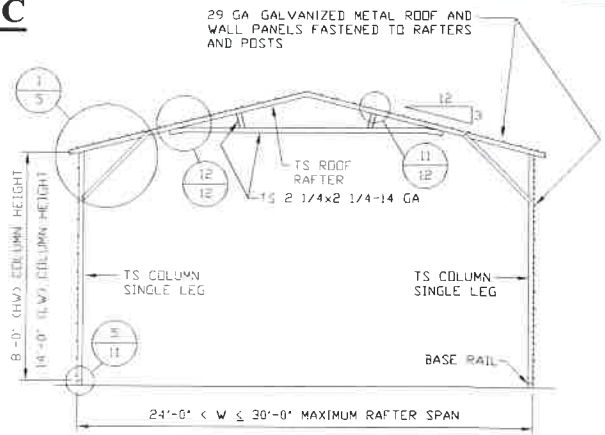
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# EXPOSURE C



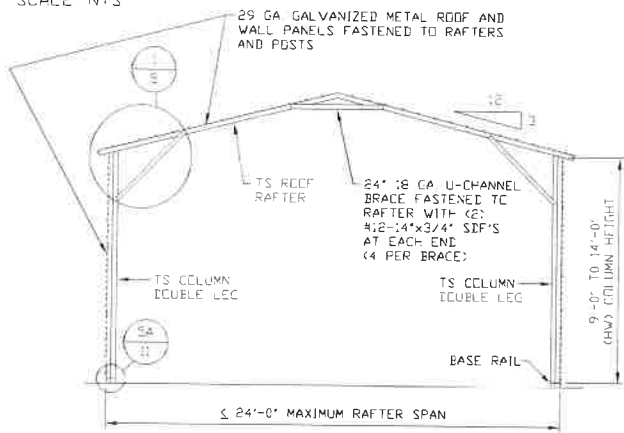
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



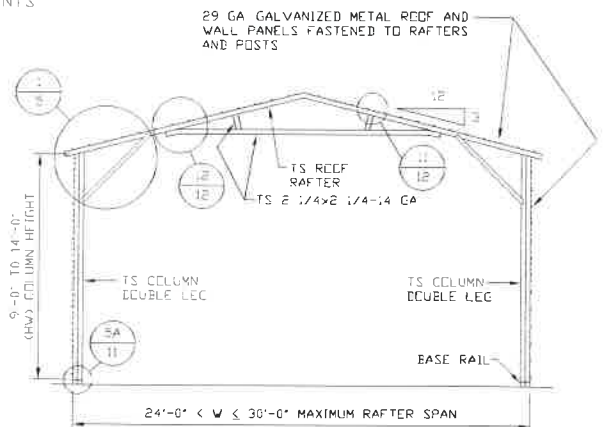
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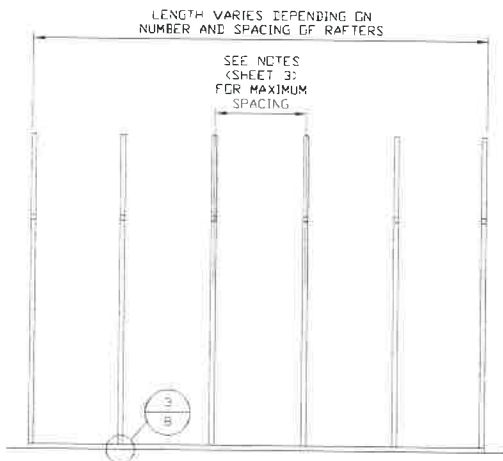
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SCALE: NTS



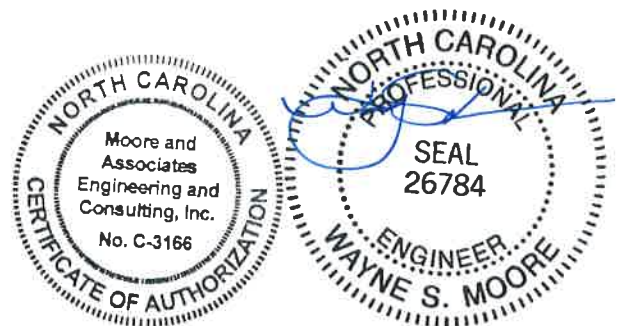
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**

SCALE: NTS



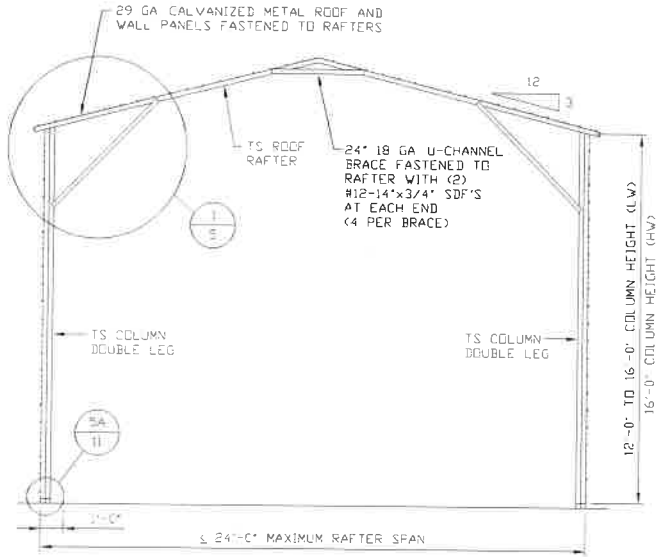
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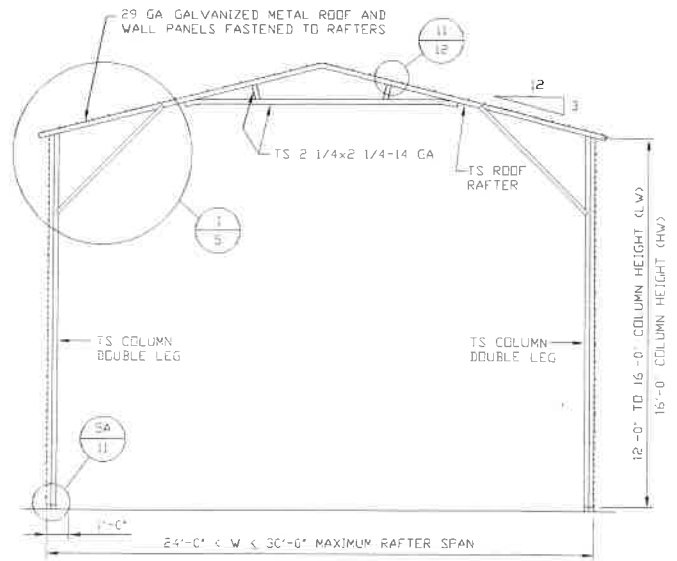
<b>DRAWN BY:</b> JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
<b>CHECKED BY:</b> PDH	<b>DATE:</b> 1-15-18	<b>SCALE:</b> NTS	<b>JOB NO:</b> 15156S 16135S 17324S
<b>PROJECT MGR:</b> WSM	<b>SHT.</b> 4A	<b>DWG. NO:</b> SK-3	<b>REV.:</b> 7
<b>CLIENT:</b> CAROLINA CARPORTS			

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## EXPOSURE B



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



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



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DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SHT. 4B

SCALE: NTS

DWG. NO: SK-3

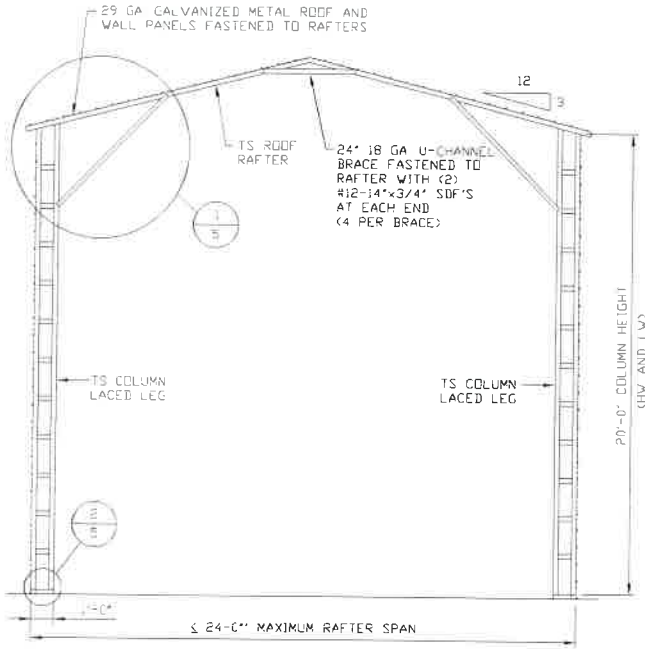
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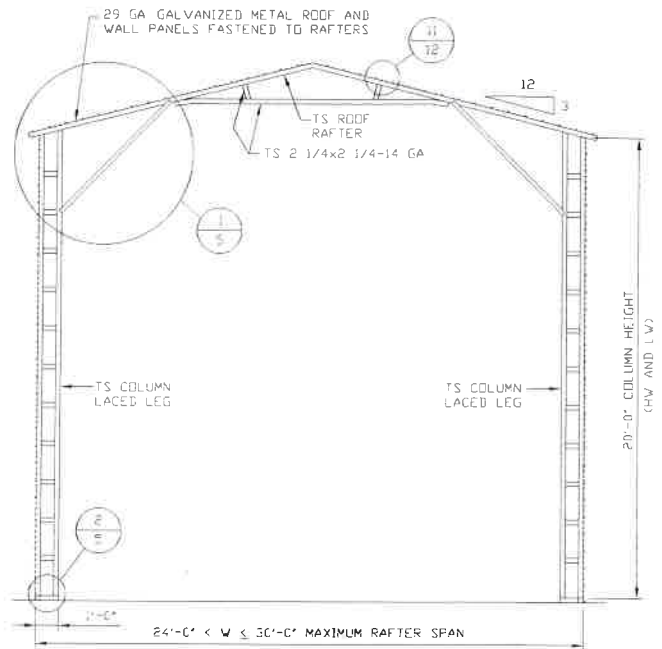
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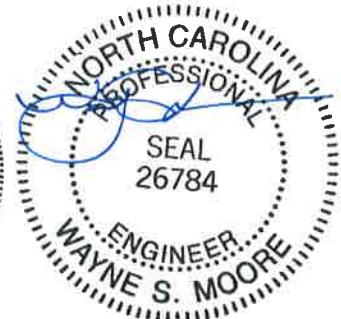
## EXPOSURE B



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



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



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DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

**DATE: 1-15-18**

**SHT. 4C**

**SCALE: NTS**

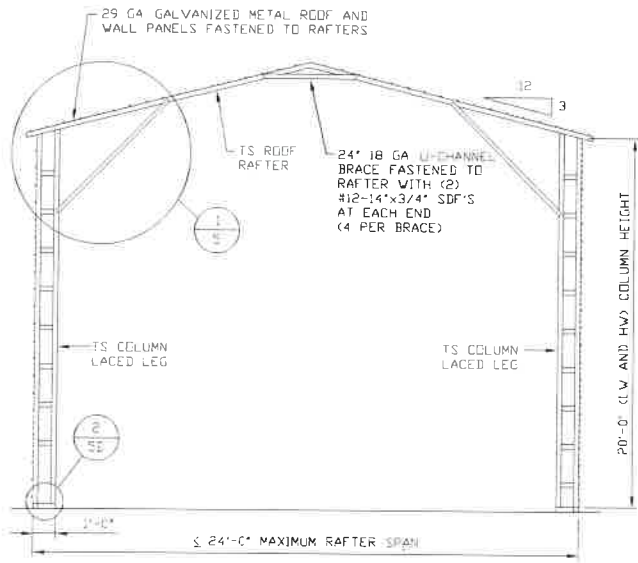
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17324S**

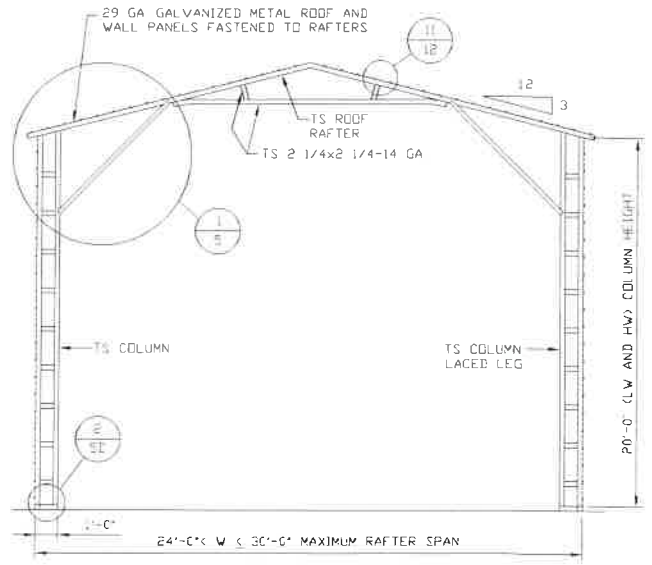
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# EXPOSURE C



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



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



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30'x20' ENCLOSED STRUCTURE

**DATE: 1-15-18**

**SHT. 4D**

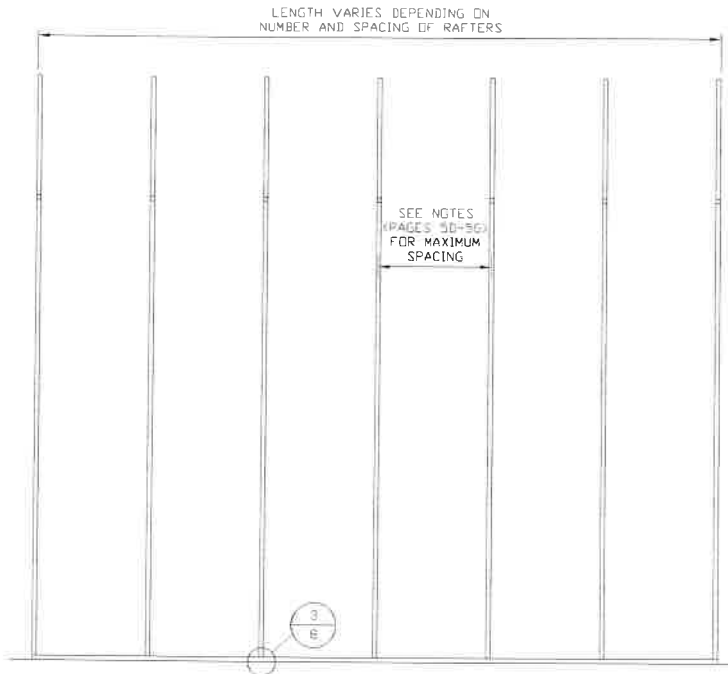
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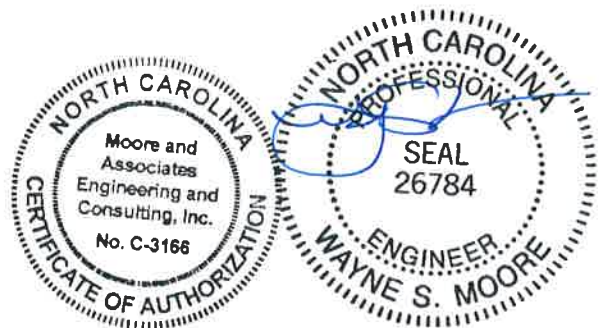
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**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS



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**DATE: 1-15-10**

**SHT. 4E**

**SCALE: NTS**

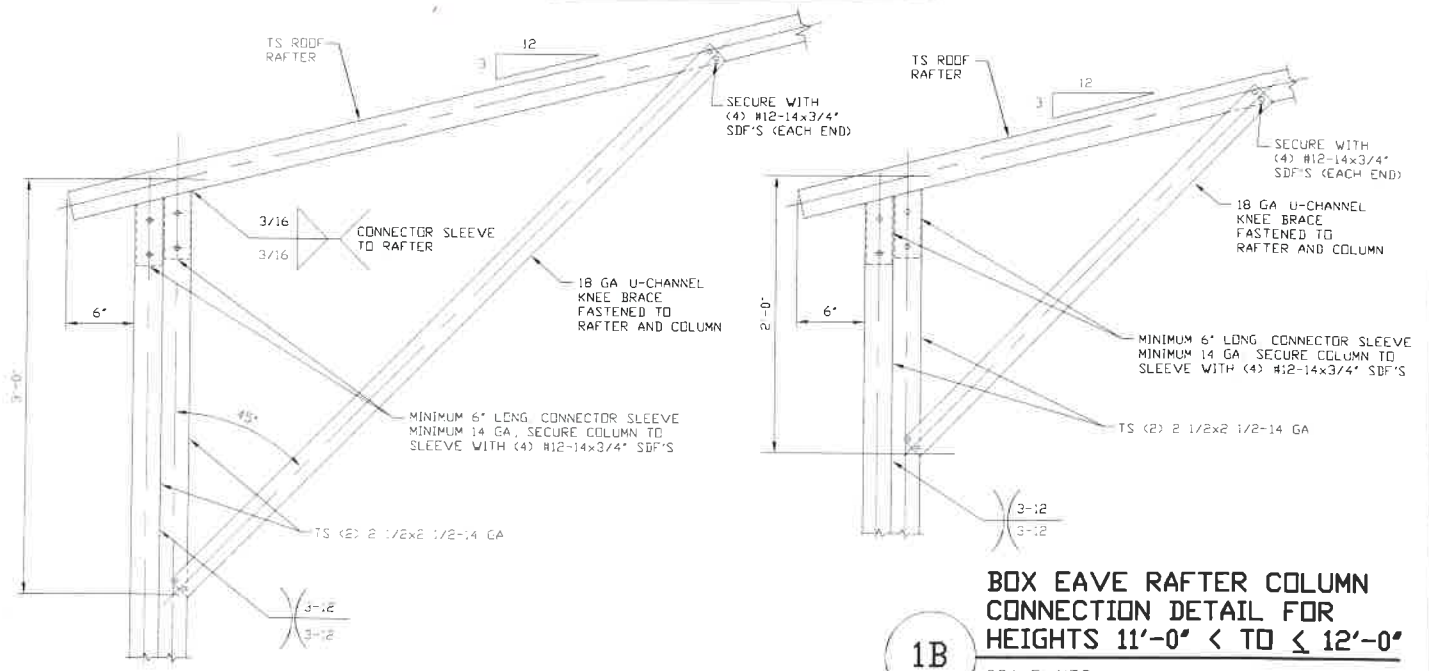
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**EXPOSURE B (140 MPH)**

