

STRUCTURAL DESIGN

ENCLOSED BUILDING

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

21 August 2020 Revision 0 M&A Project No. 20172S

Prepared for:

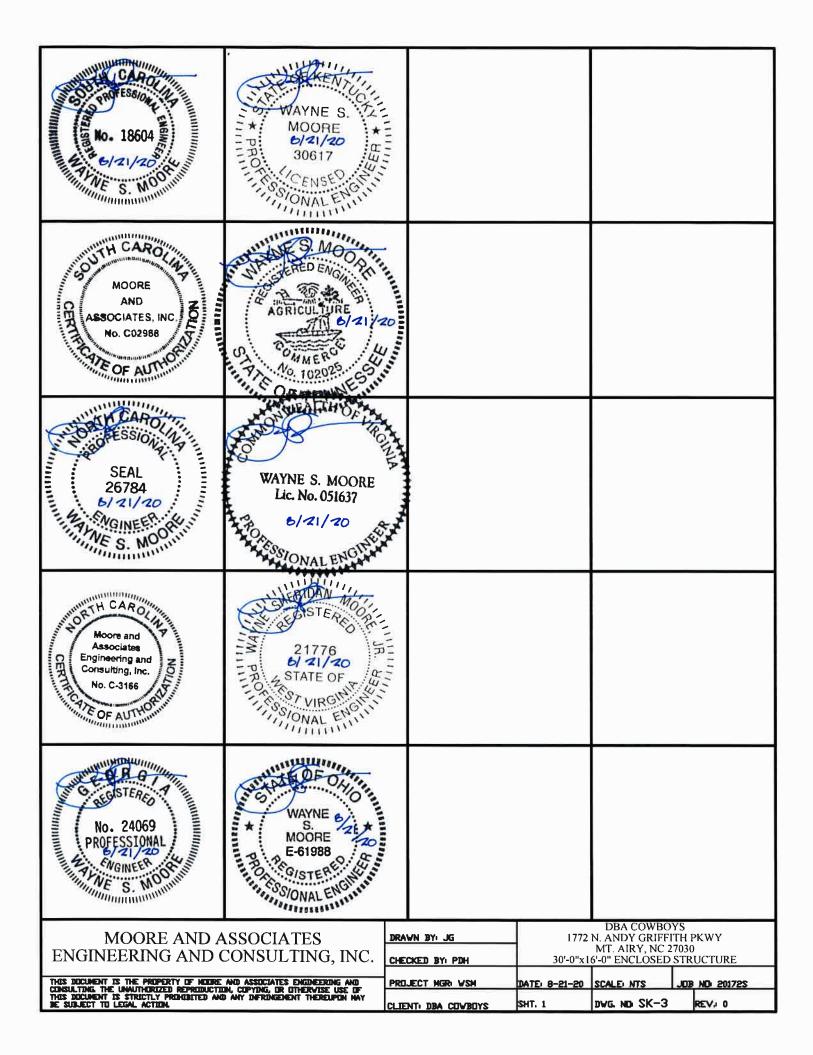
DBA Cowboys 1772 N. Andy Griffith Parkway Mt. Airy, NC 27030

Prepared by:

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DRAWING INDEX

SHEET 1		PE SEAL COVER SHEET
SHEET 2	l	DRAWING INDEX
SHEET 3		INSTALLATION NOTES AND SPECIFICATIONS
SHEET 4		TYPICAL SIDE AND END ELEVATIONS
SHEET 5	I	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE RAFTER)
SHEET 5	A	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE RAFTER)
SHEET 6		COLUMN CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 6	Α	COLUMN CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 7		TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE RAFTER)
SHEET 7	Α	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE RAFTER)
SHEET 8		COLUMN CONNECTION DETAILS (BOW EAVE RAFTER)
SHEET 8	Α	COLUMN CONNECTION DETAILS (BOW EAVE RAFTER)
SHEET 9		BASE RAIL ANCHORAGE OPTIONS
SHEET 10	C	TYPICAL END WALL AND SIDE WALL FRAMING SECTIONS (BOX EAVE RAFTER)
SHEET 11	1	TYPICAL END WALL AND SIDE WALL FRAMING SECTIONS (BOW EAVE RAFTER)
SHEET 12	2	CONNECTION DETAILS
SHEET 13	3	CONNECTION DETAILS
SHEET 14	4	LEAN-TO OPTIONS (BOX EAVE RAFTER)
SHEET 14	4 A	LEAN-TO OPTIONS (BOX EAVE RAFTER)
SHEET 15	5	LEAN-TO OPTIONS (BOW EAVE RAFTER)
SHEET 16	5	VERTICAL ROOF/SIDING OPTION END AND SIDE ELEVATION AND SECTION (BOX EAVE RAFTER)
SHEET 17	7	SIDE WALL AND END WALL HEADER OPTIONS

