

STRUCTURAL DESIGN ENCLOSED BUILDING

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

> 6 May 2022 Revision 1 M&A Project No. 20217S/22082S

> > Prepared for:

Pre-Built Structures 1330 W Jake Alexander Blvd. Salisbury, NC 28417

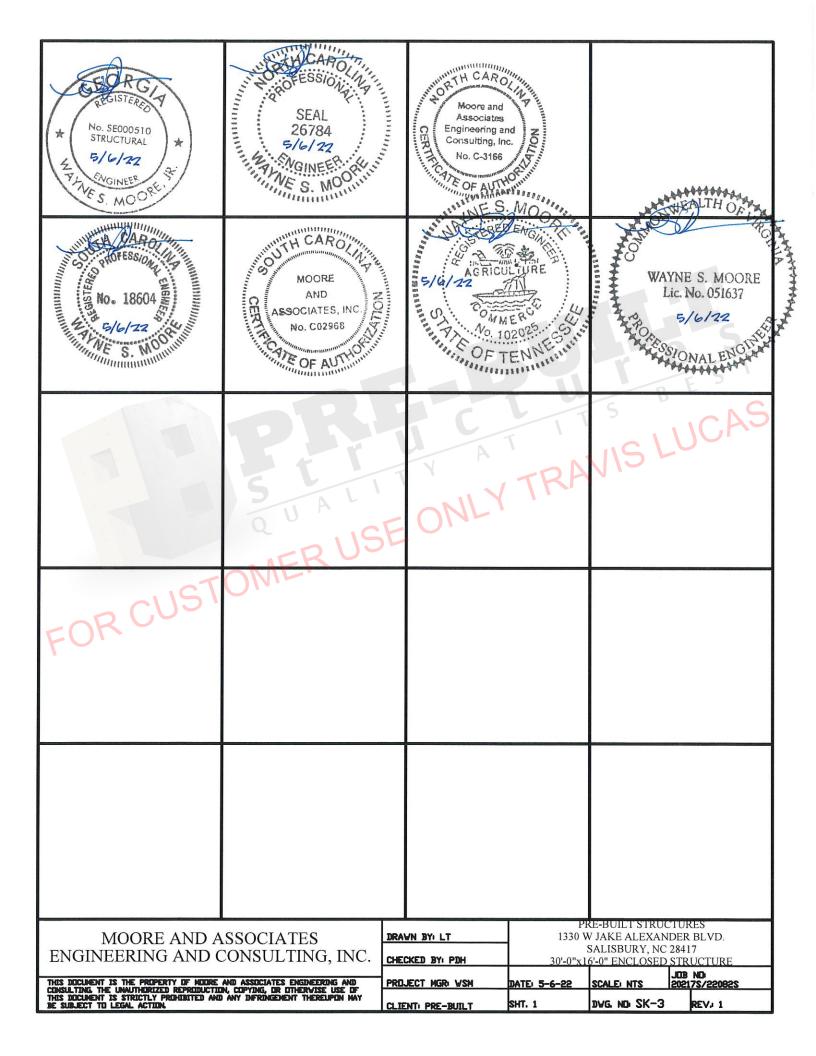
Prepared by:

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RAFTER)
SIDE WALL AND END WALL HEADER OPTIONS

TRAVIS

SIDE WALL AND END WALL HEADER ONLY

TRAVIS

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INSTALLATION NOTES AND SPECIFICATIONS

NOTE: UNBALANCED LOADING DUE TO SNOW DRIFTING FROM AN ADJACENT TALLER STRUCTURE HAS NOT BEEN EVALUATED.

- 1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 16'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
- 2. DESIGN WAS DONE IN ACCORDANCE WITH ALL THE APPLICABLE BUILDING CODES LISTED ON SHEET 3A.
- 3. DESIGN LOADS ARE AS FOLLOWS:

A) ROOF DEAD LOADS:

