

Steel Buildings and Structures Inc.

PO Box 1287 Mt. Airy, NC 27030 877-272-8276 Ext: 122 fgarcia@sbsihq.com

Enclosed are the certified plans for the building that you have purchased. Please let our office know if you plan on pulling a permit for the building to be installed. If you decide not to pull a permit you are taking full and complete responsibility of any fines that can be enforced by the city, county, or town within which you live for not obtaining any necessary permits. Please let me know if you have any questions, or if you need any help during the permitting process. Also, please be aware that some pages in the packet may not pertain to your building, as these are generic drawings and not site specific. Please do not remove any pages from this packet as some counties will consider them as being tampered with and may not accept them. If you have any questions please contact me. Thank you for choosing Steel Buildings and Structures Inc. Have a great day!

Sincerely, Frances Garcia



STRUCTURAL DESIGN PARTIALLY OPEN (UTILITY) BUILDING

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

14 February 2020 Revision 8 M&A Project No. 16062S/16155S/16207S/17155S/17200S/18068S/18156S/18290S/20019S

Prepared for:

Steel Buildings and Structures, Inc. P.O. Box 1287 Mt. Airy, NC 27030

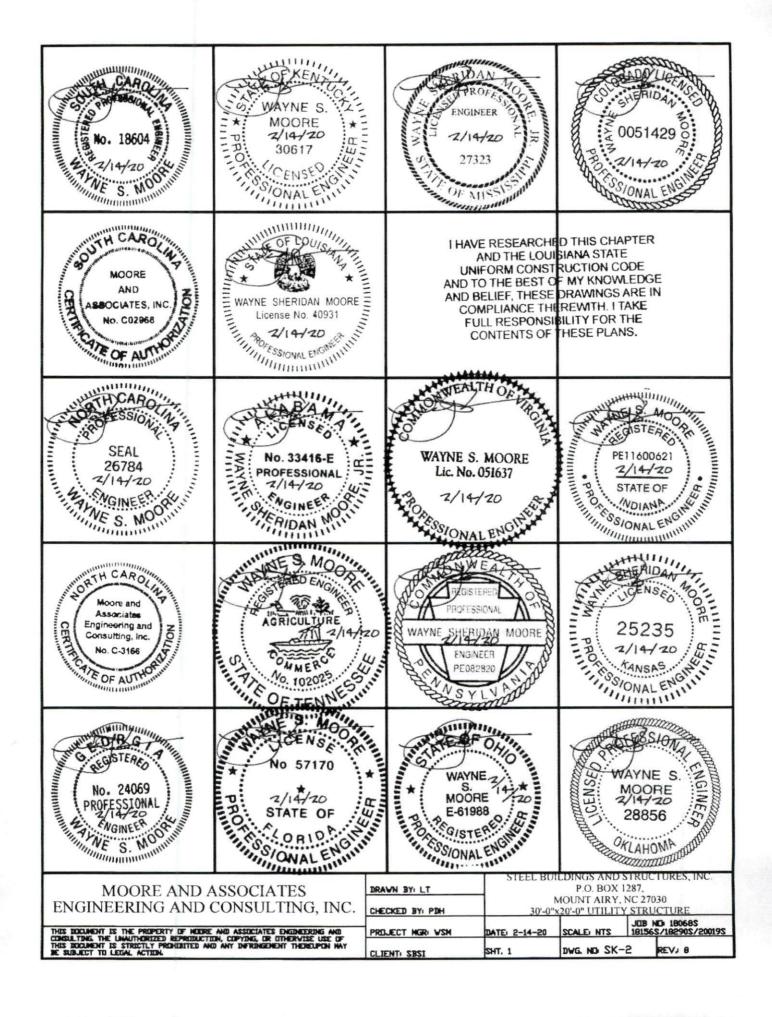
Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue North Augusta, SC 29841

401 S. Main St., Suite 200 Mt. Airy, NC 27030





I hereby certify that these documents were prepared o approved by me, and that I em a duly licensed professional engineer under the laws of the State of Maryland, License No. 49744, Li	ATTINUITY.	Professional Certification	on.	1		
approved by me, and that I em a duly licensed professional engineer under the laws of the State of Maryland, License No. 49744, Expiration Date 64/6/20 WANNES MOORE 2/4/20 NIMBER PE-20(630730) NO. 17214 2/14/20 NO. 17214 2/14/	DE MARY	I hereby certify that these				
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INSTALLATION NOTES AND SPECIFICATIONS

- L DESIGN IS FOR MAXIMUM 30'-0' WIDE x 20'-0' EAVE HEIGHT UTILITY STRUCTURES
- 2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2017 FLORIDA BUILDING CODE (FBC) 6TH EDITION, 2018 NORTH CAROLINA BUILDING CODE, 2006 INTERNATIONAL BUILDING CODE (IBC), 2009 IBC, 2012 IBC, 2015 IBC AND 2018 IBC.
- 3. DESIGN LUADS ARE AS FOLLOWS

= 1.5 PSF

B) LIVE LOAD

= 12 PSF

C) GROUND SNOW LOAD

= 30 PSF (< 26'-0"), 35 PSF (26'-0" (W < 30'-0")

NOTE: (UNBALANCED SNOW LOADS DUE TO DRIFTING HAVE NOT BEEN EVALUATED)