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INSTALLATION NOTES AND SPECIFICATIONS

- 1. DESIGN IS FOR MAXIMUM 30'-0' WIDE x 16'-0' EAVE HEIGHT ENCLOSED STRUCTURES.
- 2 DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC AND 2018 NORTH CAROLINA BUILDING CODE (NCBC)
- 3 DESIGN LOADS ARE AS FOLLOWS:

A) DEAD LOAD = 1.5 PSF
B) LIVE LOAD = 12 PSF
C) GROUND SNOW LOAD = 45 PSF

= 30 PSF WITH U-CHANNEL PEAK BRACE (W < 24'-0")

NOTE: UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED,

- 4 3-SECOND GUST ULTIMATE WIND SPEED (V_{ULT}) \leq 145 MPH (NOMINAL WIND SPEED \leq [12 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
- 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). 2 1/4" x 2 1/4" 12 GAUGE TS MAY BE USED AS OPTIONAL FRAMING MEMBERS.
- 10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 10 INCHES.
- 11 FASTENERS CONSIST OF #12-14×3/4" 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.
- 12 GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6° OF 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:

SOIL SITE CLASS = D RISK CATEGORY I

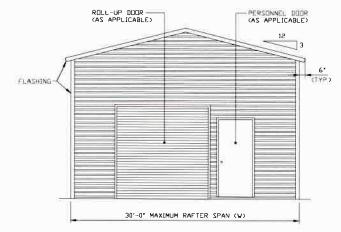
R = 3.25 $I_{E} = 1.0$ $S_{DS} = 2.039$ g $V = C_{S}W$

S_{D1}= 1.258 g

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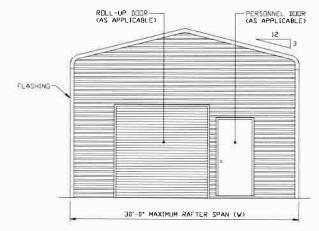
BOX EAVE FRAME RAFTER STRUCTURE



TYPICAL END ELEVATION

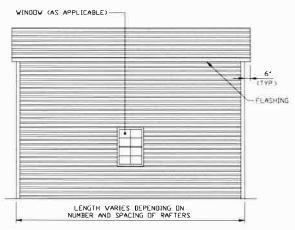
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BOW EAVE FRAME RAFTER STRUCTURE