SELF-WEIGHT = 1.5 PSF

MEP = 0 PSF

COLLATERAL = 0 PSF

- B) ROOF LIVE LOAD
- = 15 b2t C) FLOOR LIVE LOAD = 100 PSF (4" CONCRETE SLAB/FOOTING)
- D) GROUND SNOW LOAD = 35 PSF
 - = 30 PSF (WITH U-CHANNEL RAFTER TIE)
- 4. 3-SECOND GUST ULTIMATE WIND SPEED (VULT) = ≤ 145 MPH (NOMINAL WIND SPEED = ≤ 112 MPH).
- 5. MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 5.0 FEET (UNLESS NOTED OTHERWISE).
- 6. ENDWALL COLUMNS (POSTS) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING (UNLESS NOTED OTHERWISE).
- 7. RISK CATEGORY I (NOT FOR HUMAN HABITATION).
- 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), 2 1/4"×2 1/4"-12 GAUGE TS MAY BE USED AS OPTIONAL FRAMING MEMBERS,
- 10. CONNECTOR SLEEVES ARE MINIMUM 6" LONG, TS 2 1/4"x2 1/4"-14 GAUGE FOR 2 1/2"x2 1/2"-14 GAUGE AND TS 2"x2"-12 GAUGE FOR 2 1/4"x2 1/4"-12 GAUGE FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
- 11. STRUCTURAL ANALYSIS/DESIGN IS BASED ON TS MEETING THE REQUIREMENTS OF ASTM A653 GRADE 50 WITH MINIMUM YIELD STRENGTH (Fy) OF 54 KSI AND GALVANIZING MEETING THE MINIMUM REQUIREMENTS OF G60.
- AVERAGE PANEL FASTENER SPACING DN-CENTERS = 10 INCHES.
- 13. 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 16 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 JOINT SEALANT.
- 14. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6° DF EACH COLUMN.
- 15. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 30' LONG AND MAY DNLY BE USED IN CONJUNCTION WITH OTHER (OPTIONAL) ANCHOR DEVICES AND ONLY IN SUITABLE SOILS, OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED, COORDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
- 16. CONTRACTOR TO PROVIDE ADEQUATE BRACING FOR STRUCTURE SO THAT IT WILL BE STABLE DURING ALL STAGES OF CONSTRUCTION, THE STRUCTURE AND FOUNDATION ARE DESIGNED FOR A COMPLETED CONDITION ONLY AND, THEREFORE, REQUIRE ADDITIONAL SUPPORT TO MAINTAIN STABILITY BEFORE COMPLETION.
- 17. WIND FORCES GOVERN OVER SEISMIC FORCES, SEISMIC PARAMETERS ANALYZED ARE:

SDIL SITE CLASS = D RISK CATEGORY I

 $I_{F} = 1.0$ R = 3.25 $\sqrt{ } = C_s W$ g = 2.625 g

 $S_{D1} = 2.13 g$

- 18. IF MORE THAN 50% OF COLUMN (LEG) ARE REMOVED IN ANY LONGITUDINAL (SIDE) WALLS OF A BUILDING, THE ENGINEER IS TO BE NOTIFIED TO DETERMINE WHETHER PORTAL FRAMES OR OTHER LONGITUDINAL STABILITY ELEMENTS WILL BE REQUIRED.
- 19. THIS MASTER DESIGN IS A GENERIC MASTER DESIGN PRIMARILY INTENDED FOR PLANT FAMRICATION AND ERECTION AKIN TO SHOP DRAWINGS. THE MASTER DESIGN IS NOT PROMARILY INTENDED FOR CONSTRUCTION PERMIT, WHEN APPLYING FOR BUILDING PERMIT, THE CERTIFIED BUILDING DEFICIAL MUST BE CONSULTED TO VERIFY WHETHER THE USE OF THE MASTER DESIGN IS ADEQUATE OR IF A SITE-SPECIFIC DESIGN IS REQUIRED FOR BUILDING PERMIT, ANY VARIATION FROM THE ANALYSIS/DESIGN PARAMETERS OF THE MASTER DESIGN REDUIRES THE DEVELOPMENT OF A SITE-SPECIFIC DESIGN,

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LIST OF APPLICABLE BUILDING CODES

2018 INTERNATIONAL BUILDING CODE (IBC 2018)

2015 INTERNATIONAL BUILDING CODE (IBC 2015)

2012 INTERNATIONAL BUILDING CODE (IBC 2012)

GEORGIA STATE MINIMUM STANDARD BUILDING CODE CADOPTS THE IBC 2018 WITH AMENDMENTS)

2018 NORTH CAROLINA BUILDING CODE CADOPTS THE IBC 2015 WITH AMENDMENTS)

2018 SOUTH CAROLINA BUILDING CODE (ADOPTS THE IBC 2018 WITH AMENDMENTS)

BUILDING CODE 2012 OF TENNESSEE (ADOPTS THE IBC 2012 WITH AMENDMENTS) BUILDING CODE 2018 OF NASHVILLE AND DAVIDSON COUNTY (ADOPTS THE IBC 2018 WITH AMENDMENTS)

