

STRUCTURAL DESIGN

ENCLOSED BUILDING

MAXIMUM 32'-0" WIDE X 16'- 0" EAVE HEIGHT-BOX EAVE FRAME AND BOW FRAME

1 October 2021 Revision 0 M&A Project No. 21048S

Prepared for:

SteelCraft Structures 1841 Amity Hill Rd. Statesville, NC 28677

Prepared by:

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North Augusta, SC 29841

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DRAWING INDEX

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

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	CHECKED BY: PDH	32'-0"x1	TATESVILLE, NO 6'-0" ENCLOSED	STRUCTURE
THIS DOCUMENT IS STRICTLY PROBLETTED AND ANY INCOMPRESSION	PRDJECT MGR: WSM	DATE: 10-1-21	SCALE: NTS	JDB ND: 21048S
	CLIENT: STEELCRAFT	SHT. 2	DWG. ND SK-3	REV. 0

INSTALLATION NOTES AND SPECIFICATIONS

- 1. DESIGN IS FOR MAXIMUM 32'-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) DEAD LOAD

= 1.5 PSF

B) LIVE LOAD

= 12 PSF

C) GROUND SNOW LOAD = 20 PSF

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

- 4. 3-SECOND GUST ULTIMATE WIND SPEED (V_{ULT}) = ≤ 140 MPH (NOMINAL WIND SPEED = ≤ 108 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 1.
- 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. AVERAGE PANEL SPACING DN-CENTERS = 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. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL AT OR WITHIN 6' OF EVERY COLUMN.
- 13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT × 30° LONG AND MAY ONLY BE USED IN SUITABLE SOILS.

 CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
- 14. WIND FORCES GOVERN OVER SEISMIC FORCES, SEISMIC PARAMETERS ANALYZED ARE: SDIL SITE CLASS = D

RISK CATEGORY I

R= 3.25

Sps= 2.039 g

Sm= 1.258 g

15. 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

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CLIENT: STEELCRAFT	SHT. 3	DWG. NO SK-	3	REVJ 0
PROJECT MGR: WSM	DATE: 10-1-21	SCALE: NTS	JOI	8 ND 21048S
CHECKED BY: PDH		STATESVILLE, 1 16'-0" ENCLOSE		
DRAWN BY: LT	5	1841 AMITY H		

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 (ADOPTS THE IBC 2018 WITH AMENDMENTS)

2018 NORTH CAROLINA BUILDING CODE (ADOPTS THE IBC 2015 WITH AMENDMENTS)

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

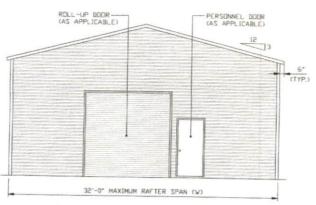
BUILDING CODE 2012 OF TENNESSEE (ADOPTS THE IBC 2012 WITH AMENDMENTS)

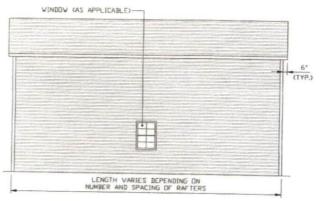
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BE SUBJECT TO LEGAL ACTION

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BOX EAVE FRAME RAFTER STRUCTURE





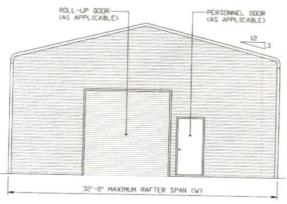
TYPICAL END ELEVATION

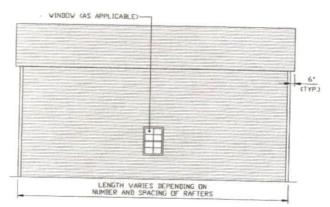
SCALE: NTS

TYPICAL SIDE ELEVATION

SCALE: NTS

BOW EAVE FRAME RAFTER STRUCTURE





TYPICAL END ELEVATION

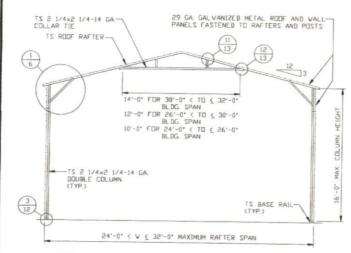
SCALE: NTS

TYPICAL SIDE ELEVATION SCALE: NTS



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TYPICAL RAFTER/COLUMN FRAME SECTION