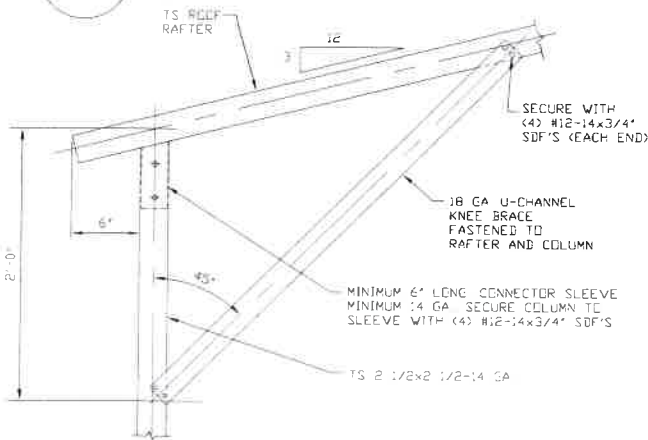


**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO <= 12'-0"**

SCALE: NTS

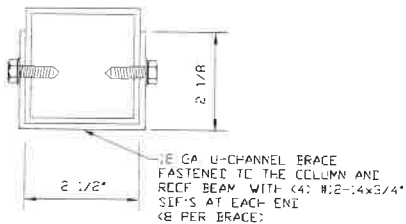
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO <= 16'-0"**

SCALE: NTS



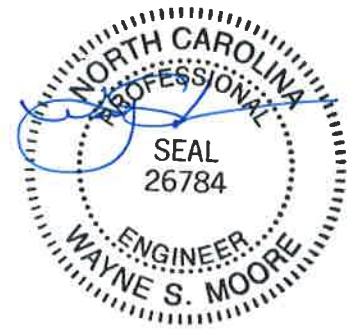
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 11'-0"**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS



MAY 09 2018

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ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JRS

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: CAROLINA  
CARPORTS

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SCALE: NTS

JOB NO: 15156S 1613SS  
17324S

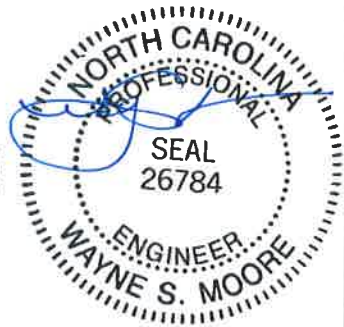
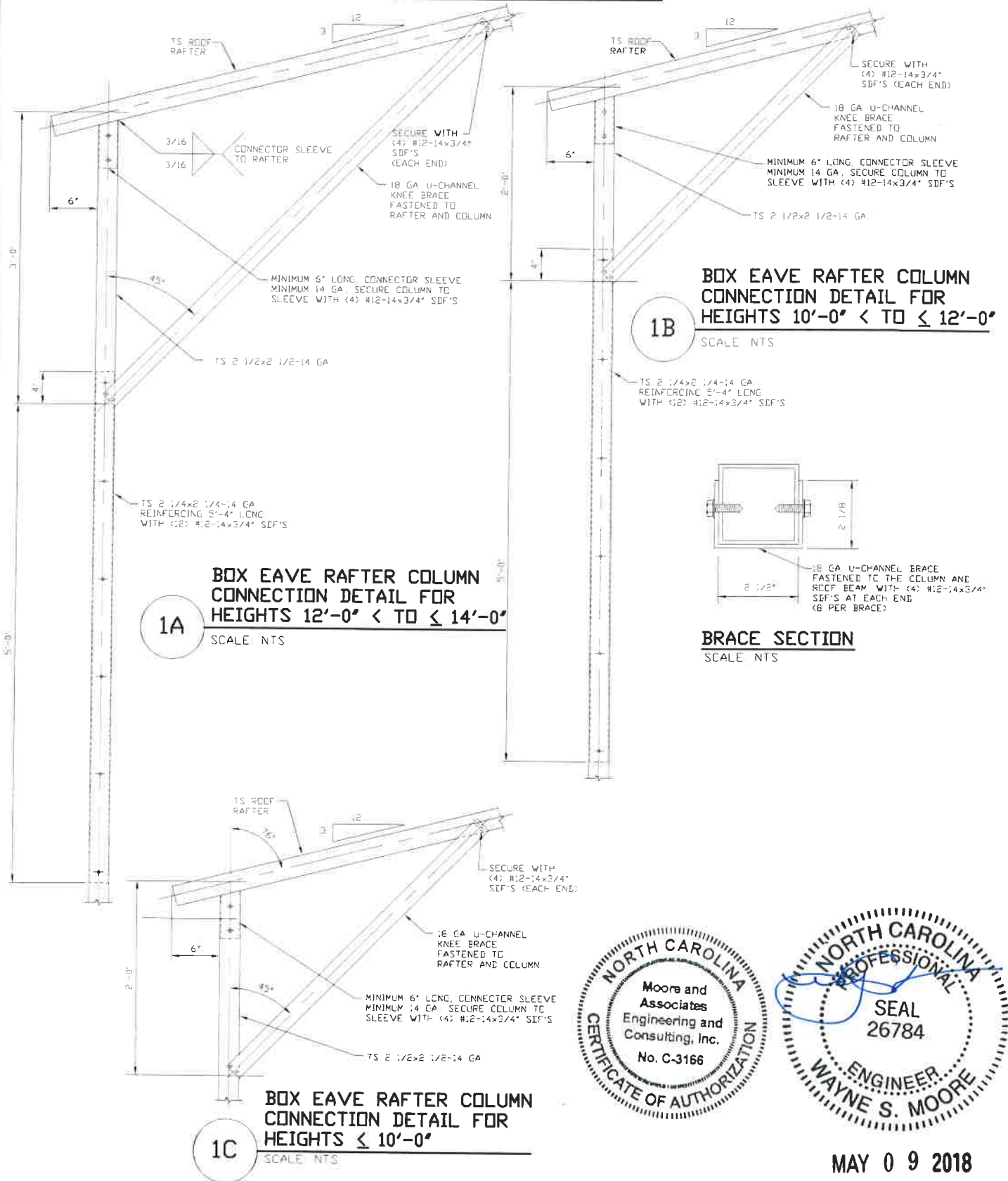
SHT. 5

DWG. NO: SK-3

REV: 7

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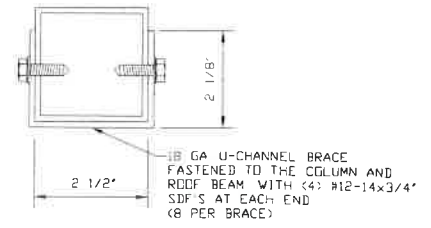
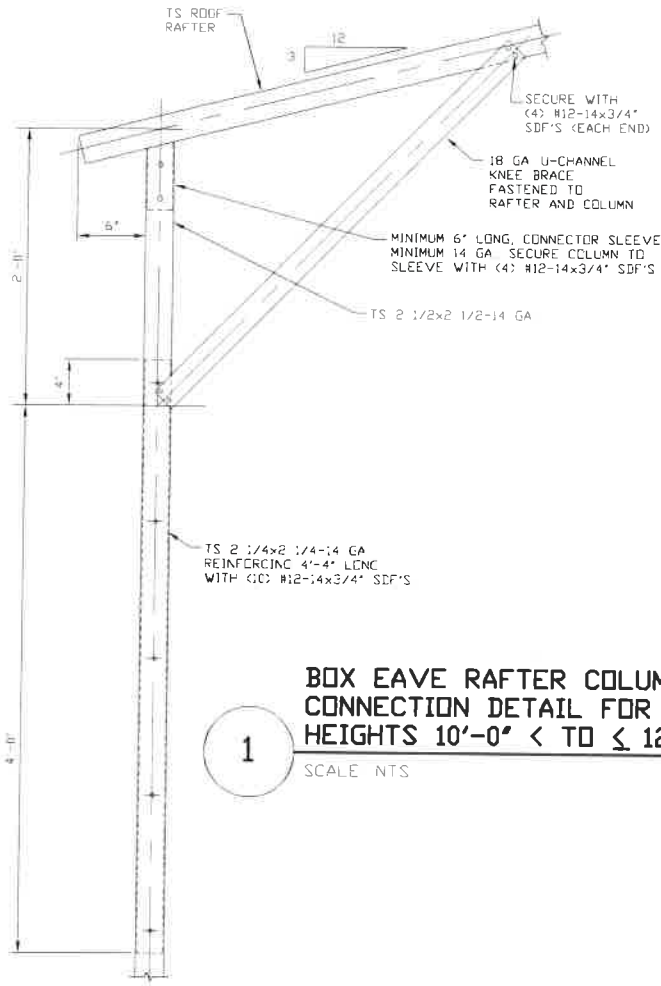
# EXPOSURE B (170 MPH)



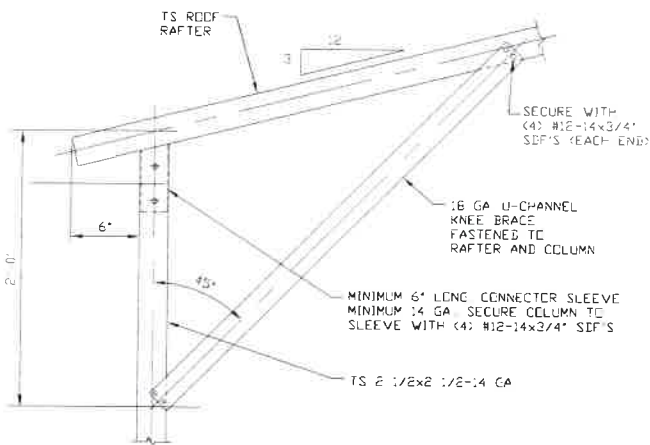
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<b>MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</b>	<b>DRAWN BY:</b> JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
	<b>CHECKED BY:</b> PDH	<b>PROJECT MGR:</b> VSM	<b>DATE:</b> 1-15-18	<b>SCALE:</b> NTS
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# EXPOSURE C (140 MPH)



**BRACE SECTION**  
SCALE: NTS



MAY 09 2018

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

DRAWN BY: JRS

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: CAROLINA CARPORTS

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SHT. 5B

SCALE: NTS

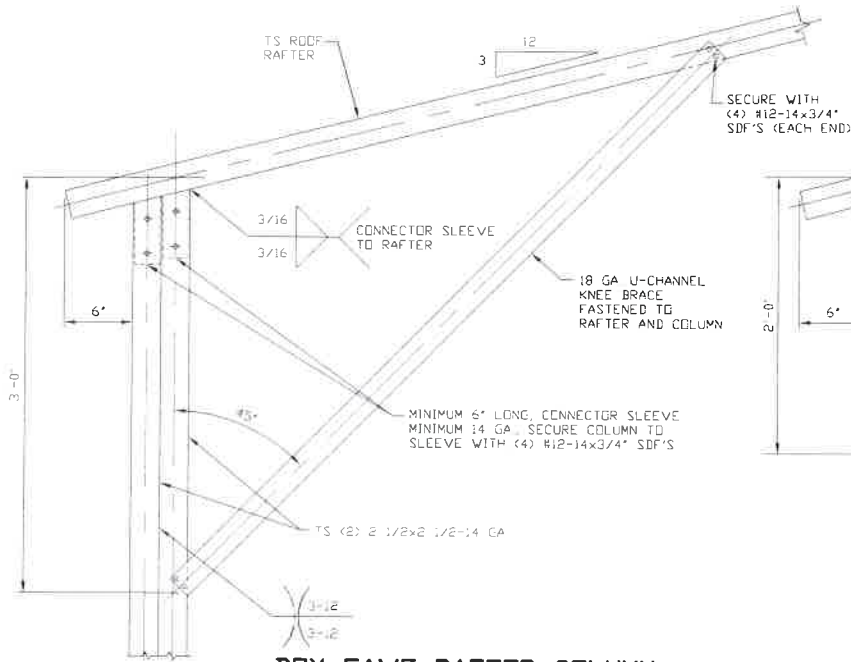
DWG. NO: SK-3

JOB NO: 15156S 1613SS  
17324S

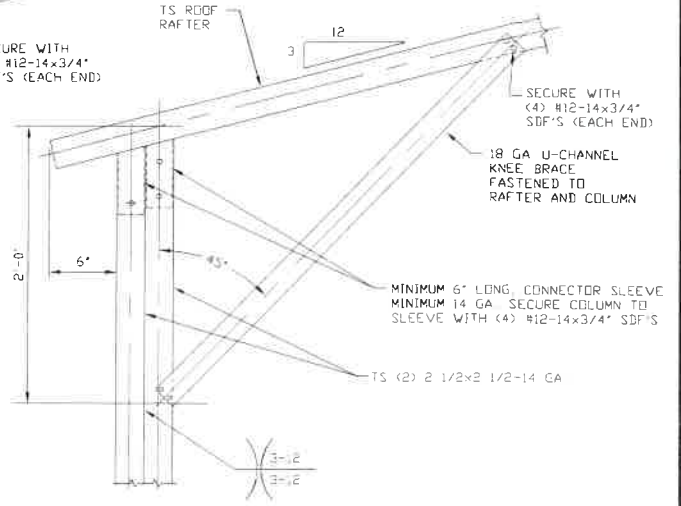
REV: 7

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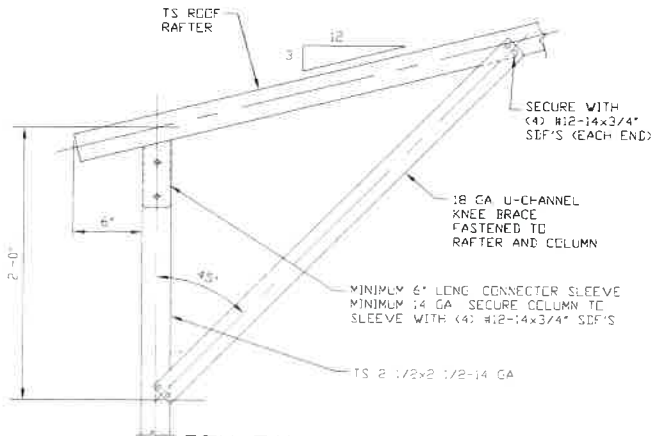
# EXPOSURE C (170 MPH)



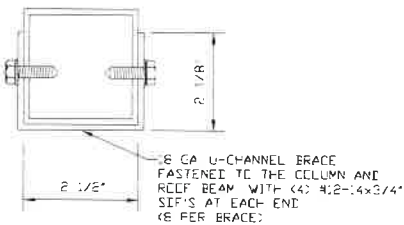
**1A**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO <= 14'-0"**  
 SCALE: NTS



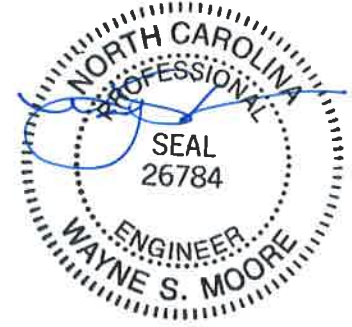
**1B**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO <= 12'-0"**  
 SCALE: NTS