- 4 3-SECOND GUST ULTIMATE WIND SPEED (VULT) = 105 TO 145 MPH (NOMINAL WIND SPEED = 82 TO 112 MPH):
- 5 MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 50 FEET (UNLESS NOTED OTHERVISE)
- 6 END WALL COLUMNS (POSTS) ARE EQUIVALENT TO SIDE WALL POSTS IN SIZE AND SPACING (UNLESS NOTED DTHERWISE)
- 7 RISK CATEGORY L.
- 8 WIND EXPUSURE 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) = 8 INCHES
- 13 FASTENERS CONSIST OF 1/4*x3/4* SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS
 SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14* (3:12 PITCH) OR LESS SPACING
 REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY ROOF SLOPES LESS THAN 3:12 REQUIRE USE OF LAP JOINT SEALANT
- 12 GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH COLUMN.
- 13 STANDARD GROUND ANCHURS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36' LONG AND MAY BE USED IN SUITABLE SOILS OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED.
- 14 WIND FORCES GOVERN OVER SEISMIC FORCES SEISMIC PARAMETERS ANALYZED ARE:

SOIL SITE CLASS = D RISK CATEGORY I

R= 325

IE= 10

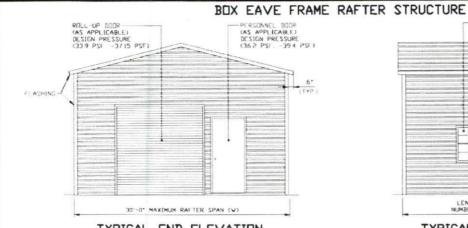
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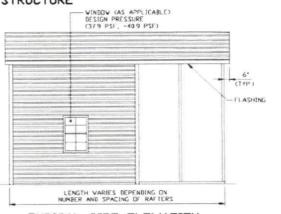
V= CSW

Spt= 1258 g

15 WINDOW AND DOOR DESIGN PRESSURES ARE APPLICABLE TO THE STATE OF FLORIDA ONLY

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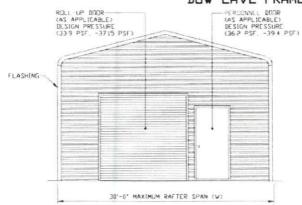


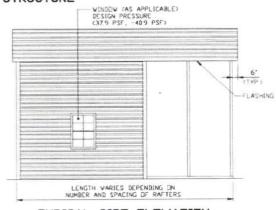
TYPICAL END ELEVATION

TYPICAL SIDE ELEVATION

SCALE: NTS

BOW EAVE FRAME RAFTER STRUCTURE



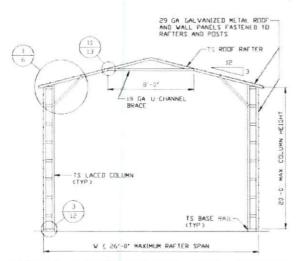


TYPICAL END ELEVATION

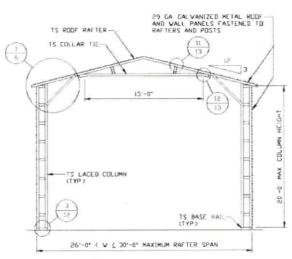
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TYPICAL SIDE ELEVATION SCALE: NTS

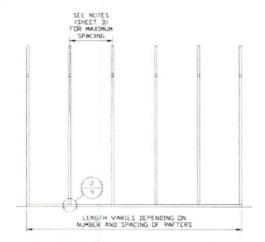
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TYPICAL RAFTER/COLUMN FRAME SECTION SCALE: NTS

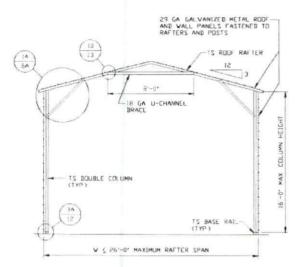


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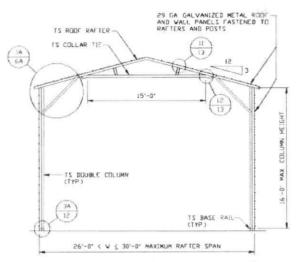


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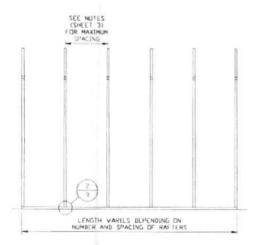
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TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS

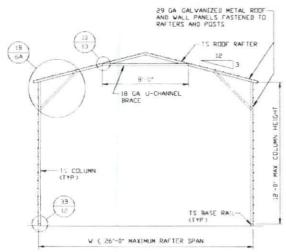


TYPICAL RAFTER/COLUMN FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

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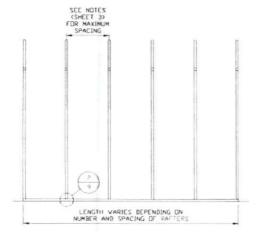


TYPICAL RAFTER/COLUMN FRAME SECTION

MAX COLUMN HEIGHT 15 -0. TS BASE RAS 26'-0' (W & 30"-0" MAXIMUM RAFTER SPAN TYPICAL RAFTER/COLUMN FRAME SECTION SCALE NTS

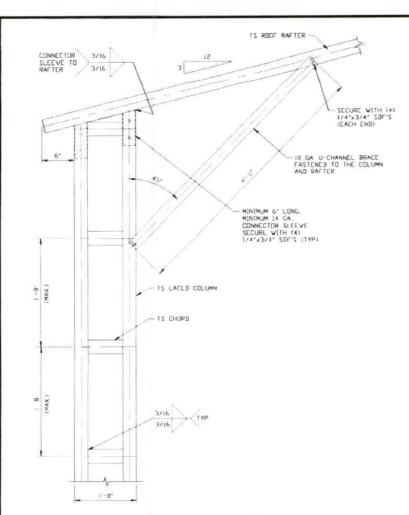
TS ROOF RAFTER TS COLLAR TIE-

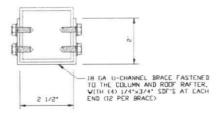
29 GA GALVANIZED METAL ROOF-AND WALL PANELS FASTENED TO RAFTERS AND POSTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS