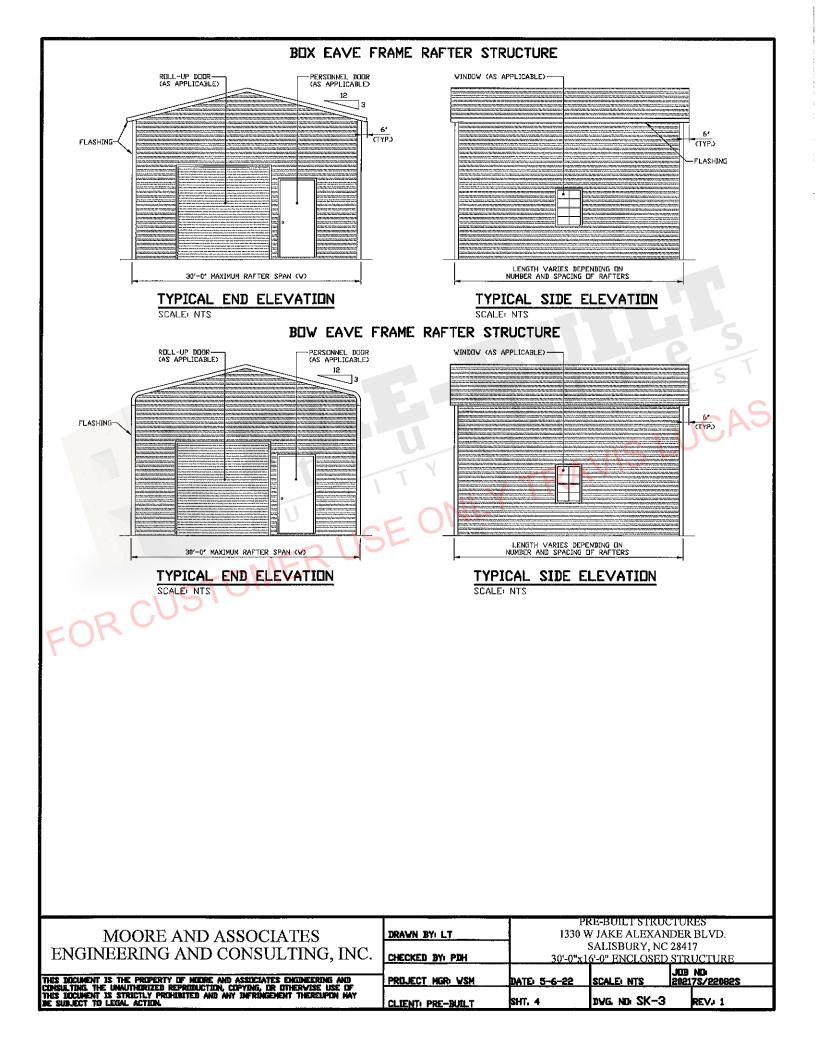
2018 VIRGINIA CONSTRUCTION CODE (ADOPTS THE IBC 2018 WITH AMENDMENTS)

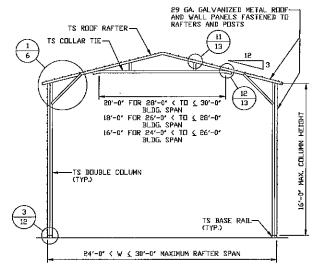
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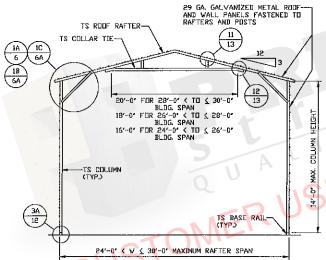
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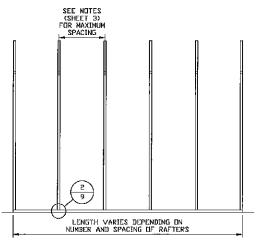
TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS

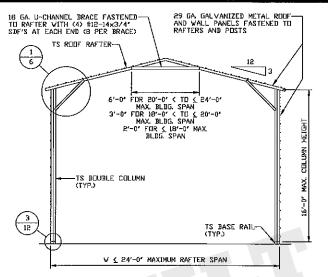


RAFTER/COLUMN SIDE FRAMING SECTION

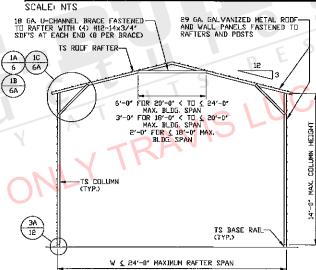
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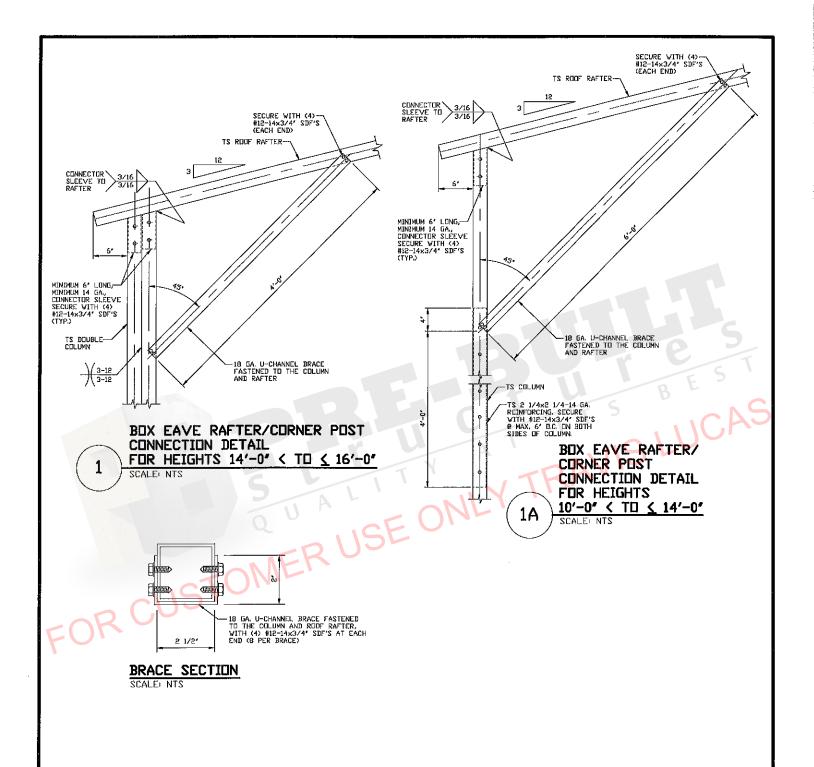


TYPICAL RAFTER/COLUMN FRAME SECTION

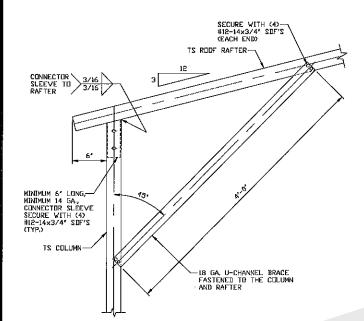


TYPICAL RAFTER/COLUMN FRAME SECTION

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PROJ	ECT HGR: VSM	DATE: 5-6-22		JCIB NO: 202175/220825		
CHEC	KED BY: PDH	SALISBURY, NC 28417 30'-0"x16'-0" ENCLOSED STRUCTURE				
DRAV	N BY: LT	1330 W JAKE ALEXANDER BLVD.				
		PRE-BUILT STRUCTURES				



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BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS 8'-0' < TO < 10'-0'

SCALE: NTS

1B

SECURE WITH (4)
#12-14x3/4" SDF'S
(EACH END)

TS RODE RAFTER

12

CDNNECTOR 3/16

AFTER

AFTER

MINIMUM 6' LONG,
MINIMUM 14 GA.,
CDNNECTOR SLEEVE
SECURE WITH (4)

#18-14x3/4" SDF'S

(TYP.)

TS COLUMN

18 GA. U-CHANNEL BRACE
FASTENED TO THE COLUMN

AND RAFTER

BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL

1C FOR HEIGHTS & 8'-0"

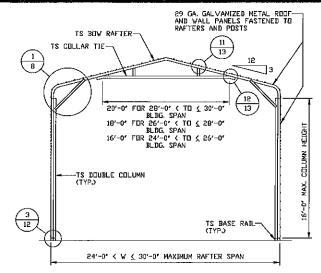
18 GA, U-CHANNEL BRACE FASTENED
TO THE COLUMN AND ROOF RAFTER,
WITH (4) #12-14x3/4' SDF'S AT EACH
END (8 PER BRACE)

BRACE SECTION

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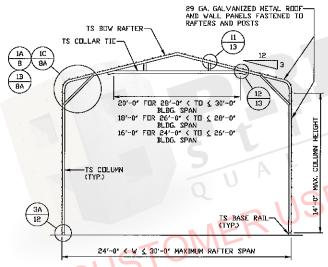
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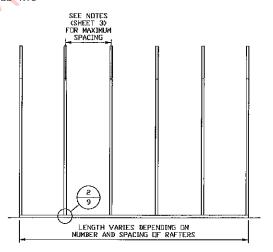
TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALEL NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

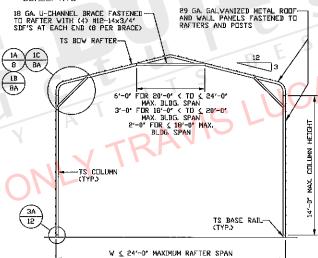
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18 GA. U-CHANNEL BRACE FASTENED TD RAFTER WITH (4) #12-14x3/4* SDF'S AT EACH END (8 PER BRACE) TS BOW RAFTER 18 6'-0' FOR 20'-0' < TO < 24'-0' MAX. BLDG. SPAN 3'-0' FOR \$18'-0' < TO < 20'-0' MAX. BLDG. SPAN 2'-0' FOR \$18'-0' AMAX. BLDG. SPAN 12 TS BOUBLE COLUMN TS BASE RAIL TS BASE RAIL