**1C**  
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 8'-0"**  
 SCALE: NTS



**BRACE SECTION**  
 SCALE: NTS

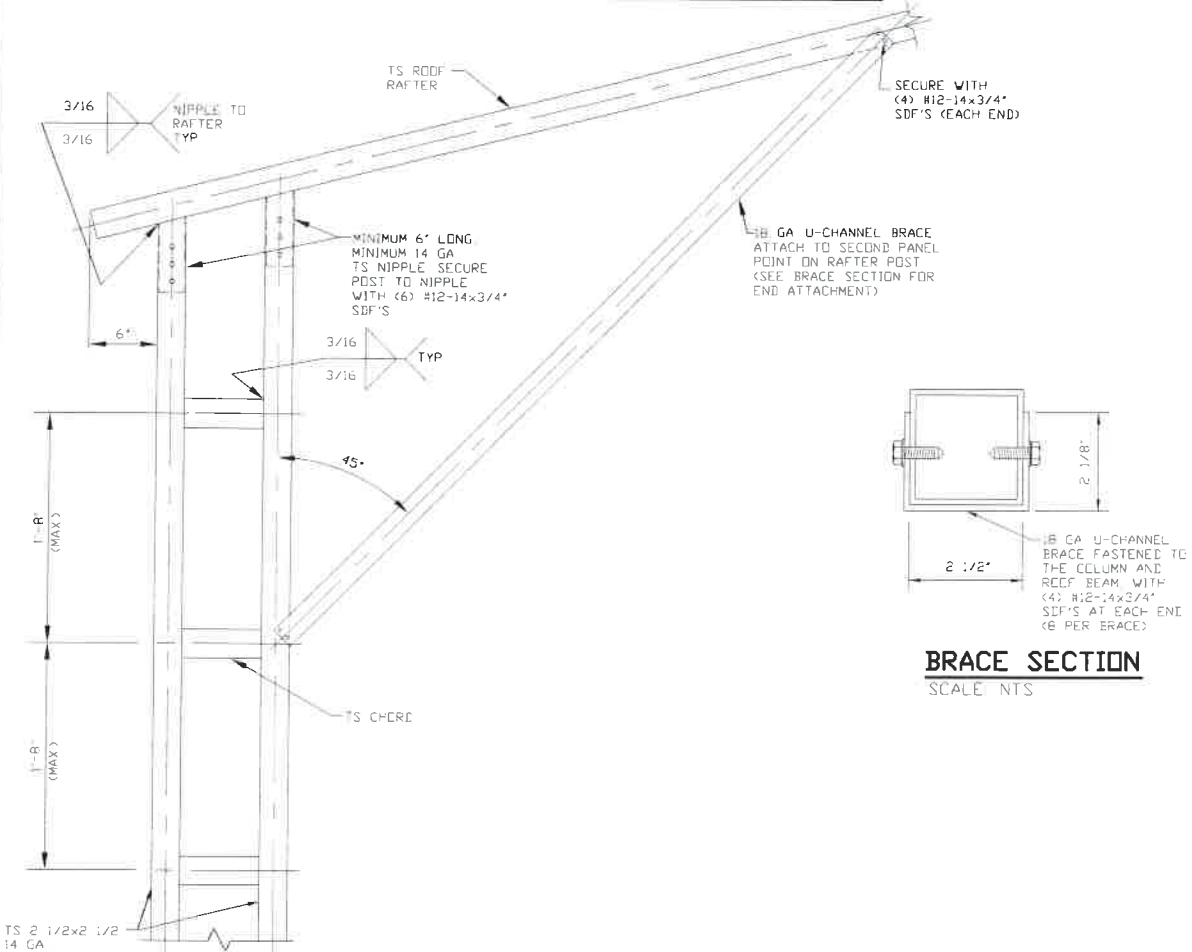


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<b>MOORE AND ASSOCIATES                  ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
PROJECT MGR: VSM	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S	
CLIENT: CAROLINA CARPORTS	SHT. 5C	DWG. NO: SK-3		

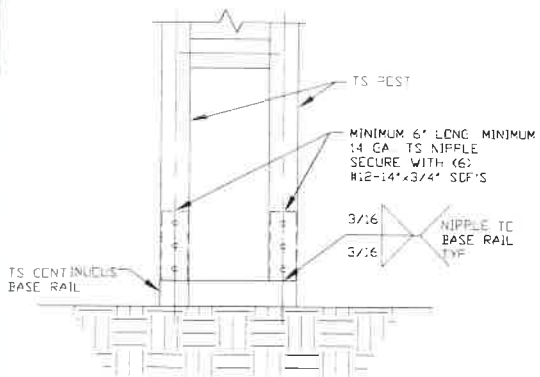
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# EXPOSURE B (140 MPH)



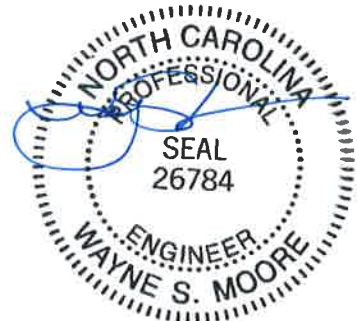
## 1 BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 20'-0"

SCALE: NTS



## 2 POST/BASE RAIL CONNECTION DETAIL

SCALE: NTS



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CLIENT: CAROLINA  
CARPORTS

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SCALE: NTS

JOB NO: 15156S 16135S  
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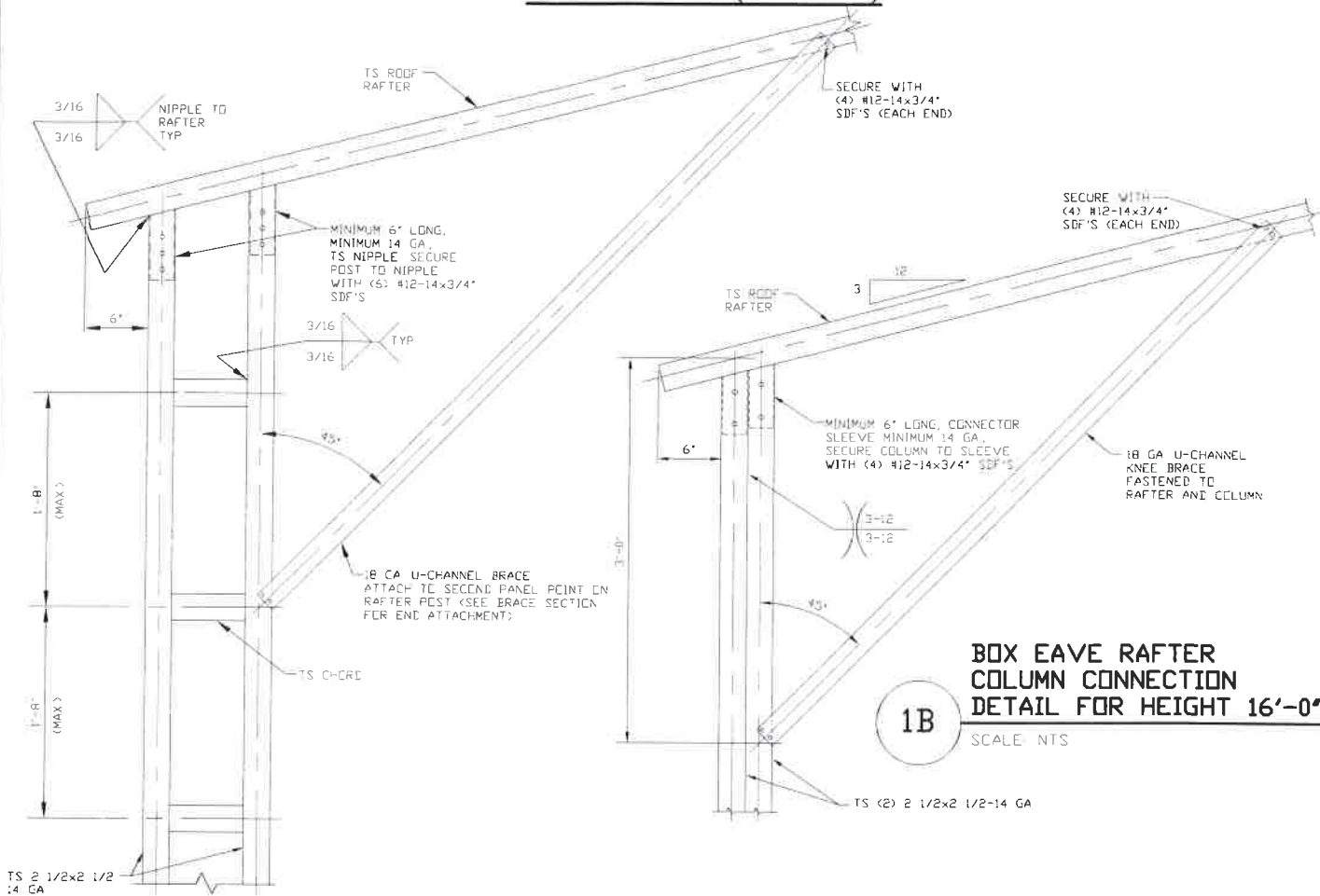
SHT. 5D

DWG. NO: SK-3

REV.: 7



# EXPOSURE B (170 MPH)

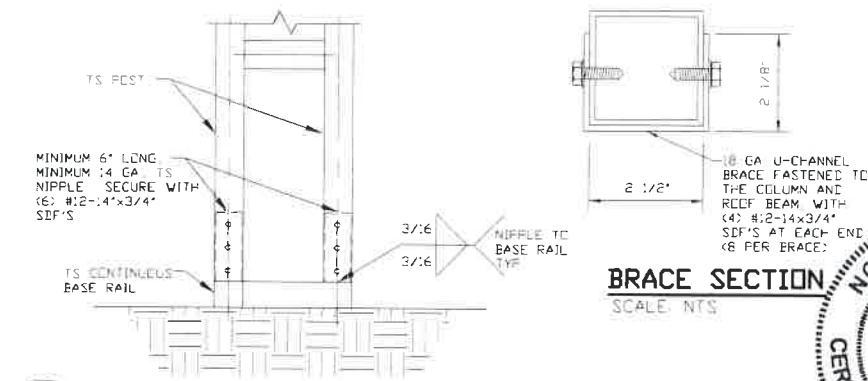


**BOX EAVE RAFTER COLUMN CONNECTION  
DETAIL FOR HEIGHT 16'-0"**  
SCALE: NTS

1B

**BOX EAVE RAFTER COLUMN CONNECTION  
DETAIL FOR HEIGHT 20'-0"**  
SCALE: NTS

1A



**BRACE SECTION**  
SCALE: NTS

**2 POST/BASE RAIL CONNECTION DETAIL**  
SCALE: NTS

2

**NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26784**  
**WAYNE S. MOORE**

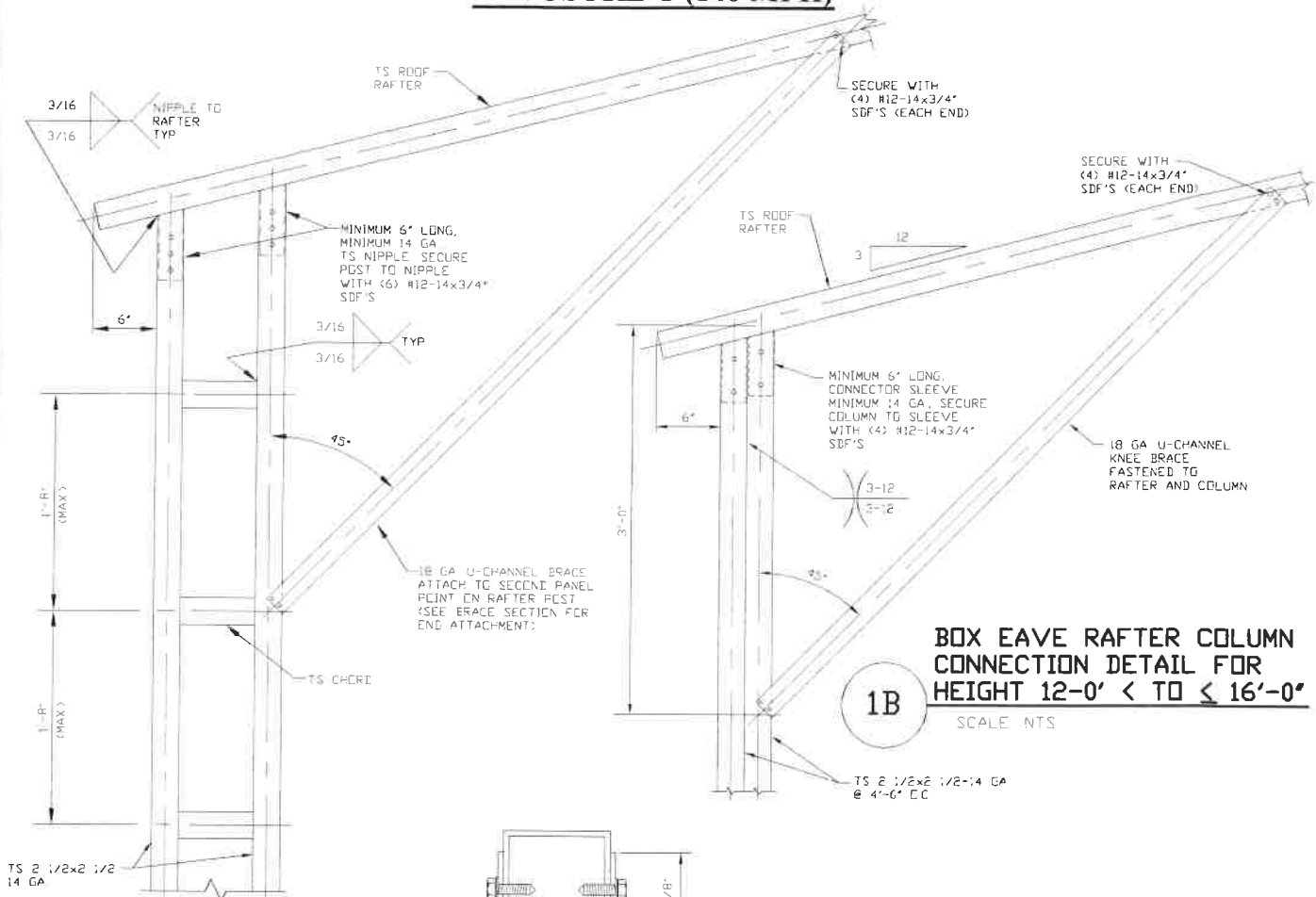
**NORTH CAROLINA CERTIFICATE OF AUTHORIZATION**  
Moore and Associates Engineering and Consulting, Inc.  
No. C-3166

**MAY 09 2018**

<b>MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</b>		DRAWN BY: JRS		CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE	
		CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S		
CLIENT: CAROLINA CARPORTS	SHT. 5E	DWG. NO: SK-3	REV: 7		

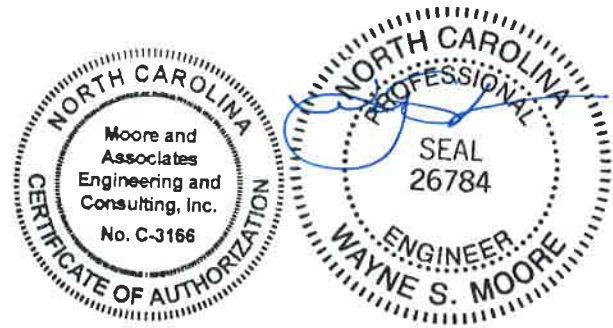
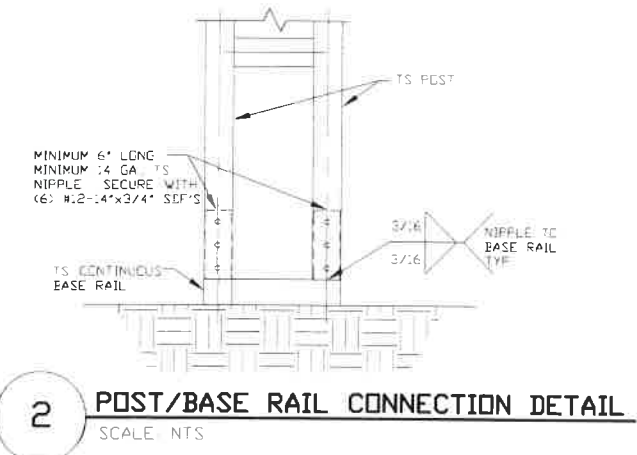
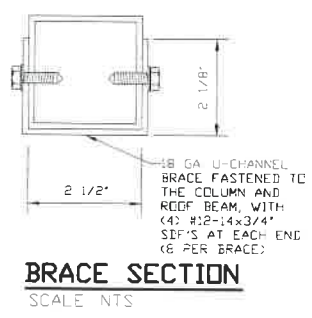
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# EXPOSURE C (140 MPH)