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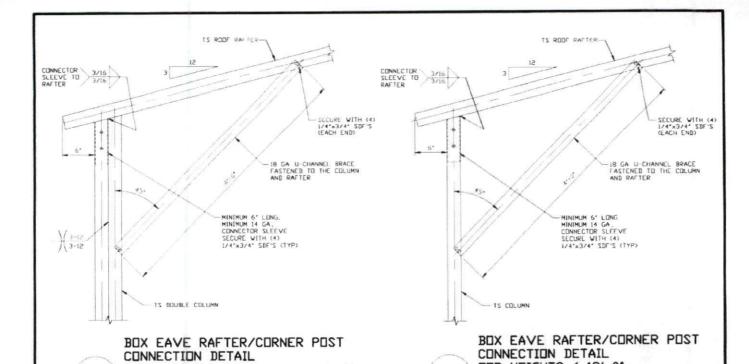


BRACE SECTION

BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS 16'-0' < TO < 20'-0'

1

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FOR HEIGHTS ≤ 12'-0'

1B

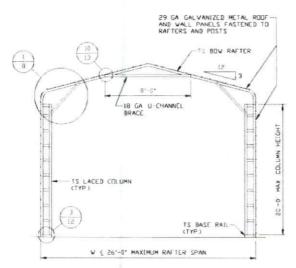
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- 18 GA U-CHANNEL BRACE FASTENED TO THE COLUMN AND ROOF RAFTER, WITH (4) 1/4'x3/4' SDF'S AT EACH END (8 PER BRACE)

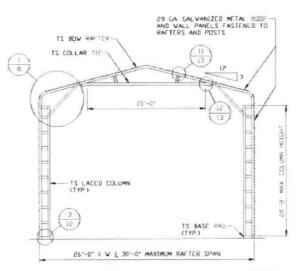
FOR HEIGHTS 12'-0" < TO ≤ 16'-0"

BRACE SECTION SCALE NTS

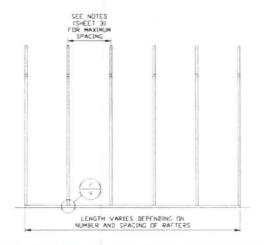
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TYPICAL RAFTER/COLUMN FRAME SECTION

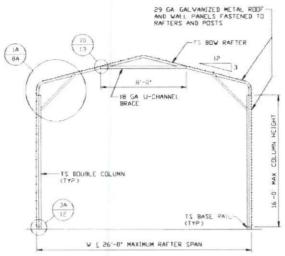


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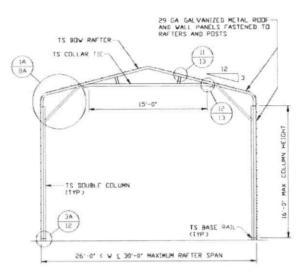


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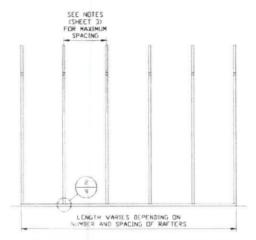
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TYPICAL RAFTER/COLUMN FRAME SECTION

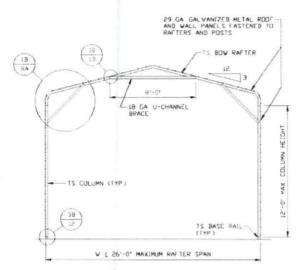


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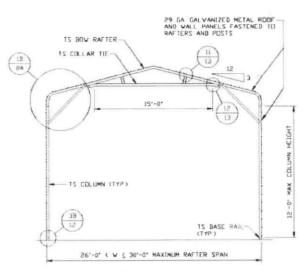


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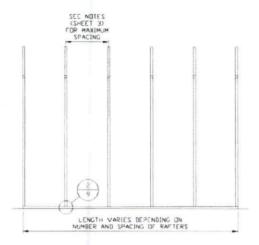
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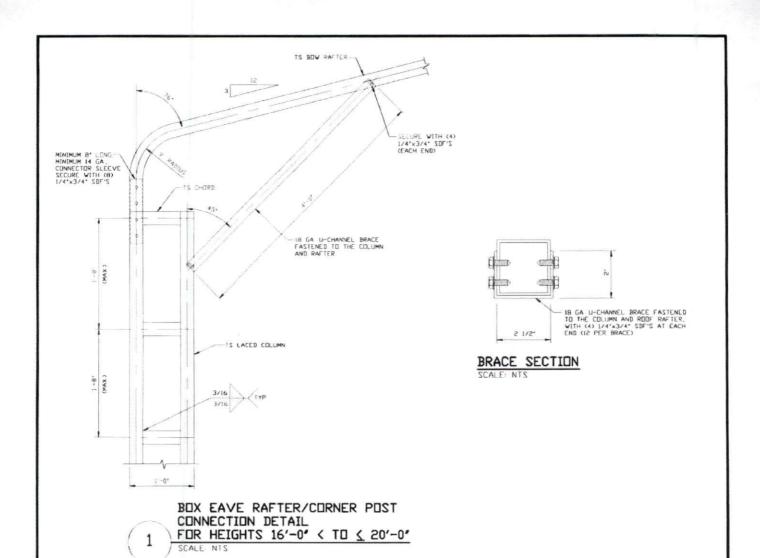