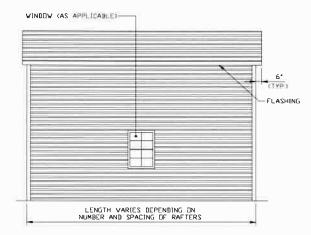
TYPICAL END ELEVATION

SCALE: NTS



TYPICAL SIDE ELEVATION

SCALE: NTS



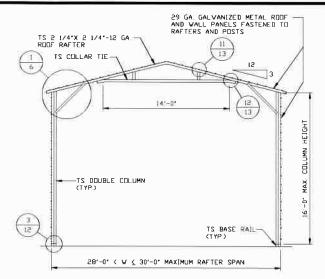
TYPICAL SIDE ELEVATION

SCALE NTS

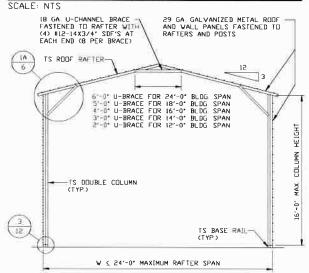
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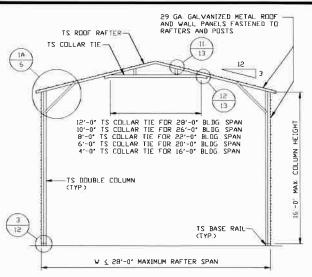
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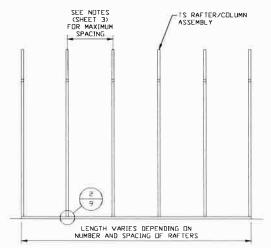
TYPICAL RAFTER/COLUMN FRAME SECTION



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION

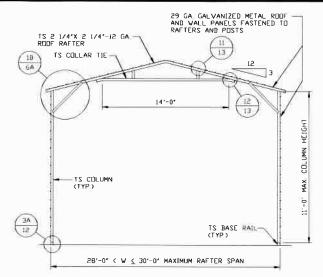


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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	DRAVN BYI JG	1772	KWY				



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS

18 GA U-CHANNEL BRACE
FASTENED TO RAFTER WITH
(4) #12-14X3/4" SDF"S AT
EACH END (8) PER BRACE)

12

15 ROOF RAFTER

16 A

17 ROOF RAFTER

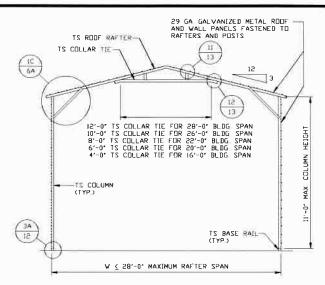
18 GA GALVANIZED METAL ROOF
AND WALL PANELS FASTENED TO
RAFTERS AND PDSTS

18 GA GALVANIZED METAL ROOF
AND WALL PANELS FASTENED TO
RAFTERS AND PDSTS

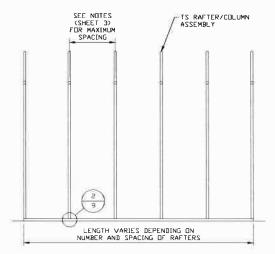
19 GA GALVANIZED METAL ROOF
AND WALL PANELS FASTENED TO
RAFTERS AND PDSTS

10 U-BRACE FOR 24"-0" BLDG SPAN
3"-0" U-BRACE FOR 16"-0" BLDG SPAN
3"-0" U-BRACE FOR 16"-0" BLDG SPAN
3"-0" U-BRACE FOR 12"-0" BLDG

TYPICAL RAFTER/COLUMN FRAME SECTION SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION SCALE: NTS

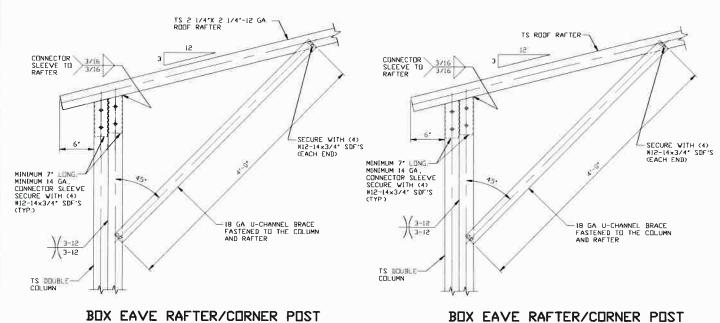


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS

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1A

CONNECTION DETAIL

SCALE: NTS

FOR HEIGHTS 11'-0" < TO < 16'-0"