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

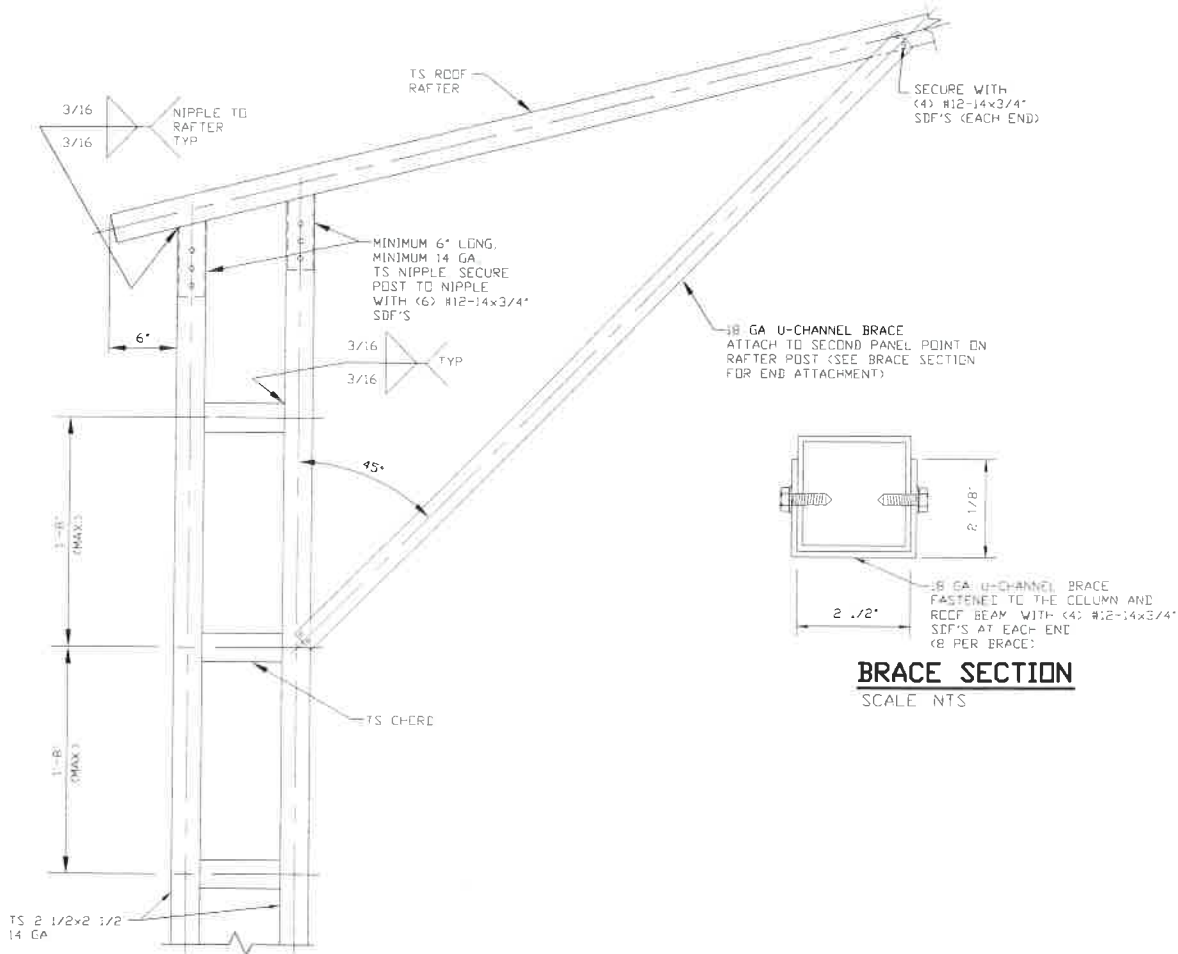
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 20'-0"**  
 1A SCALE NTS



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		CHECKED BY: PDH			
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		CLIENT: CAROLINA CARPORTS	SHT. 5F	DWG. NO: SK-3	REV: 7

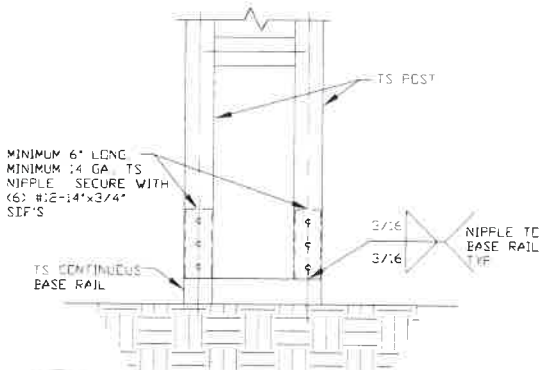
# EXPOSURE C (170 MPH)



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

1

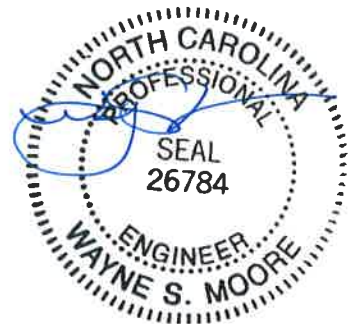
SCALE: NTS



2

**POST/BASE RAIL CONNECTION DETAIL**

SCALE: NTS



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CLIENT: CAROLINA CARPORTS

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SCALE: NTS

SHT. 5G

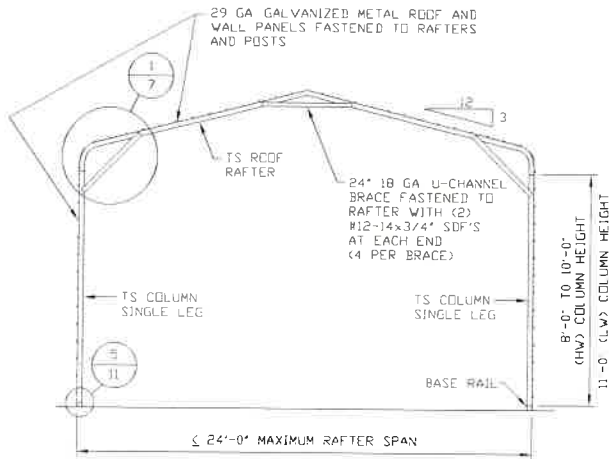
DWG. NO: SK-3

JOB NO: 15156S 16135S 17324S

REV: 7

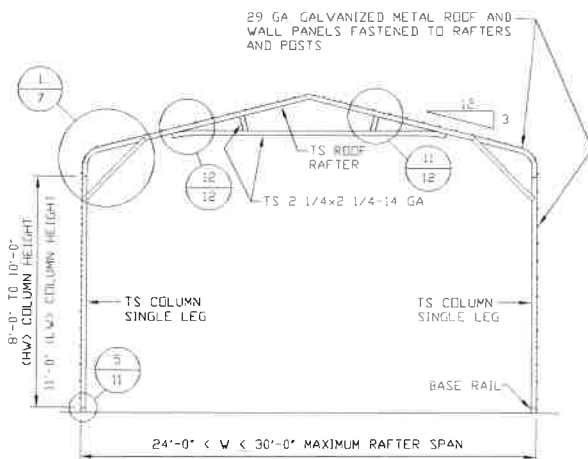
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## EXPOSURE B



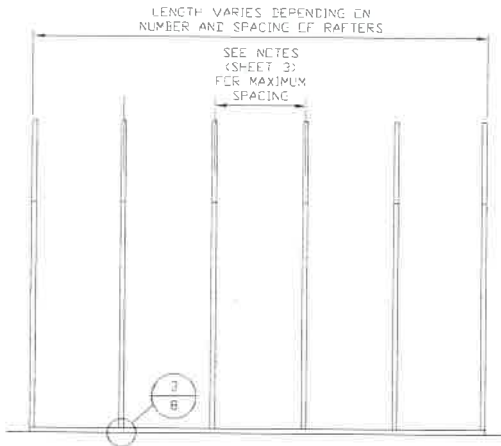
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN FRAMING SIDE SECTION**

SCALE: NTS



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**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

**CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE**

**DATE: 1-15-18**

**SCALE: NTS**

**JOB NO: 15156S 16135S  
17324S**

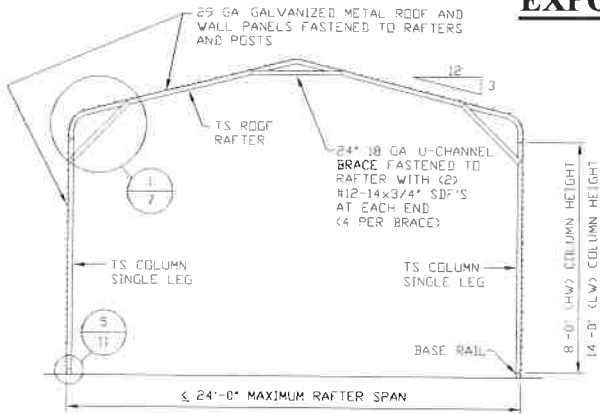
**SHT. 6**

**DWG. NO: SK-3**

**REV: 7**

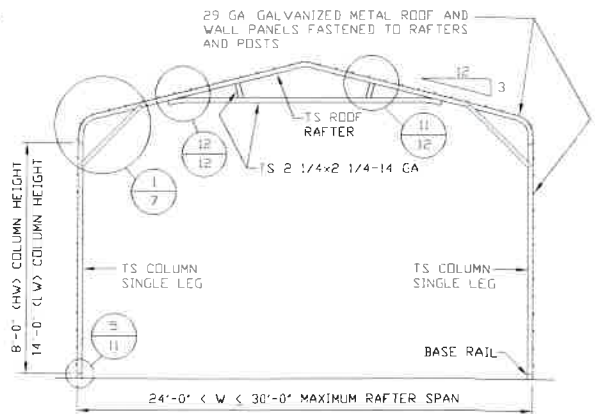
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# EXPOSURE C



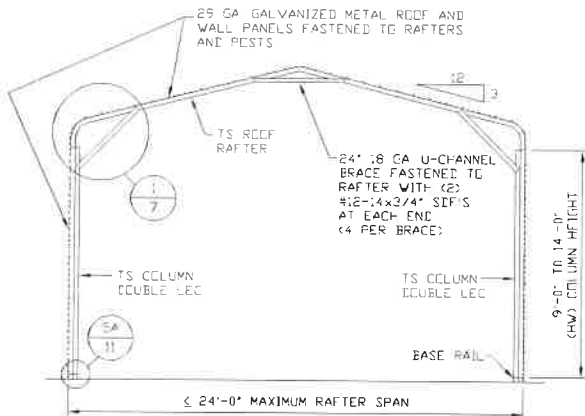
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



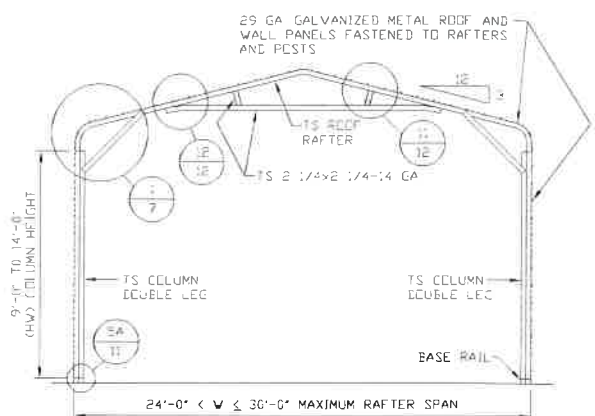
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



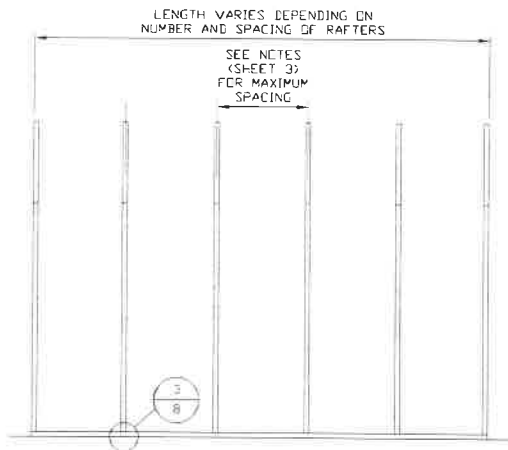
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



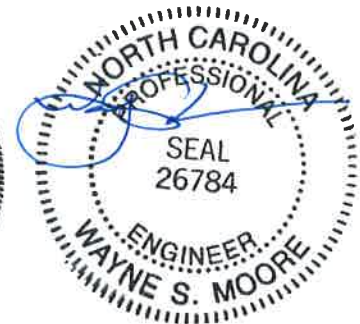
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN FRAMING SIDE SECTION**

SCALE: NTS



MAY 09 2018

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ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: JRS**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: CAROLINA  
CARPORTS**

**CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE**

**DATE: 1-15-18**

**SHT. 6A**

**SCALE: NTS**

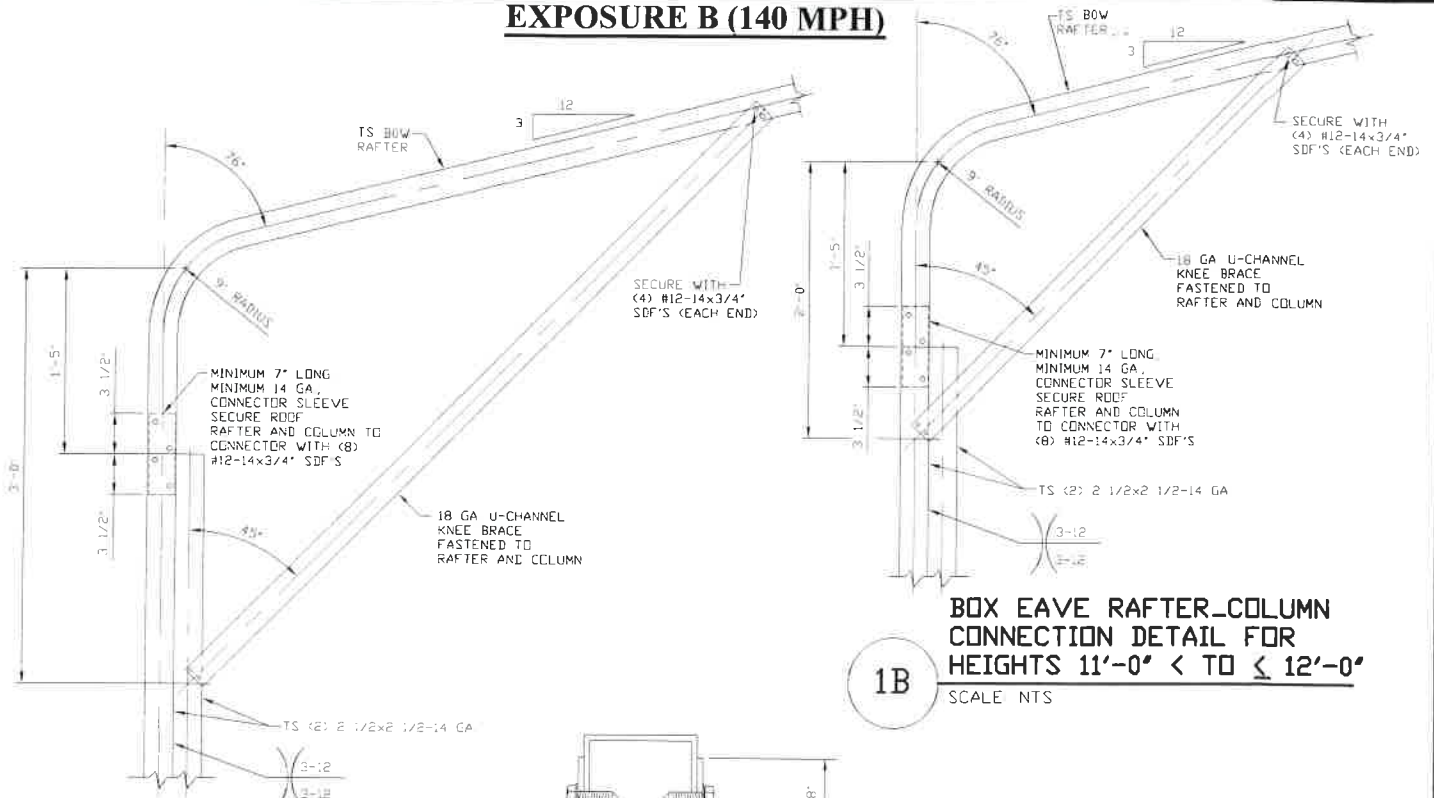
**DWG. NO: SK-3**

**JOB NO: 15156S 1613SS  
17324S**

**REV: 7**

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**EXPOSURE B (140 MPH)**

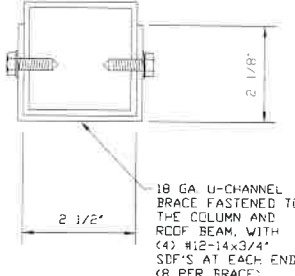


**BOX EAVE RAFTER-COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO <= 12'-0"**  
SCALE: NTS

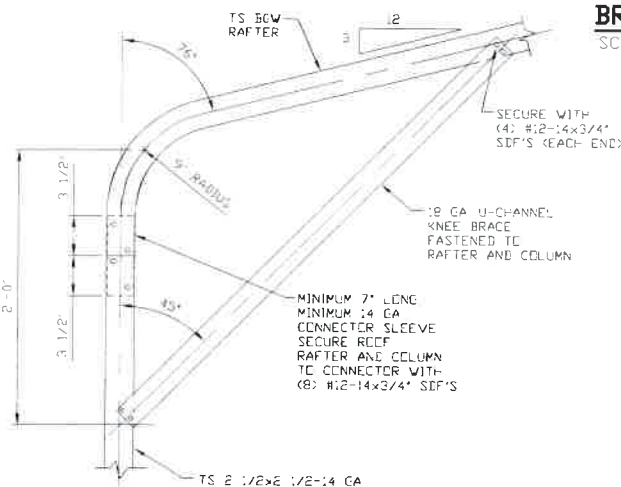
1B

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO <= 14'-0"**  
SCALE: NTS

1A



**BRACE SECTION**  
SCALE: NTS



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 11'-0"**  
SCALE: NTS

1C



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

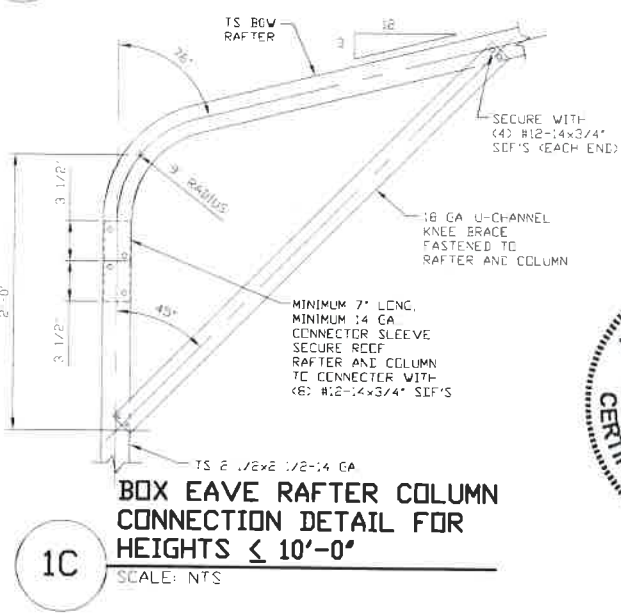
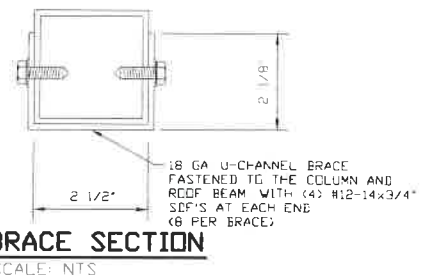
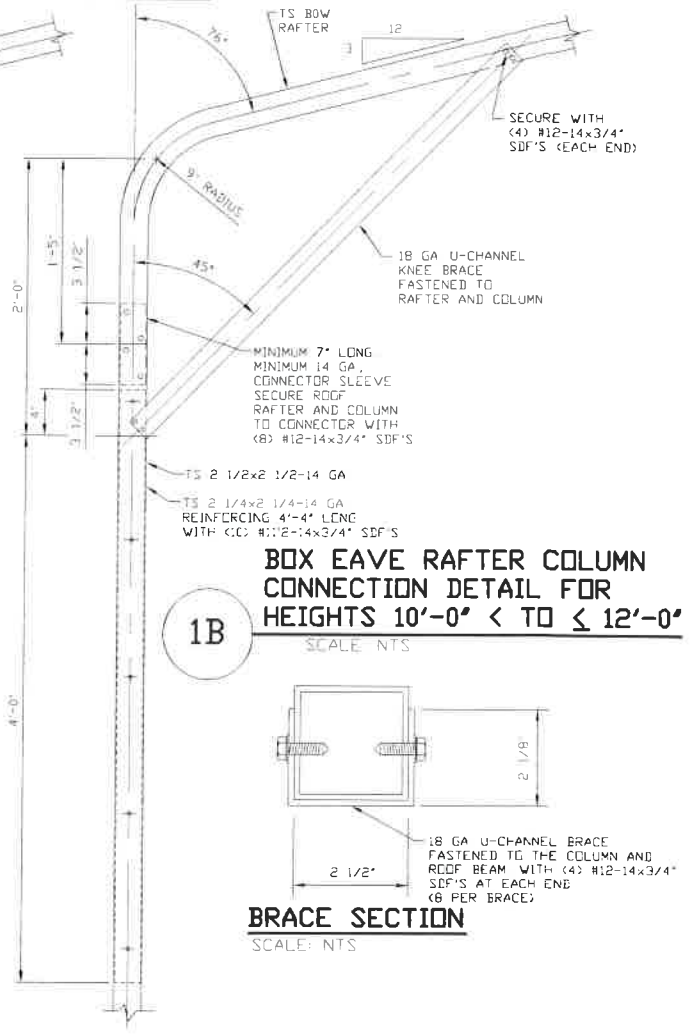
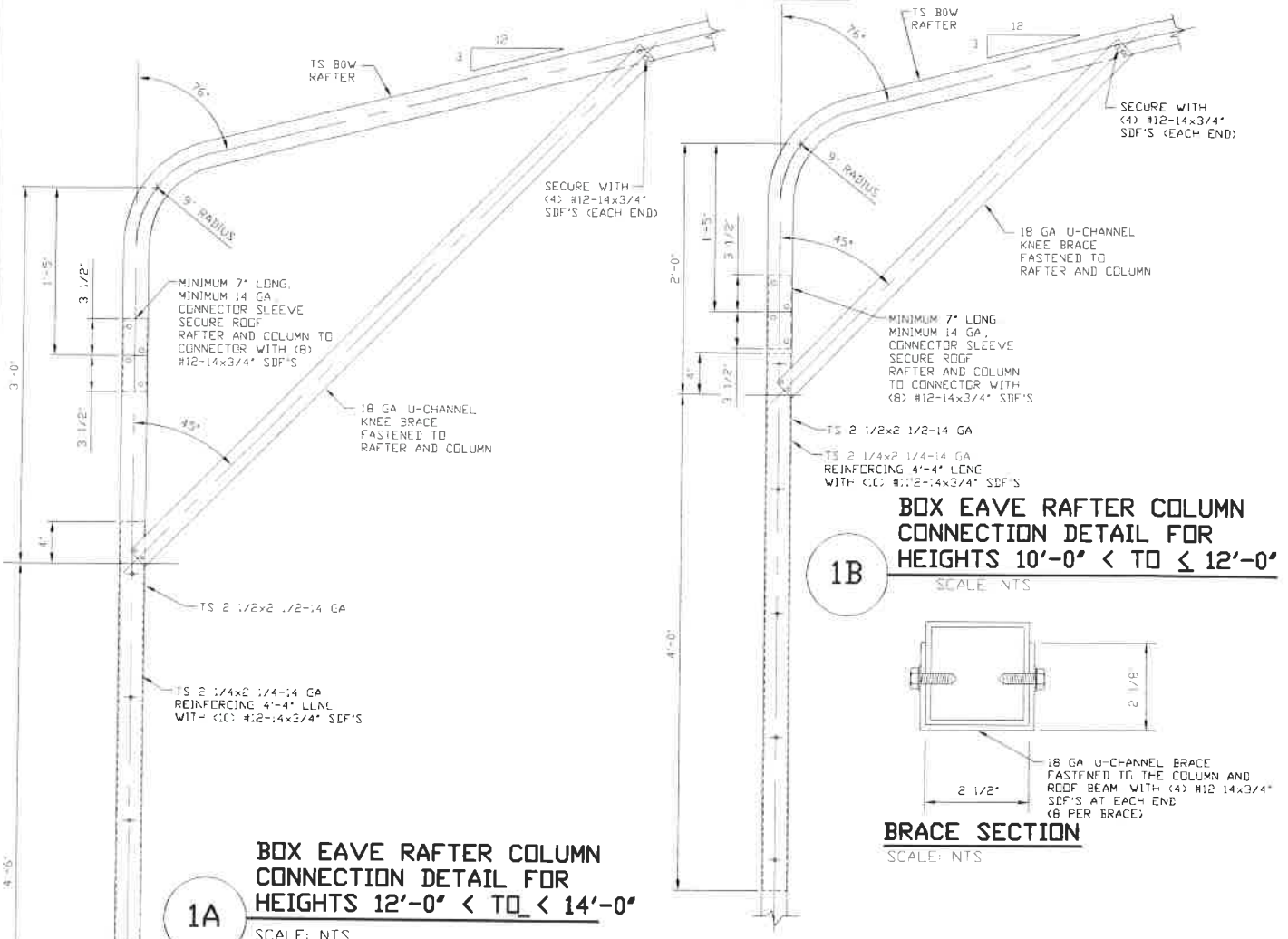
DRAWN BY: JRS  
CHECKED BY: PDH

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

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PROJECT MGR: WSM	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S
CLIENT: CAROLINA CARPORTS	SHT. 7	DWG. NO: SK-3	REV: 7

# EXPOSURE B (170 MPH)



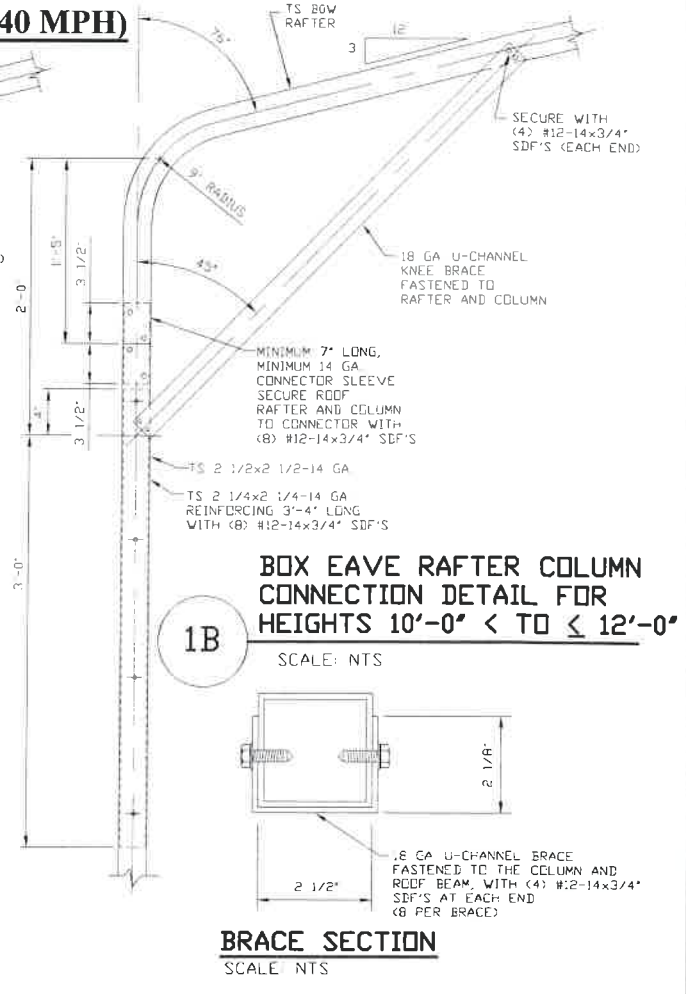
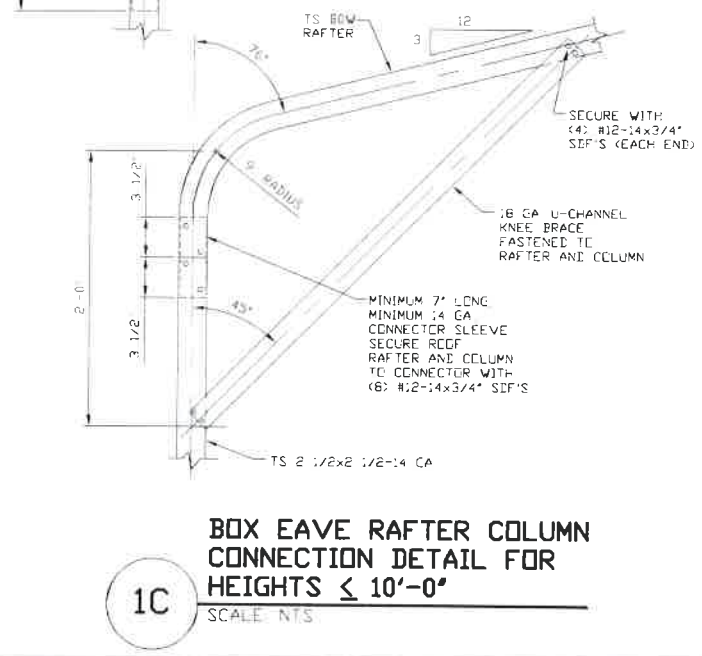
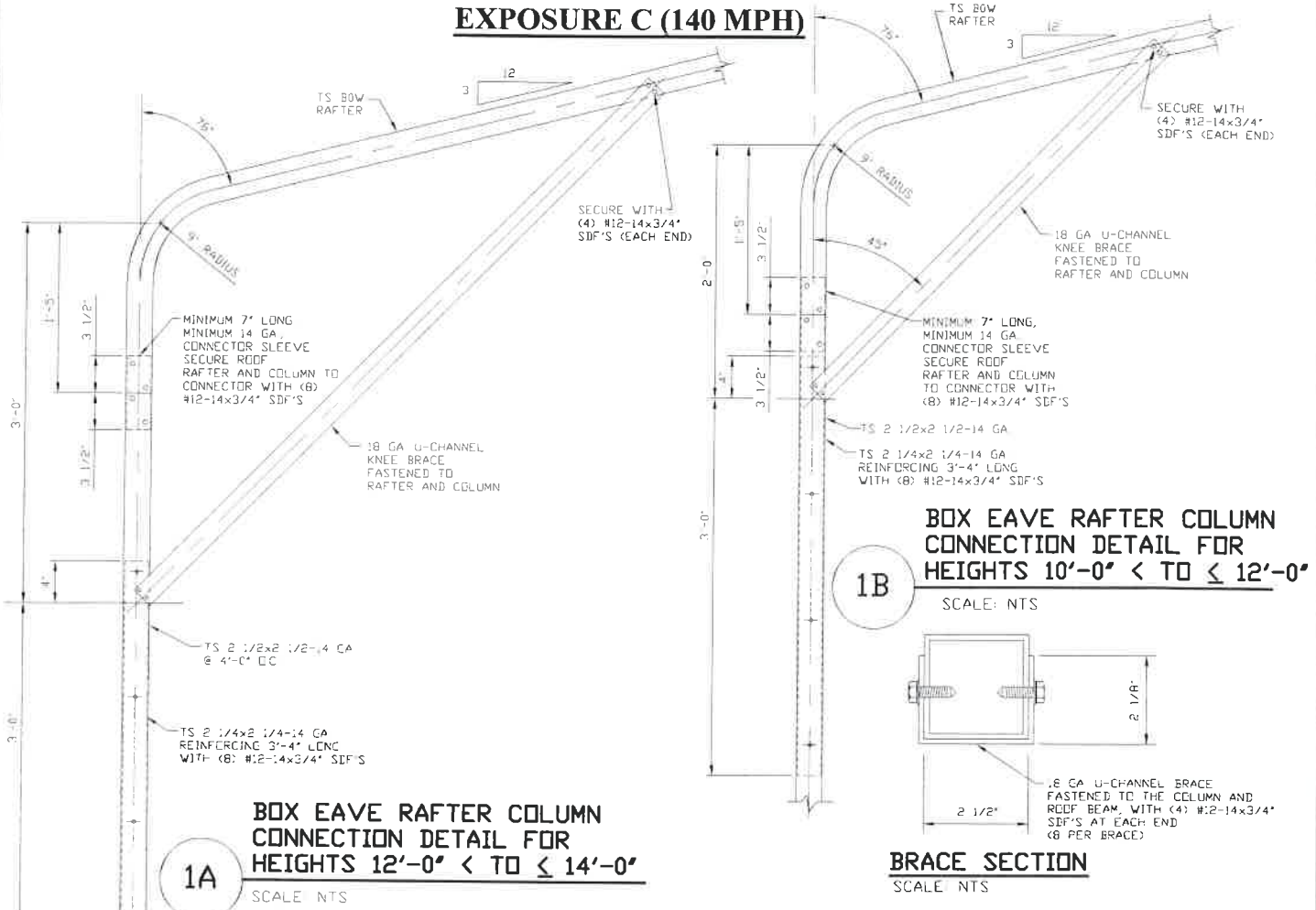
MAY 09 2018

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

DRAWN BY: JRS		CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
CHECKED BY: PDH		DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S
PROJECT MGR: WSM	CLIENT: CAROLINA CARPORTS	SHT. 7A	DWG. NO: SK-3	REV.: 7

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**EXPOSURE C (140 MPH)**



MAY 09 2018

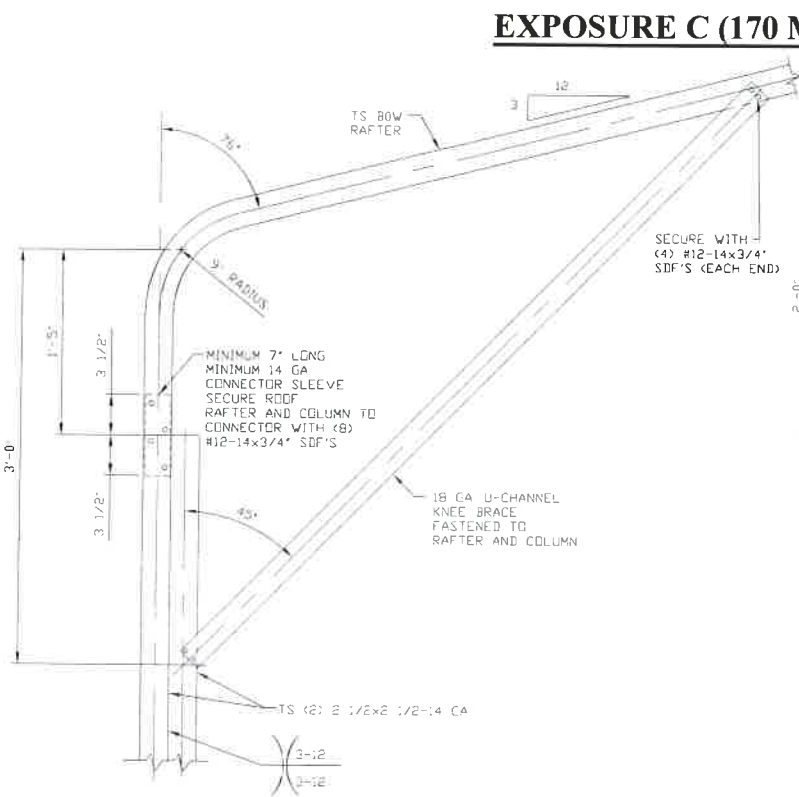
**MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JRS		CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017	
CHECKED BY: PDH		30'x20' ENCLOSED STRUCTURE	
PROJECT MGR: WSM	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 1613SS 17324S
CLIENT: CAROLINA CARPORTS	SHT. 7B	DWG. NO: SK-3	REV: 7