TYPICAL RAFTER/COLUMN FRAME SECTION

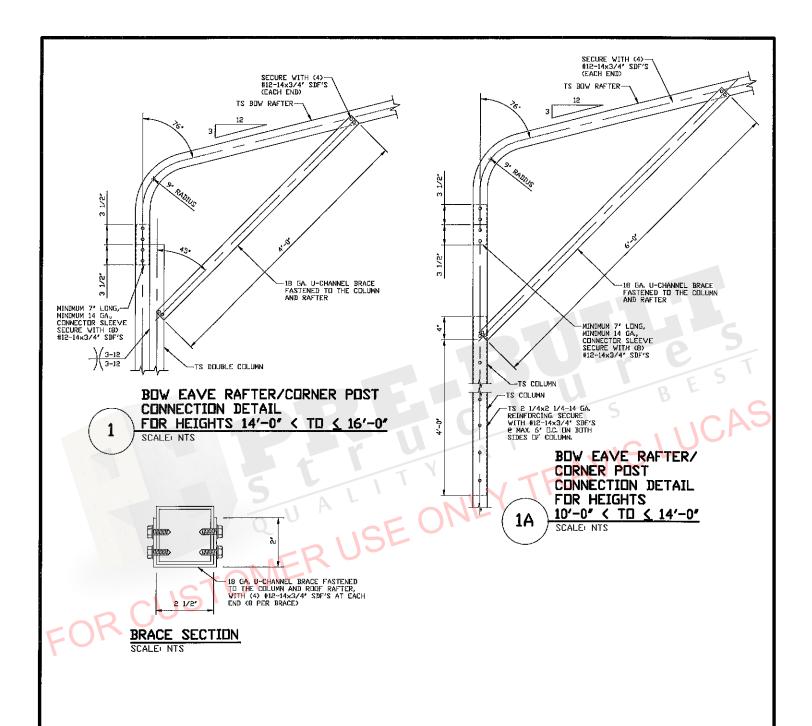
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TYPICAL RAFTER/COLUMN FRAME SECTION

PRESUMESTRUCTURES

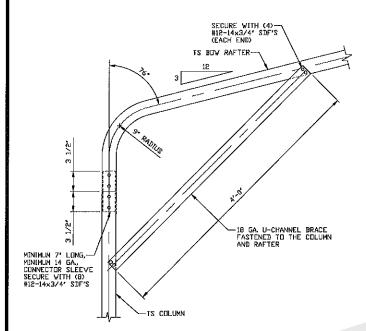
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BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL

FOR HEIGHTS 8'-0" < TO \(\) 10'-0"

SECURE WITH (4)
H12-14×3/4* SDF'S
(EACH END)
TS BUW RAFTER

IP

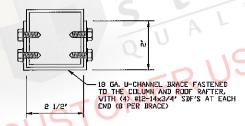
MINIMUM 7* LONG,
MINIMUM 14 GA,
MINIMUM 14 GA,
CONNECTOR SLEEVE
SECURE WITH (9)
H12-14×3/4* SDF'S

TS COLUMN

BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL.

FOR HEIGHTS & 8'-0'

SCALE: NTS



BRACE SECTION
SCALE: NTS

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INSTALL 1/2°×6 1/2° EXPANSION ANCHOR THROUGH BASE RAIL WITHIN 6° OF WWF DR FIBERGLASS FIBERS EACH COLUMN (ALSO APPLICABLE TO END WALLS> VARI GRADE Δ MINIMUM 3 1/ **EMBEDMENT** (TYP.) MONOLITHIC CONCRETE FOOTING-(3000 PSI MIN.) REINFURCED WITH (2)-#4's CONTINUOUS 1'-0" VARIES

CONCRETE MONDLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 4" CODRDINATE WITH LOCAL CODES/DRD. REGARDING MINIMUM FROST DEPTH REQ.

GENERAL NOTES

NOTE: CONCRETE MONDLITHIC SLAB DESIGN BASED ON MINIMUM SDIL BEARING CAPACITY OF 1,500 PSF

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:

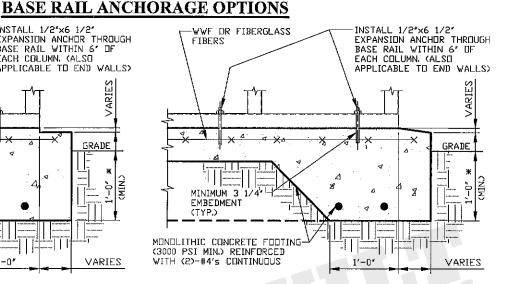
1. REINFORCEMENT IS BENT COLD.

