Mike Fino
220 Bishop Mill Ln.
Lillington, NC 27546
24'x31x'9'

STRUCTURAL DESIGN
RISK CATEGORY I/II
ENCLOSED BUILDING

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

10 November 2020
Revision 0
M&A Project No. 20214S

Prepared for:

Luna Metal Buildings
468 N Fayetteville Street
Asheboro, NC 27203

Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue
North Augusta, SC 29841

401 S. Main Street, Suite 200
Mount Airy, NC 27030

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

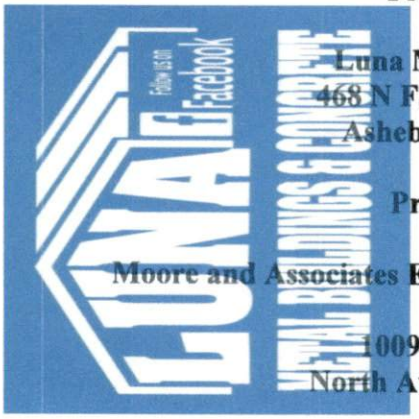
Mike Fino
220 Bishop Mill Ln.
Lillington, NC 27546
24'x31x'9'

STRUCTURAL DESIGN
RISK CATEGORY I/II
ENCLOSED BUILDING

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

10 November 2020
Revision 0
M&A Project No. 20214S

Prepared for:



Luna Metal Buildings
468 N Fayetteville Street
Asheboro, NC 27203

Prepared by:

Moore and Associates Engineering and Consulting, Inc.

1009 East Avenue
North Augusta, SC 29841

401 S. Main Street, Suite 200
Mount Airy, NC 27030

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
No. 18604
11/11/20
WAYNE S. MOORE

COMMONWEALTH OF VIRGINIA
WAYNE S. MOORE
Lic. No. 051637
11/11/20
PROFESSIONAL ENGINEER

SOUTH CAROLINA
MOORE
AND
ASSOCIATES, INC.
No. C02968
CERTIFICATE OF AUTHORIZATION

WAYNE S. MOORE
REGISTERED ENGINEER
AGRICULTURE
11/11/20
COMMERCE
No. 102025
STATE OF TENNESSEE

NORTH CAROLINA
PROFESSIONAL
SEAL
26784
11/11/20
ENGINEER
WAYNE S. MOORE

LUNA
Follow us on Facebook
METAL BUILDINGS & CONCRETE

NORTH CAROLINA
Moore and
Associates
Engineering and
Consulting, Inc.
No. C-3166
CERTIFICATE OF AUTHORIZATION

GEORGIA
REGISTERED
No. 24069
PROFESSIONAL
11/11/20
ENGINEER
WAYNE S. MOORE

MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG
CHECKED BY: PDH
PROJECT MGR: WSM
CLIENT: LUNA METAL

LUNA METAL BUILDINGS
468 N FAYETTEVILLE ST.
ASHEBORO, NC 27203
30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE

DATE: 11-10-20 | SCALE: NTS | JOB NO: 20214S
SHT. 1 | DWG. NO: SK-3 | REV: 0

DRAWING INDEX

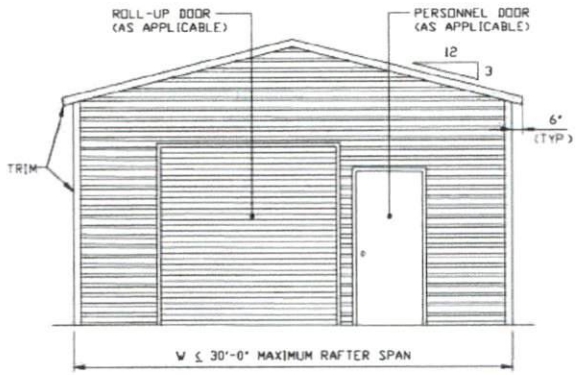
MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
CLIENT: LUNA METAL	SHT. 2	DWG. NO: SK-3	REV: 0

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 2018 NORTH CAROLINA BUILDING CODE, 2012 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC, AND 2018 IBC
3. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 11.5 PSF FOR RISK CATEGORY II
   = 15 PSF FOR RISK CATEGORY I.
   B) LIVE LOAD = 20 PSF FOR RISK CATEGORY II
   = 12 PSF FOR RISK CATEGORY I.
   C) GROUND SNOW LOAD = 30 PSF WITH U-CHANNEL PEAK BRACE (W $\leq$ 24-'0)
   = 35 PSF
   (UNBALANCED SNOW LOADS DUE TO DRIFTING HAVE NOT BEEN EVALUATED)
4. 3-SECOND ULTIMATE WIND SPEED (V_{ULT}) = $\leq$ 155 MPH (NOMINAL WIND SPEED = 120 MPH) FOR RISK CATEGORY II.
5. 3-SECOND ULTIMATE WIND SPEED (V_{ULT}) = $\leq$ 145 MPH (NOMINAL WIND SPEED = 112 MPH) FOR RISK CATEGORY I.
6. MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET FOR RISK CATEGORY II (UNLESS NOTED OTHERWISE)
7. MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET FOR RISK CATEGORY I (UNLESS NOTED OTHERWISE)
8. END WALL COLUMNS/POSTS ARE EQUIVALENT TO SIDE WALL COLUMNS/POSTS IN SIZE AND SPACING UNLESS NOTED OTHERWISE
9. RISK CATEGORY I/II
10. WIND EXPOSURE CATEGORY B (RISK CATEGORY I)/C (RISK CATEGORY II)
11. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/4"x2 1/4"-14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE). WHERE TS 2 1/4" x 2 1/4" - 14 GAUGE IS SPECIFIED, TS 2 1/4" x 2 1/4" - 12 GAUGE MAY BE USED AS AN OPTION
12. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS, AND COLUMNS (INTERIOR OR END) = 10" O.C. (MAX.) FOR RISK CATEGORY I AND 8" O.C. (MAX.) FOR RISK CATEGORY II. FOR WIND SPEEDS > 145 MPH = 6" O.C. (MAX.).
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 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.
14. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES
15. STANDARD SOIL NAIL FOUNDATION SYSTEM CONSISTS OF #4 REBAR W/ WELDED NUT x 30" LONG AND ARE APPLICABLE ONLY IN MEDIUM TO STIFF (SUITABLE) SOILS. SOIL NAILS MAY BE USED FOR WIND SPEEDS $\leq$ 145 MPH. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS > 145 MPH AND/OR IN UNSUITABLE SOILS AS NOTED. COORDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
16. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
    SOIL SITE CLASS = D
    RISK CATEGORY I/II
    R= 3.25 I_E= 1.0
    S_{DS}= 2.039 g V= C_SW
    S_{D1}= 1.258 g
17. FOR RISK CATEGORY II STRUCTURES, MAXIMUM THRESHOLD HEIGHT OF 1/2" FOR PERSONNEL DOORS UTILIZED AS MEANS OF EGRESS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 3	DWG. NO: SK-3	REV: 0