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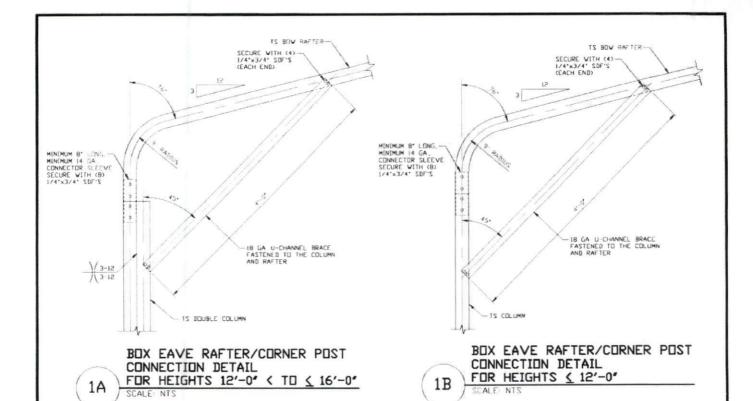


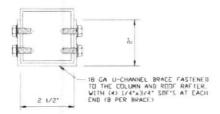
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ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH	1	MOUNT AIRY, NC 27030 30'-0"x20'-0" UTILITY STRUCTURE				
MOORE AND ASSOCIATES	DRAWN BY: LT	STEEL BU	P.O. BOX 1287,				



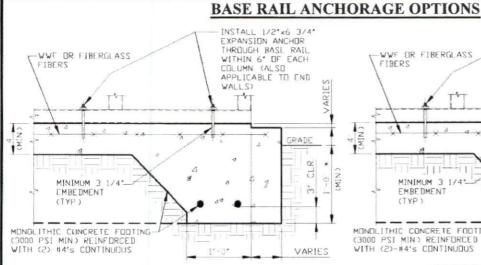
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BRACE SECTION
SCALE: NTS

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ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH		MOUNT AIRY, x20'-0" UTILIT			
MOORE AND ASSOCIATES	DRAWN BY: LT	P.O. BOX 1287,				



CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE 2

> MINIMUM ANCHOR EDGE DISTANCE IS 4" COORDINATE WITH LUCAL CODES/ORD

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 CASI AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND I 1/2' ELSEWHERE

REINFORCING STEEL

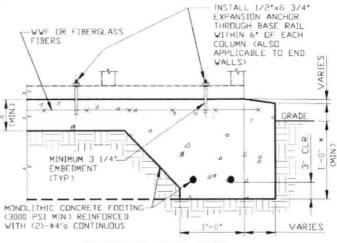
THE TURNDOWN REINFORCING STEEL SHALL BE ASIM AGIS GRADE 60 THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED

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

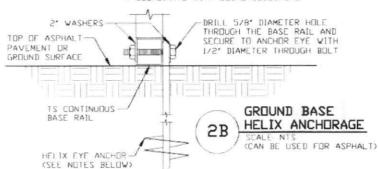
HELIX ANCHOR NOTES:

- 1 FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND CUBBLES, CALICHE, PRELOADED SILTS AND CLAYS. USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6' HELIX WITH MINIMUM 50' EMBEDMENT
- 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
- FOR LODSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6' HELICES WITH MINIMUM 50' EMBEDMENT
- 5 FUR VERY LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) B' HELICES WITH MINIMUM 60' EMBEDMENT



CONCRETE SLAB BASE RAIL ANCHORAGE SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 4° COURDINATE WITH LOCAL CODES/ORD



MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

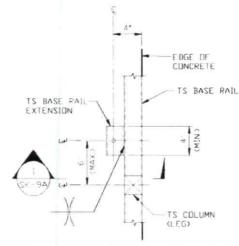
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ADDITIONAL BASE RAIL ANCHORAGE OPTION

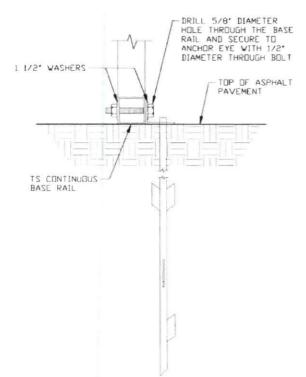
-1/2°Ø EXPANSION ANCHOR

SECTION SCALE: NTS EDGE DF CONCRETE



TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

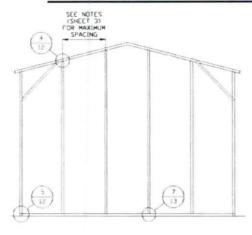
SCALE: NTS



2C ASPHALT BASE ANCHORAGE

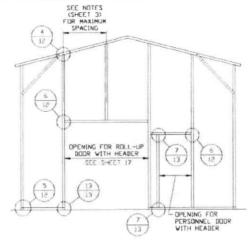
				-		
MOORE AND ASSOCIATES	DRAWN BY: LT	P.O. BOX 1287,				
ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH	E .	MOUNT AIRY, NC 27030 0'-0"x20'-0" UTILITY STRUCTUR			
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BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



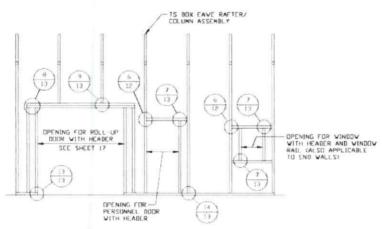
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS

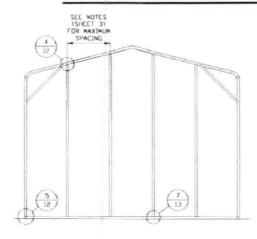


TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

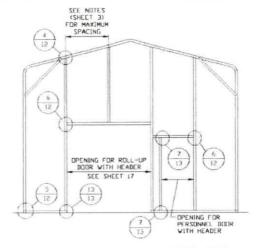
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ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH		MOUNT AIRY, x20'-0" UTILITY				
MOORE AND ASSOCIATES	BRAWN BY: LT		P.O. BOX 1287,				

BOW EAVE RAFTER END WALL AND SIDE WALL OPENINGS



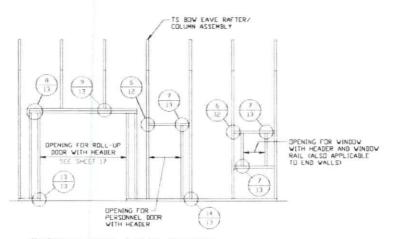
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

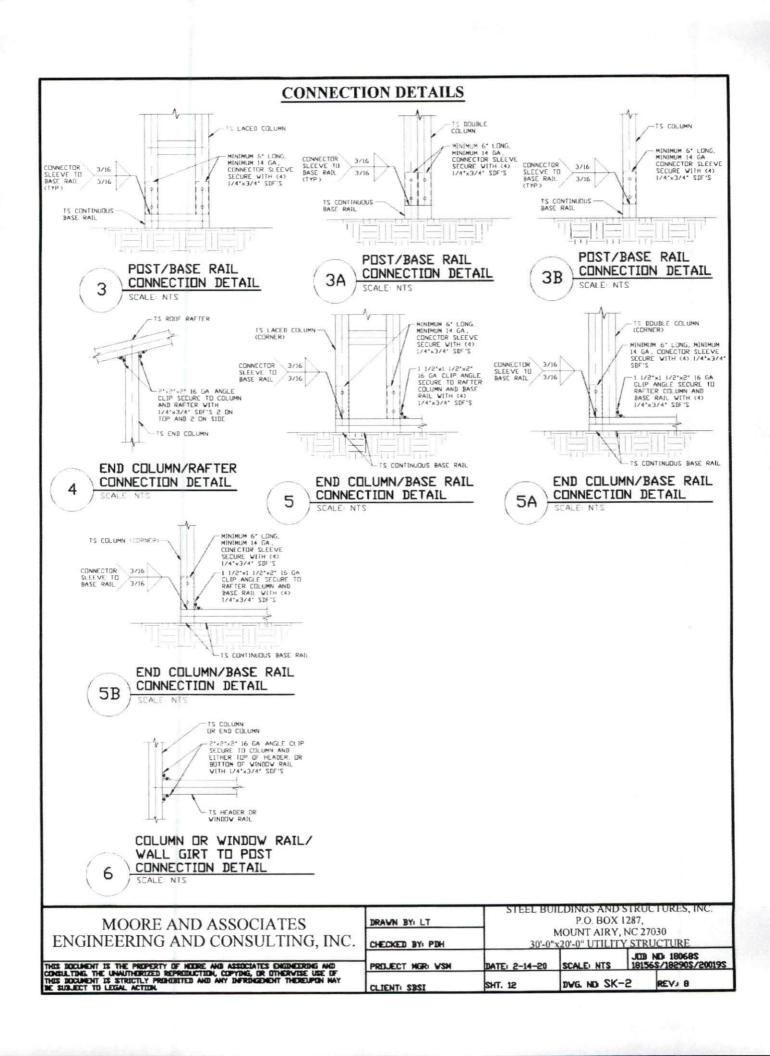
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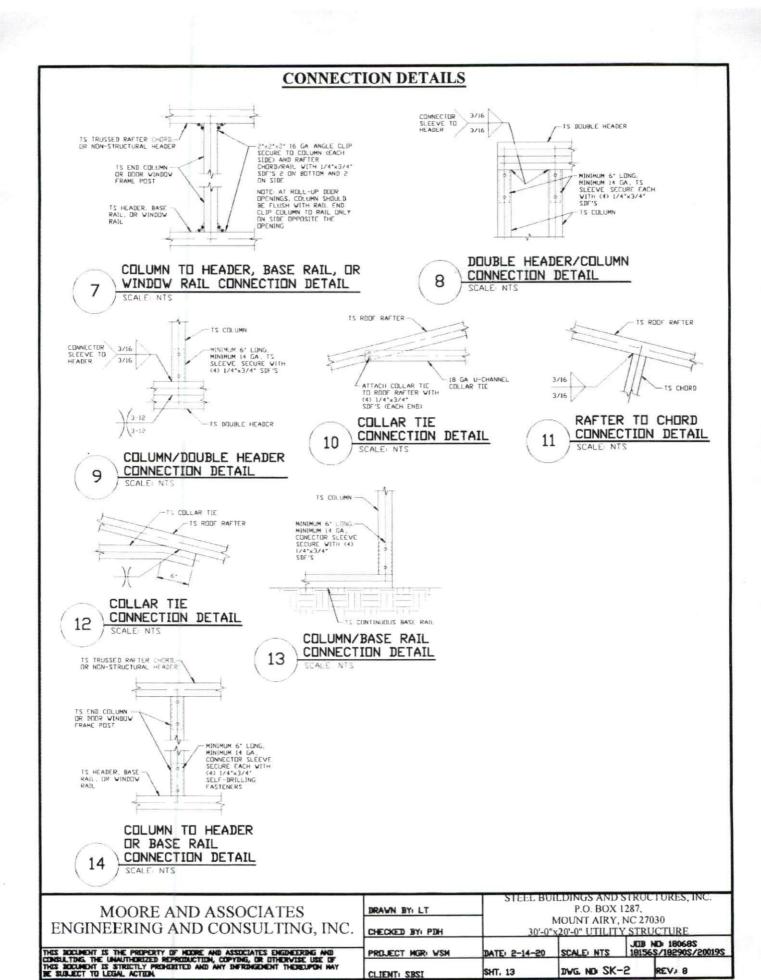