- 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 LOUSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6' HELICES WITH MINIMUM 50" EMBEDMENT.
- 5. FOR VERY LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8' HELICES WITH MINIMUM 60' EMBEDMENT.

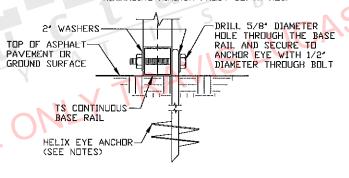


2A

CONCRETE SLAB BASE RAIL ANCHURAGE

SCALE: NTS MINIMUM ANCHOR EDGE DISTANCE IS 4',

* COURDINATE WITH LOCAL CODES/ORD,
REGARDING MINIMUM FROST DEPTH REQ.



2B

GROUND BASE HELIX ANCHURAGE

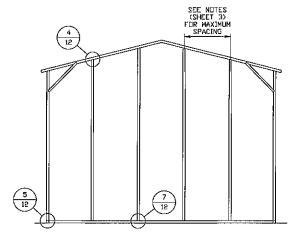
SCALE: NTS (CAN BE USED FOR ASPHALT) COORDINATE WITH LOCAL CODES/ORD. REGARDING MINIMUM FROST DEPTH REQ.

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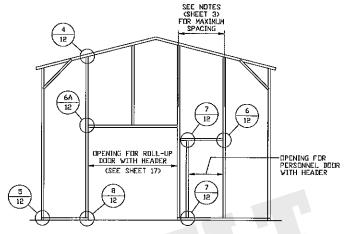
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			.30	B ND:
ı	CHECKED BY: PDH		SALISBURY, NC 284 6'-0" ENCLOSED ST	
		1	CALICOTION NO OR	117
	DRAVN BY: LT	1330 V	V JAKE ALEXANDE	R BLVD.
		PF	RE-BUILT STRUCTU	JRES

BOX EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



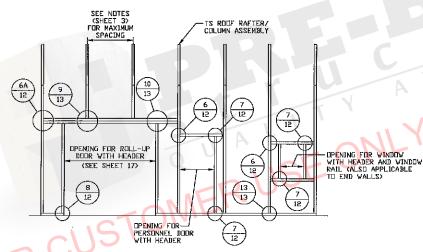
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL DPENINGS FRAMING SECTION

SCALE: NTS

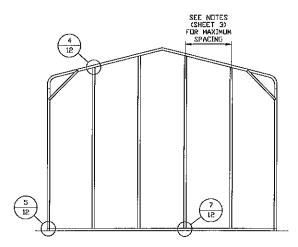


TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

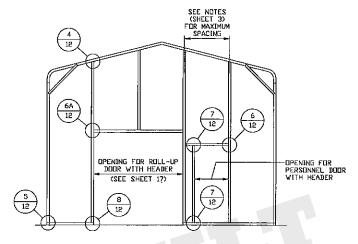
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: LT	PRE-BUILT STRUCTURES 1330 W JAKE ALEXANDER BLVD. SALISBURY, NC 28417 30'-0"x16'-0" ENCLOSED STRUCTURE		ER BLVD. 417
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BOW EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



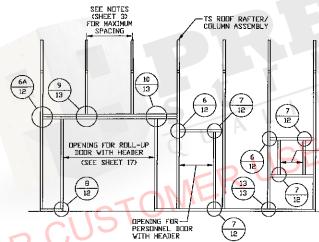
TYPICAL BOW EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOW EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



