



STRUCTURAL DESIGN ENCLOSED BUILDING

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

11 December 2020 Revision 9 M&A Project No. 16062S/16155S/16207S/17155S/17200S/18068S/18156S/18290S/20019S/20324S

Prepared for:

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

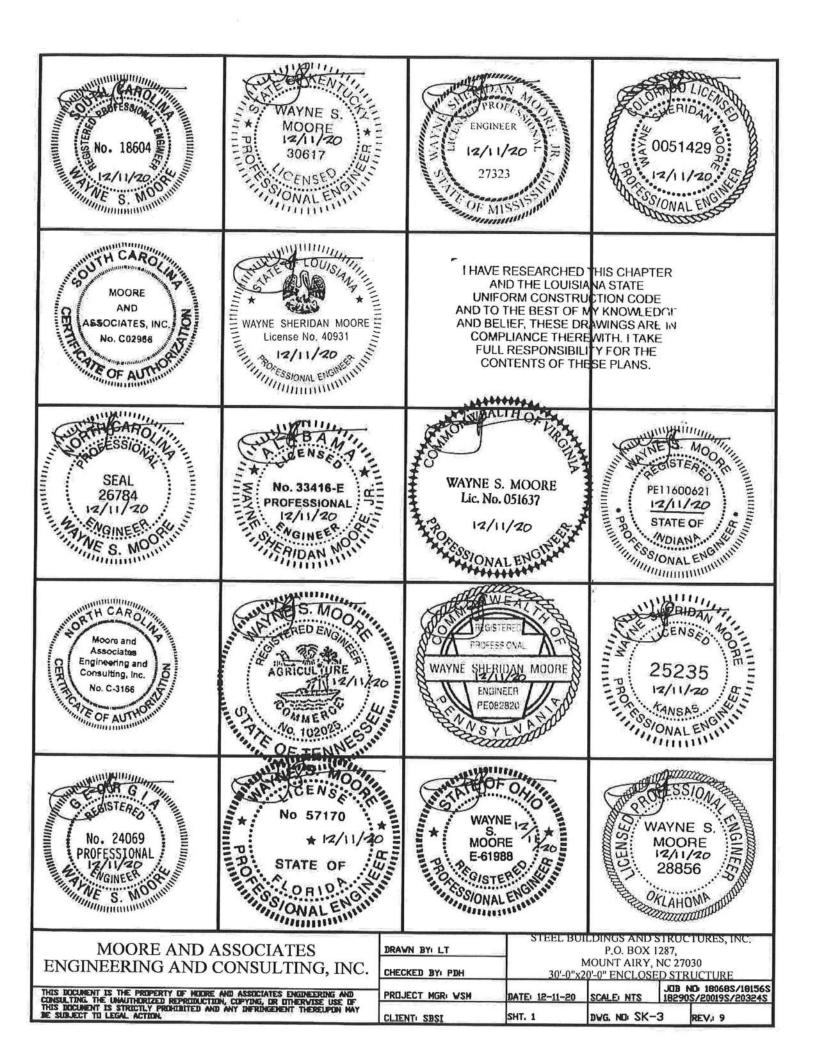
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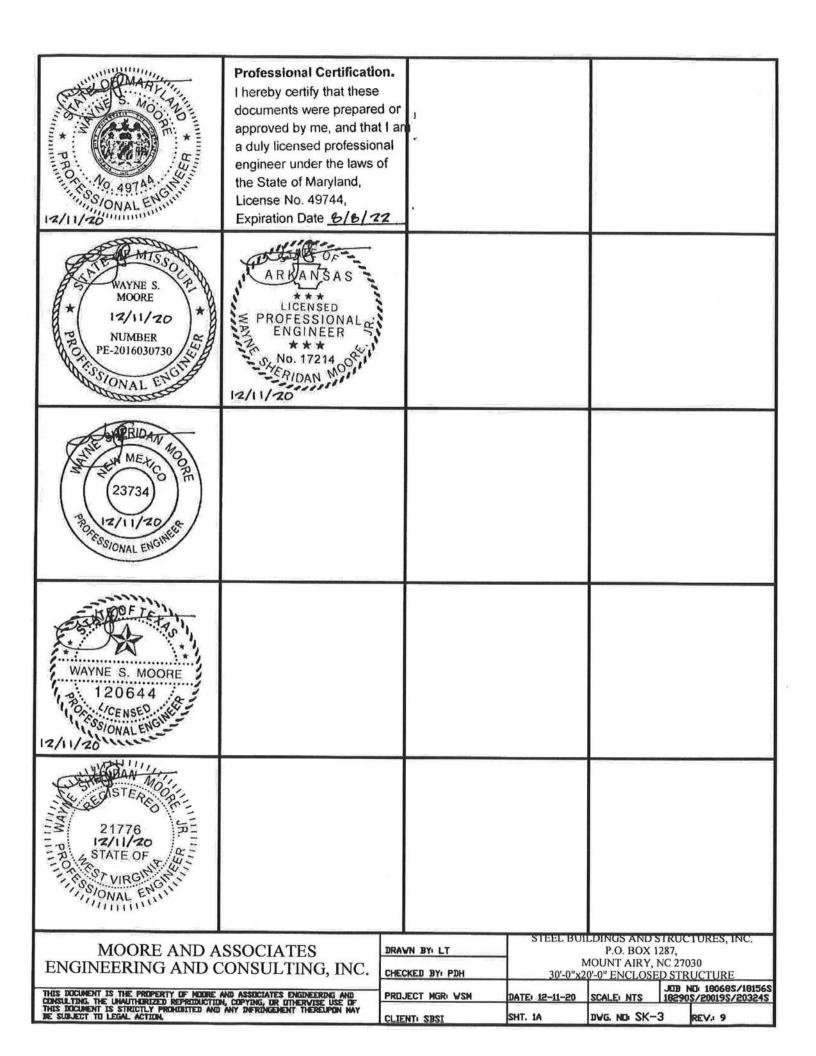
Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue North Augusta, SC 29841