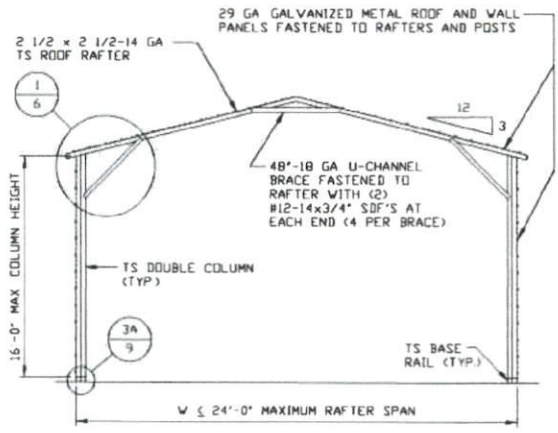


TYPICAL END ELEVATION
SCALE: NTS

TYPICAL SIDE ELEVATION
SCALE: NTS

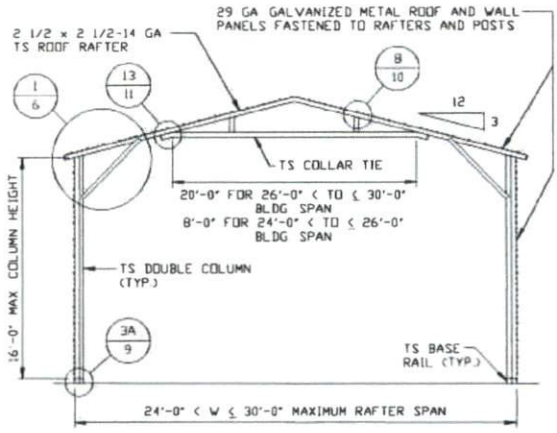
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSH	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 4	DWG. NO: SK-3	REV.: 0

EXPOSURE B



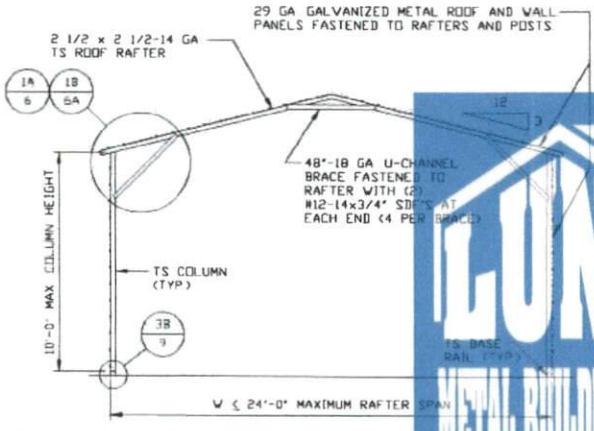
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



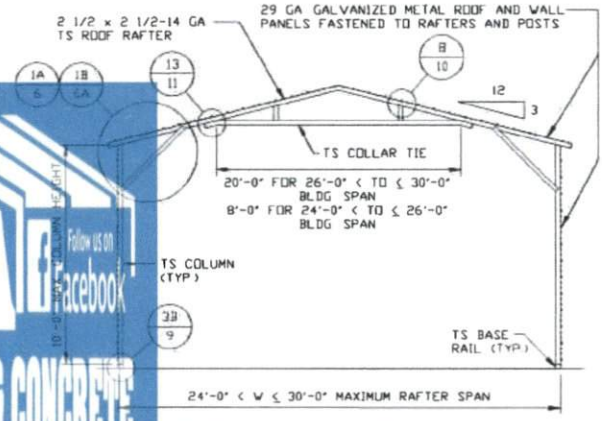
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



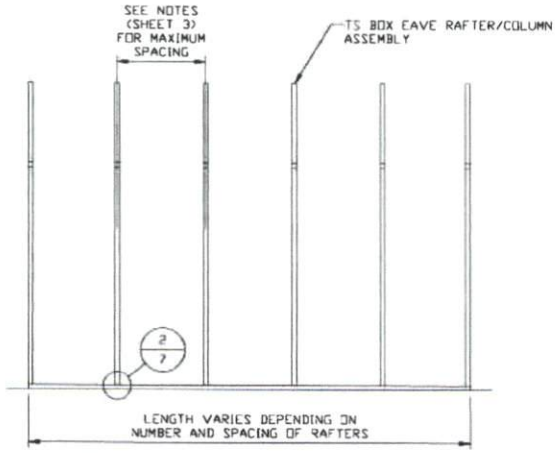
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAMING SECTION

SCALE: NTS

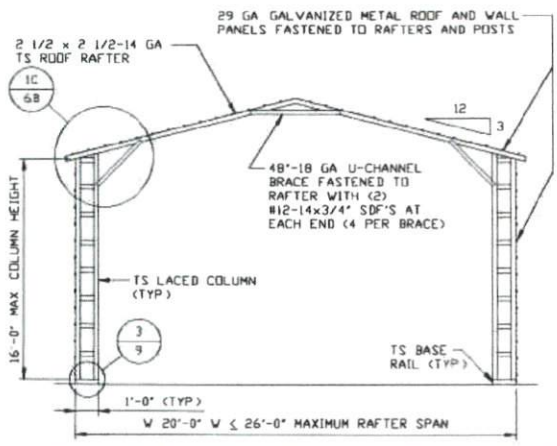


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

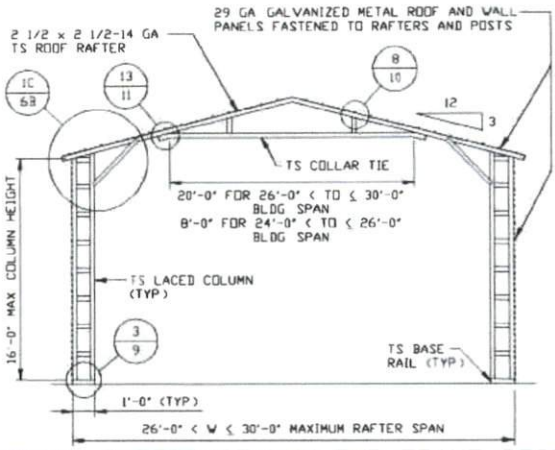
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE	
	CHECKED BY: PDH		
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS / JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 5	DWG. NO: SK-3 / REV: 0

EXPOSURE C



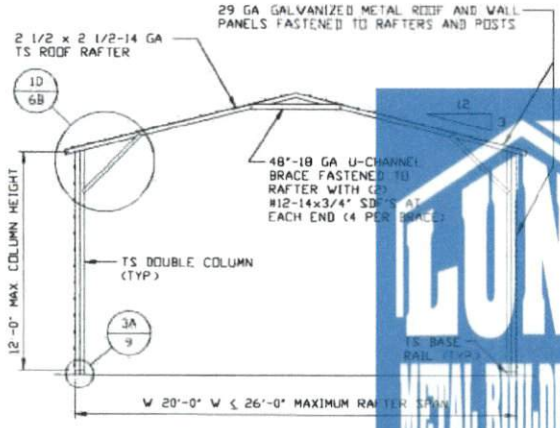
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