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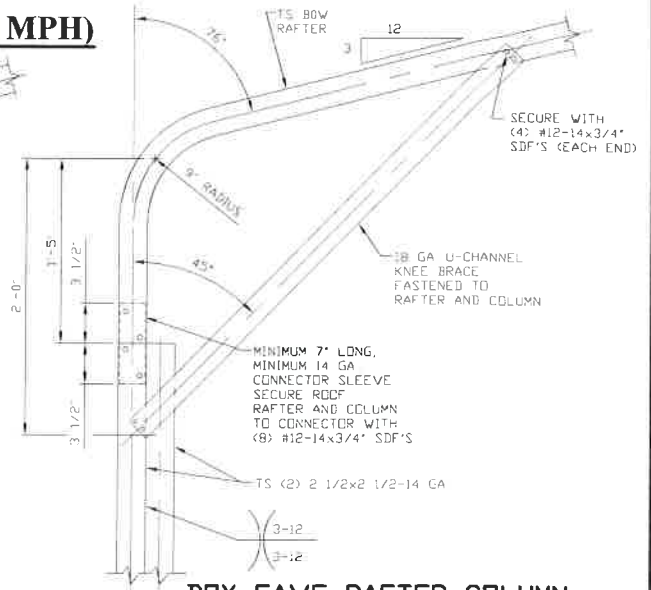
# EXPOSURE C (170 MPH)



1A

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

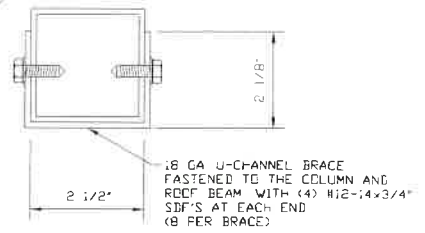
SCALE: NTS



1B

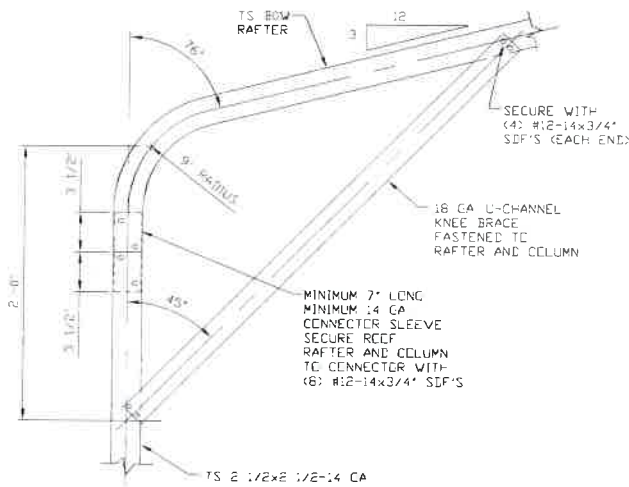
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO <= 12'-0"**

SCALE: NTS



**BRACE SECTION**

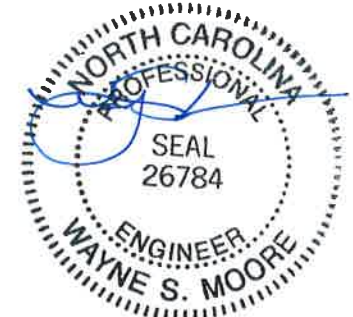
SCALE: NTS



1C

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 8'-0"**

SCALE: NTS



MAY 09 2018

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

DRAWN BY: JRS

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: CAROLINA CARPORTS

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SHT. 7C

SCALE: NTS

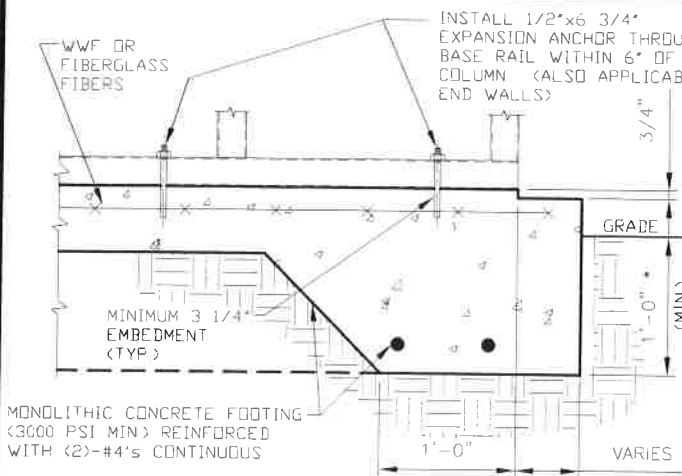
DWG. NO: SK-3

JOB NO: 15156S 1613SS 17324S

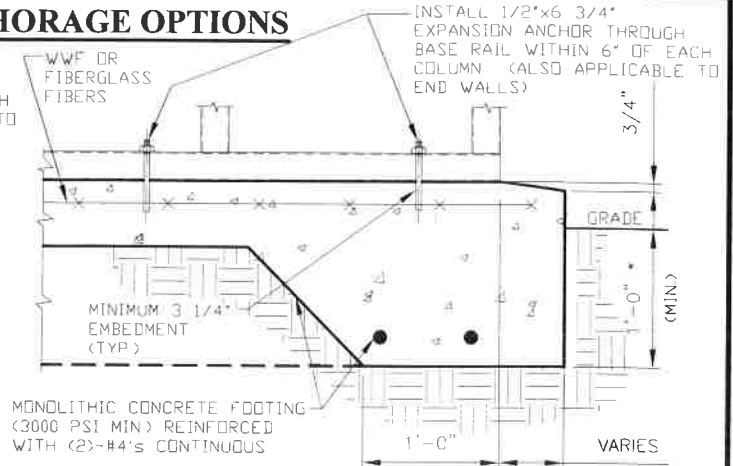
REV: 7

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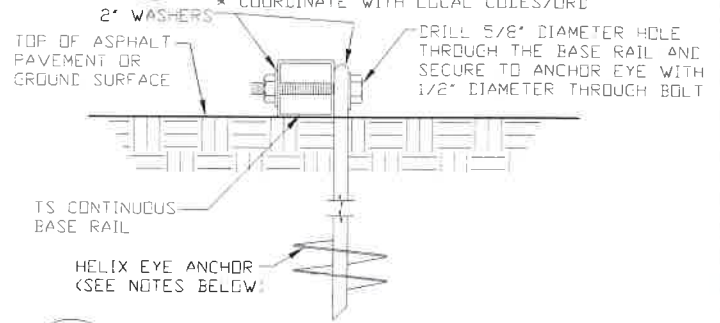
## BASE RAIL ANCHORAGE OPTIONS



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



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



**3C GROUND BASE HELIX ANCHORAGE**  
 SCALE: NTS (CAN BE USED FOR ASPHALT)

### GENERAL NOTES

#### 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



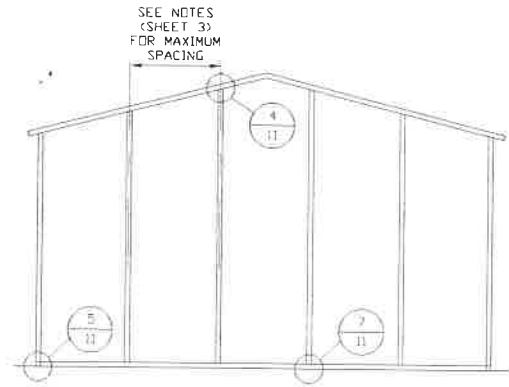
MAY 09 2018

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

<b>DRAWN BY:</b> JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
<b>CHECKED BY:</b> PDH			
<b>PROJECT MGR:</b> WSM	<b>DATE:</b> 1-15-18	<b>SCALE:</b> NTS	<b>JOB NO:</b> 15156S 16135S 17324S
<b>CLIENT:</b> CAROLINA CARPORTS	<b>SHT.</b> 8	<b>DWG. NO:</b> SK-3	<b>REV.:</b> 7

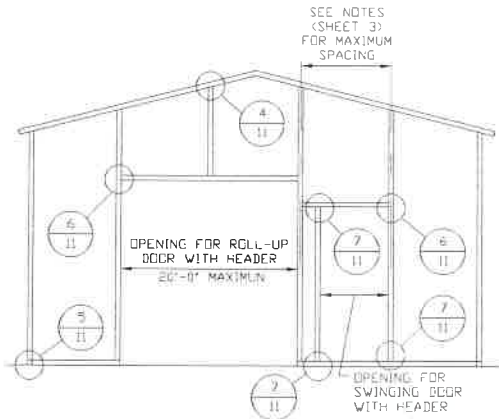
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# BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



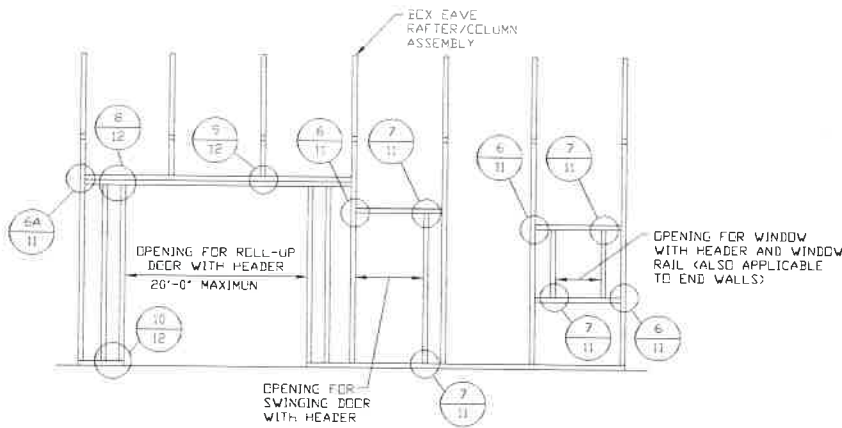
**TYPICAL BOX EAVE RAFTER  
END WALL FRAMING SECTION**

SCALE: NTS



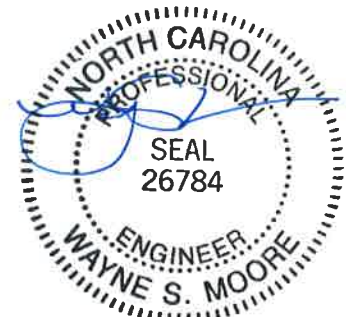
**TYPICAL BOX EAVE RAFTER END  
WALL OPENINGS FRAMING SECTION**

SCALE: NTS



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

SCALE: NTS



MAY 09 2018

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

**DRAWN BY: JRS**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

**CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE**

**DATE: 1-15-18**

**SHT. 9**

**SCALE: NTS**

**DWG. NO: SK-3**

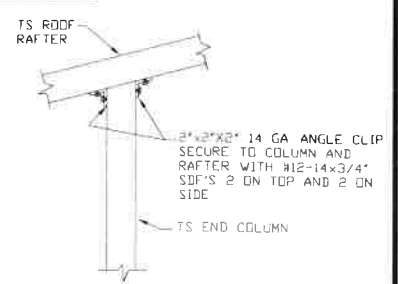
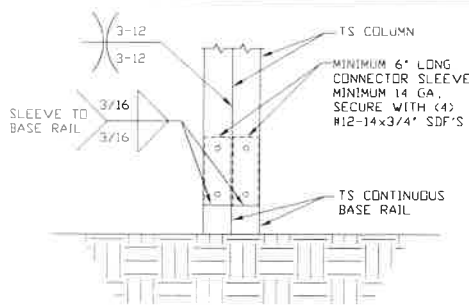
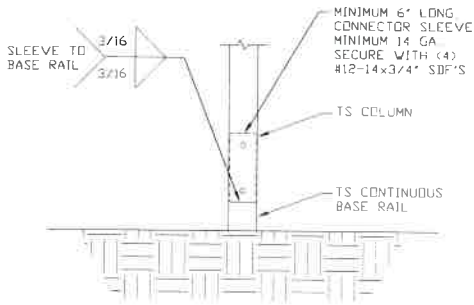
**JOB NO: 15156S 16135S  
17324S**

**REV: 7**

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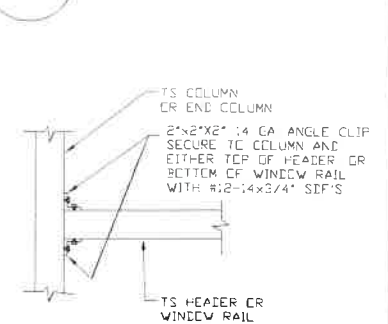
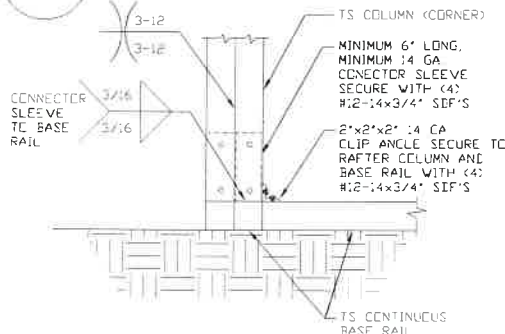
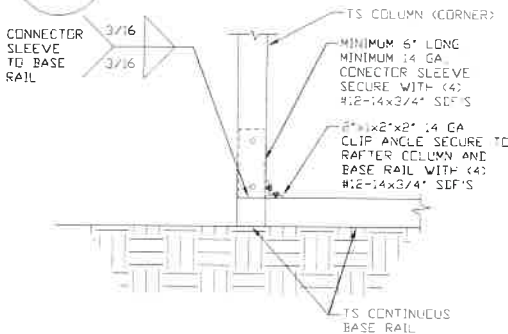
# BOW AND BOX EAVE RAFTER WALL OPENING DETAILS



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

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

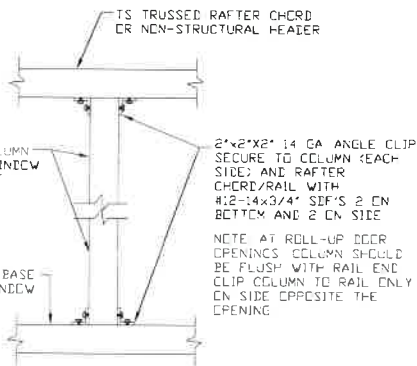
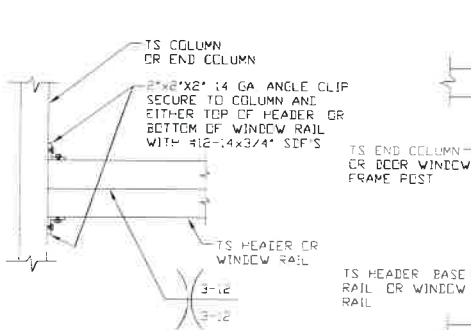
**4** END COLUMN/RAFTER CONNECTION DETAIL  
SCALE: NTS



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

**5A** END COLUMN/BASE RAIL CONNECTION DETAIL  
SCALE: NTS

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



**6A** 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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PROJECT MGR: WSM

CLIENT: CAROLINA CARPORTS

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
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DATE: 1-15-18

SHT. 11

SCALE: NTS

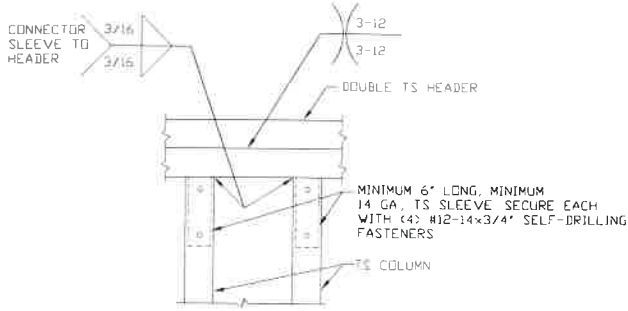
DWG. NO: SK-3

JOB NO: 15156S 1613SS  
17324S

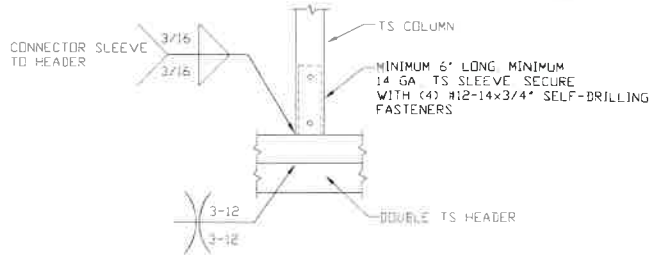
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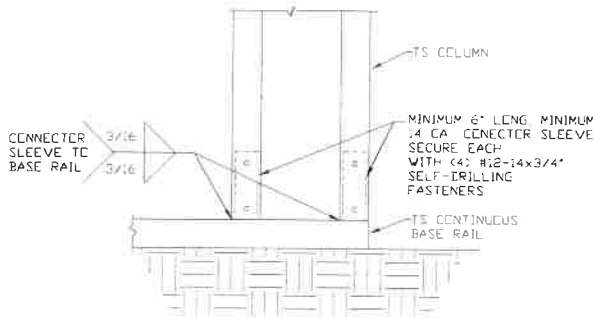
# BOW AND BOX EAVE RAFTER WALL OPENING DETAILS