BDX EAVE RAFTER/CORNER POST CONNECTION DETAIL

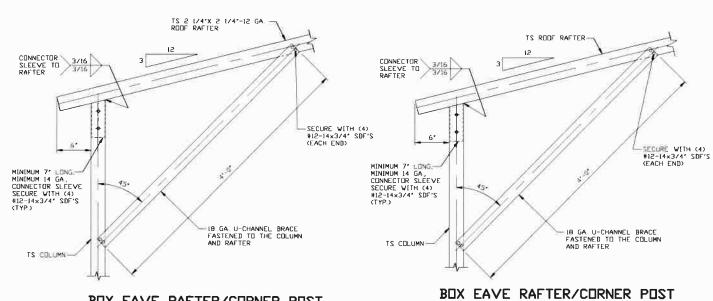
FOR HEIGHTS 11'-0" < TO < 16'-0"

SCALE: NTS

18 GA U-CHANNEL BRACE FASTENED
TO THE COLUMN AND RODE RAFTER.
WITH (4) B12-14x3/4' SDF'S AT EACH
END (8 PER BRACE)

BRACE SECTION
SCALE: NTS

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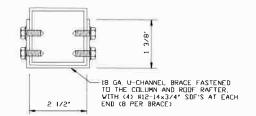
1C

CONNECTION DETAIL

SCALE: NTS

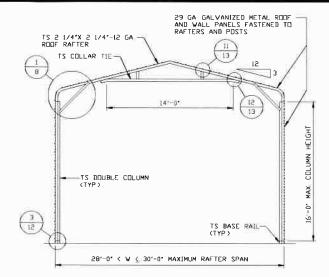
FOR HEIGHTS ≤ 11'-0'

BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0' · 1B SCALE: NTS

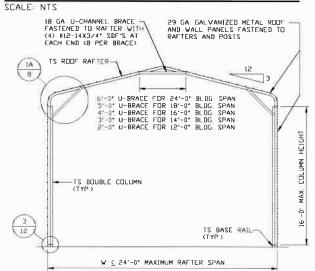


BRACE SECTION SCALE: NTS

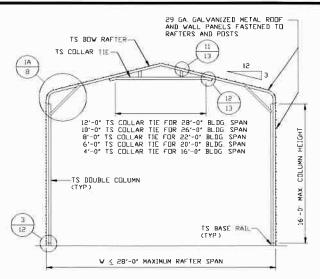
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TYPICAL RAFTER/COLUMN FRAME SECTION

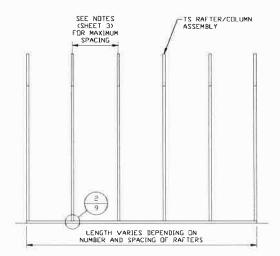


TYPICAL RAFTER/COLUMN FRAME SECTION



TYPICAL RAFTER/COLUMN FRAME SECTION

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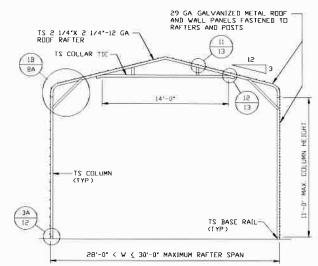


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

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TYPICAL RAFTER/COLUMN FRAME SECTION SCALE: NTS

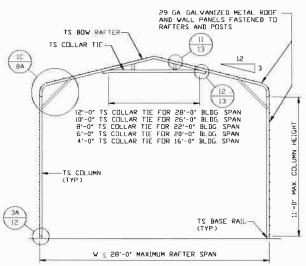
11-0' MAX

TS BASE RAIL-

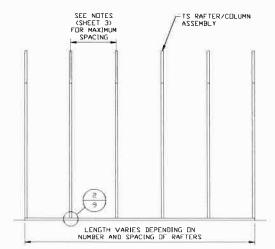
TYPICAL RAFTER/COLUMN FRAME SECTION SCALE: NTS

V ≤ 24'-0" MAXIMUM RAFTER SPAN

3A 12



TYPICAL RAFTER/COLUMN FRAME SECTION

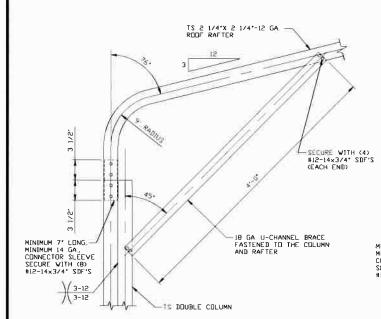


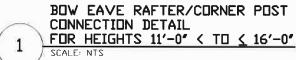
TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS

