



STRUCTURAL DESIGN

STANDARD PACKAGE ENCLOSED BUILDING

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

24 September 2020

Revision 0

M&A Project No. 20195S

Prepared for:

Universal Metal Buildings

9283 US 601

Dobson, NC 27017

Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue

North Augusta, SC 29841

401 South Main Street

Mount Airy, NC 27030



**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING**

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 1

SCALE: NTS

DWG. NO: SK-3

JOB NO: 201955

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

DRAWING INDEX

SHEET 1	PE SEAL COVER SHEET
SHEET 2	DRAWING INDEX
SHEET 3	INSTALLATION NOTES AND SPECIFICATIONS
SHEET 4	TYPICAL SIDE AND END ELEVATIONS
SHEET 5	TYPICAL RAFTER/COLUMN FRAME SECTIONS
SHEET 5A	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION
SHEET 6	COLUMN CONNECTION DETAILS (LACED COLUMN)
SHEET 6A	COLUMN CONNECTION DETAILS (DOUBLE AND SINGLE COLUMN)
SHEET 7	BASE RAIL ANCHORAGE OPTIONS
SHEET 7A	BASE RAIL ANCHORAGE OPTIONS
SHEET 8	TYPICAL END WALL OPENINGS FRAMING SECTIONS
SHEET 8A	TYPICAL SIDE WALL OPENINGS FRAMING SECTIONS
SHEET 9	CONNECTION DETAILS
SHEET 10	CONNECTION DETAILS
SHEET 11	LEAN-TO OPTIONS
SHEET 11A	LEAN-TO OPTIONS
SHEET 11B	LEAN-TO OPTIONS
SHEET 11C	LEAN-TO OPTIONS
SHEET 12	VERTICAL ROOF/SIDING OPTION END AND SIDE ELEVATION
SHEET 13	VERTICAL ROOF/SIDING OPTION END AND SIDE SECTION
SHEET 14	END WALL AND SIDE WALL HEADER OPTIONS



MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	UNIVERSAL METAL BUILDINGS 9283 US 601 DOBSON, NC 27017 40'-0"x20'-0" ENCLOSED STRUCTURE		
	CHECKED BY: PDH	PROJECT MGR: VSM	DATE: 9-24-20	SCALE: NTS
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	CLIENT: UNIVERSAL	SHT. 2	DWG. NO: SK-3	JOB NO: 2019SS REV: 0

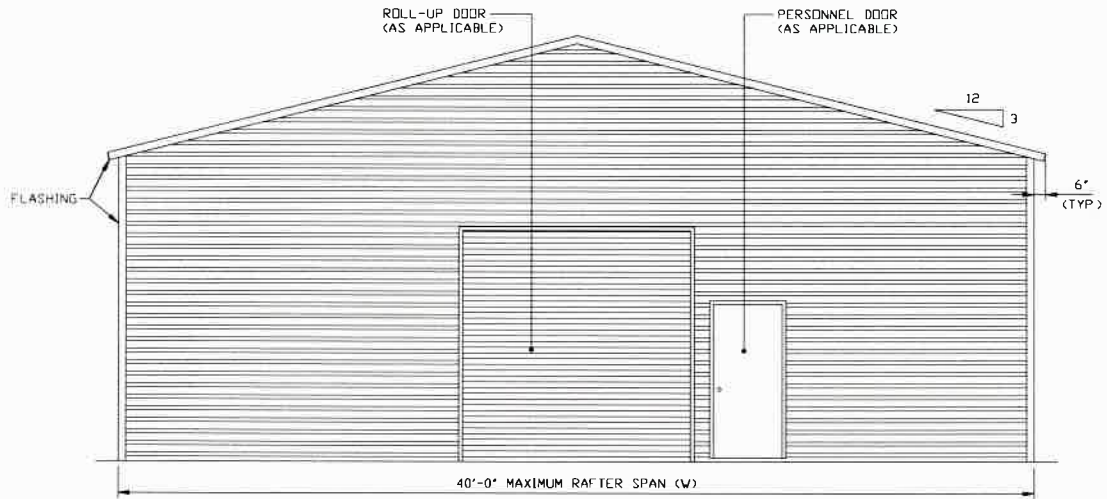
INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 40'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE, 2018 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC, 2012 IBC AND 2009 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
 - A) DEAD LOAD = 15 PSF
 - B) LIVE LOAD = 12 PSF
 - C) GROUND SNOW LOAD = 35 PSF

NOTE: UNBALANCED SNOW LOADS DUE TO DRIFTING HAVE NOT BEEN EVALUATED.
4. 3-SECOND GUST ULTIMATE WIND SPEED (V_{ULT}) = \leq 145 MPH (NOMINAL WIND SPEED = \leq 112 MPH)
5. MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 5.0 FEET (UNLESS NOTED OTHERWISE)
6. SIDEWALL COLUMNS AND ENDWALL COLUMNS ARE SIMILAR IN SIZE, UNLESS NOTED OTHERWISE.
7. RISK CATEGORY I.
8. WIND EXPOSURE CATEGORY B.
9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 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) = 10 INCHES.
11. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.
12. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6' OF EACH COLUMN.
13. STANDARD GROUND FOUNDATION SYSTEM CONSISTS OF #4 REBAR W/ WELDED NUT x 36" LONG SOILS NAILS AND ARE APPLICABLE ONLY IN MEDIUM TO STIFF SOILS (SUITABLE SOIL). OPTIONAL FOUNDATION SYSTEMS MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS. COORDINATE WITH LOCAL CODES/ORDINANCES FOR FOUNDATION SYSTEM TO BE COMPLIANT WITH FROST DEPTH PROTECTION.
14. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
 - SOIL SITE CLASS = D
 - RISK CATEGORY I
 - R = 3.25 $I_e = 10$
 - $S_{DS} = 2.039 g$ $V = C_s W$
 - $S_{D1} = 1.258 g$

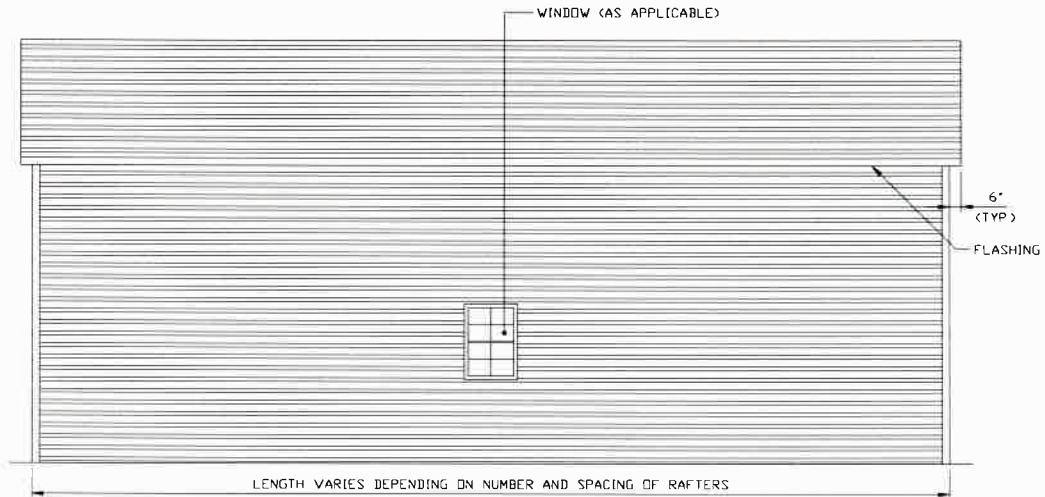
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	UNIVERSAL METAL BUILDINGS 9283 US 601 DOBSON, NC 27017 40'-0"x20'-0" ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSM	DATE: 9-24-20	SCALE: NTS	JOB NO: 2019SS
	CLIENT: UNIVERSAL	SHT. 3	DWG. NO: SK-3	REV: 0