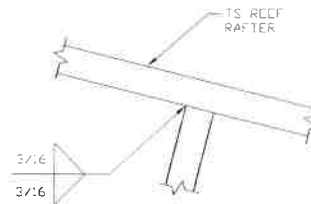
**8** DOUBLE HEADER/COLUMN CONNECTION DETAIL  
SCALE: NTS



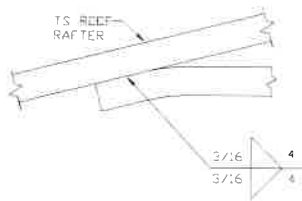
**9** COLUMN/DOUBLE HEADER CONNECTION DETAIL  
SCALE: NTS



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



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



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



MAY 09 2018

**MOORE AND ASSOCIATES  
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**DRAWN BY: JRS**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

**CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE**

**DATE: 1-15-18**

**SHT. 12**

**SCALE: NTS**

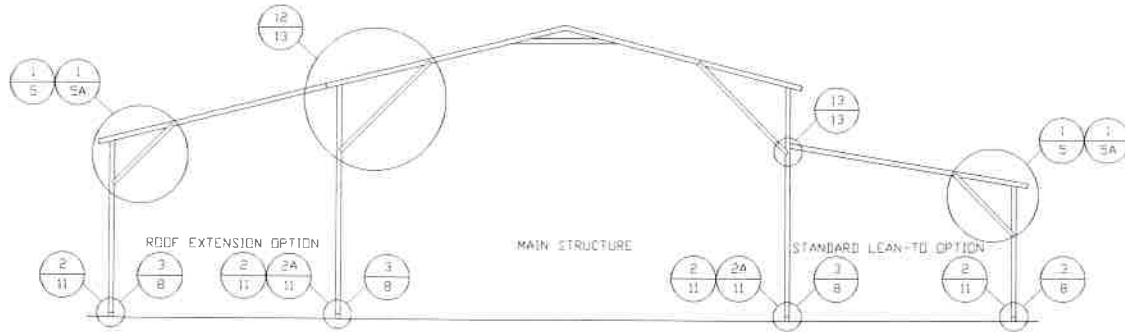
**DVG. NO: SK-3**

**JOB NO: 15156S 16135S  
17324S**

**REV: 7**

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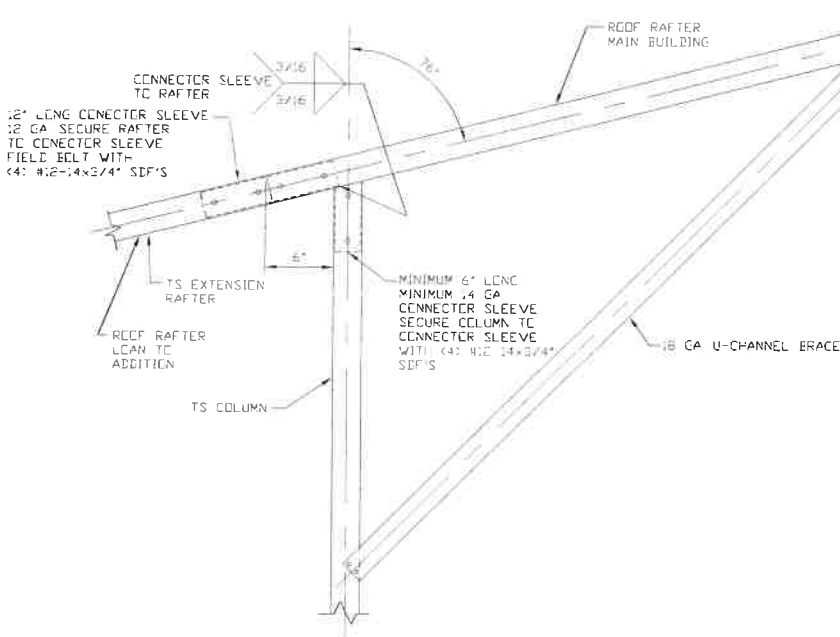
# BOX EAVE RAFTER LEAN-TO OPTIONS



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

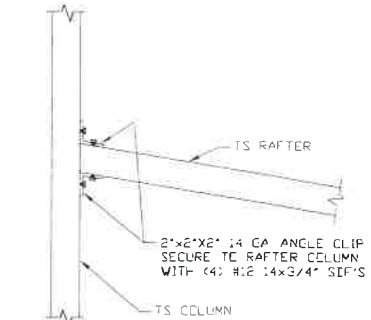
SCALE: NTS

MINIMUM WIDTH OF STANDARD LEAN-TO/ROOF EXTENSION IS 12'-0"



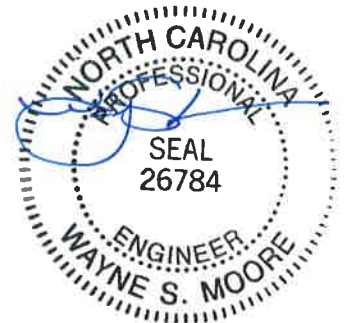
## 12 SIDE EXTENSION RAFTER/COLUMN DETAIL

SCALE: NTS



## 13 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS



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CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SCALE: NTS

JOB NO: 15156S 16135S  
17324S

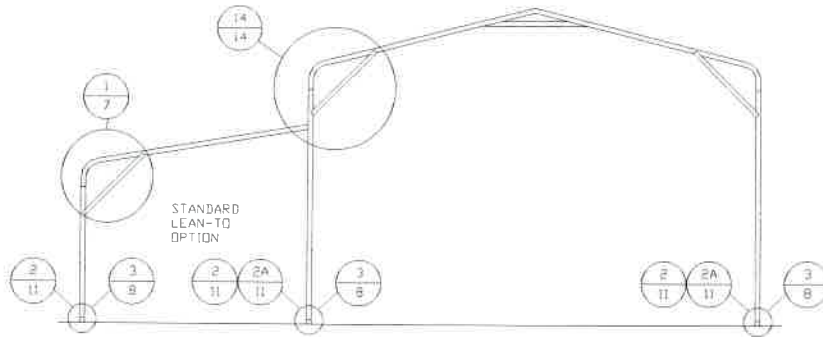
SHT. 13

DWG. NO: SK-3

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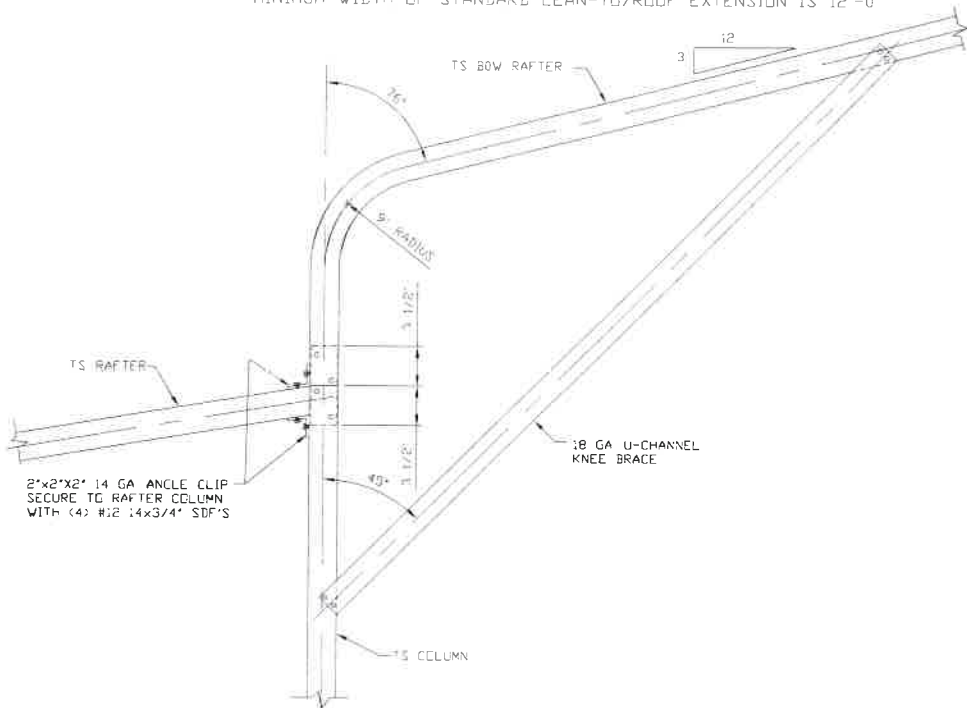
# BOW RAFTER LEAN-TO OPTION



## TYPICAL BOW RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

MINIMUM WIDTH OF STANDARD LEAN-TO/ROOF EXTENSION IS 12'-0"



## LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

14

SCALE: NTS



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CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SHT. 14

SCALE: NTS

DWG. NO: SK-3

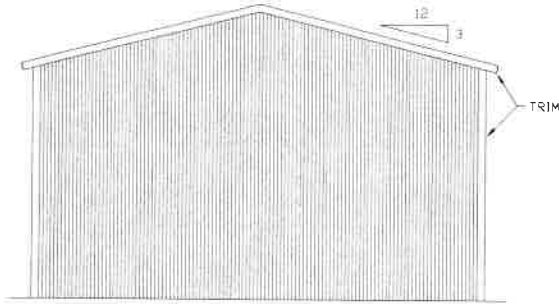
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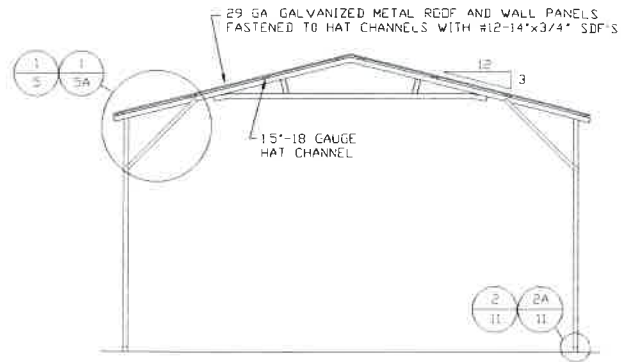


# BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



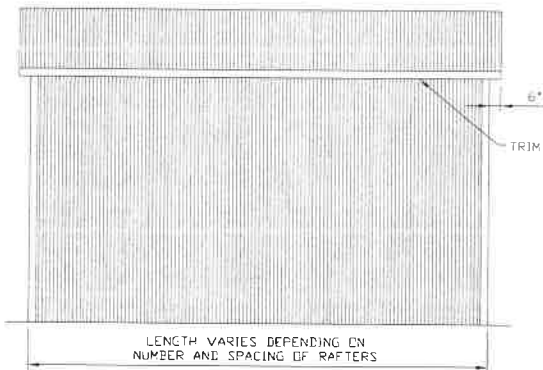
**TYPICAL END ELEVATION  
VERTICAL ROOF/SIDING**

SCALE: NTS



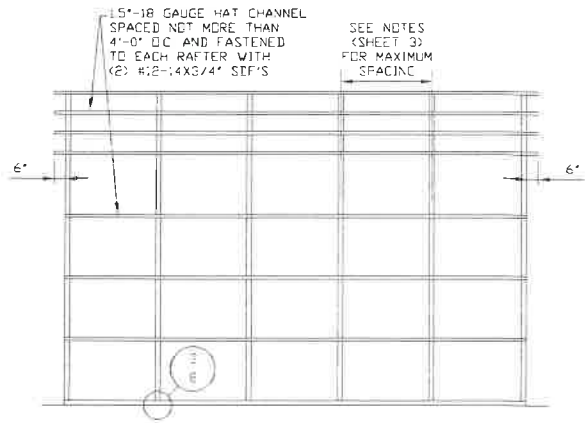
**TYPICAL SECTION  
VERTICAL ROOF/SIDING OPTION**

SCALE: NTS



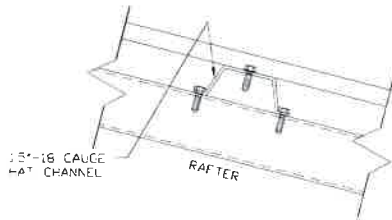
**TYPICAL SIDE ELEVATION  
VERTICAL ROOF/SIDING**

SCALE: NTS



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

SCALE: NTS



**PANEL ATTACHMENT**

(ALTERNATE FOR VERTICAL ROOF PANELS)  
SCALE: NTS



MAY 09 2018

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CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017

30'x20' ENCLOSED STRUCTURE

DATE: 1-15-18

SHT. 15

SCALE: NTS

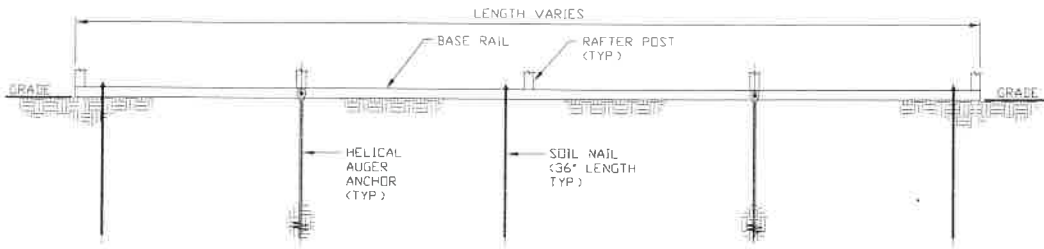
DWG. NO: SK-3

JOB NO: 15156S 16135S  
17324S

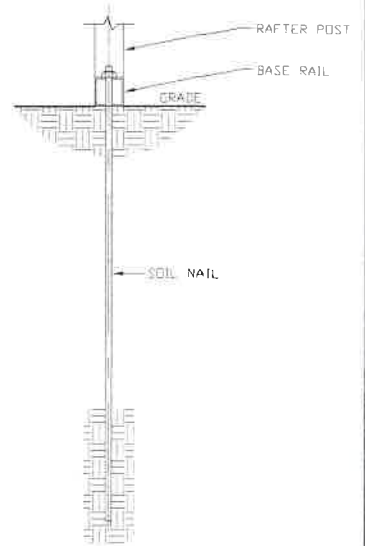
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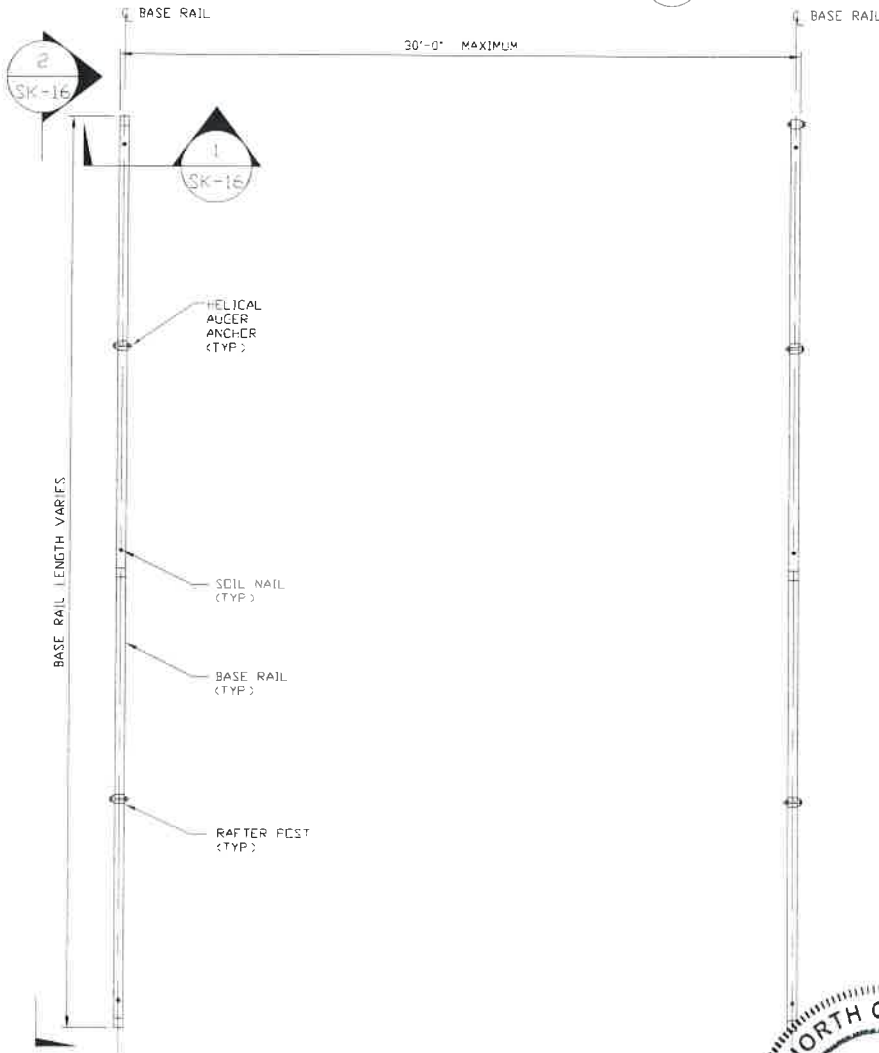
# BASE RAIL ON GRADE APPLICATION



**SECTION 2**  
SCALE: NTS  
SK-16



**SECTION 1**  
SCALE: NTS  
SK-16



**BASE RAIL PLAN**  
SCALE: NTS

HELIX ANCHOR	
SIDE LENGTH	SPACING
20'	20'
25'	25' NOTE 2
30'	16' (EVERY OTHER POST)