TS 2 1/4×2 1/4-14 GA

COLLAR TIE

TS ROOF RAFTER

14'-0' FDR 30'-0' < TO \$\frac{32'-0'}{10}\$

BLDG SPAN

12'-0' FDR 26'-0' < TO \$\frac{30'-0'}{10}\$

BLDG SPAN

10'-0' FDR 24'-0' < TO \$\frac{26'-0'}{10}\$

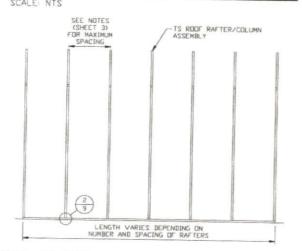
TS COLUMN

(TYP.)

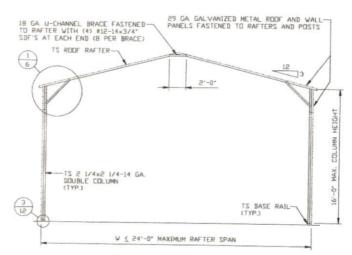
15 BASE RAIL—
(TYP.)

TYPICAL RAFTER/COLUMN FRAME SECTION

24'-0" (W & 32'-0" MAXIMUM RAFTER SPAN

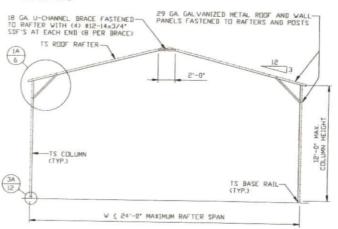


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION

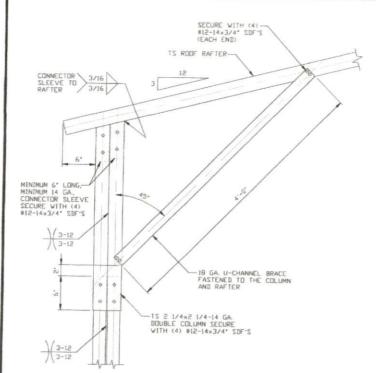
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BOX EAVE RAFTER/CORNER
COLUMN CONNECTION DETAIL
FOR HEIGHTS 12'-0' < TO \(\) 16'-0'

MINIMUM 12' LONGSLEEVE TO 3/16

MINIMUM 12' LONGMINIMUM 16 GA.
CONNECTOR SLEEVE
SECURE VITH (4)
B12-14×3/4' SDF'S

BDX EAVE RAFTER/CORNER

COLUMN CONNECTION DETAIL

FOR HEIGHTS ≤ 12'-0"

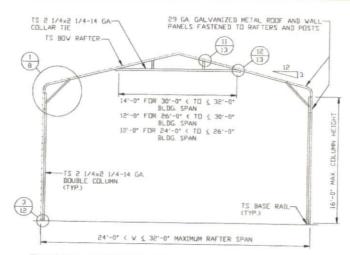
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18 GA. U-CHANNEL BRACE FASTENED
TO THE COLUMN AND RODF RAFTER.
WITH (4) 913-14x3/4 SDF'S AT EACH
END (8 PER BRACE)

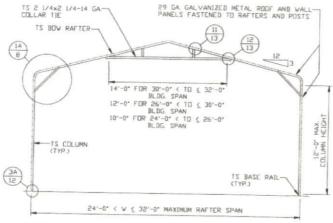
BRACE SECTION

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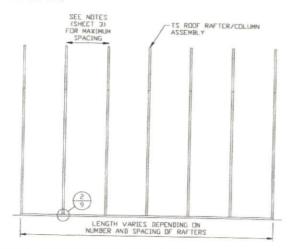
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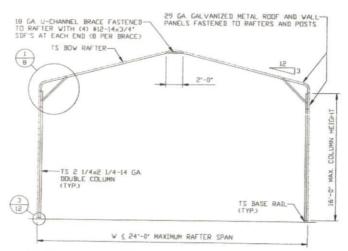
TYPICAL RAFTER/COLUMN FRAME SECTION