BOX EAVE FRAME RAFTER STRUCTURE



TYPICAL END ELEVATION

SCALE: NTS



TYPICAL SIDE ELEVATION

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 4

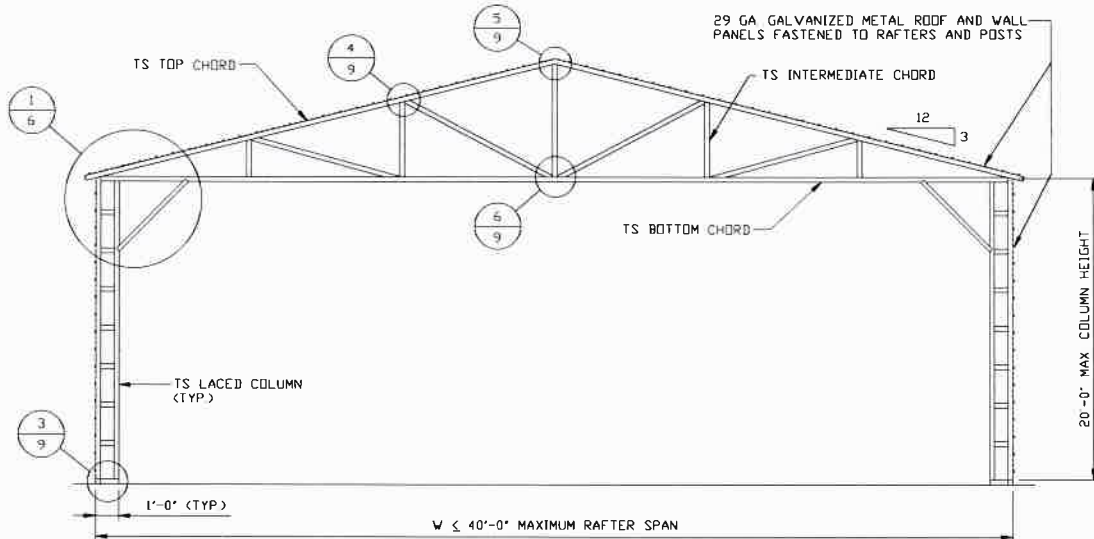
SCALE: NTS

DWG. NO: SK-3

JOB NO: 2019SS

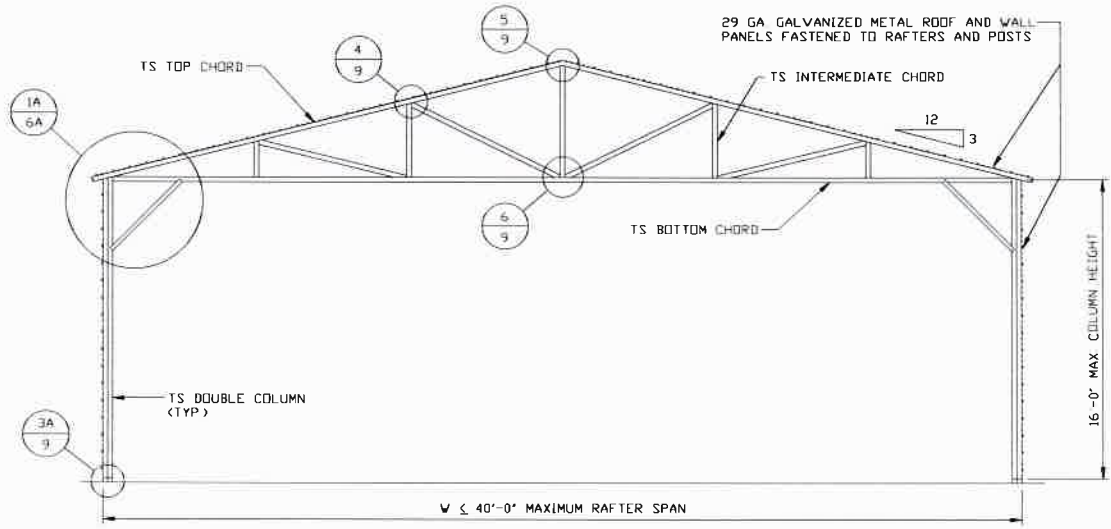
REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS

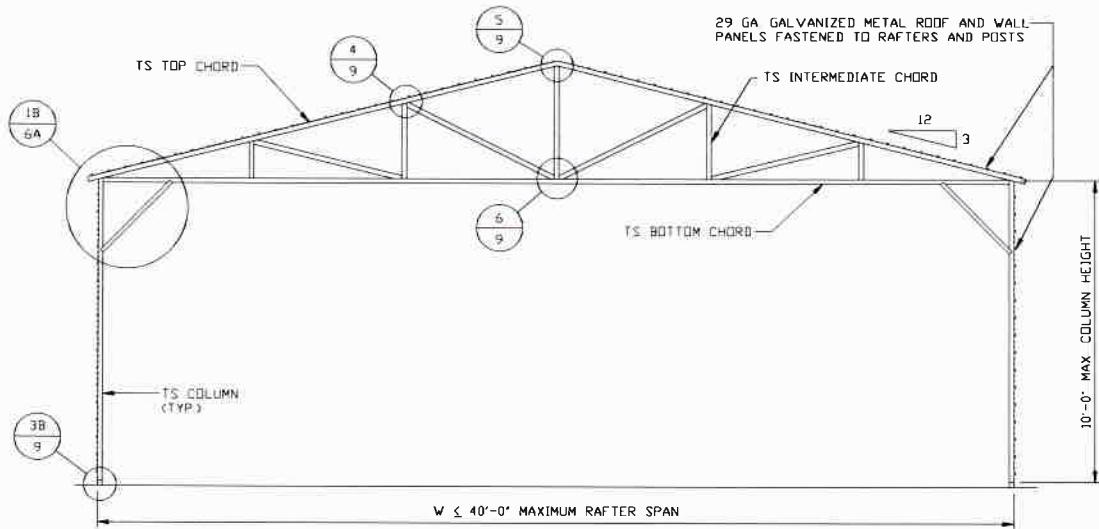


TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS

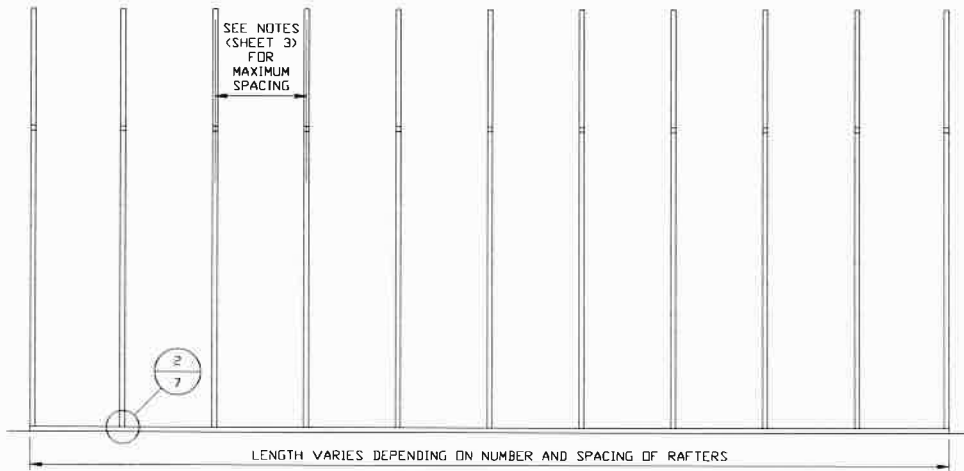
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	UNIVERSAL METAL BUILDINGS 9283 US 601 DOBSON, NC 27017 40'-0"x20'-0" ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 9-24-20	SCALE: NTS	JOB NO: 20195S	
CLIENT: UNIVERSAL	SHT. 5	DWG. NO: SK-3	REV: 0	