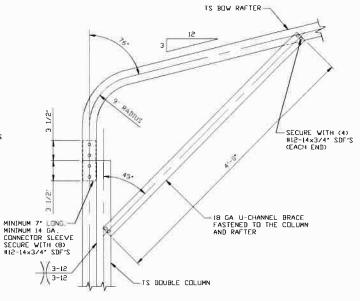
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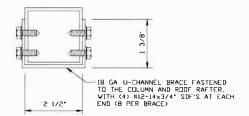




BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL

FOR HEIGHTS 11'-0' < TO < 16'-0'

SCALE: NTS

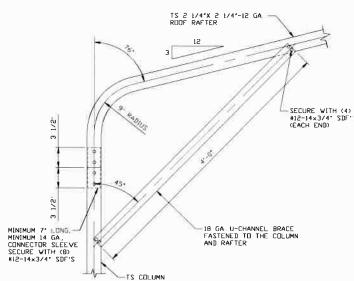


BRACE SECTION SCALE: NTS

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BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS & 11'-0'

1B FOR HE

MINIMUM 7' LDNG,
MINIMUM 7' LDNG,
MINIMUM 14 GA.
CONNECTOR SLEEVE
SECURE VITH (4)
RI2-14×3/4' SDF'S

18 GA U-CHANNEL BRACE
FASTENED TO THE CDLUMN
AND RAFTER

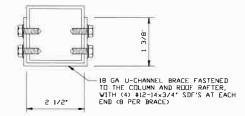
TS COLUMN

TS BOW RAFTER-

BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS & 11'-0'

1C

SCALE: NTS



BRACE SECTION
SCALE: NTS

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WWF OR FIBERGLASS INSTALL 1/2"x6 1/2 EXPANSION ANCHOR THROUGH BASE RAIL WITHIN 6' OF FIBERS EACH COLUMN. (ALSO APPLICABLE TO END WALLS) VARI GRADE .0-1 MINIMUM 3 1/4 3 **EMBEDMENT** (TYP.) MONOLITHIC CONCRETE FOOTING (3000 PSI MIN.) REINFORCED WITH VARIES 1'-0" (2)-#4's CONTINUOUS



CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS MINIMUM ANCHOR EDGE DISTANCE IS 4° * COORDINATE WITH LOCAL BUILDING CODE AND/ORD REGARDING MINIMUM FROST DEPTH

GENERAL NOTES

CONCRETE MONOLITHIC SLAB DESIGN BASED ON MINIMUM SOIL 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:

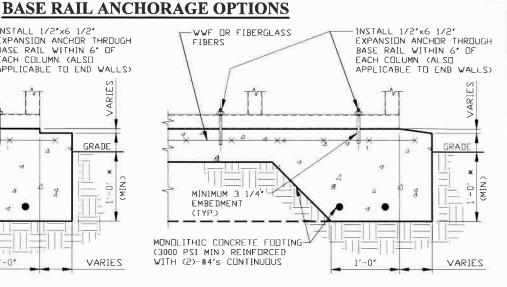
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

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

- 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 ESELD BENT

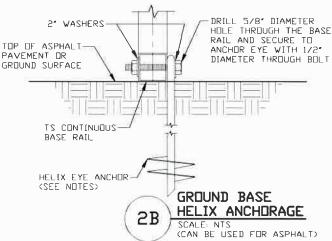
HELIX ANCHOR NOTES:

- L 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
- FOR MEDIUM DENSE CHARSE 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 LODGE 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.