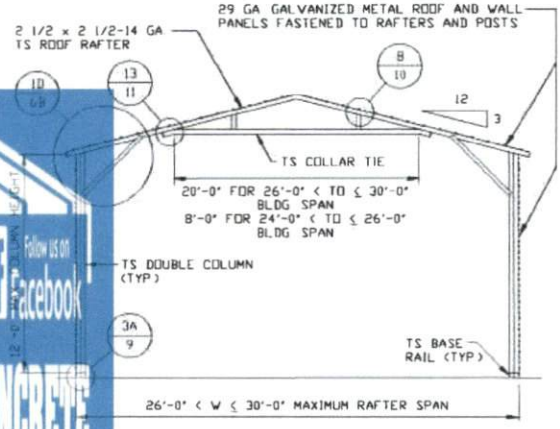
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



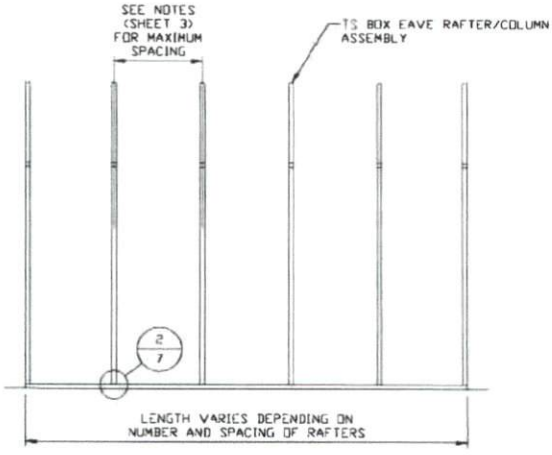
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAMING SECTION

SCALE: NTS

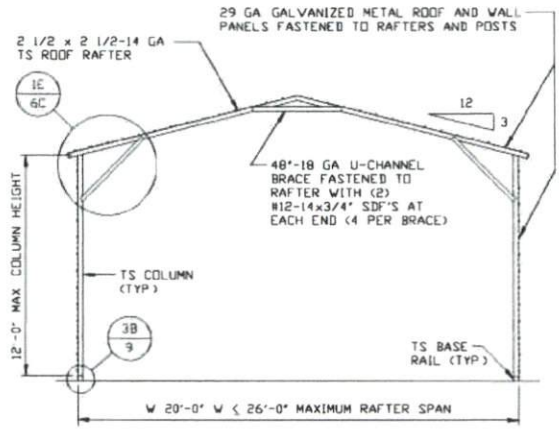


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

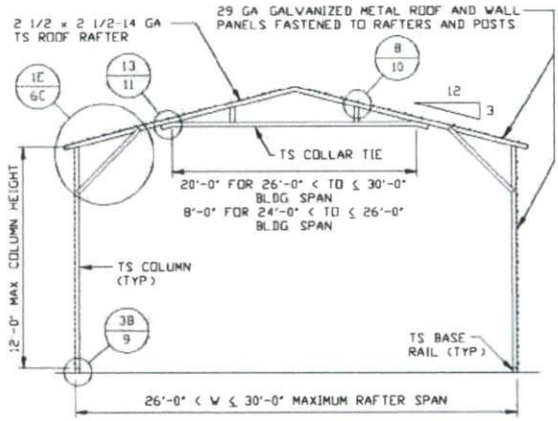
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 5B	DWG. NO: SK-3	REV.: 0

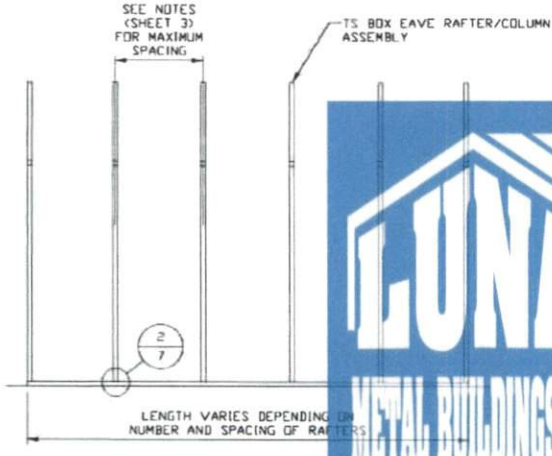
EXPOSURE C



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



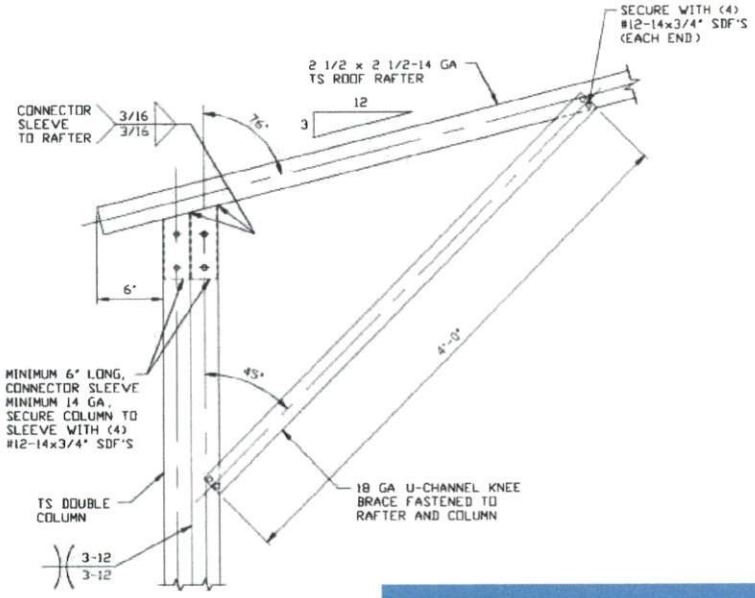
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 5A	DWG. NO: SK-3	REV: 0

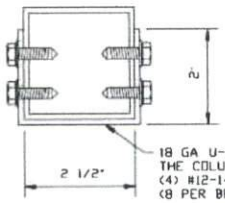
EXPOSURE B
COLUMN CONNECTION DETAILS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 16'-0"

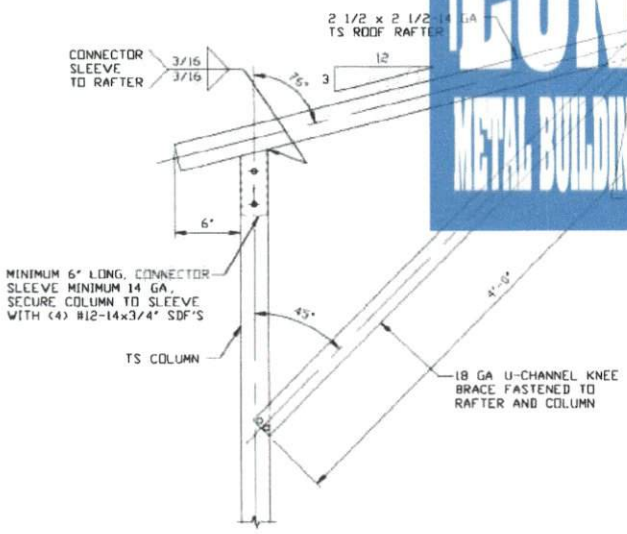
1

SCALE: NTS



BRACE SECTION

SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 10'-0"