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







DRAWING INDEX

		DKAMING INDEX
SHEET	1	PE SEAL COVER SHEET (1 DF 2)
SHEET	1A	PE SEAL COVER SHEET (2 OF 2)
SHEET	2	DRAWING INDEX
SHEET	3	INSTALLATION NOTES AND SPECIFICATIONS
SHEET	4	TYPICAL SIDE AND END ELEVATIONS
SHEET	5	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE STRUCTURE)
SHEET	5A	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE STRUCTURE)
SHEET	5B	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE STRUCTURE)
SHEET	6	COLUMN CONNECTION DETAILS (BOX EAVE STRUCTURE)
SHEET	6A	COLUMN CONNECTION DETAILS (BOX EAVE STRUCTURE)
SHEET	7	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE STRUCTURE)
SHEET	7A	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE STRUCTURE)
SHEET	7B	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE STRUCTURE)
SHEET	8	COLUMN CONNECTION DETAILS (BOW EAVE STRUCTURE)
SHEET	8A	COLUMN CONNECTION DETAILS (BOW EAVE STRUCTURE)
SHEET	9	BASE RAIL ANCHORAGE OPTIONS
SHEET	9A	ADDITIONAL BASE RAIL ANCHORAGE OPTION
SHEET	10	BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS
SHEET	11	BOW EAVE RAFTER END WALL AND SIDE WALL OPENINGS
SHEET	12	CONNECTION DETAILS
SHEET	13	CONNECTION DETAILS
SHEET		BOX EAVE RAFTER LEAN-TO OPTIONS
SHEET		BOW EAVE RAFTER LEAN-TO OPTIONS
SHEET		VERTICAL ROOF/SIDING OPTION END AND SIDE ELEVATION AND SECTION
SHEET		SIDE WALL AND END WALL HEADER OPTIONS
SHEET		OPTIONAL BASE RAIL ON GRADE APPLICATION
SHEET		OPTIONAL BASE RAIL ON TIMBER BEAM
SHEET		OPTIONAL BASE RAIL ON TIMBER BEAM WITH SOIL NAIL
SHEET	21	OPTIONAL CONCRETE STRIP FOOTING

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1	DRAWN BY: LT	P.O. BOX 1287, MOUNT AIRY, NC 27030 30'-0"x20'-0" ENCLOSED STRUCTURE			
	CHECKED BY: PDH				
	PROJECT MGR: WSM	DATE: 12-11-20	SCALE: NTS		ND 18068\$/18156\$ 0\$/20019\$/20324\$
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INSTALLATION NOTES AND SPECIFICATIONS

- 1. DESIGN IS FOR MAXIMUM 30'-0' WIDE x 20'-0' EAVE HEIGHT ENCLOSED STRUCTURES
- 2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2018 NORTH CAROLINA BUILDING CODE, 2006 INTERNATIONAL BUILDING CODE (IBC), 2009 IBC, 2012 IBC, 2015 IBC AND 2018 IBC.
- 3. DESIGN LOADS ARE AS FOLLOWS:

A) DEAD LOAD

= 1.5 PSF

B) LIVE LOAD

= 12 PSF

C) GROUND SNOW LOAD

= 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 = 5.0 FEET (UNLESS NOTED OTHERWISE)
- 6 END WALL COLUMNS (POSTS) ARE EQUIVALENT TO SIDE WALL POSTS IN SIZE AND SPACING (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" × 2 1/2" 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
- 10 AVERAGE FASTENER SPACING DN-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 8 INCHES.
- 11 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' DF EACH COLUMN.
- 13 STANDARD GROUND ANCHORS (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:

SDIL SITE CLASS = I RISK CATEGORY I

D- 2.05

IE= 1.0

R= 3.25 S_{DS}= 2.039 g

V= CsW

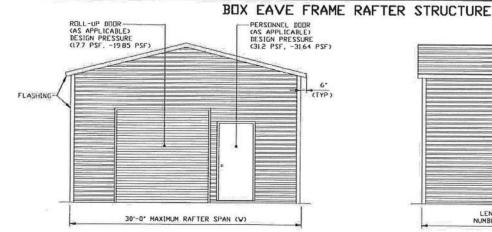
S_{DI}= 1.258 g

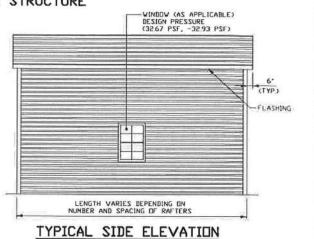
15 WINDOW AND DOOR DESIGN PRESSURES ARE APPLICABLE TO THE STATE OF FLORIDA ONLY

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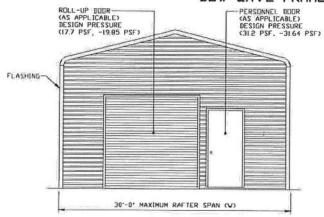


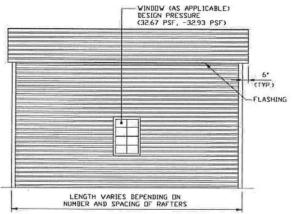
TYPICAL END ELEVATION

SCALE: NTS

SCALE: NTS

BOW EAVE FRAME RAFTER STRUCTURE





TYPICAL END ELEVATION

SCALE: NTS

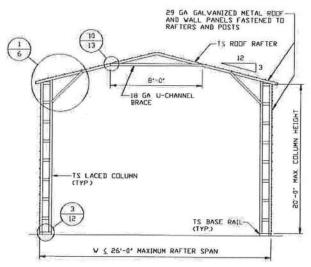
TYPICAL SIDE ELEVATION

SCALE: NTS

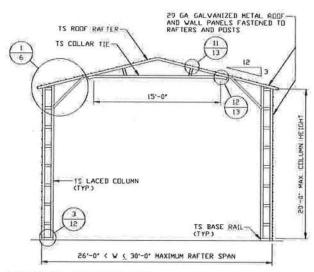
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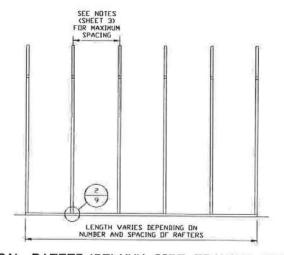
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TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS