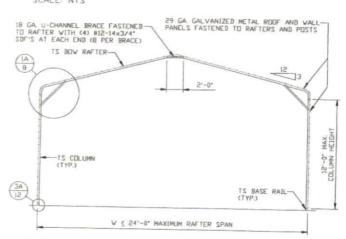
TYPICAL RAFTER/COLUMN FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



TYPICAL RAFTER/COLUMN FRAME SECTION

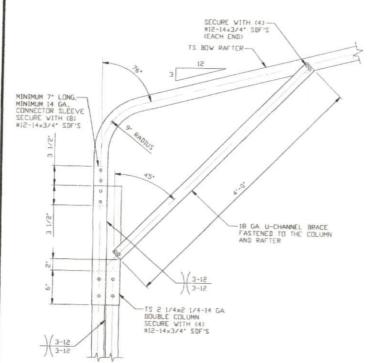


TYPICAL RAFTER/COLUMN FRAME SECTION



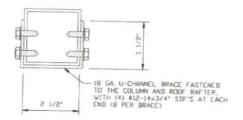
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BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0' < TO < 16'-0'

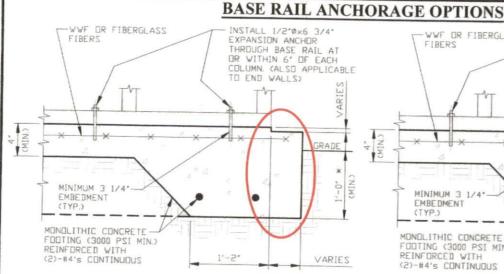
BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS & 12'-0'



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CLIENT: STEELCRAFT	S .TH2	DWG. ND SK-	3	REV. 0		





CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

MINIMUM ANCHUR EDGE DISTANCE IS 4".

* COORDINATE WITH LOCAL CODES/ORD.

REGARDING MINIMUM FROST DEPTH RED.

GENERAL NOTES

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

CONCRETE:

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

COVER OVER REINFORCING STEEL:

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

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

REINFORCING STEEL:

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

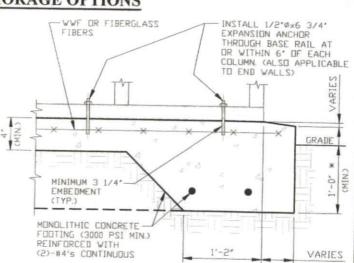
REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

REINFORCEMENT IS BENT COLD.
THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.

3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT

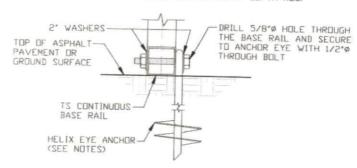
HELIX ANCHOR NOTES:

- 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 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. 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

MINIMUM ANCHOR EDGE DISTANCE IS 4". * COORDINATE WITH LOCAL CODES/ORD. REGARDING MINIMUM FROST DEPTH REQ.



GROUND BASE HELIX ANCHORAGE **SB**

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

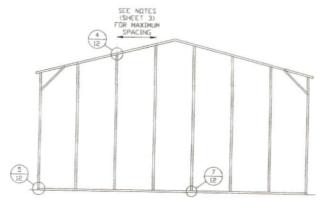
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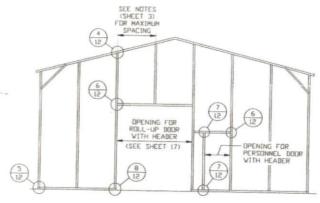
ONEONED BIT FUN	32'-0"x	16'-0" ENCLOSE	DSTR	HICTURE
CHECKED BY: PDH	32'-0"x	16'-0" ENCLOSE	D STR	677
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BOX EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