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SCALE: NTS

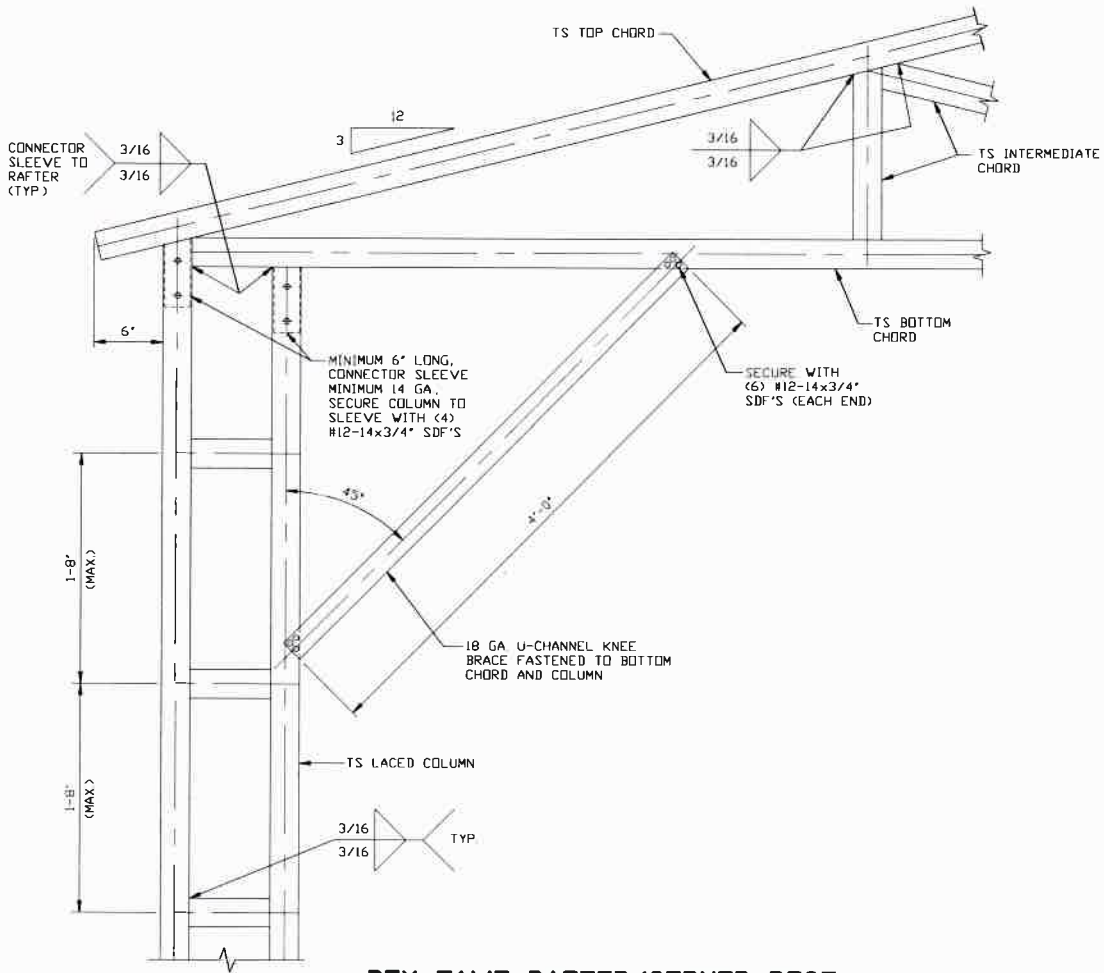
JOB NO: 201955

SHT. 5A

DWG. NO: SK-3

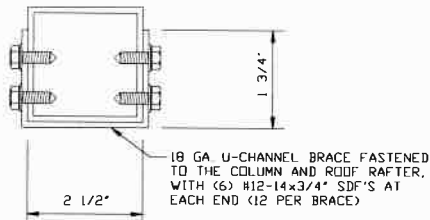
REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.



BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL
FOR HEIGHTS 16'-0" < TO ≤ 20'-0"
 SCALE: NTS

1



BRACE SECTION
 SCALE: NTS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG
CHECKED BY: PDH

UNIVERSAL METAL BUILDINGS
 9283 US 601
 DOBSON, NC 27017
 40'-0"x20'-0" ENCLOSED STRUCTURE

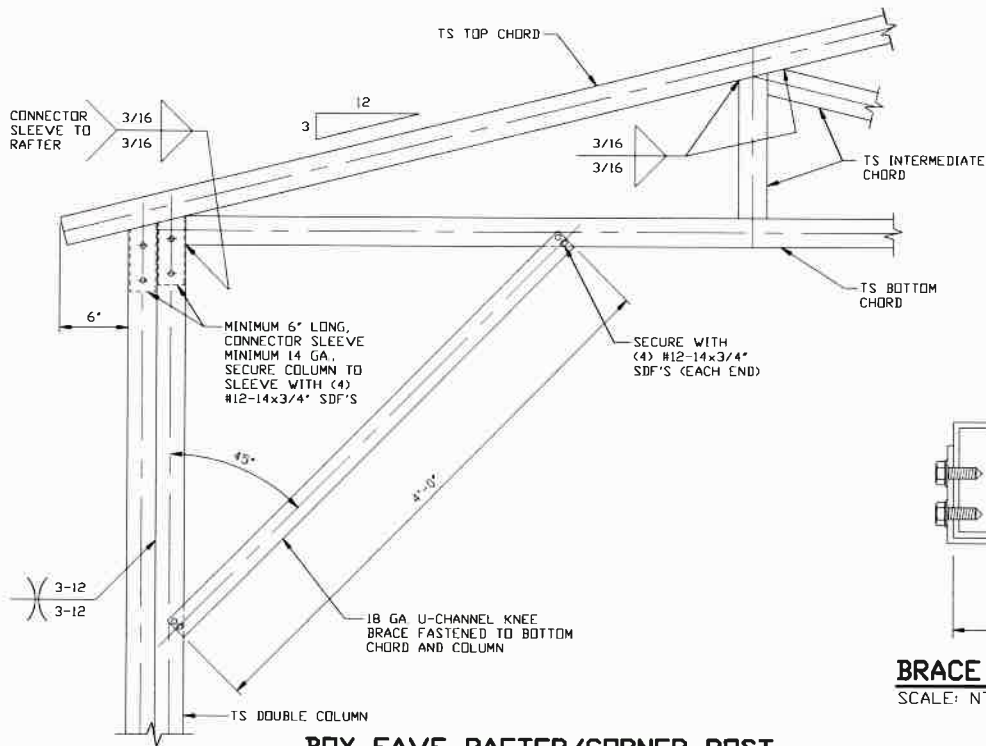
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

PROJECT MGR: WSM
CLIENT: UNIVERSAL

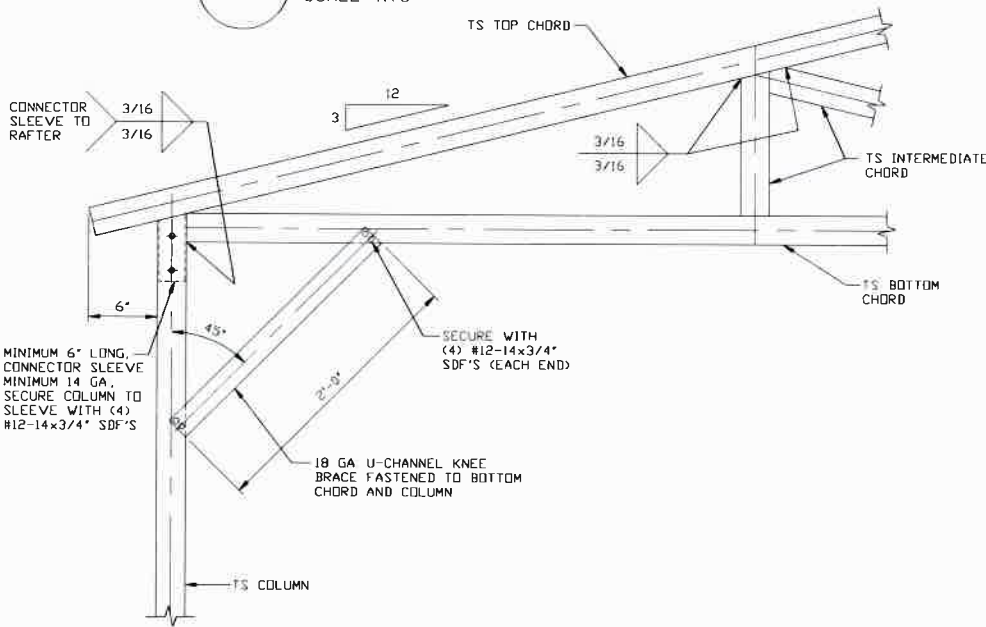
DATE: 9-24-20
SHT. 6

SCALE: NTS
DWG. NO: SK-3

JOB NO: 201955
REV: 0



1A
BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL
FOR HEIGHTS 10'-0" < TO ≤ 16'-0"
 SCALE: NTS



1B
BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL
FOR HEIGHTS ≤ 10'-0"
 SCALE: NTS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS

9283 US 601

DOBSON, NC 27017

40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 6A

SCALE: NTS

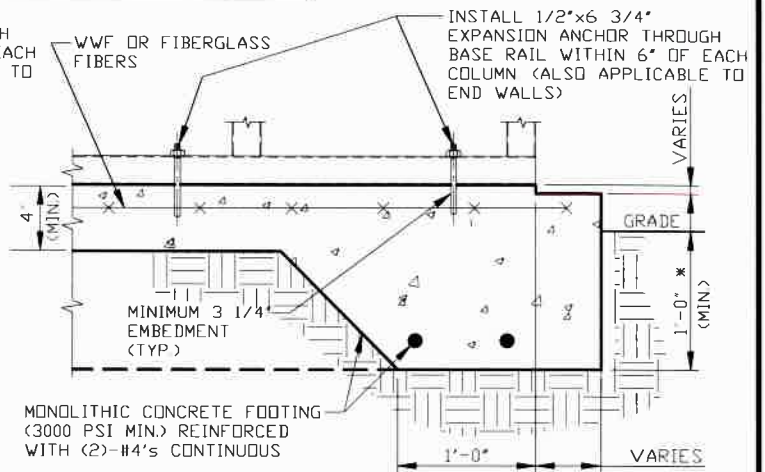
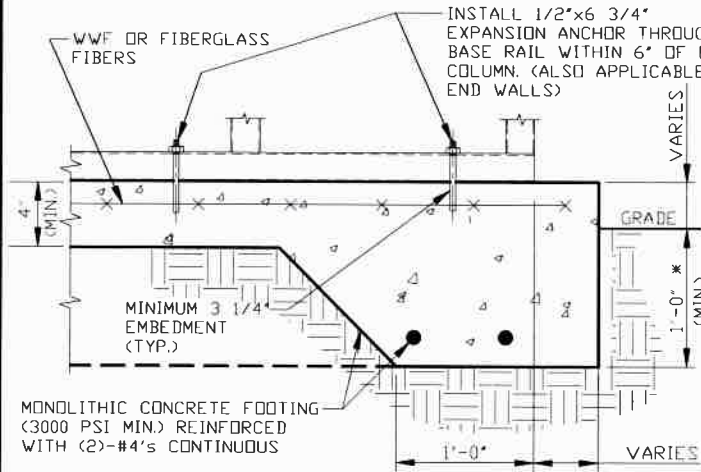
DWG. NO: SK-3