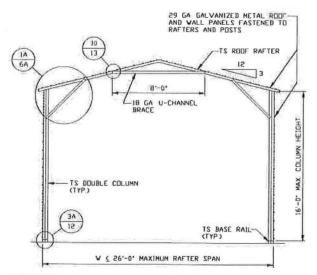


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

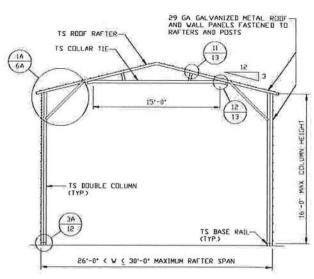
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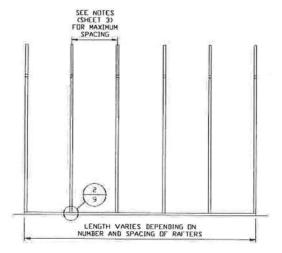
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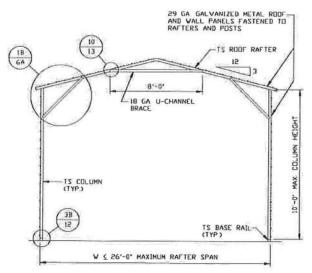


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS

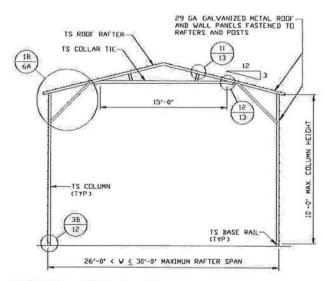
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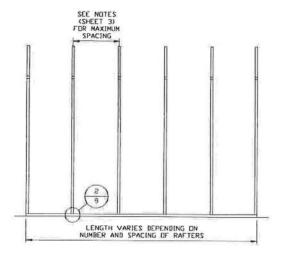
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TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



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SCALE: NTS

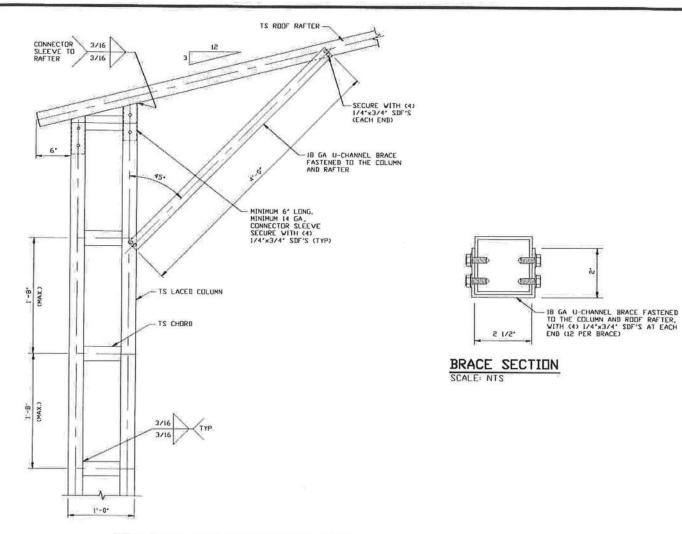


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
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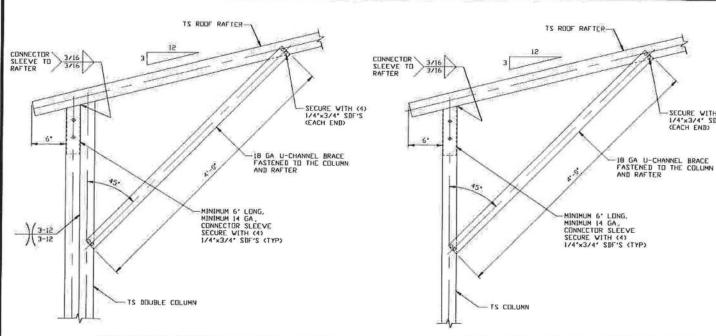
BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL

FOR HEIGHTS 16'-0" < TO \(\) 20'-0"

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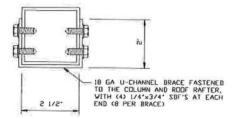
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	CLIENT: SBSI	SHT. 6	DVG. NO: SK-3		REV. 9	



BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL FDR HEIGHTS 10'-0" < T□ ≤ 16'-0" 1A SCALE: NTS

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

SECURE WITH (4) 1/4'x3/4' SDF'S (EACH END)

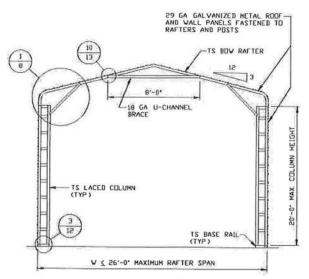


BRACE SECTION
SCALE: NTS

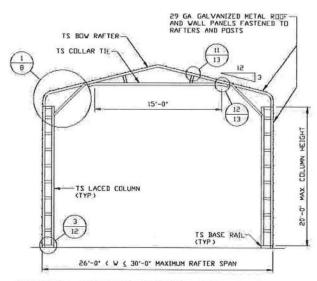
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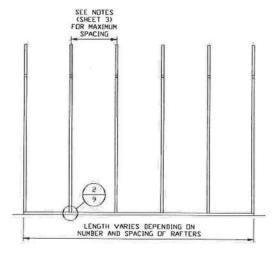
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TYPICAL RAFTER/CULUMN FRAME SECTION SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS

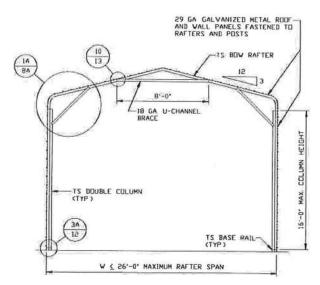


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE NTS

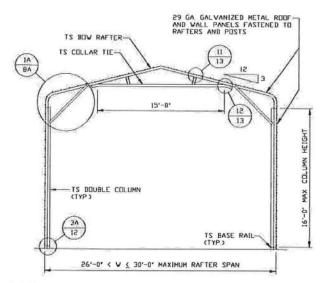
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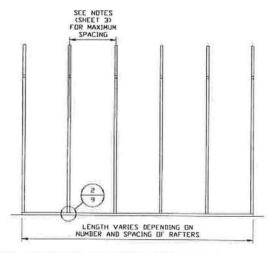
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TYPICAL RAFTER/COLUMN FRAME SECTION SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS

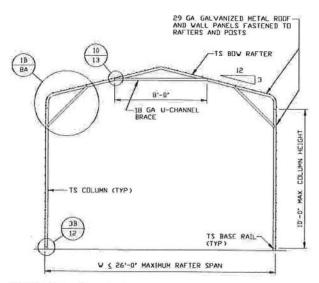


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS

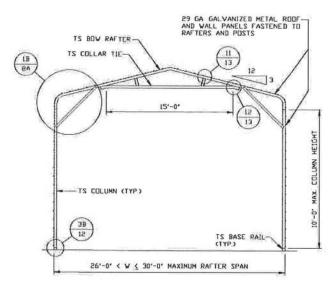
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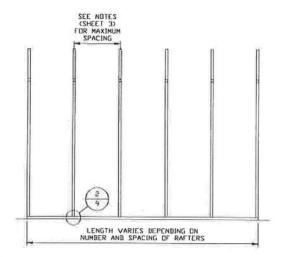
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TYPICAL RAFTER/COLUMN FRAME SECTION
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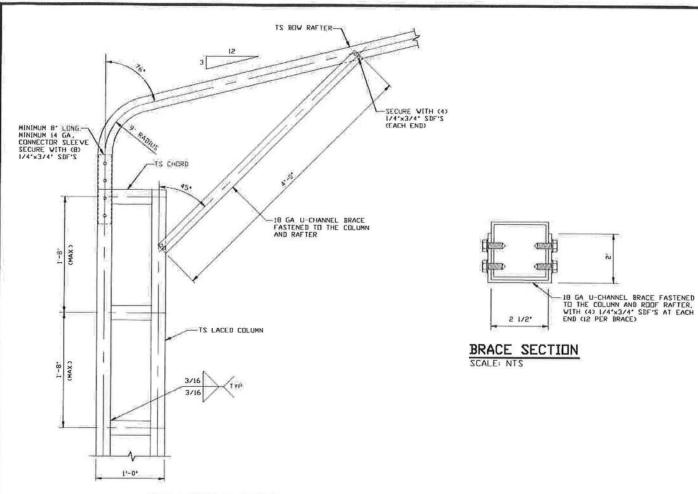


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS

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BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL

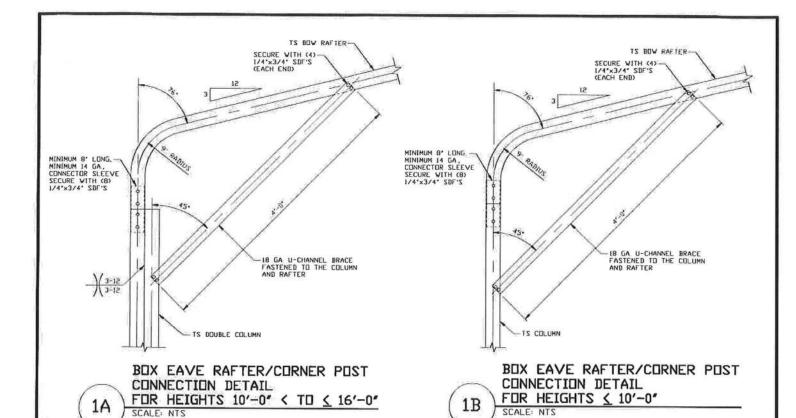
FOR HEIGHTS 16'-0' < TO < 20'-0'

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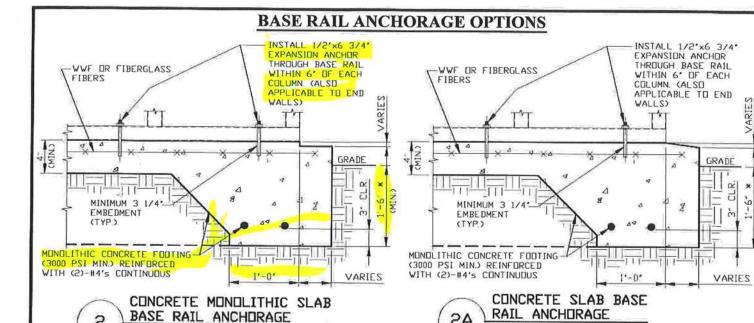
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	CLIENT: SBSI	SHT. 8 DWG. NO: SK-3		REV. 9				



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

BRACE SECTION
SCALE: NTS

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	CHECKED BY: PDH	Trumper Transcott	P.O. BOX 1 MOUNT AIRY, 20'-0" ENCLOSI	NC 270	
	PROJECT MGR: WSM	DATE: 12-11-20	SCALE: NTS	JOB	ND 180682/181562 S/2019S/20324S
	CLIENT: SBSI	SHT. BA	DVG. NO SK-	3	REV. 9



GENERAL NOTES

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

MINIMUM ANCHUR EDGE DISTANCE IS 4°

* COORDINATE WITH LOCAL CODES/ORD.

CONCRETE

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

COVER OVER REINFORCING STEEL:

SCALE: NTS

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

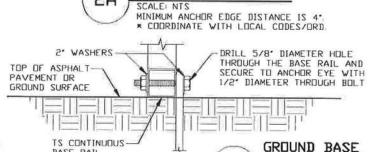
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

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

- REINFORCEMENT IS BENT COLD
- 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
- 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
- 5. FOR VERY LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT



BASE RAIL HELIX EYE ANCHOR-(SEE NOTES BELOW)

HELIX ANCHORAGE SCALE: NTS (CAN BE USED FOR ASPHALT)

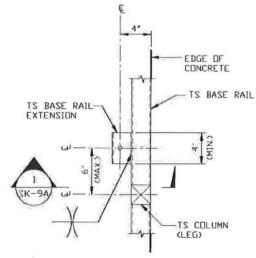
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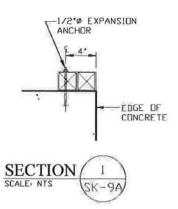
STEEL BUILDINGS AND STRUCTURES, INC. DRAWN BY LT P.O. BOX 1287, MOUNT AIRY, NC 27030 CHECKED BY: PDH 30'-0"x20'-0" ENCLOSED STRUCTURE JUB NO 18068S/18156S PROJECT MGRI WSM DATE: 12-11-20 SCALE: NTS 18290\$/20019\$/20324\$ CLIENT: SBSI SHT. 9 DWG, NO SK-3 REV. 9