TYPICAL BOX EAVE RAFTER
SIDE WALL OPENINGS FRAMING SECTION

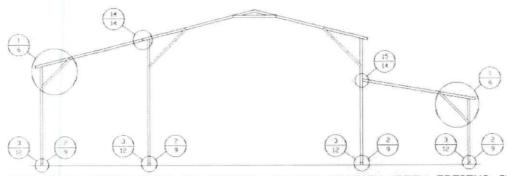
SCALE NTS

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MOORE AND ASSOCIATES	DRAWN BY: LT		P.O. BOX 1287,				





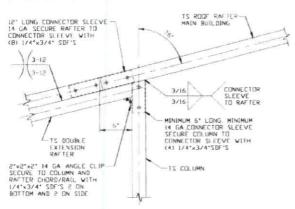
BOX EAVE RAFTER LEAN-TO OPTIONS



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

SCALE: NTS

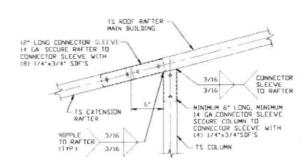
MAXIMUM WIDTH OF SINGLE MEMBER (RAFTER) ROOF EXTENSION LEAN-TO IS 12'-0'
MAXIMUM WIDTH OF DOUBLE MEMBER RAFTER ROOF EXTENSION LEAN-TO IS 16'-0'
MAXIMUM WIDTH OF DOUBLE MEMBER RAFTER ROOF EXTENSION LEAN-TO IS 16'-0'
MAXIMUM WIDTH OF DOUBLE MEMBER RAFTER COLUMN CONNECTION DETAILS FOR APPROPRIATE COLUMN HEIGHT
AND TUBING SPECIFICATIONS



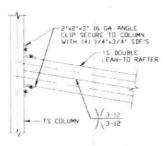
SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR RAFTER

SPANS 12'-0' < TO < 16'-0'

SCALE NTS



SIDE EXTENSION RAFTER/
COLUMN DETAIL FOR
RAFTER SPANS & 12'-0'
SCALE: NTS



LEAN-TO RAFTER
TO RAFTER POST
CONNECTION DETAIL
FOR WIDTHS

2'x2'x2' 16 GA ANGLE
CLIP SECURE TO COLUMN
VITH (4) 1/4'x3/4' SDF'S

TS LEAN-TO
RAFTER

LEAN-TO RAFTER
TO RAFTER POST
CONNECTION DETAIL
FOR WIDTHS & 12'-0'

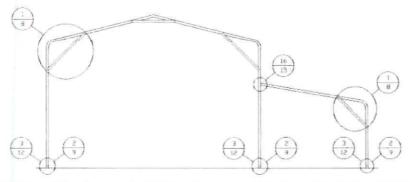
15) 12'-0' < TO < 16'-0"

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DRAWN BY: LT CHECKED BY: PDH	7,000,000,000	P.O. BOX MOUNT AIRY 1x20'-0" UTILIT	NC 270 Y STRI	JCTURE ND: 18068S
PROJECT HGR: VSH	DATE: 2-14-20	SCALE: NTS	18156	S/18290S/20019S
CLIENTI SBSI	SHT. 14	DWG. ND SK-2		REVA B

BOW EAVE RAFTER LEAN-TO OPTIONS



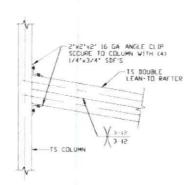
TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

SCALE: NTS

MAXIMUM WIDTH OF SINGLE MEMBER (RAFTER) ROOF EXTENSION LEAN-TO IS 12'-0"

MAXIMUM WIDTH OF DOUBLE MEMBER RAFTER ROOF EXTENSION LEAN-TO IS 16'-0".

FOR SHARED COLUMN HEIGHTS REFERENCE RAFTER COLUMN CONNECTION DETAILS FOR APPROPRIATE COLUMN HEIGHT AND TUBING SPECIFICATIONS



LEAN-TO RAFTER TO RAFTER POST CONNECTION DETAIL FOR WIDTHS 12'-0" < TO \(\) 16'-0"

16

2'x2'x2' 16 GA ANGLE CLIP
SECURE TO COLUMN VITH (4)
1/4'x3/4' SDF'S

TS LEAN-TO
RAFTER

15 COLUMN

LEAN-TO RAFTER
TO RAFTER POST
CONNECTION DETAIL
FOR WIDTHS \(12'-0')

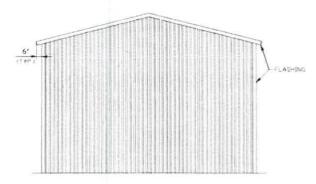
16A

MOODE AND ACCOCIATED
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.
ENGINEERING AND CONSULTING, INC.