JOB NO: 20195S

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BASE RAIL ANCHORAGE OPTIONS



2A

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
 MINIMUM ANCHOR EDGE DISTANCE IS 4"
 * COORDINATE WITH LOCAL BUILDING CODE
 AND/OR BUILDING OFFICIAL REGARDING
 REQUIRED MINIMUM FOOTING DEPTH.

2B

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
 MINIMUM ANCHOR EDGE DISTANCE IS 4"
 * COORDINATE WITH LOCAL BUILDING CODE
 AND/OR BUILDING OFFICIAL REGARDING
 REQUIRED MINIMUM FOOTING DEPTH.

GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED ON MINIMUM SOIL BEARING CAPACITY OF 1,500 PSF.

CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.

COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318:

3" IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2" ELSEWHERE.

REINFORCING STEEL:

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

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

1. REINFORCEMENT IS BENT COLD.
2. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.

HELIX ANCHOR NOTES:

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

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 7

SCALE: NTS

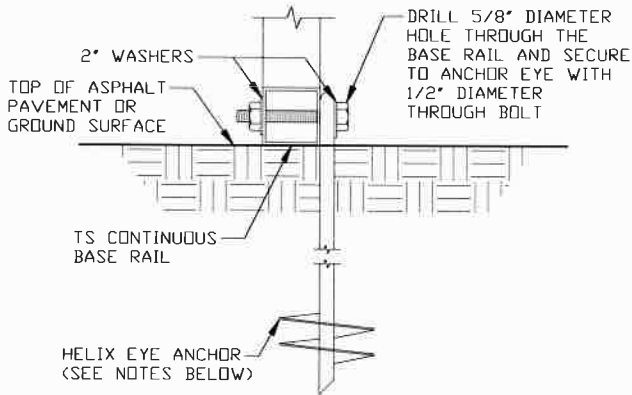
DWG. NO: SK-3

JOB NO: 2019SS

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

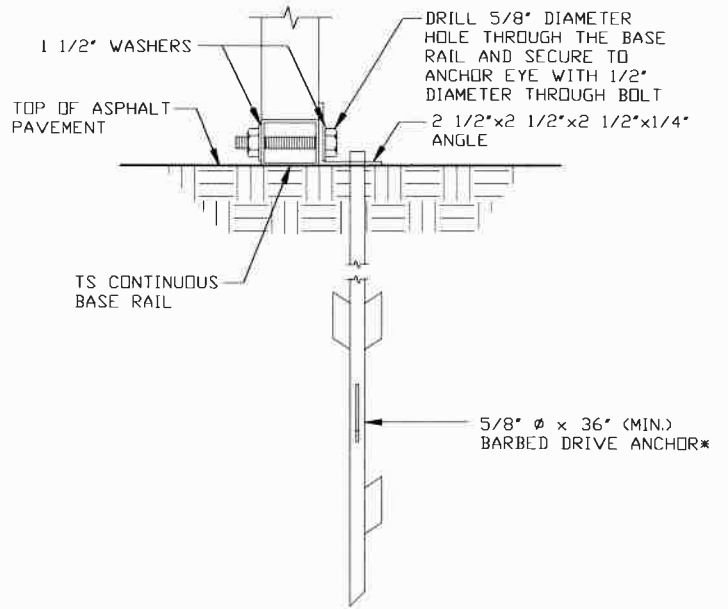
BASE RAIL ANCHORAGE OPTIONS



2C

GROUND BASE HELIX ANCHORAGE

SCALE: NTS
 (CAN BE USED FOR ASPHALT)
 * COORDINATE WITH LOCAL BUILDING CODE
 AND/OR BUILDING OFFICIAL REGARDING
 REQUIRED FOOTING DEPTH.



2D

ASPHALT BASE ANCHORAGE

SCALE: NTS
 * COORDINATE WITH LOCAL BUILDING CODE
 AND/OR BUILDING OFFICIAL REGARDING
 REQUIRED FOOTING DEPTH.

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
 9283 US 601
 DOBSON, NC 27017
 40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 7A

SCALE: NTS

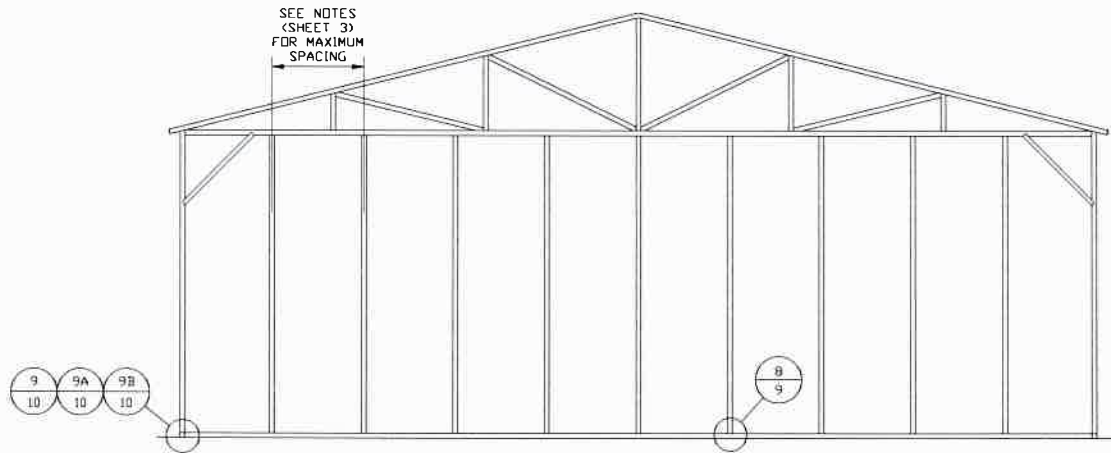
DWG. NO: SK-3

JOB NO: 2019SS

REV: 0

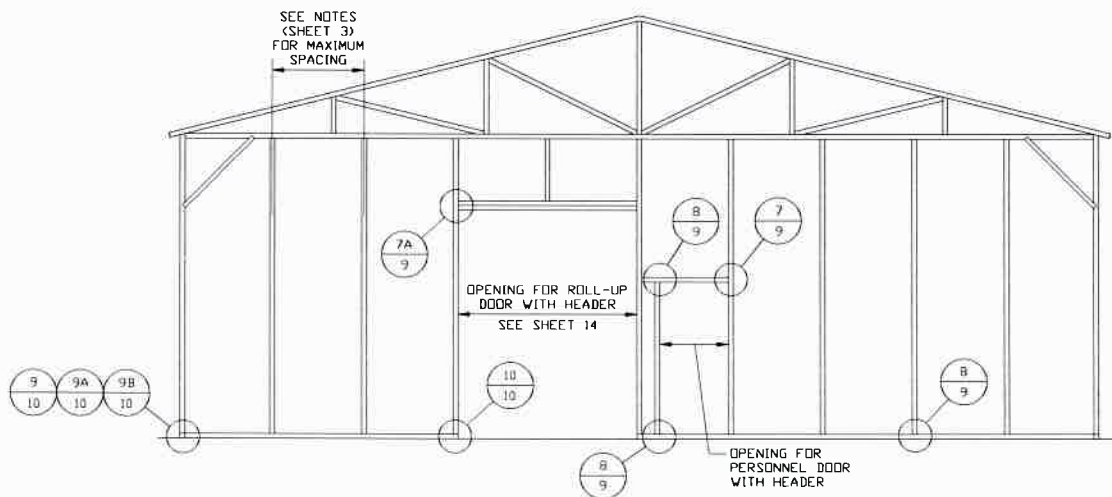
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BOX EAVE RAFTER END WALL OPENINGS



TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 8

SCALE: NTS

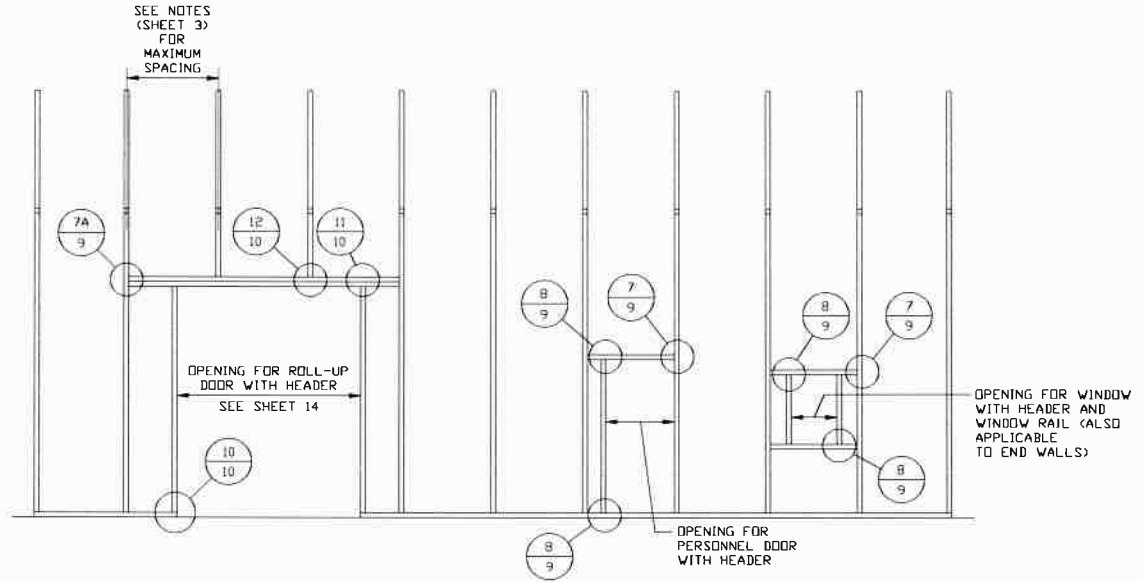
DWG. NO: SK-3

JOB NO: 20195S

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SCALE: NTS

JOB NO: 201955

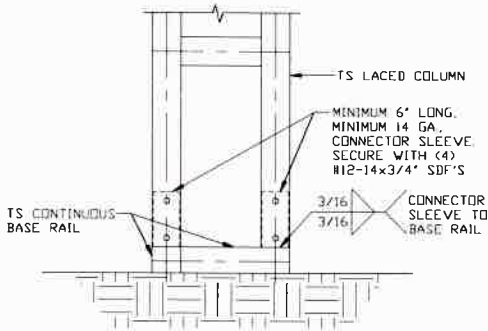
SHT. 8A

DWG. NO: SK-3

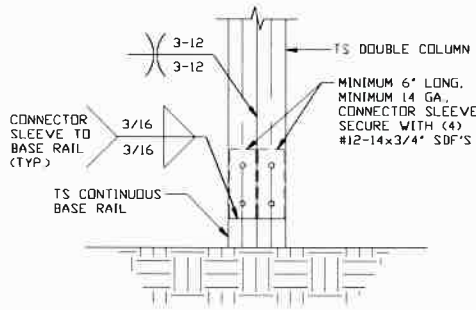
REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

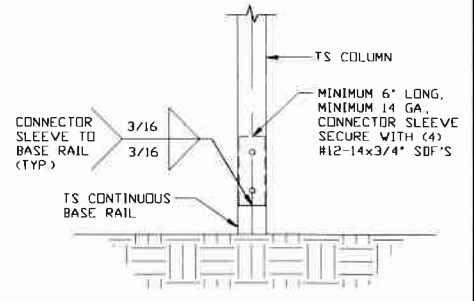
CONNECTION DETAILS



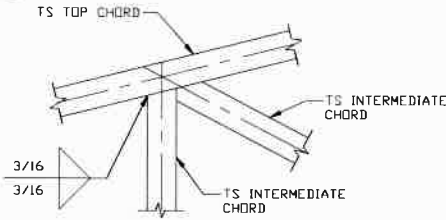
3 POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS



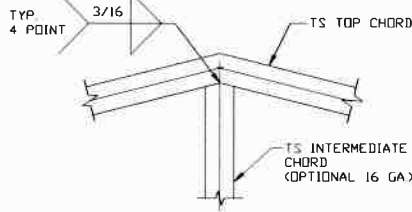
3A POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS



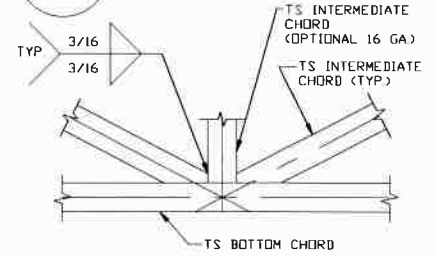
3B POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS



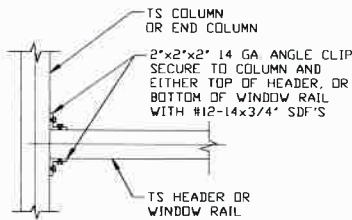
4 INTERMEDIATE CHORD TO TOP CHORD CONNECTION DETAIL
SCALE: NTS



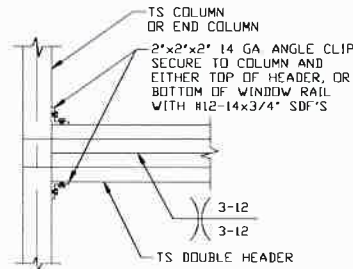
5 CENTER POST TO RAFTER CONNECTION DETAIL
SCALE: NTS