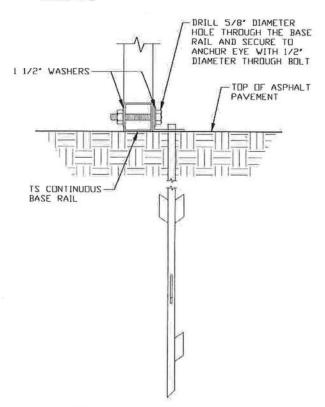
ADDITIONAL BASE RAIL ANCHORAGE OPTION



TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

SCALE: NTS





ASPHALT BASE ANCHORAGE

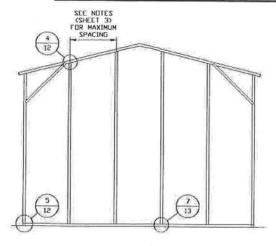
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ENGINEERING AND CONSULTING, INC.	

SCALE: NTS

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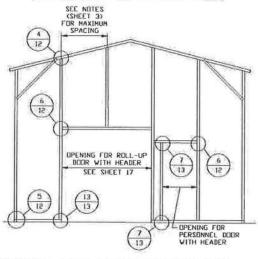
	CLIENTI SBSI	DATE: 12-11-20 SHT: 9A	DWG. NO: SK		ND 18068S/18156S IS/20019S/20324S REV.: 9	
	CHECKED BY: PDH	were a second of the second of	20'-0" ENCLOS	ED STE	UCTURE	
18	DRAWN BY: LT	P.O. BOX 1287, MOUNT AIRY, NC 27030				

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



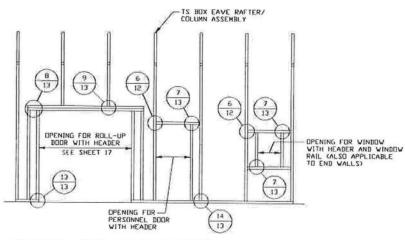
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER
SIDE WALL OPENINGS FRAMING SECTION

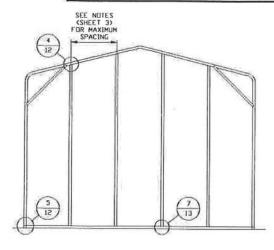
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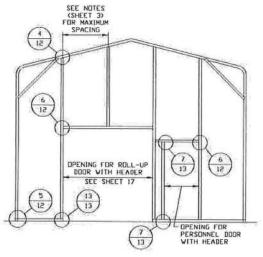
	DRAWN BY: LT		P.O. BOX	1287,	CTURES, INC.
	CHECKED BY: PDH	A CONTRACTOR OF THE PARTY OF TH	MOUNT AIRY, 20'-0" ENCLOS		
6	PROJECT MGR: WSM	DATE: 12-11-20	SCALE: NTS		ND: 180685/181565 05/200195/203245
	CLIENT: SBSI	SHT. 10	DWG. NO SK-	-3	REV. 9

BOW EAVE RAFTER END WALL AND SIDE WALL OPENINGS



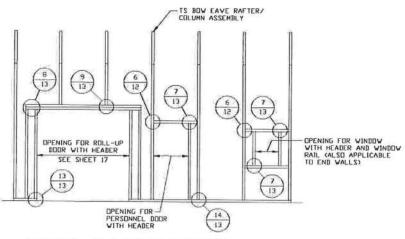
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



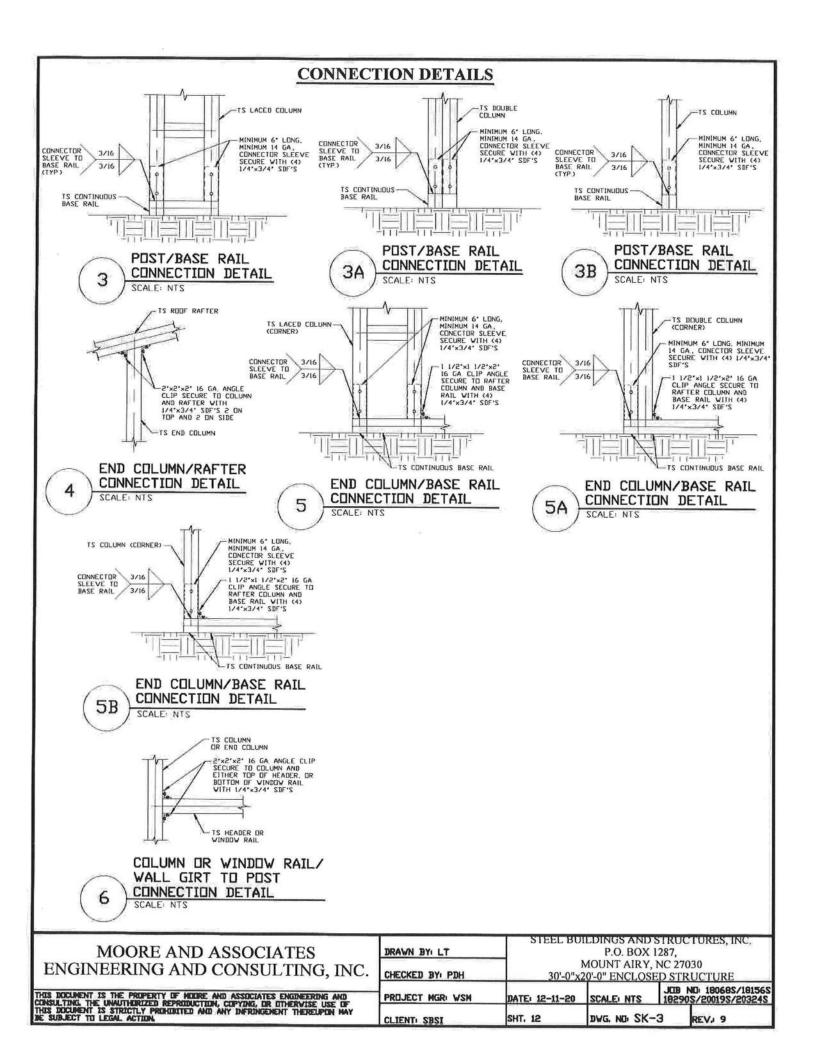
TYPICAL BOX EAVE RAFTER
SIDE WALL OPENINGS FRAMING SECTION