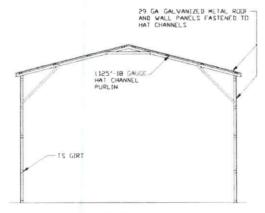
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| STEEL BUILDINGS AND STRUCTURES, INC. | P.O. BOX 1287, | MOUNT AIRY, NC 27030 | 30'-0"\(\chi20'-0\)" UTILITY STRUCTURE | JUB ND 180688 | PROJECT MGR: \(\sigma\)SM | DATE: 2-14-20 | SCALE: NTS | 18156S/18290S/20019S | CLIENT: SBSI | SHT. 15 | DVG. ND SK-2 | REV. 8

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION

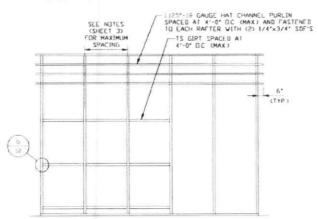


TYPICAL END ELEVATION VERTICAL ROOF/SIDING



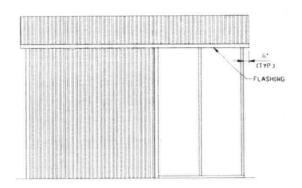
TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

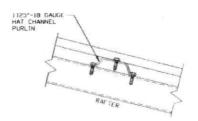


TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



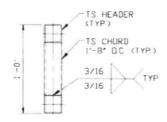
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING SCALE: NTS

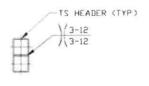


PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS

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MOORE AND ASSOCIATES	DRAWN BY: LT		P.O. BOX 1287, MOUNT AIRY, NC 27030				

SIDE WALL HEADER OPTIONS





LACED HEADER DETAIL FOR DOOR OPENINGS 12'-0' < LENGTH \(\) 20'-0' SCALE: NTS

DOUBLE HEADER DETAIL FOR DOOR OPENINGS 7'-0' < LENGTH \(\) 12'-0' SCALE: NTS



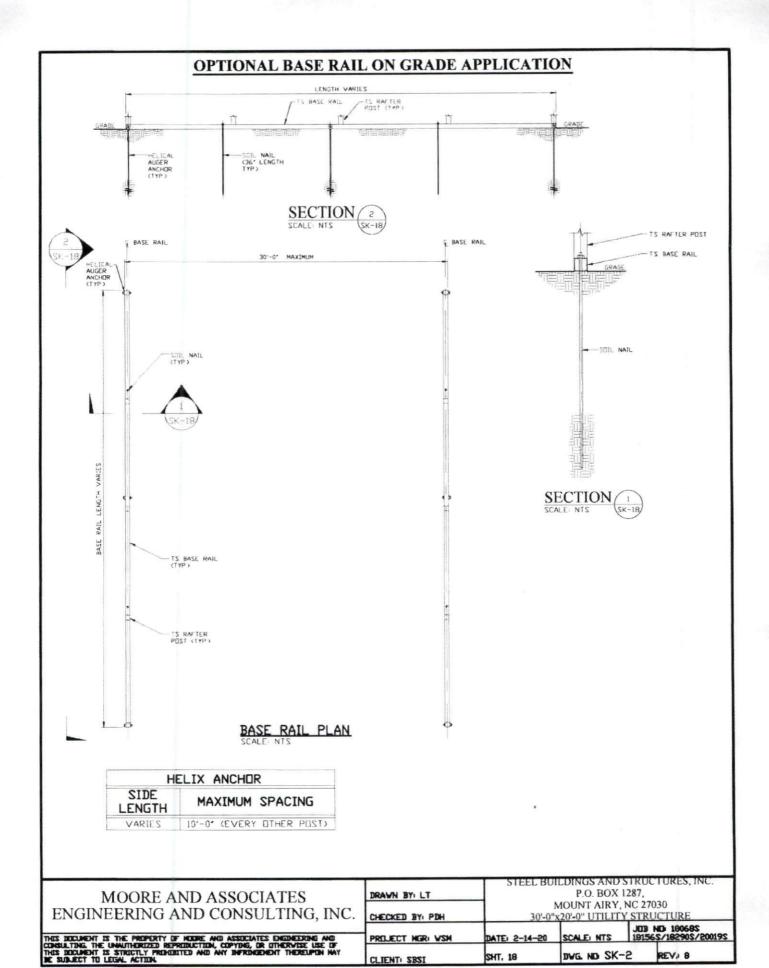
SINGLE HEADER DETAIL FOR DOOR OPENINGS LENGTH & 7'-0'