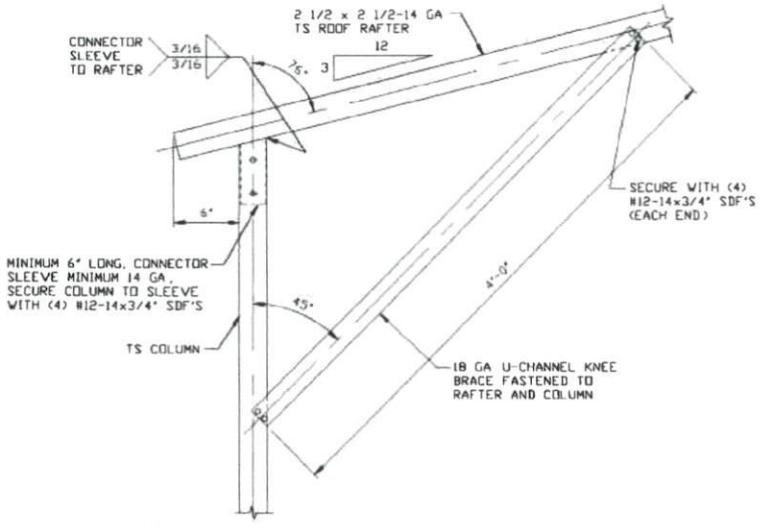
1A

SCALE: NTS

NOTE: SINGLE COLUMN HEIGHT UP TO 12'-0" FOR MAXIMUM 115 MPH WIND SPEED

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE
	PROJECT MGR: WSM	DATE: 11-10-20 / SCALE: NTS / JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 6 / DWG. NO: SK-3 / REV: 0

EXPOSURE B
COLUMN CONNECTION DETAILS

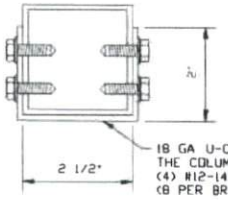


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0"

1B

SCALE: NTS

NOTE: 2'-0" KNEE BRACE MAY BE USED FOR BUILDING WIDTHS ≤ 28'-0"



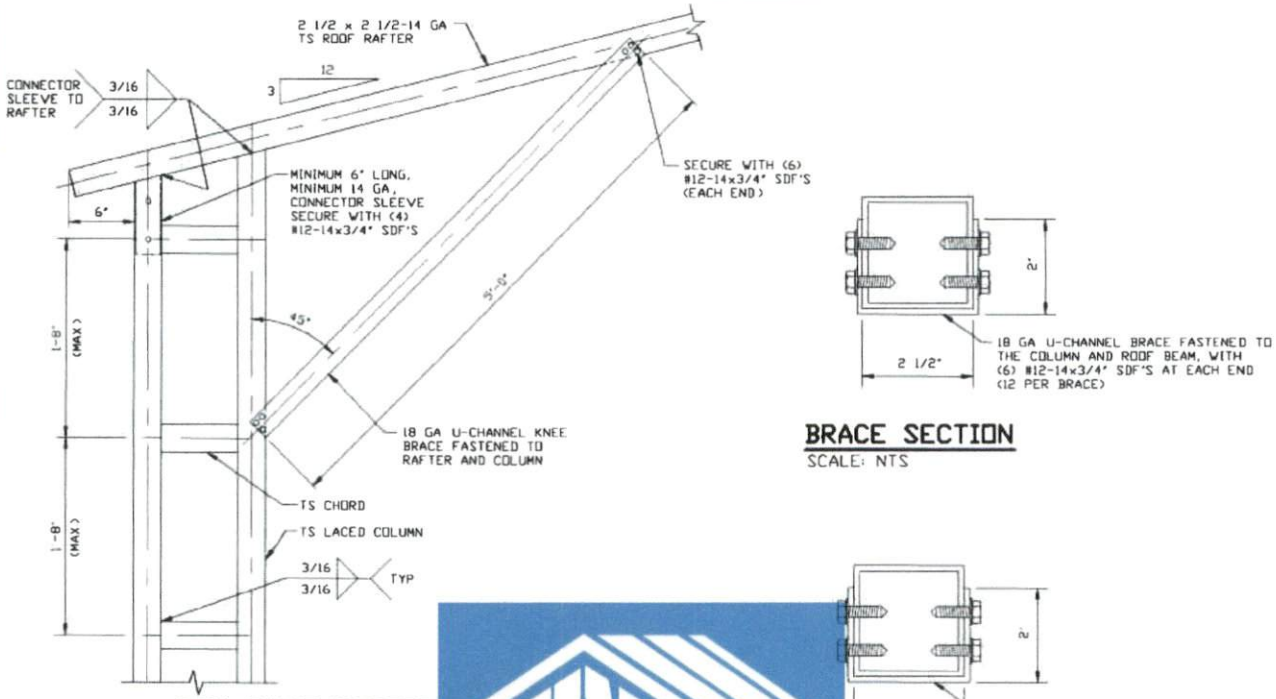
18 GA U-CHANNEL BRACE FASTENED TO THE COLUMN AND RAFTER BEAR WITH (4) #12-14x3/4" SDF'S AT EACH END (8 PER BRACE)

BRACE SECTION

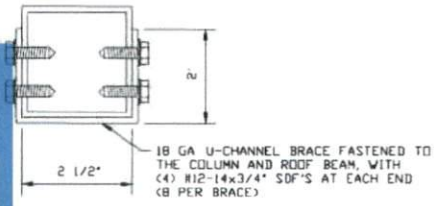
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 6A	DWG. NO: SK-3	REV: 0