CONCRETE SLAB BASE RAIL ANCHORAGE 2A SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 4° * COORDINATE WITH LOCAL BUILDING CODE AND/ORD REGARDING MINIMUM FROST DEPTH (LENGTH)

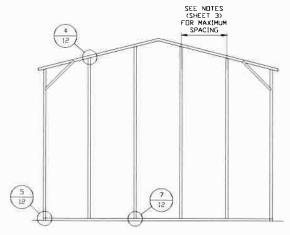


* COORDINATE WITH LOCAL BUILDING CODE AND/ORD REGARDING MINIMUM FROST DEPTH (LENGTH)

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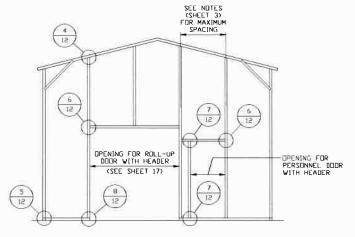
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PROJECT MGR: VSM CLIENT: DBA COVBOYS	DATE: 8-21-20 SHT. 9	SCALE: NTS		ND 201725	

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



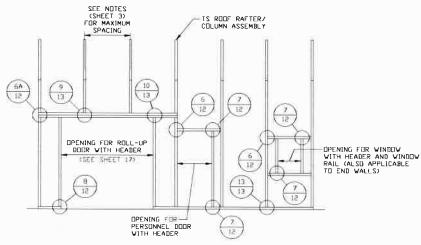
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

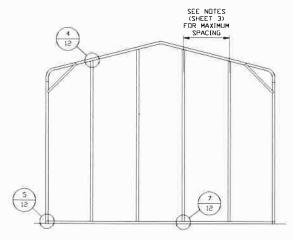
SCALE: NTS



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

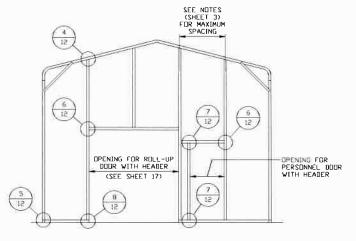
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BOW EAVE RAFTER END WALL AND SIDE WALL OPENINGS



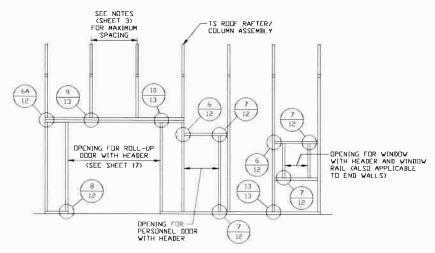
TYPICAL BOW EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



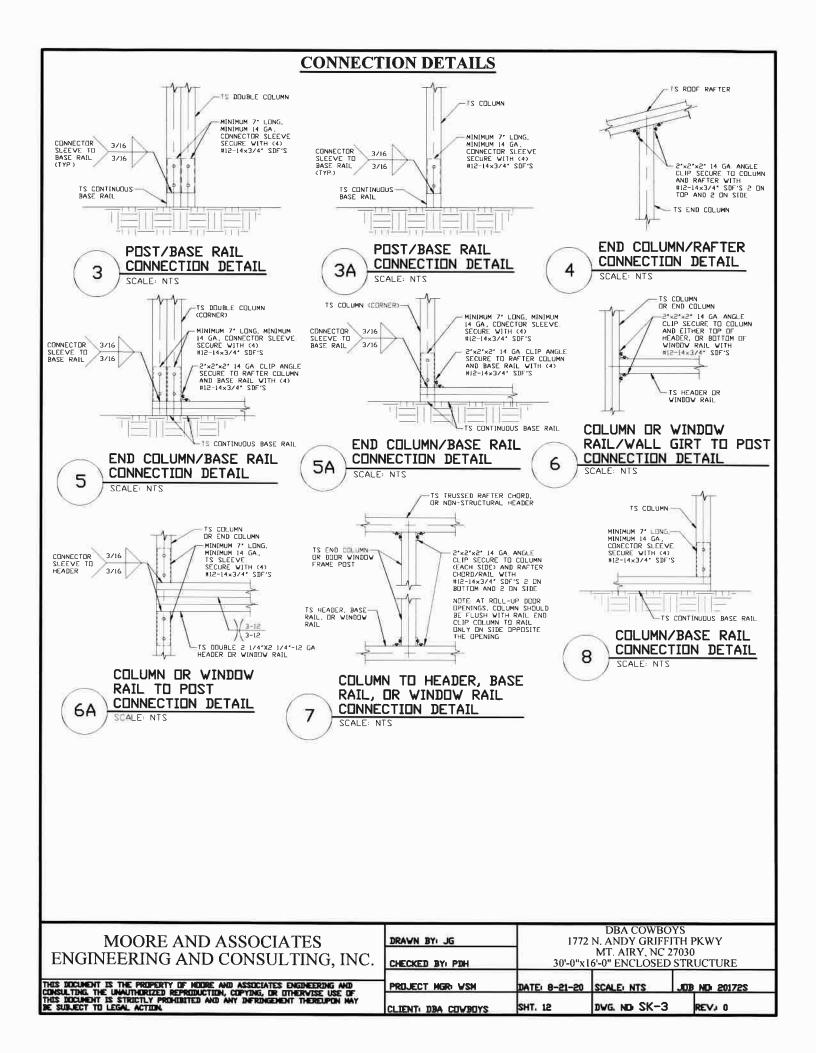
TYPICAL BOW EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS

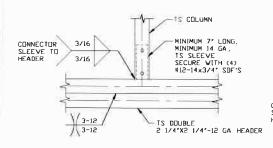


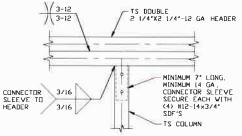
TYPICAL BOW EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

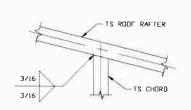
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ENGINEEDING AND CONCLUTING INC	CHECKED BY: PDH	30'-0"x1	MT. AIRY, NC 27030 30'-0"x16'-0" ENCLOSED STRUCTURE		
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CONNECTION DETAILS





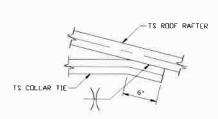


9 COLUMN/DOUBLE HEADER CONNECTION DETAIL

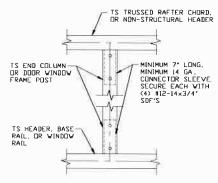
SCALE: NTS

10 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE NTS

11 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



12 CONNECTION DETAIL
SCALE: NTS



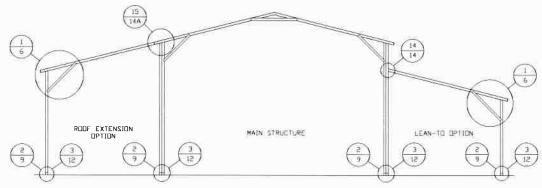
COLUMN TO HEADER
OR BASE RAIL
CONNECTION DETAIL
SCALE: NTS

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CLIENT: DBA COVBOYS	SHT. 13	DVG, ND SK-3		REV. 0	

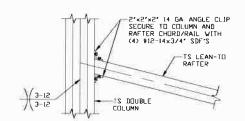
BOX EAVE RAFTER LEAN-TO OPTIONS



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

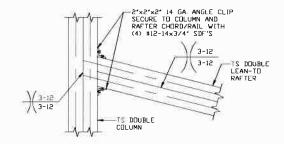
SCALE: NTS

14



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS & 11'-0'

SCALE NTS

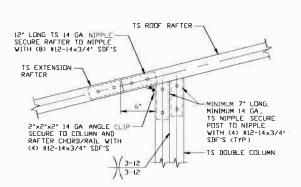


LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL FOR
RAFTER SPANS 11'-0' < TO < 12'-0'

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PROJECT MGR: VSM	DATE: 8-21-20	SCALE: NTS	JOE	ND 20172S		
CLIENTI DBA COVBOYS	SHT. 14	DVG. ND SK-	3	REV. 0		