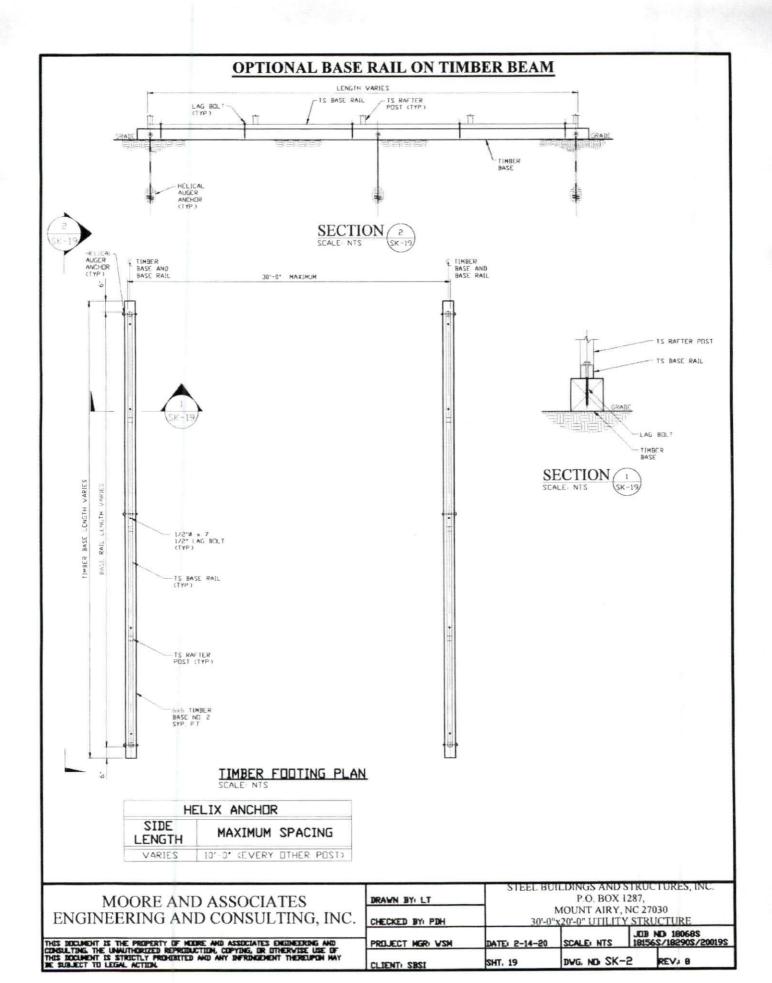
END WALL HEADER OPTIONS

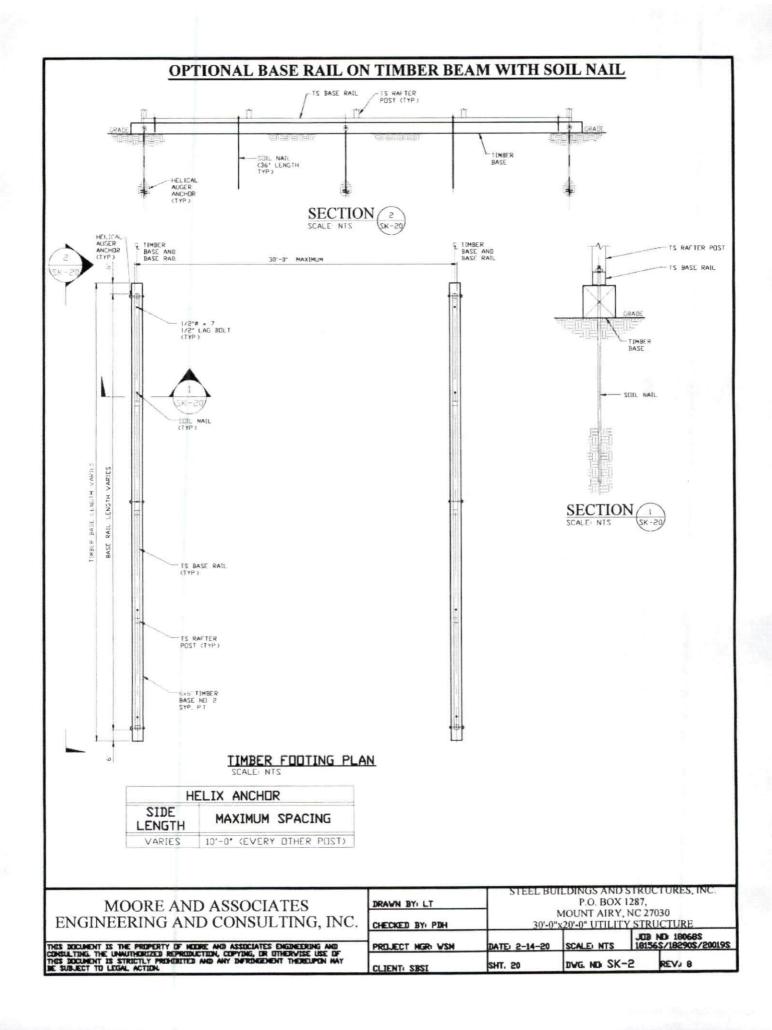


SINGLE HEADER DETAIL FOR DOOR OPENINGS LENGTH < 12'-0'

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ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH		MOUNT AIRY, NC 27030 30'-0"x20'-0" UTILITY STRUCTU				
MOORE AND ASSOCIATES	DRAWN BY: LT		P.O. BOX 1287,				







OPTIONAL CONCRETE STRIP FOOTING FOOTING AND BASE RAIL 30.-0. WAXIMIM FUDITING LENGTH VARIES LENGTH 1/2"# EXPANSION ANCHOR (TYP) AA BASE IS BASE RAIL STERONDE SISTE DAITOOT CAIM 129 000E2 CONCRETE STRIP FOOTING PLAN TS RAFTER POST TS BASE RAIL 2-#4, CONT T&B INSTALL 1/2'x6 3/4' EXPANSION ANCHOR THROUGH BASE RAIL VITHIN 6' DF EACH COLUMN MINIMUM 3 1/4' EMBEDNENT (TYP) CLR SECTION I SK-21 * COORDINATE WITH LOCAL CODES/ORD STEEL BUILDINGS AND STRUCTURES, INC. P.O. BOX 1287, DRAWN BY: LT MOORE AND ASSOCIATES MOUNT AIRY, NC 27030 ENGINEERING AND CONSULTING, INC. 30'-0"x20'-0" UTILITY STRUCTURE CHECKED BY: PDH 28908/200192 281005/20998/290192 THIS BOCLMENT IS THE PROPERTY OF MODRE AND ASSOCIATES ENGINEERING AND CONSULTING THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERVISE USE OF THIS BOCUMENT IS STRICTLY PROHIBITED AND ANY DIFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION. PROJECT MOR! WSM DATE: 2-14-20 DWG. NO SK-2 REV. 8 SHT. 21

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