EXPOSURE C
COLUMN CONNECTION DETAILS

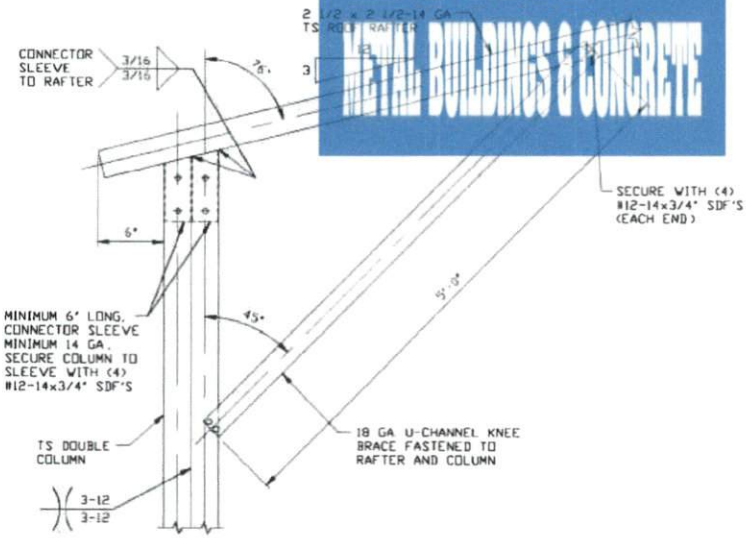


BRACE SECTION
SCALE: NTS



BRACE SECTION
SCALE: NTS

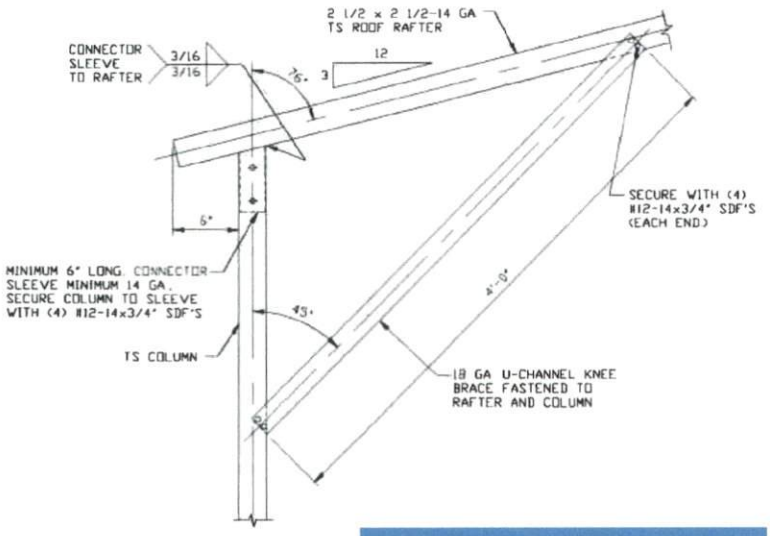
1C BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS
NOTE: 4'-0" KNEE BRACE FOR BUILDING SPANS ≤ 28'-0"



1D BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"
SCALE: NTS
NOTE: 4'-0" KNEE BRACE FOR BUILDING SPANS ≤ 28'-0"

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE	
	CHECKED BY: PDH		
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS / JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 6B	DWG. NO: SK-3 / REV: 0

EXPOSURE C
COLUMN CONNECTION DETAILS

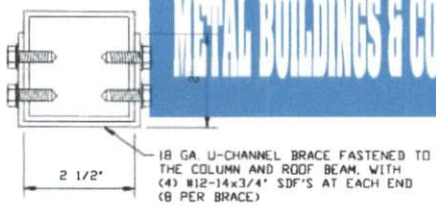


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"

1E

SCALE: NTS

NOTE: SINGLE COLUMN HEIGHT UP TO 12'-0" FOR MAXIMUM 105 MPH WIND SPEED

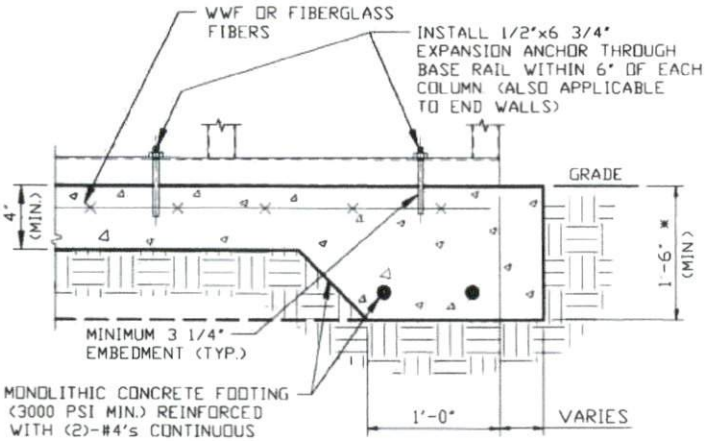


BRACE SECTION

SCALE: NTS

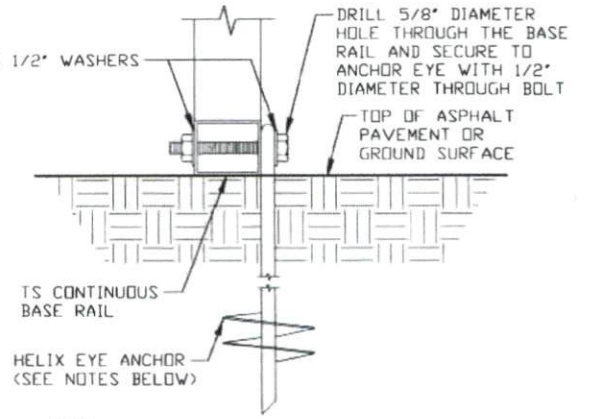
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE
PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS — JOB NO: 20214S
CLIENT: LUNA METAL	SHT. 6C	DWG. NO: SK-3 — REV: 0

BASE RAIL ANCHORAGE OPTIONS (EXPOSURE B)



2 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
NOTE: MIN. ANCHOR EDGE DISTANCE IS 4"
* COORDINATE WITH LOCAL BUILDING CODE ORD. REGARDING REQUIRED FROST DEPTH (LENGTH)



2B GROUND BASE HELIX ANCHORAGE

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

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 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

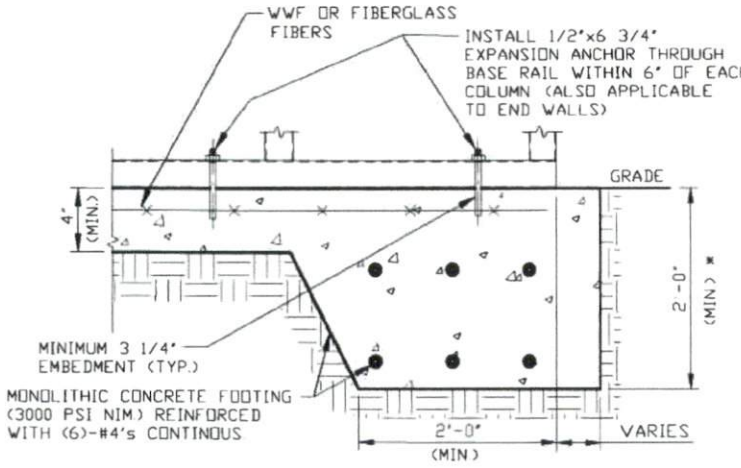
HELIX ANCHOR NOTES:

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 LOOSE 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

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 7	DWG. NO: SK-3	REV: 0

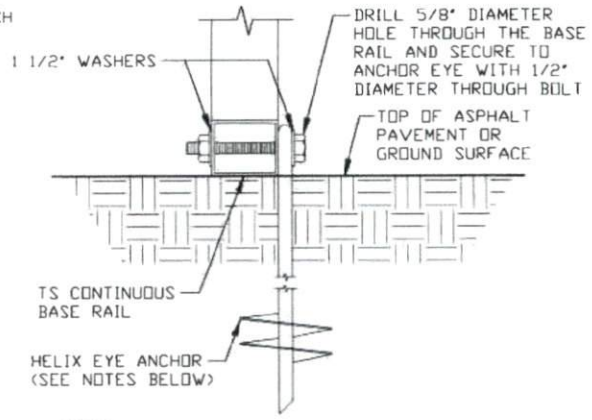
Cindi Wood
105 Halls Creek Drive
Swansboro Nc 28584