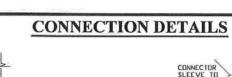
SCALE: NTS

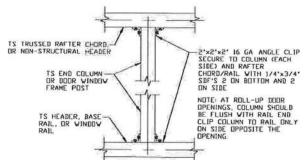
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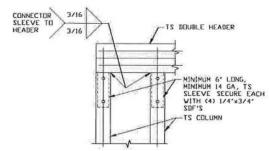
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	CHECKED BY: PDH		MOUNT AIRY, NC 27030 30'-0"x20'-0" ENCLOSED STRUCTURE				
	PREJECT MGR: WSM	DATE: 12-11-20	SCALE: NTS	JOB NO 180685/19156 182905/200195/203245			
	CLIENT: SBSI	SHT. 11	DVG. NO SK	-3	REV. 9		



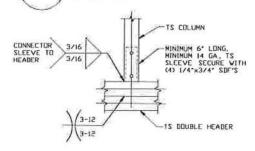


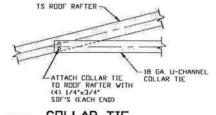


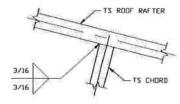


COLUMN TO HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL SCALE: NTS

DOUBLE HEADER/COLUMN CONNECTION DETAIL 8 SCALE: NTS





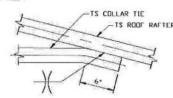


COLUMN/DOUBLE HEADER CONNECTION DETAIL

COLLAR TIE CONNECTION DETAIL 10 SCALE: NTS

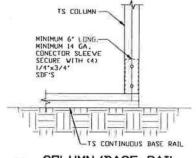






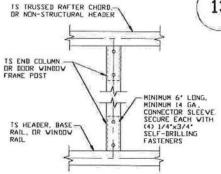
9

14



COLLAR TIE CONNECTION DETAIL

COLUMN/BASE RAIL CONNECTION DETAIL 13



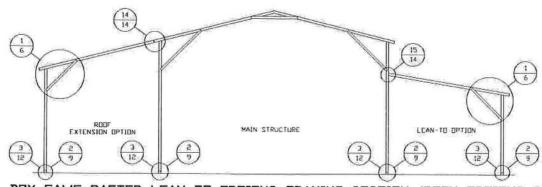
COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL SCALE NTS

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	CLIENTI SBSI	DATE: 12-11-20 SHT, 13	DVG, NO SK-		REV. 9		
_	PROJECT MGR: WSM	DATE 10 11 00		JUB	NO: 180685/181565 05/200195/203245		
	CHECKED BY: PDH		MOUNT AIRY, 20'-0" ENCLOS				
	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)

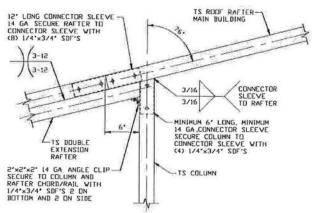
SCALE: NTS SCALE: NTS

MAXIMUM WIDTH OF SINGLE TS ROOF EXTENSION LEAN-TO IS 12'-0'.

MAXIMUM WIDTH OF DOUBLE TS ROOF EXTENSION LEAN-TO IS 16'-0'.

MAXIMUM SINGLE COLUMN HEIGHT FOR MAIN BUILDING WITH ROOF EXTENSION LEAN-TO ATTACHED IS 8'-0'.

FOR COLUMN CONFIGURATIONS REFERENCE RAFTER COLUMN CONNECTION DETAILS.



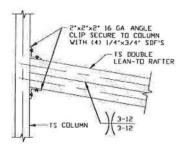
TS ROOF RAFTER MAIN BUILDING 12' LONG CONNECTOR SLEEVE 14 GA SECURE RAFTER TO CONNECTOR SLEEVE WITH (8) 1/4'x3/4' SDF'S CONNECTOR 3/16 SLEEVE TO RAFTER 3/16 MINIMUM 6" LONG, MINIMUM 14 GA.CONNECTOR SLEEVE SECURE COLUMN TO CONNECTOR SLEEVE WITH (4) 1/4'x3/4'SDF'S LTS EXTENSION RAFTER NIPPLE TO RAFTER (TYP) 3/16 TS COLUMN 3/16

SIDE EXTENSION RAFTER/

SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR RAFTER SPANS 12'-0" < TO < 16'-0" SCALE: NTS

15A

COLUMN DETAIL FOR RAFTER SPANS < 12'-0" SCALE: NTS



14

15

2'x2'x2' 16 GA ANGLE CLIP SECURE TO COLUMN WITH (4) 1/4'x3/4' SDF'S TS LEAN-TO RAFTER TS COLUMN

LEAN-TO RAFTER TO RAFTER POST CONNECTION DETAIL FOR WIDTHS 12'-0" < T□ < 16'-0"

SCALE: NTS

LEAN-TO RAFTER TO RAFTER POST CONNECTION DETAIL FOR WIDTHS ≤ 12'-0" SCALE: NTS

CLIENT: SBSI

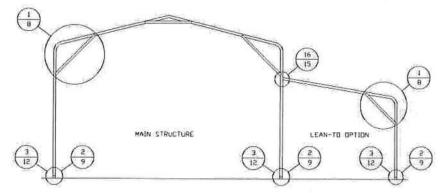
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

STEEL BUILDINGS AND STRUCTURES, INC. DRAWN BY LT P.O. BOX 1287, MOUNT AIRY, NC 27030 CHECKED BY PDH 30'-0"x20'-0" ENCLOSED STRUCTURE JUB NO: 180685/181565 PROJECT MGRI WSM DATE: 12-11-20 SCALE: NTS SHT. 14 DWG, ND SK-3

REV. 9

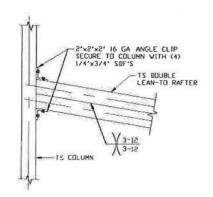
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BOW EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

SCALE: NTS
MAXIMUM WIDTH DF SINGLE TS RODF EXTENSION LEAN-TO IS 12'-0'
MAXIMUM WIDTH DF DOUBLE TS ROOF EXTENSION LEAN-TO IS 16'-0',
MAXIMUM SINGLE COLUMN HEIGHT FOR MAIN BUILDING WITH ROOF EXTENSION LEAN-TO ATTACHED IS 8'-0',
FOR COLUMN CONFIGURATIONS REFERENCE RAFTER COLUMN CONNECTION DETAILS.