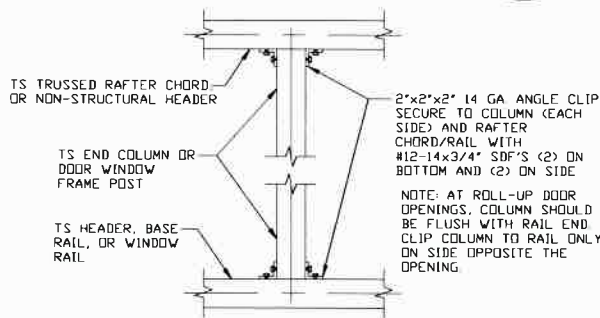
6 CENTER POST TO BOTTOM CHORD CONNECTION DETAIL
SCALE: NTS



7 COLUMN OR WINDOW RAIL/WALL GIRT TO POST CONNECTION DETAIL
SCALE: NTS



7A COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL
SCALE: NTS



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

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

**UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE**

DATE: 9-24-20

SHT. 9

SCALE: NTS

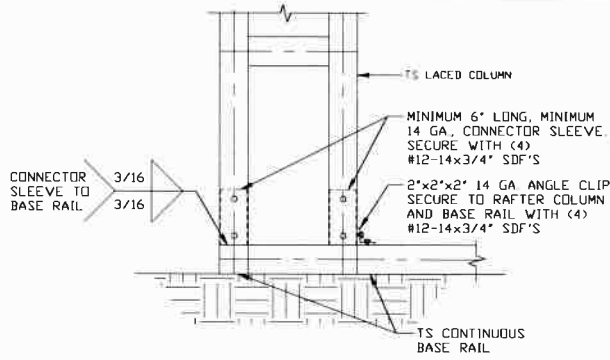
DWG. NO: SK-3

JOB NO: 201955

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

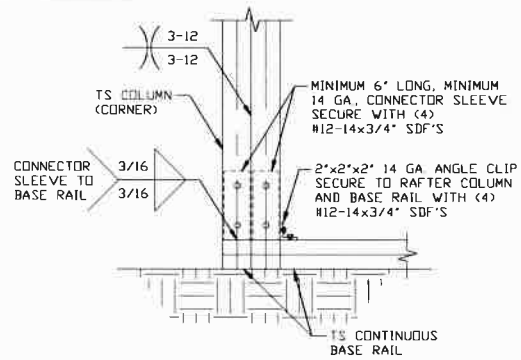
CONNECTION DETAILS



9

END COLUMN/BASE RAIL CONNECTION DETAIL

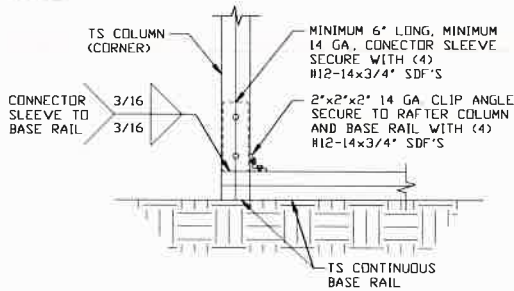
SCALE: NTS



9A

END COLUMN/BASE RAIL CONNECTION DETAIL

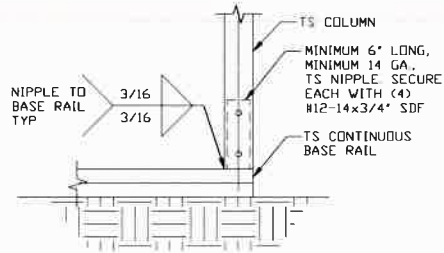
SCALE: NTS



9B

END COLUMN/BASE RAIL CONNECTION DETAIL

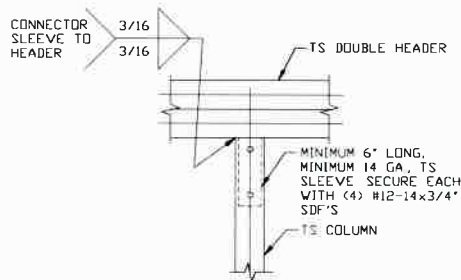
SCALE: NTS



10

COLUMN/BASE RAIL CONNECTION DETAIL

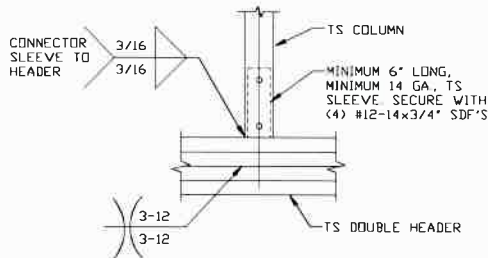
SCALE: NTS



11

DOUBLE HEADER/COLUMN CONNECTION DETAIL

SCALE: NTS



12

COLUMN/DOUBLE HEADER CONNECTION DETAIL

SCALE: NTS

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 10

SCALE: NTS

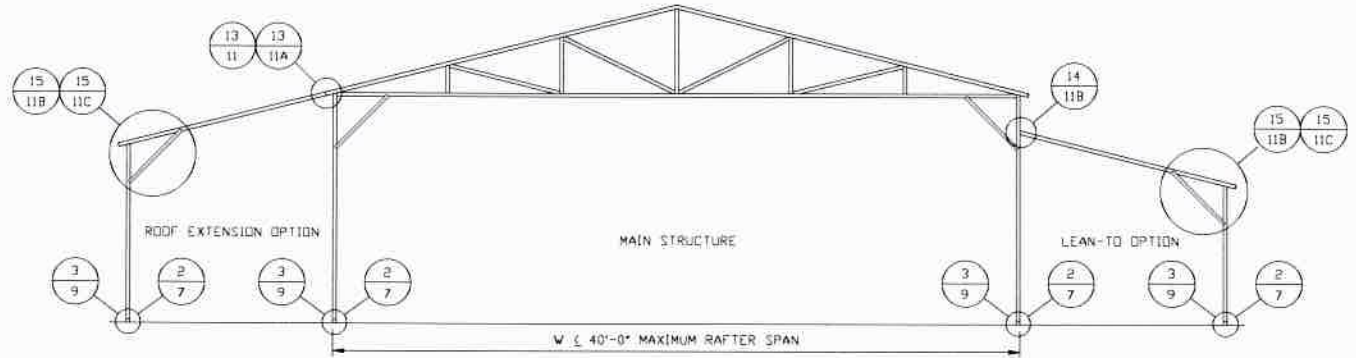
DWG. NO: SK-3

JOB NO: 201955

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

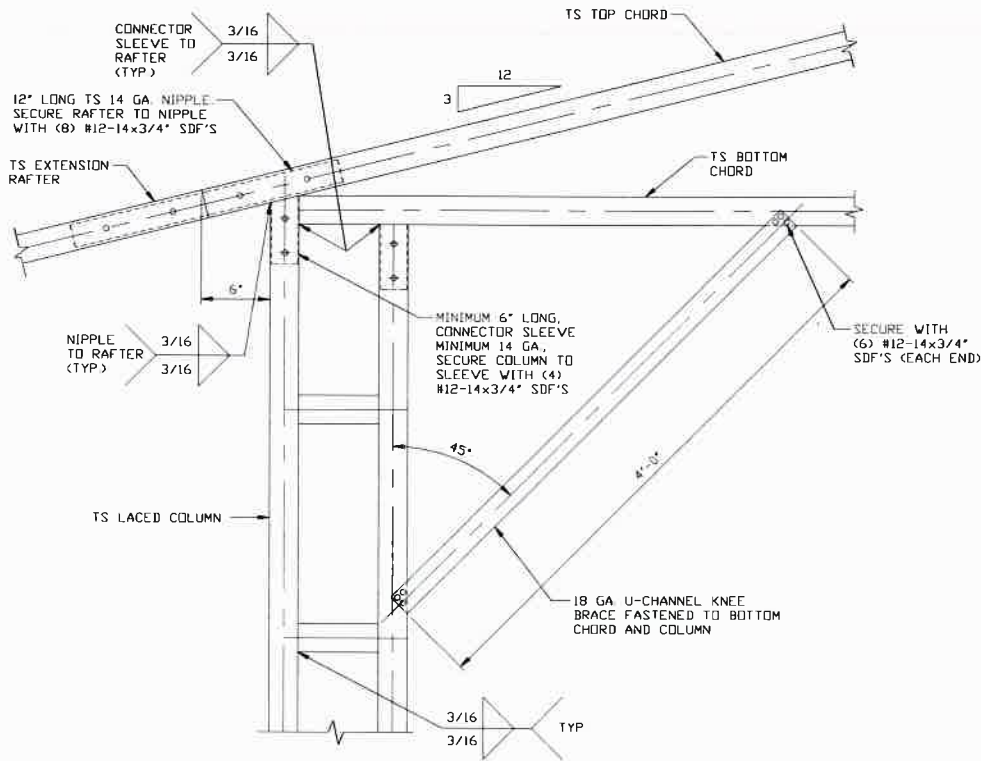
BOX EAVE RAFTER LEAN-TO OPTIONS



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

SCALE: NTS

MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION AND LEAN-TO OPTION IS 12'-0".



SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

13

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 11

SCALE: NTS

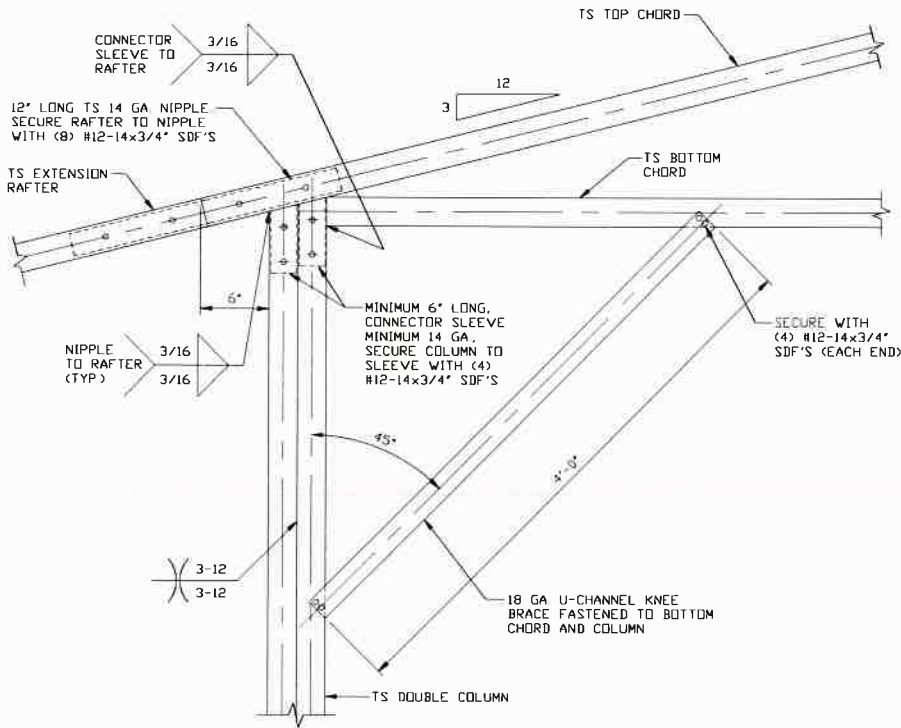
DWG. NO: SK-3

JOB NO: 20195S

REV: 0

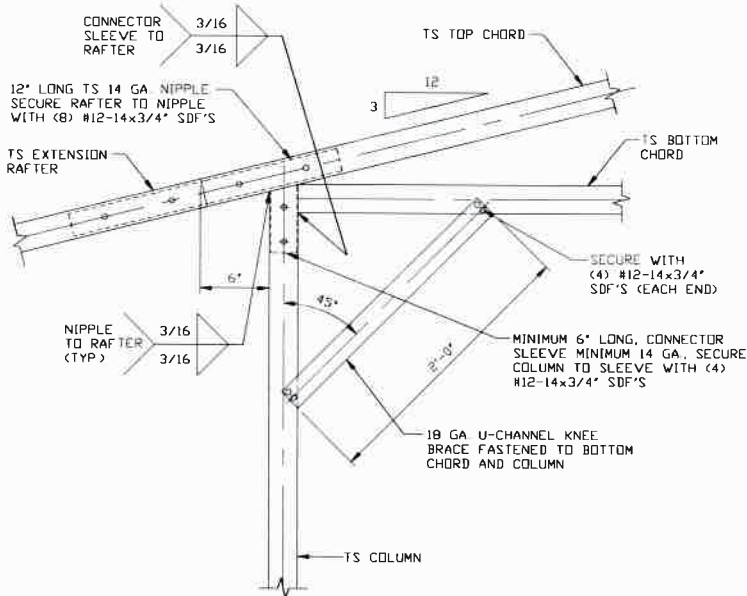
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BOX EAVE RAFTER LEAN-TO OPTIONS