BASE RAIL ANCHORAGE OPTIONS (EXPOSURE C)



2 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
NOTE: MIN. ANCHOR EDGE DISTANCE IS 4"
* COORDINATE WITH LOCAL BUILDING CODE ORD REGARDING REQUIRED FROST DEPTH (LENGTH)



2B GROUND BASE HELIX ANCHORAGE

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

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 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:

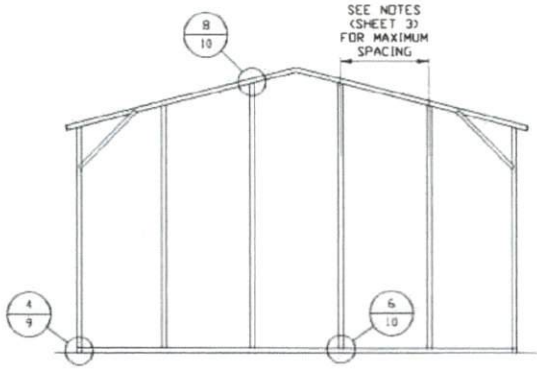
1. REINFORCEMENT IS BENT COLD
2. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS
3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT

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 LOOSE 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.

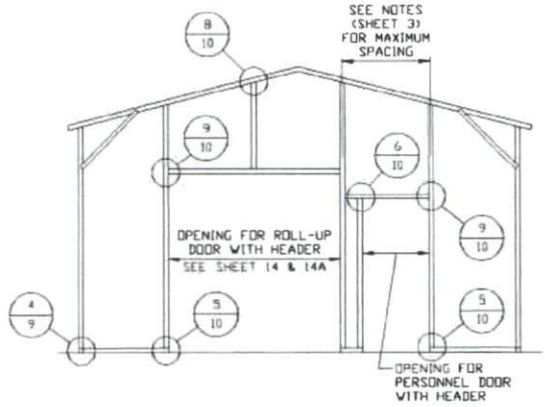
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 7A	DWG. NO: SK-3	REV: 0

BOX EAVE RAFTER END WALL AND END WALL OPENINGS



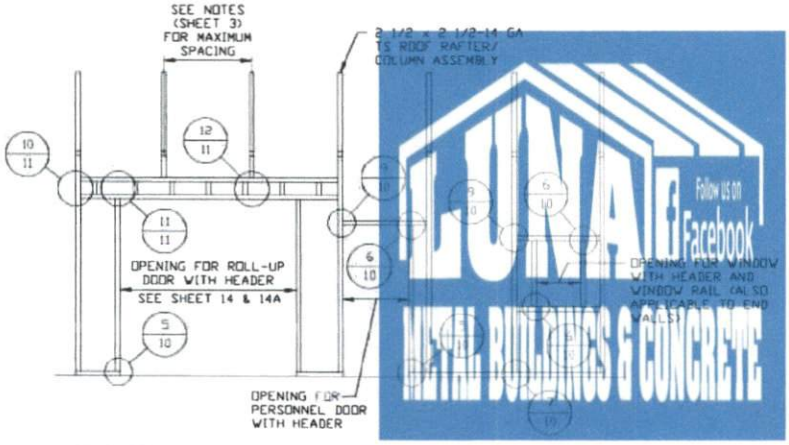
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS

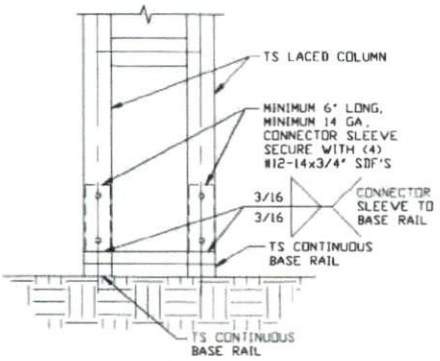


TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

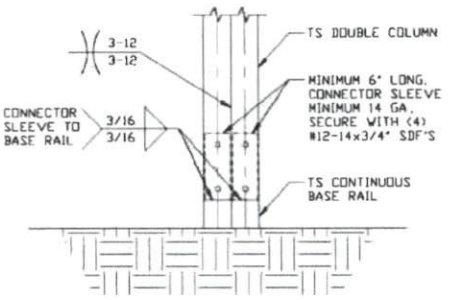
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT: 8	DWG. NO: SK-3	REV: 0

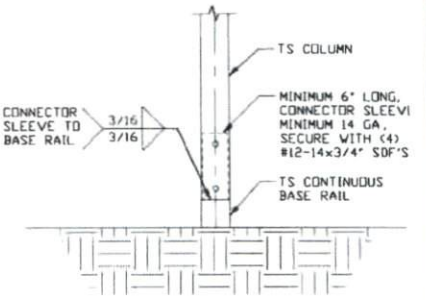
CONNECTION DETAILS



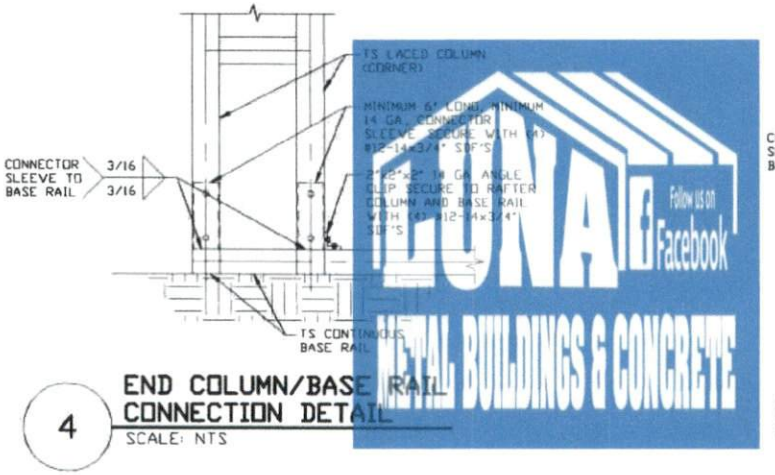
3 RAFTER COLUMN/ BASE RAIL CONNECTION DETAIL
SCALE: NTS



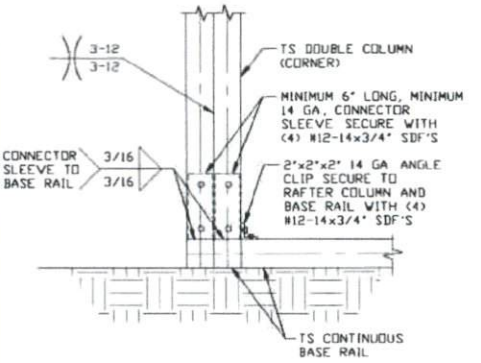
3A RAFTER COLUMN/ BASE RAIL CONNECTION DETAIL
SCALE: NTS