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

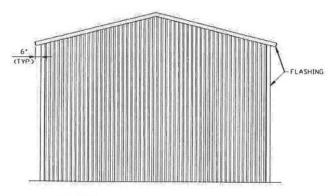
LEAN-TO RAFTER
TO RAFTER POST
CONNECTION DETAIL
FOR WIDTHS < 12'-0'

16A) SCALE NTS

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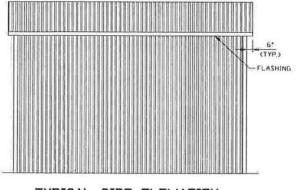
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BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



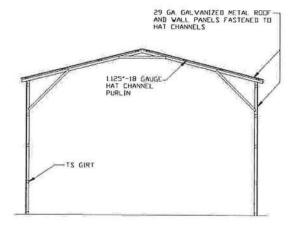
TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



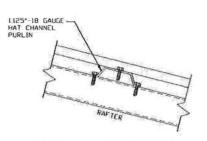
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS

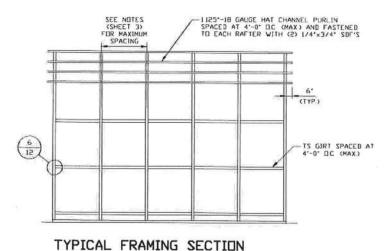


TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



PANEL ATTACHMENT (ALTERNATE FOR VERTICAL ROOF PANELS) SCALE NTS



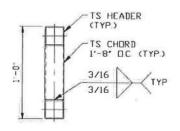
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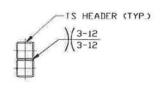
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ENGINEERING AND CONSULTING, INC.	

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PROJECT MGR: VSM	DATE: 12-11-20 SHT. 16	DWG, NO: SK-		NG: 18068\$/18156\$ 0\$/20019\$/20324\$ REV.: 9	
CHECKED BY: PDH		20'-0" ENCLOS	ED ST	RUCTURE	
DRAWN BY: LT	P.O. BOX 1287, MOUNT AIRY, NC 27030				

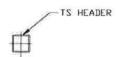
SIDE WALL HEADER OPTIONS





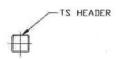
LACED HEADER DETAIL FOR DOOR OPENINGS 12'-0' < LENGTH \(\leq \) 20'-0'
SCALE: NTS

DOUBLE HEADER DETAIL FOR DOOR OPENINGS 7'-0' < LENGTH < 12'-0"