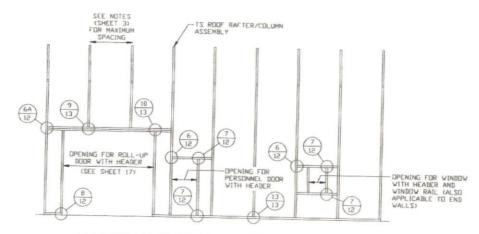
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER SIDE WALL DPENINGS FRAMING SECTION

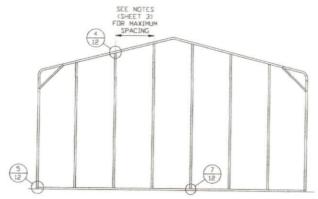
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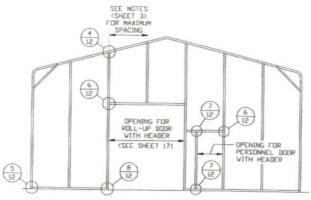
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BOW EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



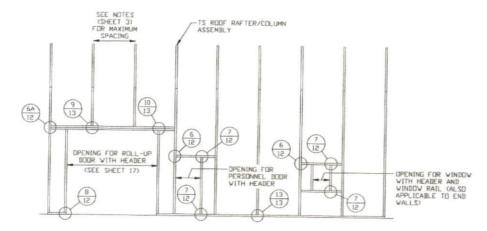
TYPICAL BOW EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOW EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOW EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

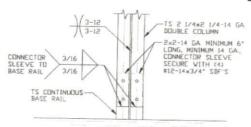
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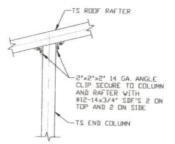
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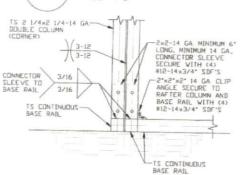
CONNECTION DETAILS



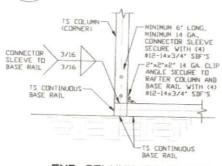
2 1/4×2 1/4-14 GA. MINIMUM 6' LONG, MINIMUM 14 GA., CONNECTOR SLEEVE SECURE WITH (4) #12-14×3/4' SDF'S CONNECTOR SLEEVE TO BASE RAIL 3/16 2UBUNITHOS 21 BASE RAIL



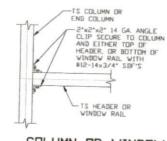
COLUMN/BASE RAIL CONNECTION DETAIL



COLUMN/BASE RAIL CONNECTION DETAIL 3A



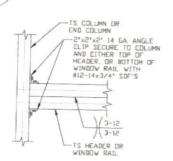
END COLUMN/RAFTER CONNECTION DETAIL 4



END COLUMN/BASE RAIL CONNECTION DETAIL

5

6A

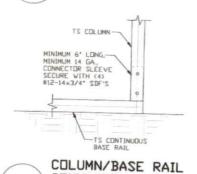


END COLUMN/BASE RAIL CONNECTION DETAIL

TS TRUSSED RAFTER CHORD, OR NON-STRUCTURAL HEADER -2'x2'x2' 14 GA ANGLE
CLIP SECURE TO COLUMN
(EACH SIDE) AND RAFTER
CHORD/RAIL VITH
412-14x3/4' SDF'S 2 ON
BOTTOM AND 2 ON SIDE
NOTE: AT ROLL-UP DOOR
OPENINGS, COLUMN SHOULD
BE FLUSH VITH RAIL END.
CLIP COLUMN TO RAIL
ONLY ON SIDE OPPOSITE
THE OPENING. TS COLUMN OR WINDOW FRAME POST TS HEADER, BASE RAIL OR WINDOW RAIL

5A

COLUMN OR WINDOW RAIL/GIRT TO POST CONNECTION DETAIL 6 SCALE: NTS



CONNECTION DETAIL

COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL

COLUMN TO HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL 7

8

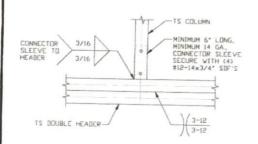
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NGINEER CHAIN