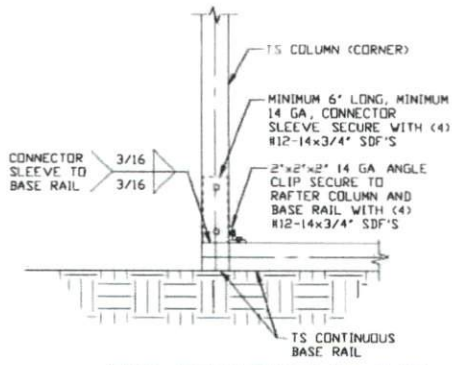
3B RAFTER COLUMN/ BASE RAIL CONNECTION DETAIL
SCALE: NTS



4 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



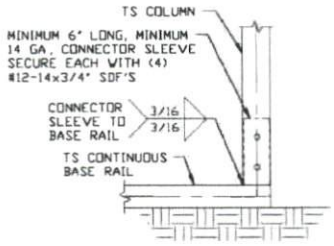
4A END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



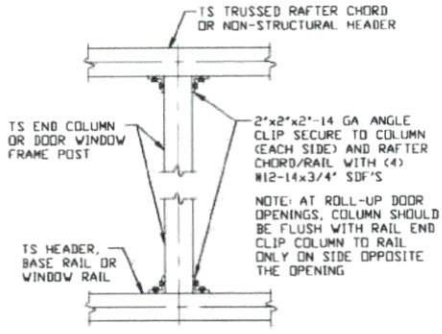
4B END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 9	DWG. NO: SK-3	REV.: 0

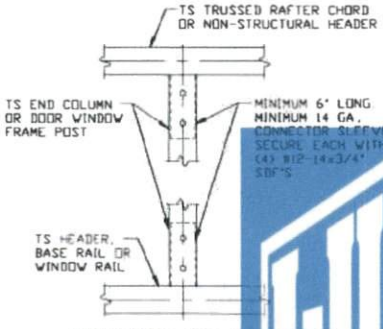
CONNECTION DETAILS



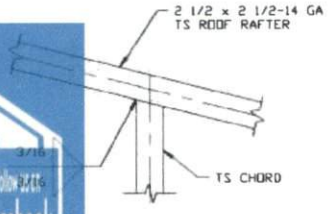
5 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



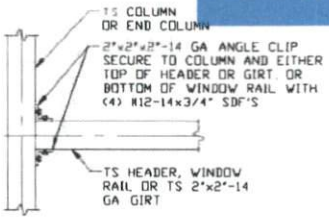
6 COLUMN TO WINDOW RAIL CONNECTION DETAIL
SCALE: NTS



7 COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL
SCALE: NTS



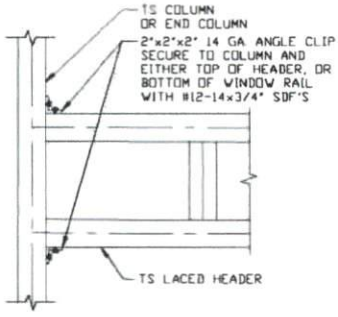
8 CHORD TO POST CONNECTION DETAIL
SCALE: NTS



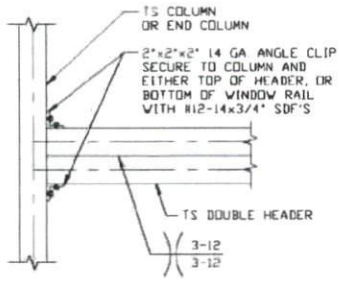
9 COLUMN OR WINDOW RAIL/WALL GIRT TO POST CONNECTION DETAIL
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSM CLIENT: LUNA METAL	DATE: 11-10-20 SCALE: NTS JOB NO: 20214S SHT. 10 DWG. NO: SK-3 REV: 0

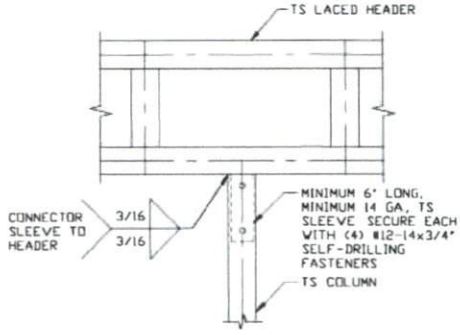
CONNECTION DETAILS



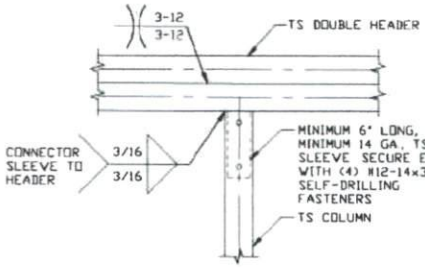
10 LACED HEADER TO COLUMN CONNECTION DETAIL
SCALE: NTS



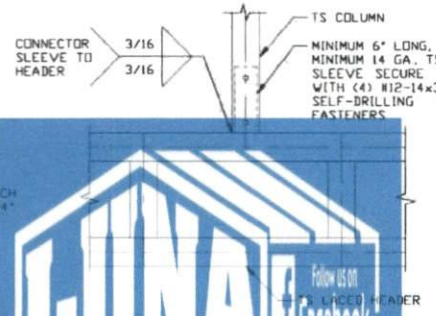
10A DOUBLE HEADER TO COLUMN CONNECTION DETAIL
SCALE: NTS



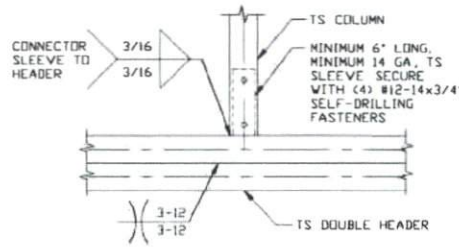
11 LACED HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS



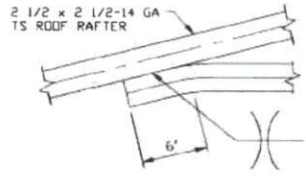
11A DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS



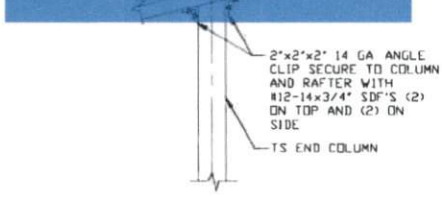
12 COLUMN/LACED HEADER CONNECTION DETAIL
SCALE: NTS