13A

**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS 10'-0" < TO <= 16'-0"**
SCALE: NTS



13B

**SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
HEIGHTS <= 10'-0"**
SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SCALE: NTS

JOB NO: 201955

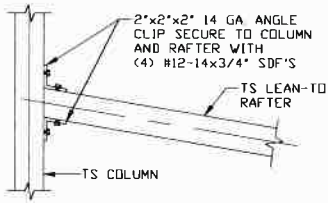
SHT. 11A

DWG. NO SK-3

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

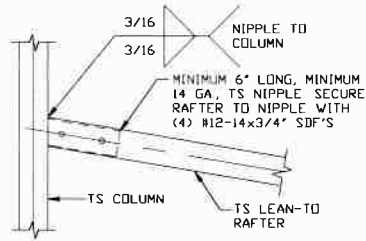
BOX EAVE RAFTER LEAN-TO OPTIONS



**LEAN-TO RAFTER TO
RAFTER POST
CONNECTION DETAIL
FOR WIDTHS $\le 12'-0''$**

14

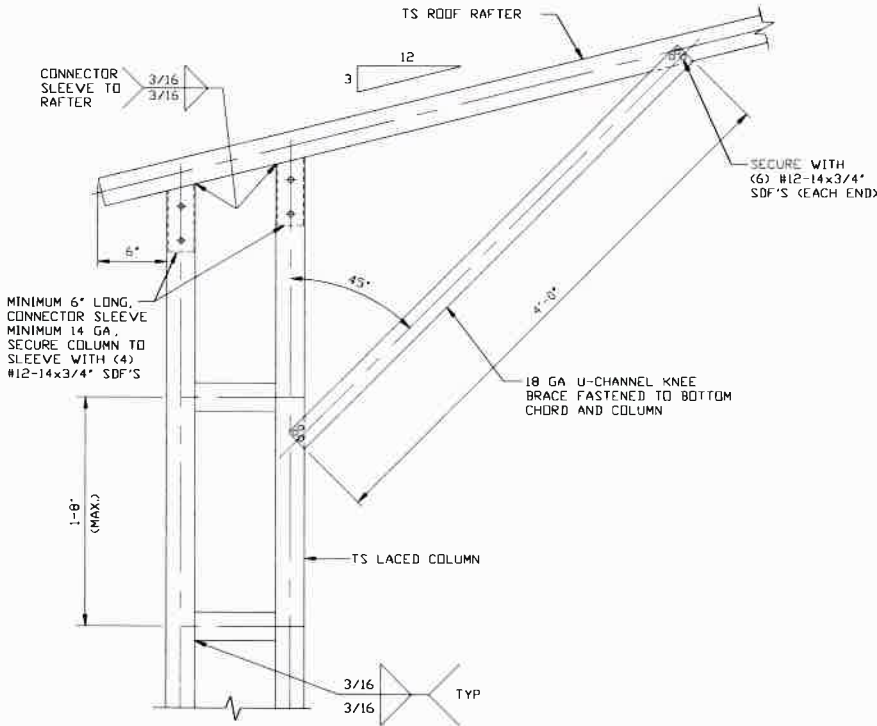
SCALE: NTS



**LEAN-TO RAFTER
TO RAFTER POST
CONNECTION DETAIL
FOR WIDTHS $\le 12'-0''$**

14A

SCALE: NTS



**ROOF EXTENSION RAFTER/
CORNER POST DETAIL FOR
HEIGHTS 16'-0 $< TO \le 17'-0''$**

15

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 11B

SCALE: NTS

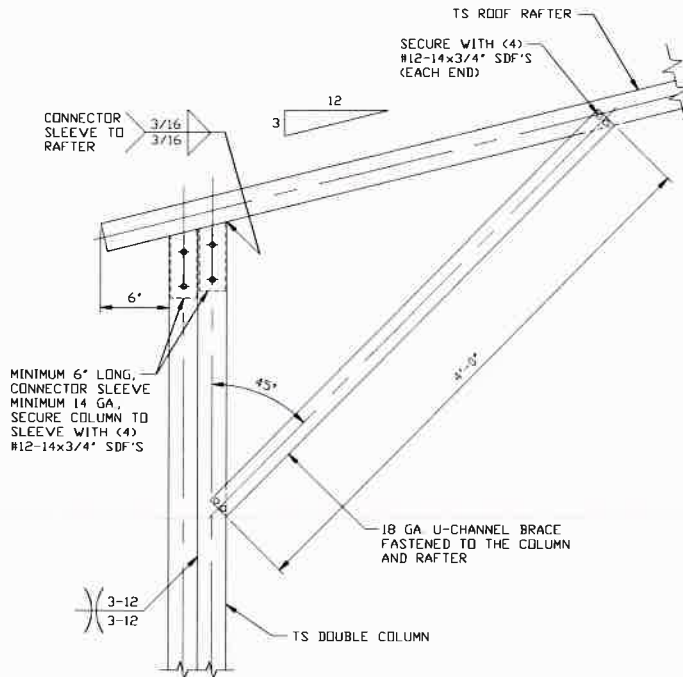
DWG. NO: SK-3

JOB NO: 20195S

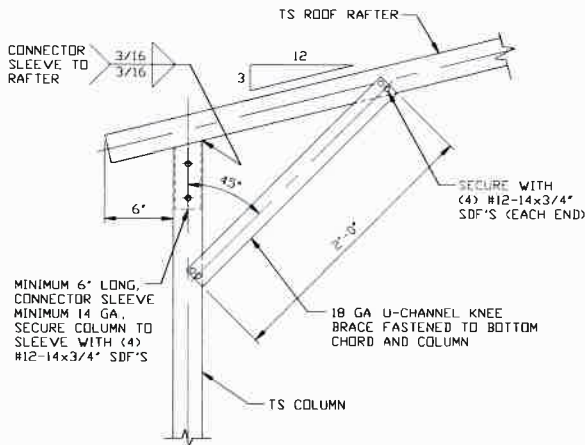
REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

BOX EAVE RAFTER LEAN-TO OPTIONS



15A
**ROOF EXTENSION RAFTER/
 CORNER POST DETAIL FOR
 HEIGHTS 10'-0" < TO ≤ 16'-0"**
 SCALE: NTS



15B
**ROOF EXTENSION RAFTER/
 CORNER POST DETAIL FOR
 HEIGHTS ≤ 10'-0"**
 SCALE: NTS

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

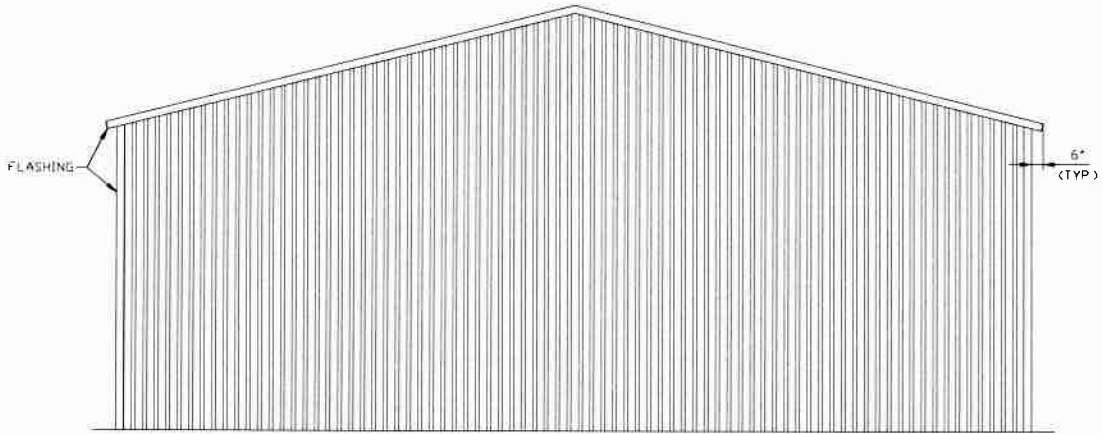
DRAWN BY: JG
CHECKED BY: PDH
PROJECT MGR: VSM
CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
 9283 US 601
 DOBSON, NC 27017
 40'-0"x20'-0" ENCLOSED STRUCTURE