- NOTES**
1. INSTALLATION OF SOIL NAILS OR EXPANSION ANCHORS ALSO APPLY TO END WALLS
  2. FOR EXPOSURE C USE 10' SPACING (EVERY OTHER POST)



**MAY 09 2018**

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ENGINEERING AND CONSULTING, INC.**

**DRAWN BY: JRS**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

**CAROLINA CARPORTS, INC.**  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

**DATE: 1-15-18**

**SHT. 16**

**SCALE: NTS**

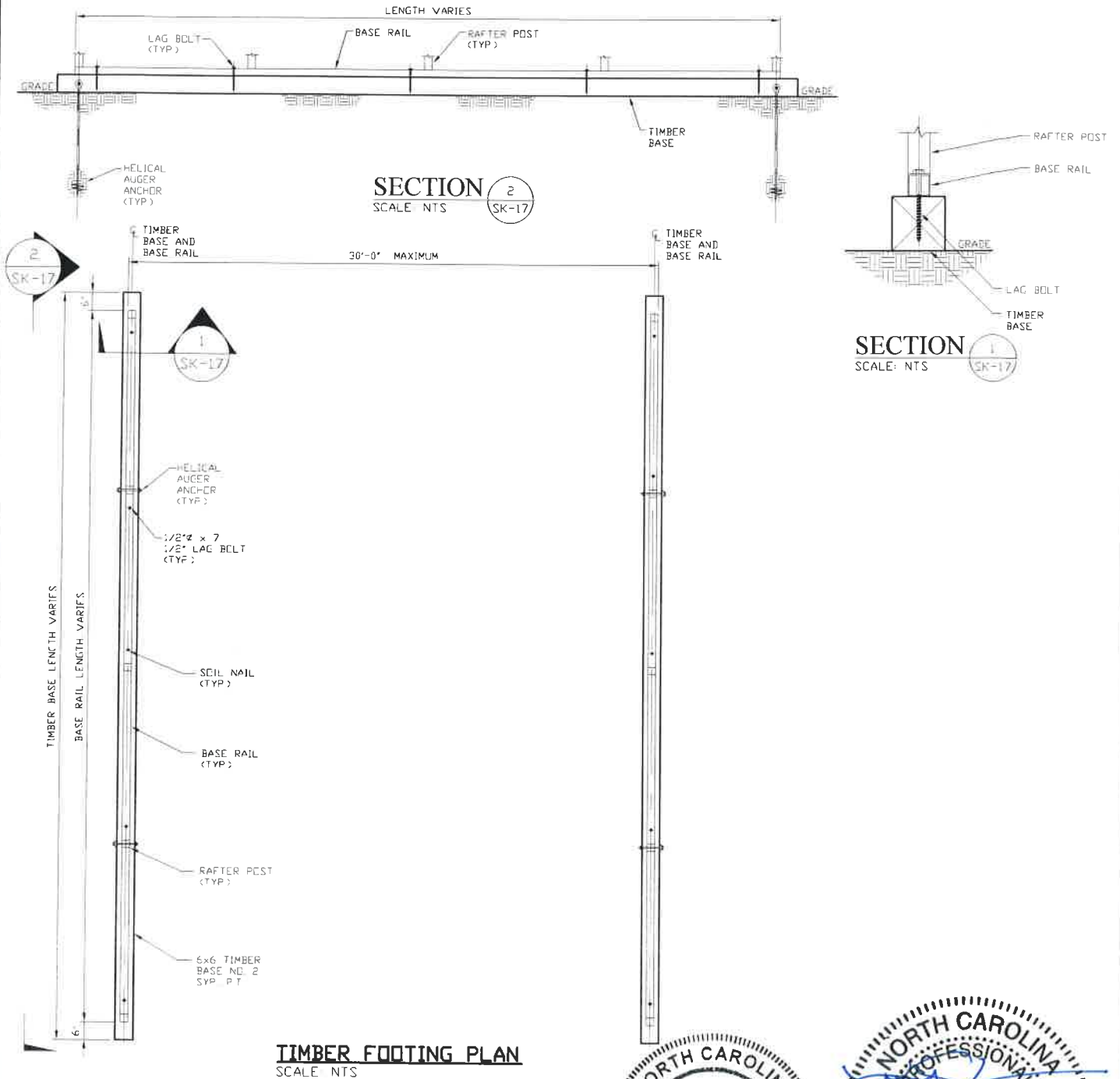
**DWG. NO: SK-3**

**JOB NO: 15156S 16135S  
17324S**

**REV: 7**

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# OPTIONAL BASE RAIL ON TIMBER BEAM



**TIMBER FOOTING PLAN**  
SCALE: NTS

HELIX ANCHOR	
SIDE LENGTH	SPACING
20'	20'
25'	25' NOTE 2
30'	10' (EVERY OTHER POST)

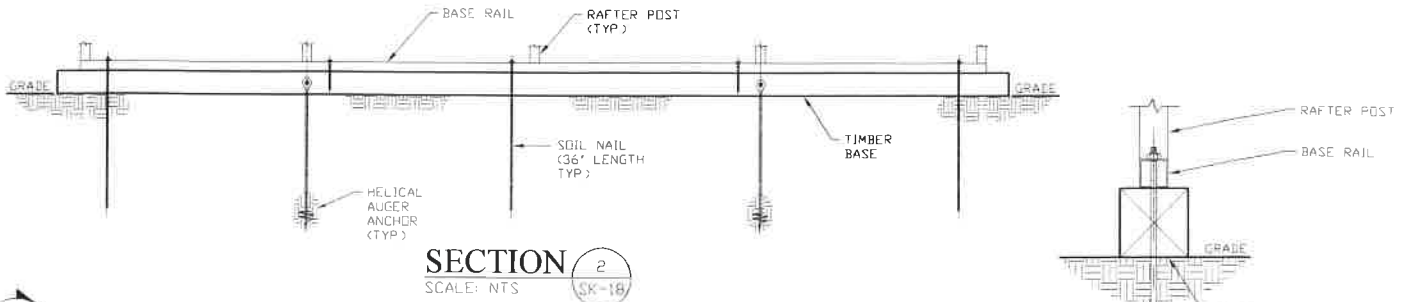
- NOTES
1. INSTALLATION OF SOIL NAILS OR EXPANSION ANCHORS ALSO APPLY TO END WALLS
  2. FOR EXPOSURE C USE 10' SPACING (EVERY OTHER POST)



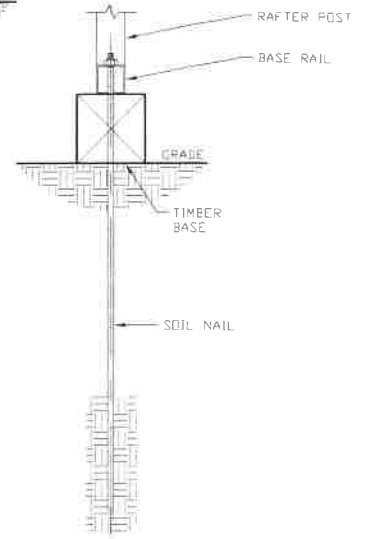
**MAY 09 2018**

<b>MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
	CHECKED BY: PDH	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S
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	CLIENT: CAROLINA CARPORTS			

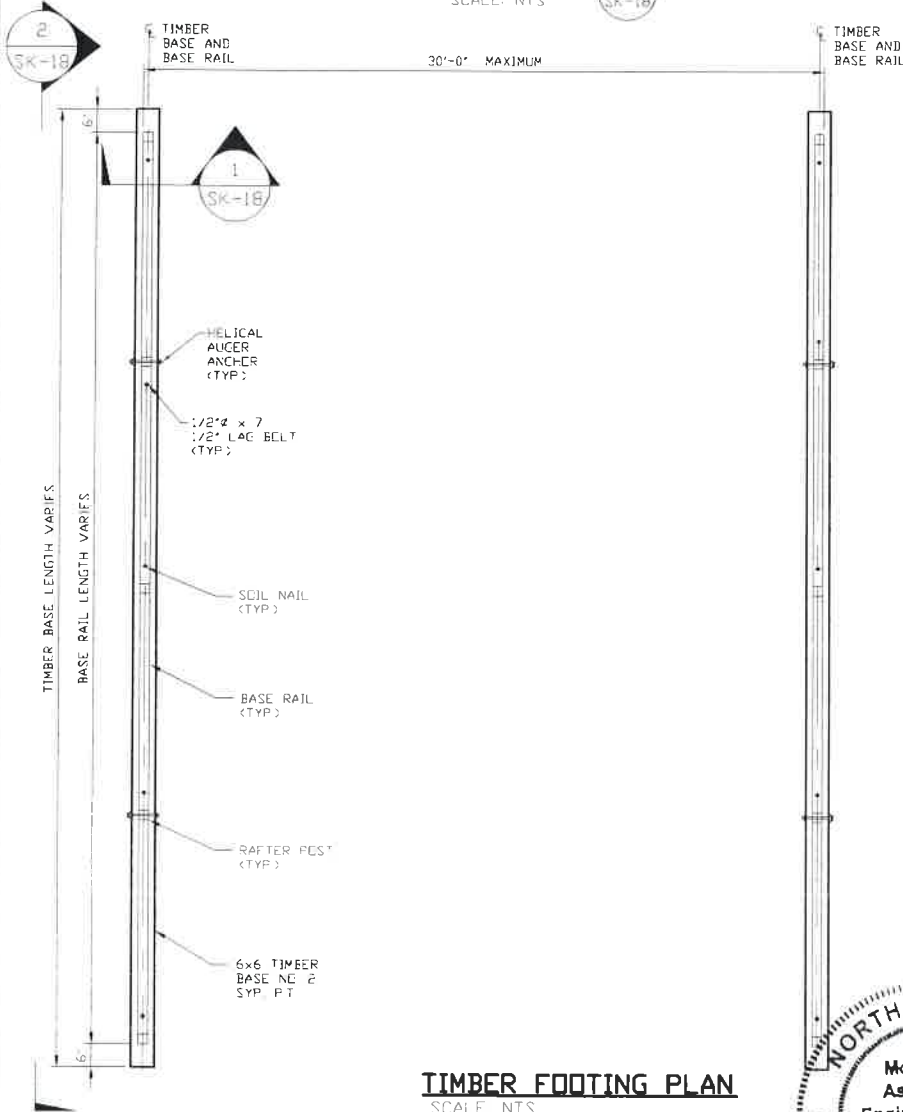
# OPTIONAL BASE RAIL ON TIMBER BEAM WITH SOIL NAIL



**SECTION 2**  
SCALE: NTS



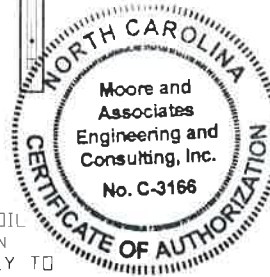
**SECTION 1**  
SCALE: NTS



**TIMBER FOOTING PLAN**  
SCALE: NTS

HELIX ANCHOR	
SIDE LENGTH	SPACING
20'	20'
25'	25' NOTE 2
30'	10' (EVERY OTHER POST)

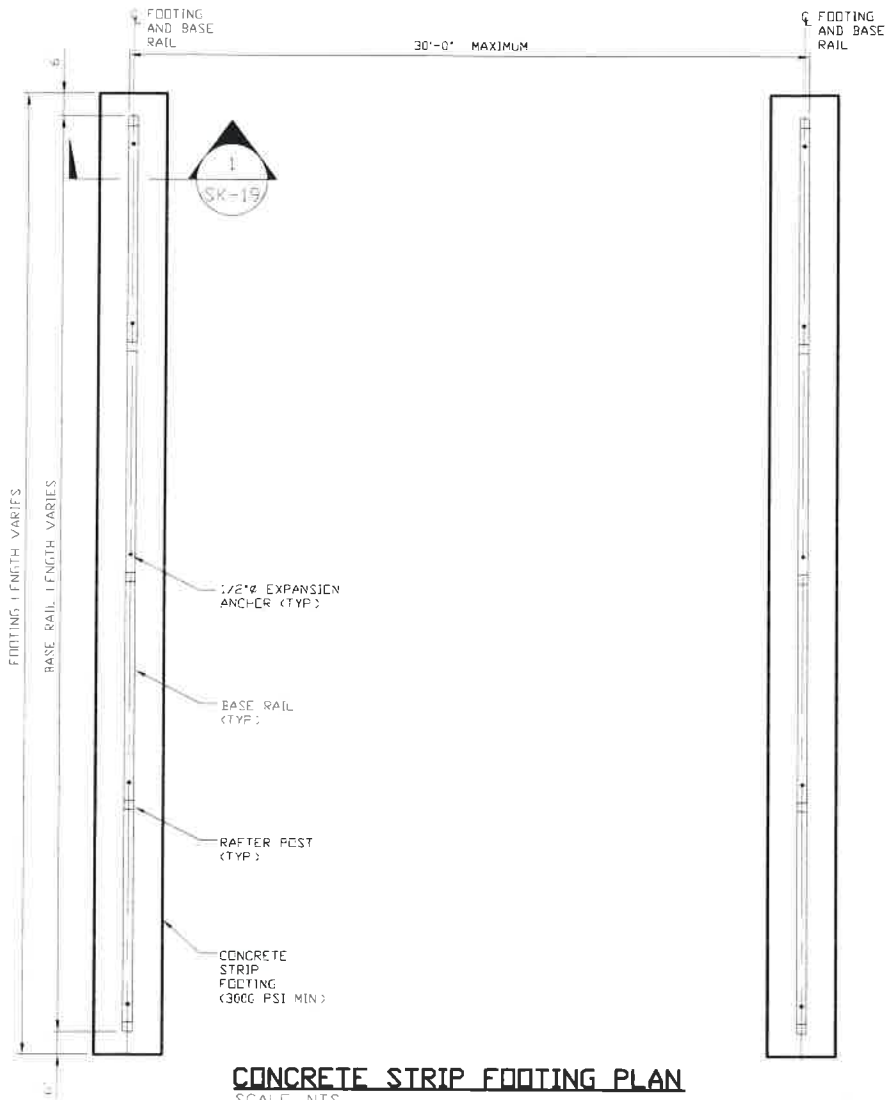
- NOTES**
- 1 INSTALLATION OF SOIL NAILS OR EXPANSION ANCHORS ALSO APPLY TO END WALLS
  - 2 FOR EXPOSURE C USE 10' SPACING (EVERY OTHER POST)



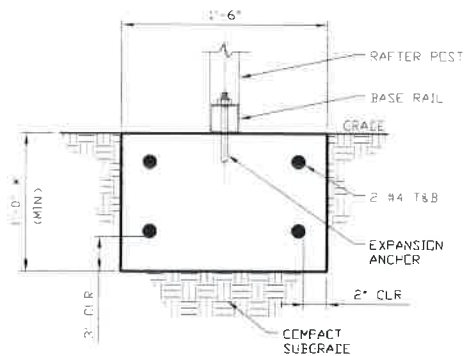
**MAY 09 2018**

<b>MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: JRS	CAROLINA CARPORTS, INC. 187 CARDINAL RIDGE TRAIL DOBSON, NC 27017 30'x20' ENCLOSED STRUCTURE		
	CHECKED BY: PDH	DATE: 1-15-18	SCALE: NTS	JOB NO: 15156S 16135S 17324S
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# OPTIONAL CONCRETE STRIP FOOTING



**CONCRETE STRIP FOOTING PLAN**  
SCALE: NTS



**SECTION 1**  
SCALE: NTS

★ COORDINATE WITH LOCAL CODES/ORD.



**MAY 09 2018**

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

**DRAWN BY: JRS**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

**CAROLINA CARPORTS, INC.**  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

**DATE: 1-15-18**

**SHT. 19**

**SCALE: NTS**

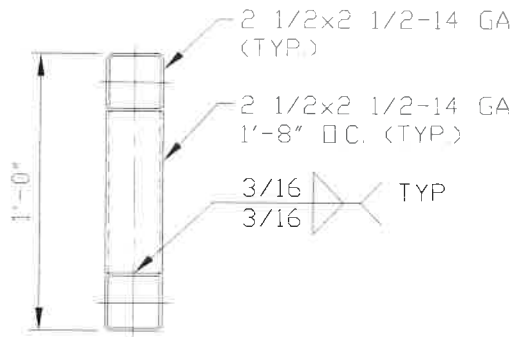
**DWG. NO: SK-3**

**JOB NO: 15156S 1613SS  
17324S**

**REV: 7**

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## OPTIONAL HEADER



**HEADER DETAIL FOR OPENINGS  
12'-0" ≤ LENGTH ≤ 20'-0"**

SCALE: NTS



**MAY 09 2018**

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

**DRAWN BY: JRS**

**CHECKED BY: PDH**

CAROLINA CARPORTS, INC.  
187 CARDINAL RIDGE TRAIL  
DOBSON, NC 27017  
30'x20' ENCLOSED STRUCTURE

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**PROJECT MGR: WSM**

**CLIENT: CAROLINA  
CARPORTS**

**DATE: 1-15-18**

**SHT. 20**

**SCALE: NTS**

**DWG. NO: SK-3**

**JOB NO: 15156S 16135S  
17324S**

**REV: 7**