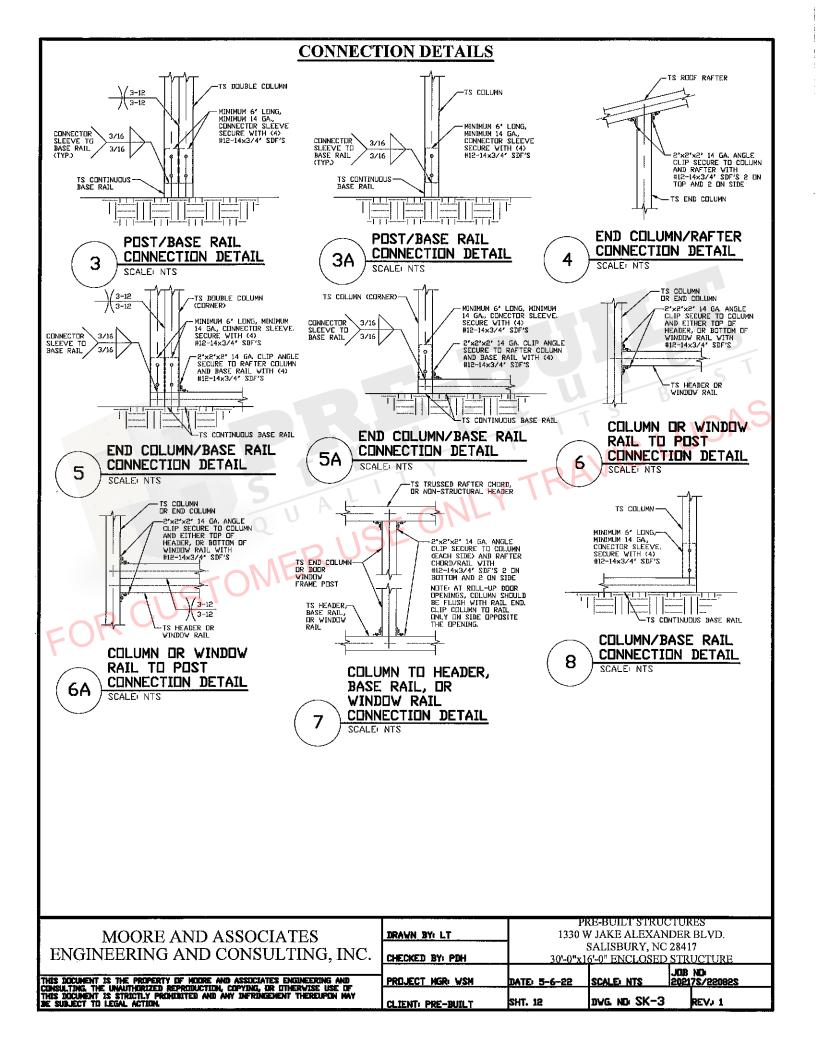
- OPENING FOR WINDOW WITH HEADER AND WINDOW RAIL (ALSO APPLICABLE TO END WALLS)

TYPICAL BOW EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

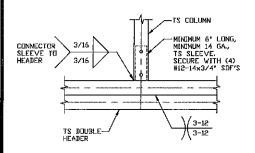
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ENGINEERING AND CONSULTING, INC.	СН
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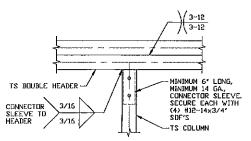
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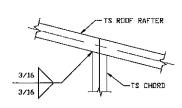
PROJECT MGR: VSN DATE: 5-6-22 SCALE: NTS 20217S/2208	29
SALISBURY, NC 28417 CHECKED BY: PDH 30'-0"x16'-0" ENCLOSED STRUCTURI	3
PRE-BUILT STRUCTURES 1330 W JAKE ALEXANDER BLVD.	



CONNECTION DETAILS



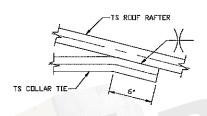




9 COLUMN/DOUBLE HEADER
CONNECTION DETAIL
SCALE: NTS

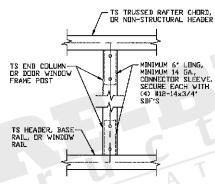
10 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE NTS

RAFTER TO CHORD CONNECTION DETAIL
SCALE NTS



12 COLLAR TIE CONNECTION DETAIL
SCALE NTS

OR CUSTOMER



COLUMN TO HEADER
OR BASE RAIL
CONNECTION DETAIL
SCALE NTS

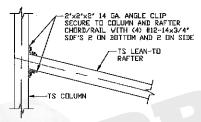
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BOX EAVE RAFTER LEAN-TO OPTIONS 14 RODE EXTENSION OPTION MAIN STRUCTURE LEAN-TO OPTION 9 12 12 12 12

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

REFERENCE RAFTER COLUMN CONNECTION DETAILS FOR APPROPRIATE COLUMN HEIGHT AND TUBING SPECIFICATIONS UTILIZED IN A LEAN-TO CONFIGURATION.