BOX EAVE RAFTER LEAN-TO OPTIONS



SIDE EXTENSION RAFTER/COLUMN

DETAIL FOR SPANS

SCALE: NTS

CONNECTOR
SLEEVE
TO RAFTER

12' LUNG TS 14 GA NIPPLE
SECURE RAFTER TO NIPPLE
VITH (8) H12-14x3/4' SDF'S

TS DOUBLE EXTENSION
RAFTER

2'x2'x2' 14 GA ANGLE CLIP
SECURE TO COLUMN AND
RAFTER CHORD/RAIL WITH
(4) H12-14x3/4' SDF'S

TS DOUBLE COLUMN

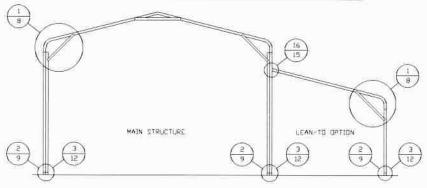
SIDE EXTENSION RAFTER/COLUMN
DETAIL FOR SPANS 11'-0' < TO \(\) 12'-0'

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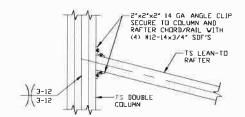
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CLI	ENT: DBA COVBOYS	SHT. 14A	DVG. ND SK-3		REV. 0	
PRE	JJECT MGR: VSM	DATE: 8-21-20	SCALE: NTS	JOB	ND 20172S	
CHE	ECKED BY: PDH	30'-0"x1	MT. AIRY, NC 27030 30'-0"x16'-0" ENCLOSED STRUCTURE			
DRA	AVN BY: JG	1772	DBA COWBOYS 1772 N. ANDY GRIFFITH PKWY			

BOW EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL 16

FOR RAFTER SPANS ≤ 11'-0"

2'x2'x2' 14 GA ANGLE CLIP SECURE TO COLUMN AND RAFTER CHORD/RAIL WITH (4) #12-14x3/4' SDF'S 3-12 3-12 -TS DOUBLE LEAN-TO RAFTER 3-15 -TS DOUBLE COLUMN

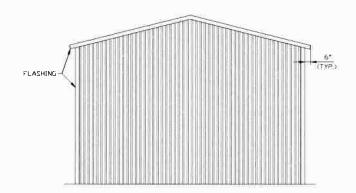
LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 11'-0' < T□ < 12'-0' 16A SCALE: NTS

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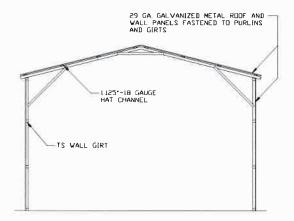
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•	CHECKED BY: PDH	30-0"X16-0" ENCLOSED STRUCTURE			
	PROJECT MGR: VSM	DATE: 8-21-20	SCALE: NTS	JOB NO 20172S	
	CLIENT: DBA CUVBUYS	SHT. 15	DWG. NO SK-3	3	REV. 0

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



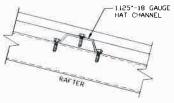
TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



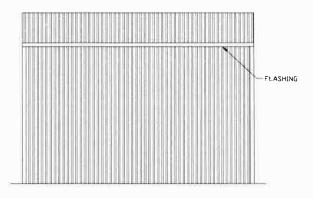
TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

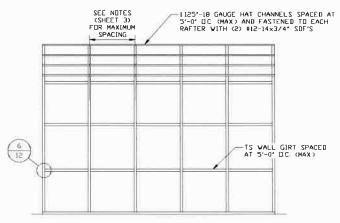


(ALTERNATE FOR VERTICAL ROOF PANELS) SCALE: NTS

PANEL ATTACHMENT



TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING



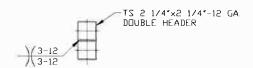
TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION WITH TS GIRTS

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	CHECKED BY: PDH						
_	PROJECT MGR: VSM	DATE: 8-21-20	SCALE: NTS	JOB	ND 20172S		
	CLIENT: DBA COVBOYS	SHT. 16	DVG. ND SK-3		REV. 0		

SIDE WALL HEADER OPTIONS



TS HEADER (TYP.)

HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 6'-0" < LENGTH <u><</u> 12'-0"

HEADER DETAIL FOR SIDE WALL DOOR OPENINGS < 6'-0'

SCALE: NTS

END WALL HEADER OPTIONS



HEADER DETAIL FOR END WALL DOOR OPENINGS ≤ 12'-0"

SCALE: NTS

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