SINGLE HEADER DETAIL FOR DOOR OPENINGS LENGTH < 7'-0"
SCALE: NTS

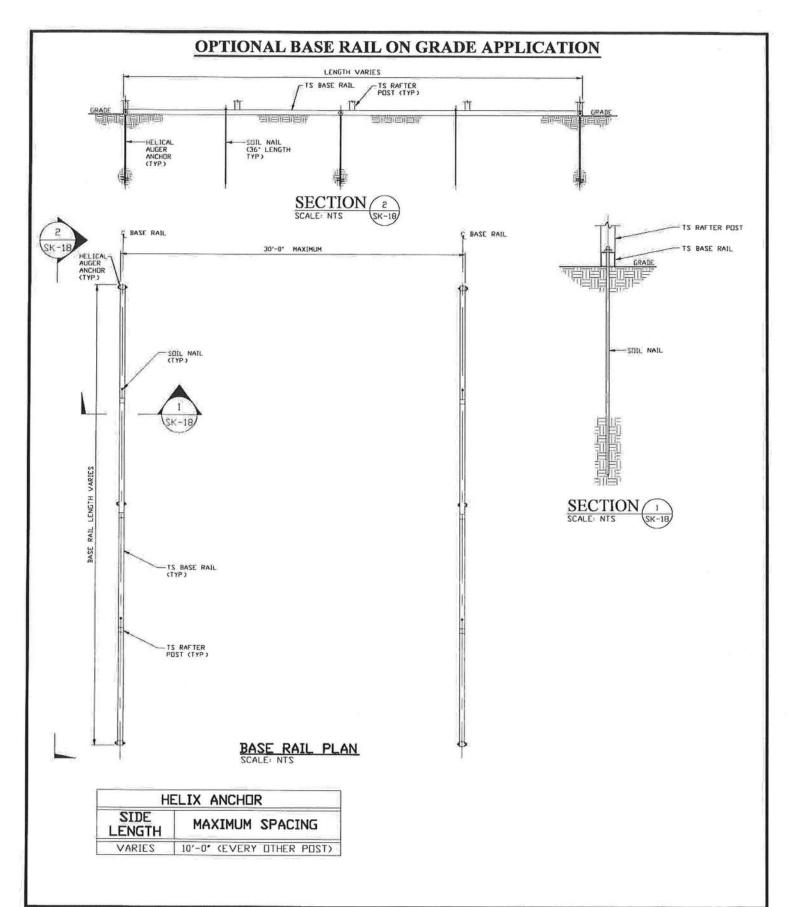
END WALL HEADER OPTIONS



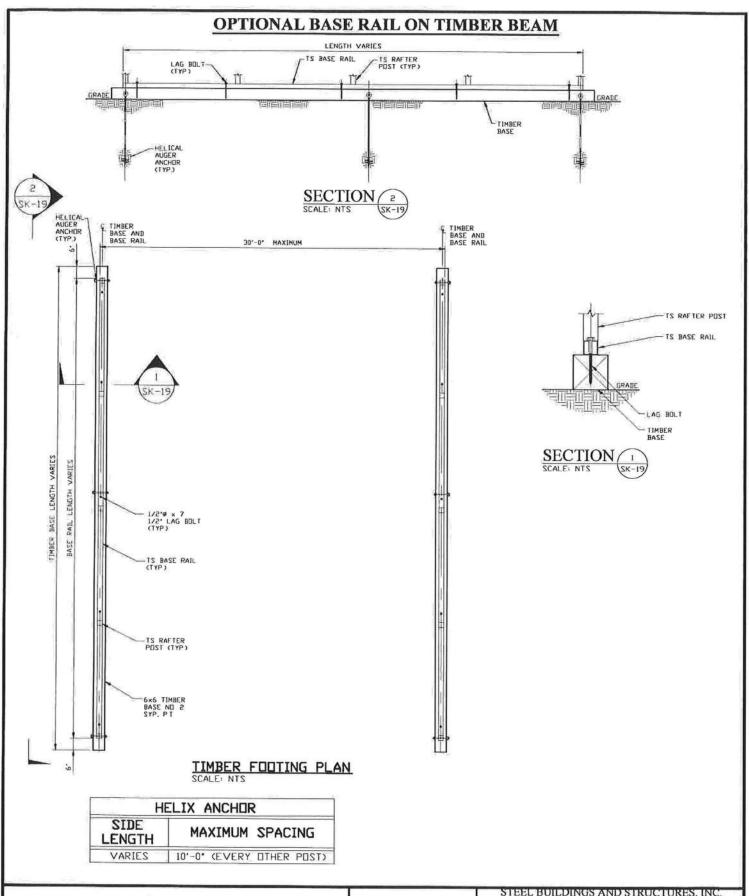
SINGLE HEADER DETAIL FOR DOOR OPENINGS LENGTH & 12'-0'

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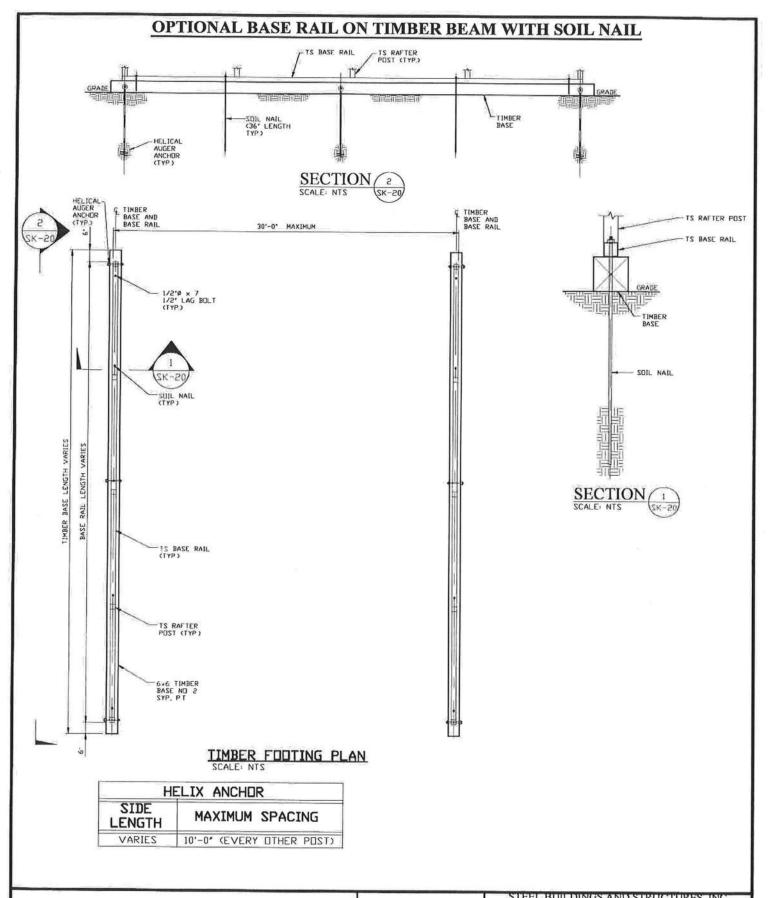
	DRAWN BY: LT		STEEL BUILDINGS AND STRUCTURES, INC. P.O. BOX 1287, MOUNT AIRY, NC 27030 30'-0"x20'-0" ENCLOSED STRUCTURE				
	PROJECT MGR: WSM	DATE: 12-11-20	SCALE NTS	JOB	ND 18068S/18156S 0S/20019S/20324S		
	CLIENT: SBSI	SHT. 17	DVG. NO SK-3		REV. 9		



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ENGINEEDING AND CONCULTING INC	CHECKED BY: PDH	200000000000000000000000000000000000000	MOUNT AIRY, NC 27030 30'-0"x20'-0" ENCLOSED STRUCTURE					
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ENGINEERING AND CONSULTING, INC.	CHECKED BY PDH		MOUNT AIRY, NC 27030 30'-0"x20'-0" ENCLOSED STRUCTURE				
MOORE AND ASSOCIATES	DRAWN BY: LT	JILLE BO	P.O. BOX 1287,				

OPTIONAL CONCRETE STRIP FOOTING FDOTING AND BASE RAIL FOOTING AND BASE RAIL 30'-0' MAXIMUM SK-21 RAIL LENGTH VARIES FOOTING LENGTH VARIES NOIZNAGKE # 15/1 BASE TS BASE RAIL TS RAFTER POST (TYP) CONCRETE STRIP FOOTING (3000 PSI MIN) CONCRETE STRIP FOOTING PLAN SCALE: NTS 1-6 TS RAFTER POST TS BASE RAIL GRADE 발발 1-6' × 2-#4. CONT T&B -INSTALL 1/2'x6 3/4' EXPANSION ANCHOR THROUGH BASE RAIL WITHIN 6' DF EACH COLUMN MINIMUM 3 1/4' EMBEDMENT (TYP) S. CFB 3. CLR SECTION (SK-21) * COORDINATE WITH LOCAL CODES/ORD STEEL BUILDINGS AND STRUCTURES, INC. MOODE AND ACCOUNTED

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CHECKED BIT PURE 30'-0"X20'-0" E	MOUNT AIRY, NC 27030 30'-0"x20'-0" ENCLOSED STRUCTURE				
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