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS

≤ 12'-0"

SCALEL NTS

14

TS LEAN-TO RAFTER TS COLUMN LEAN-TO RAFTER TO RAFTER

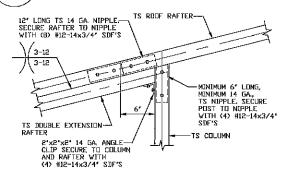
2'x2'x2' 14 GA. ANGLE CLIP SECURE TO COLUMN AND RAFTER CHORD/RAIL WITH (4) #12-14x3/4' SDF'S 2 ON BOTTOM AND 2 ON SIDE

COLUMN CONNECTION DETAIL FOR RAFTER SPANS 12'-0" < T□ < 16'-0" SCALE: NTS

TS ROOF RAFTER 12" LONG TS 14 GA. NIPPLE.— SECURE RAFTER TO NIPPLE WITH (8) #12-14x3/4" SDF'S TS EXTENSION-RAFTER -MINIMUM 6° LONG, MINIMUM 14 GA., TS NIPPLE, SECURE POST TO NIPPLE WITH (4) #12-14x3/4° TS COLUMN

SIDE EXTENSION RAFTER COLUMN DETAIL FOR SPANS ≤ 12'-0" 15

SCALE: NTS



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

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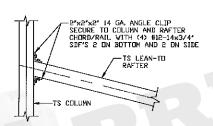
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	CLIENT: POE-THILT	SHT. 14	DWG. ND: SK-3	REV: 1
_	PROJECT MGR: VSM	DATE: 5-6-22		09 ND 0217S/22082S
	CHECKED BY: PDH		SALISBURY, NC 28 6'-0" ENCLOSED S'	
	DRAWN BY: LT	1330 V	JAKE ALEXAND	ER BLVD.
	·	Pl	RE-BUILT STRUCT	URES

TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

SCALE: NTS

REFERENCE RAFTER COLUMN CONNECTION DETAILS FOR APPROPRIATE COLUMN HEIGHT AND TUBING SPECIFICATIONS UTILIZED IN A LEAN-TO CONFIGURATION.



LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL
FOR RAFTER SPANS & 12'-0"
SCALE: NTS

OR CUSTOMER USE

2'x2'x2' 14 GA. ANGLE CLIP
SECURE TO COLUMN AND RAFTER
CHORD/RAIL WITH (4) #12-14x3/4'
SDF'S 2 ON BOTTOM AND 2 ON SIDE
TS LEAN-TO
RAFTER
(3-12)
(3-12)

LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL FOR
RAFTER SPANS 12'-0" < TO < 16'-0"

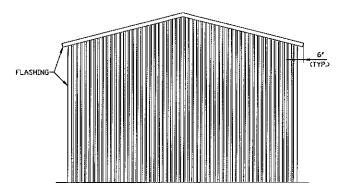
16A) SCALE NTS

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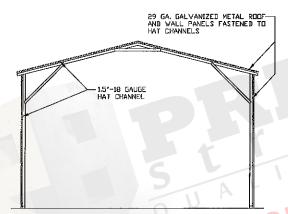
	CLIENT: PRE-BUILT		DWG. NO: SK-3		REV. 1	
	PROJECT MGR: VSM	DATE: 5-6-22	SCALE: NTS	JOB 2021	ND: 75/22082S	
	CHECKED BY: PDH		SALISBURY, NC 6'-0" ENCLOSED			
	DRAWN BY: LT		(E-BUILT STRUC / JAKE ALEXAN			
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BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



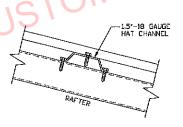
TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



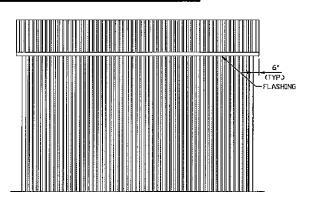
TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



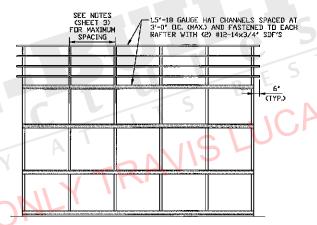
PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS) SCALE: NTS



TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



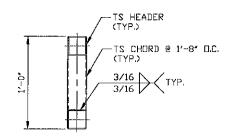
TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION WITH TS GIRTS

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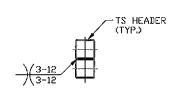
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PROJECT MGR: VSM	DATE: 5-6-22	SCALE: NTS	20217\$/22082\$		
			JOB NO		
CHECKED BY: PDH	30'-0"x16'-0" ENCLOSED STRUCTURE				
	1330 W JAKE ALEXANDER BLVD. SALISBURY, NC 28417				
DRAWN BY: LT					
	PF	Œ-BUILT STRUC	JTURES		

SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 12'-0' < LENGTH < 16'-0'

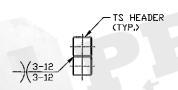
SCALE: NTS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS < 12'-0"

SCALE: NTS

END WALL HEADER OPTIONS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 14'-0" < LENGTH \(\) 16'-0"

SCALE: NTS

ATH

TS HEADER

HEADER DETAIL FOR END WALL DOOR OPENINGS ≤ 14'-0"

FOR	CUSI		

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