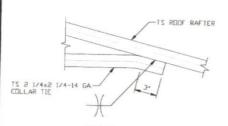
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PROJECT MGR: WSM	32'-0"x16'-0" ENCLOSED STRUCTURE DATE: 10-1-21 SCALE: NTS JDB ND: 21048S				
CLIENT: STEELCRAFT	SHT. 12	DWG. ND: SK-		REV. 0	

CONNECTION DETAILS



9 COLUMN/DOUBLE HEADER
CONNECTION DETAIL
SCALE: NTS



12 COLLAR TIE CONNECTION DETAIL

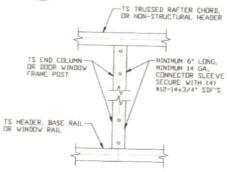
TS DOUBLE HEADER

O MINIMUM 14 GA,
CONNECTOR SLEEVE WITH (4)
SLEEVE TD 3/16

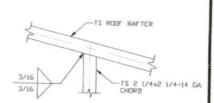
TS COLUMN

TS COLUMN

10 DOUBLE HEADER/COLUMN
CONNECTION DETAIL
SCALE: NTS



COLUMN TO HEADER
OR BASE RAIL
CONNECTION DETAIL
SCALE: NTS



RAFTER TO CHORD CONNECTION DETAIL

SCALE: NTS

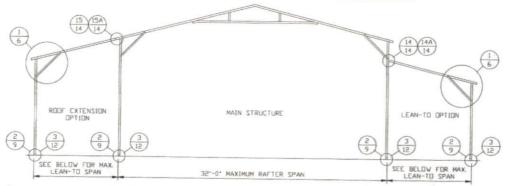
MAY 1 3 2022



MOORE AND ASSOCIATES	
ENGINEERING AND CONSULTING, IN	C.

	CLIENT: STEELCRAFT	SHT. 13	DWG. ND SK-		REV. 0		
1	PROJECT MGR: WSM	STATESVILLE, NC 28677 32'-0"x16'-0" ENCLOSED STRUCTURE DATE: 10-1-21 SCALE: NTS JDB ND: 21048S					
	CHECKED BY: PDH						
	DRAWN BY: LT	STEELCRAFT STRUCTURES 1841 AMITY HILL RD.					

BOX EAVE RAFTER LEAN-TO OPTIONS



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

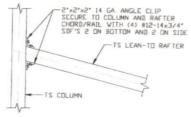
SCALE: NTS

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

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

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 12'-0" < TO < 16'-0".

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMN FOR EAVE HEIGHTS < 12'-0".



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

14

15A

SIDE EXTENSION RAFTER COLUMN DETAIL FOR SPANS & 12'-0'

12' LONG TS 14 GA NIPPLE
SECURE RAFTER TO NIPPLE
WITH (B) 812-14x3/4' SDF'S

3-12

3-12

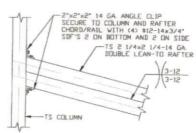
3-12

3-12

6' MINIMUM 6' LONG,
MINIMUM 14 GA,
TS NIPPLE, SECURE
POST TO NIPPLE
WITH (4) 812-14x3/4'
SDF'S

2'x2'x2' 14 GA ANGLE CLIP
SECURE TO COLUMN AND RAFTER
WITH (4) 812-14x3/4' SDF'S

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



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

MAY 1 3 2022

CARO

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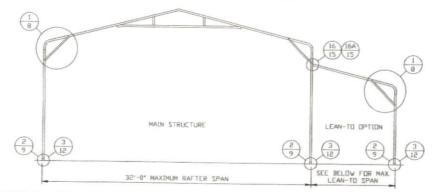
SEAL

26784

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

DRAWN BY: LT CHECKED BY: PDH PROJECT MGR: WSM	STEELCRAFT STRUCTURES 1841 AMITY HILL RD. STATESVILLE, NC 28677 32'-0"x16'-0" ENCLOSED STRUCTURE					
	PROJECT MGR: WSM	DATE: 10-1-21	SCALE: NTS		B ND 21048S	_
	CLIENT: STEELCRAFT	SHT. 14	DWG. ND: SK-3	}	REV. 0	

BOW EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

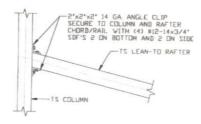
SCALE NTS

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

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

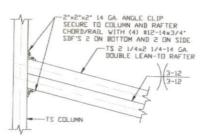
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 12'-0' < TO < 16'-0'.