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

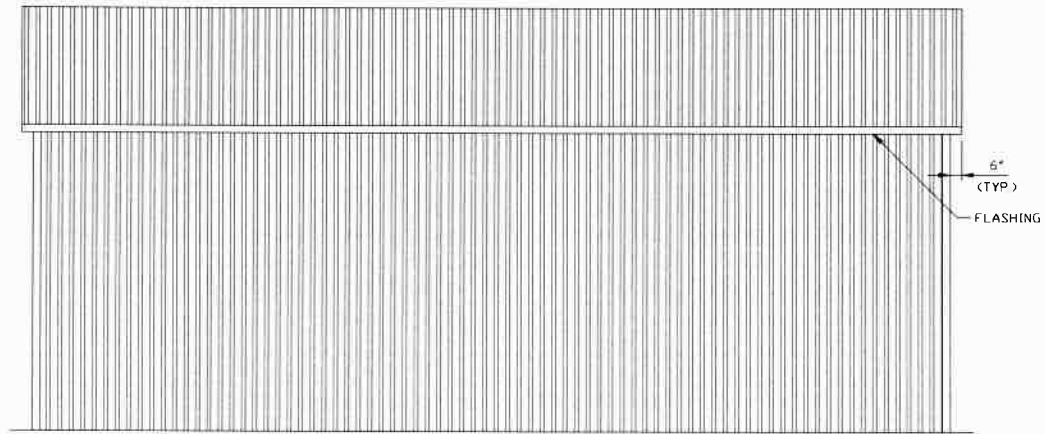
DATE: 9-24-20 **SCALE: NTS** **JOB NO: 20195S**
SHT. 11C **DWG. NO: SK-3** **REV: 0**

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS

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

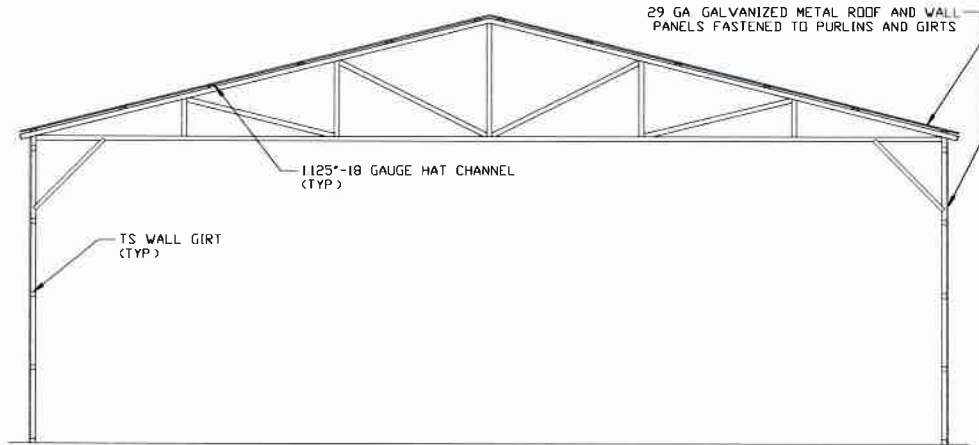
DRAWN BY: JG
CHECKED BY: PDH
PROJECT MGR: WSM
CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

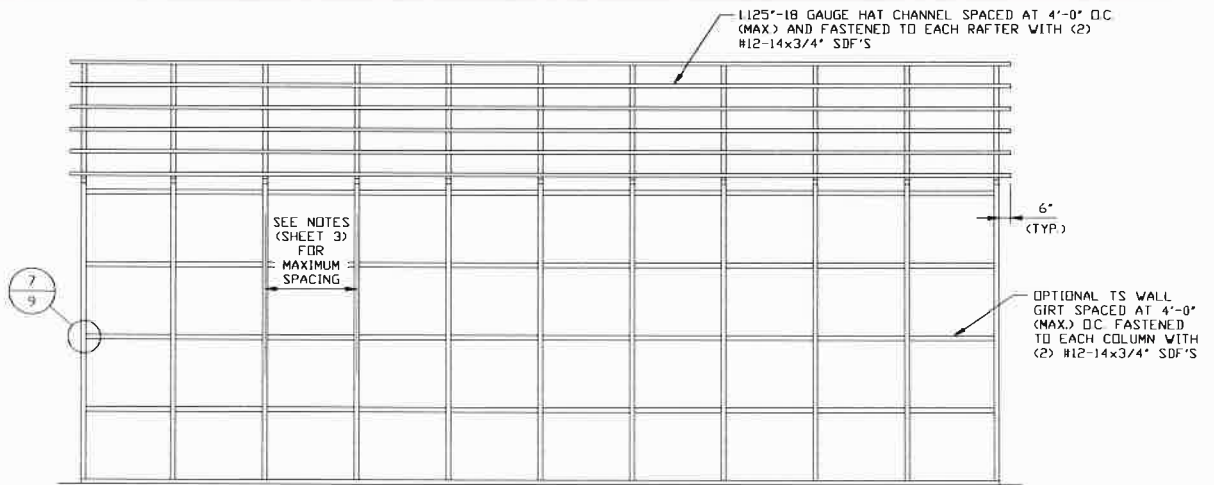
DATE: 9-24-20 **SCALE: NTS** **JOB NO: 20195S**
SHT. 12 **DWG. NO SK-3** **REV: 0**

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



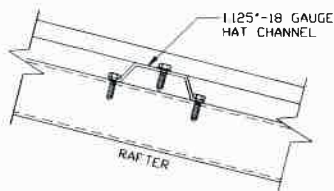
TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION WITH TS GIRTS

SCALE: NTS



PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 9-24-20

SHT. 13

SCALE: NTS

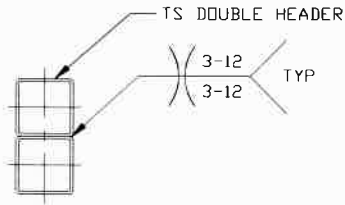
DWG. NO: SK-3

JOB NO: 2019SS

REV: 0

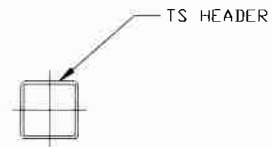
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.

END WALL HEADER OPTIONS



**HEADER DETAIL FOR
SPANS 12'-0" < TO ≤ 16'-0"**

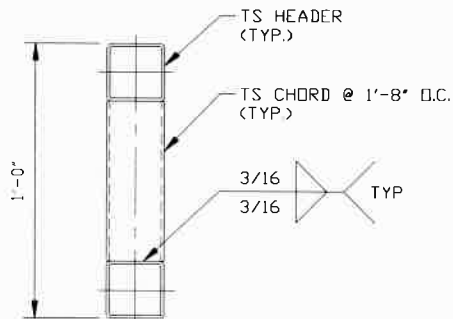
SCALE: NTS



**HEADER DETAIL FOR
SPANS ≤ 12'-0"**

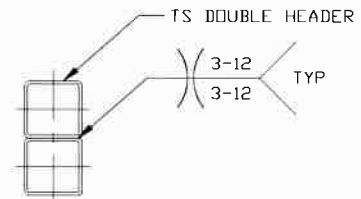
SCALE: NTS

SIDE WALL HEADER OPTIONS



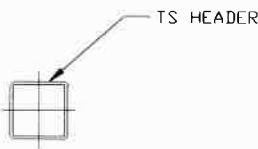
**HEADER DETAIL FOR
SPANS 10'-0" < TO ≤ 12'-0"**

SCALE: NTS



**HEADER DETAIL FOR
SPANS 6'-0" < TO ≤ 10'-0"**

SCALE: NTS



**HEADER DETAIL FOR
SPANS ≤ 6'-0"**

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: UNIVERSAL

**UNIVERSAL METAL BUILDINGS
9283 US 601
DOBSON, NC 27017
40'-0"x20'-0" ENCLOSED STRUCTURE**

DATE: 9-24-20

SHT. 14

SCALE: NTS

DWG. NO SK-3

JOB NO: 20195S

REV: 0

THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.