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMN FOR EAVE HEIGHTS < 12'-0'.



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

16



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 12'-0" < T□ ≤ 16'-0"

16A

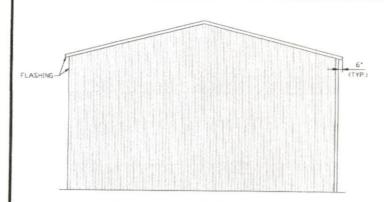
MAY 1 3 2022 OFESSION NO SEAL 26784

NGINEER ON PROFESSION

MOORE AND ASSOCIATES	
ENGINEERING AND CONSULTING, II	VC.

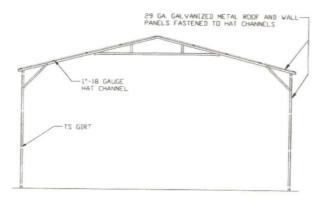
DRAWN BY: LT	STEELCRAFT STRUCTURES 1841 AMITY HILL RD. STATESVILLE, NC 28677 32'-0"x16'-0" ENCLOSED STRUCTURE			
CHECKED BY: PDH				
PROJECT MGR: WSM	DATE: 10-1-21	SCALE: NTS	JOB NO: 21048S	
CLIENT: STEELCRAFT	SHT. 15	DWG. ND: SK-3	REV. 0	

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



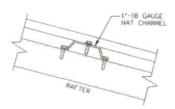
TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



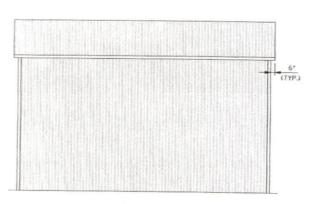
TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



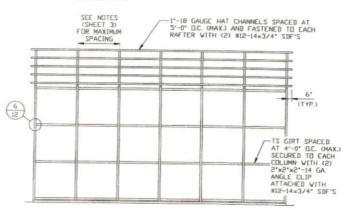
PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS



TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

MAY 1 3 2022

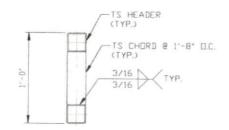
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ENGINEERING AND CONSULTING, I	NC.

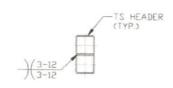
DRAWN BY: LT CHECKED BY: PDH	-	1841 AMITY H 1841 AMITY H STATESVILLE, 1 (16'-0" ENCLOSE	ILL RD NC 286). 577	
PROJECT MGR: WSM	DATE: 10-1-21	SCALE: NTS		ND 21048S	
CLIENT: STEELCRAFT	SHT. 16	DWG. ND SK-3	3	REV. 0	

SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 14'-0' < LENGTH < 16'-0'

SCALE: NTS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 8'-0" < LENGTH \(\) 14'-0"

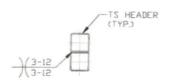
SCALE: NTS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS & 8'-0'

SCALE: NTS

END WALL HEADER OPTIONS



HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 13'-0" < LENGTH < 16'-0"

SCALE: NTS



HEADER DETAIL FOR END WALL DOOR OPENINGS ≤ 13'-0"

SCALE: NTS



MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: LT CHECKED BY: PDH	STEELCRAFT STRUCTURES 1841 AMITY HILL RD. STATESVILLE, NC 28677 32'-0"x16'-0" ENCLOSED STRUCTUR		L RD. C 28677
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HIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	CLIENT: STEELCRAFT	SHT. 17	DVG. ND: SK-3	REV. 0