12A COLUMN/LACED HEADER CONNECTION DETAIL
SCALE: NTS



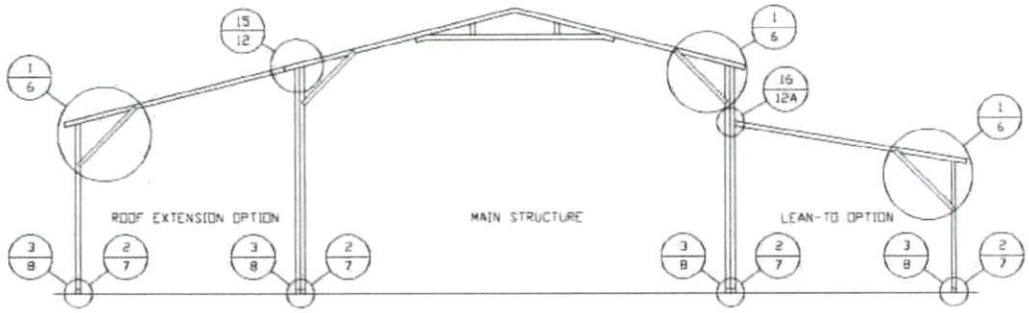
13 COLLAR TIE CONNECTION DETAIL
SCALE: NTS



14 END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 11	DWG. NO: SK-3	REV: 0

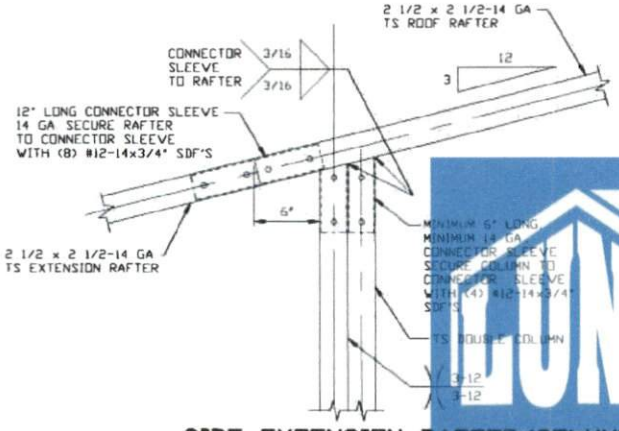
BOX EAVE RAFTER LEAN-TO OPTIONS



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

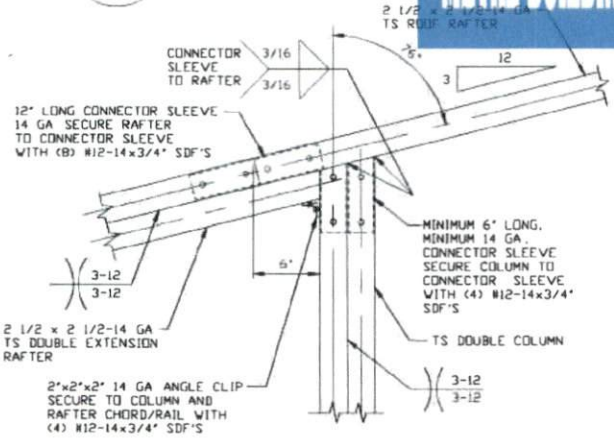
SCALE: NTS

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



15 SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS ≤ 10'-0"

SCALE: NTS

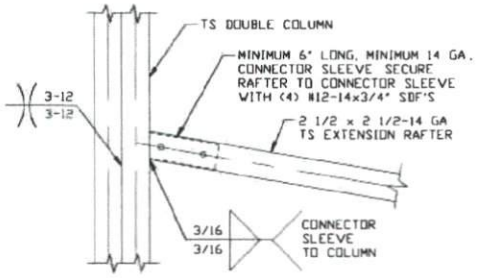


15A SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 10'-0" < TO ≤ 12'-0"

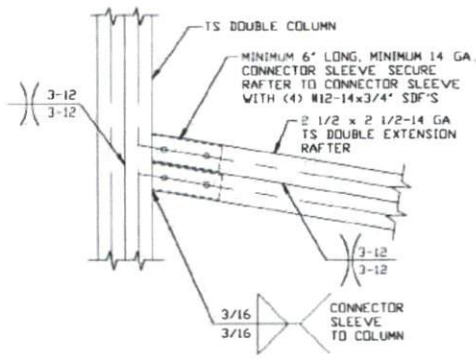
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 12	DWG. NO: SK-3	REV: 0

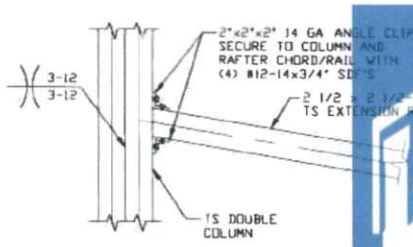
BOX EAVE RAFTER LEAN-TO OPTIONS



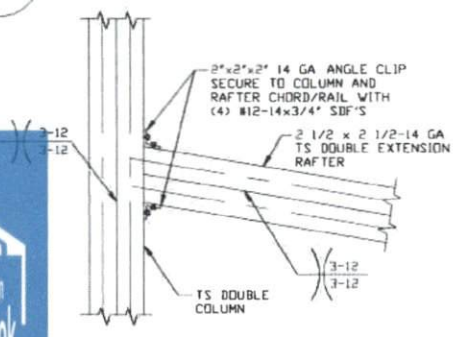
16 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 10'-0"
SCALE: NTS



16A LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 10'-0" < TO ≤ 12'-0"
SCALE: NTS



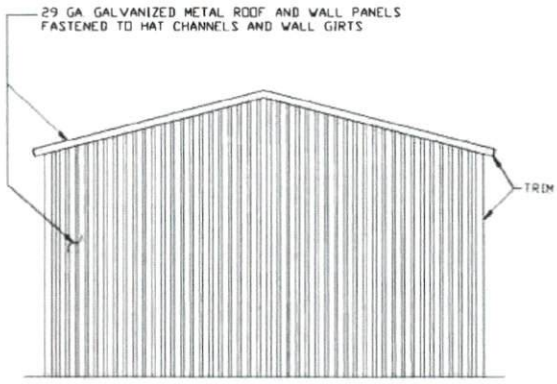
16B LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 10'-0"
SCALE: NTS



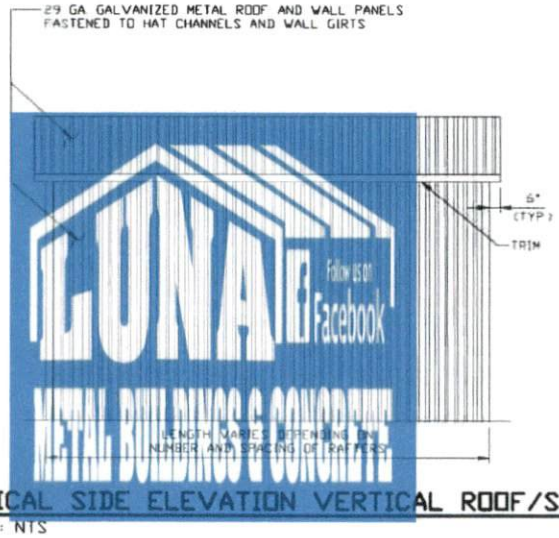
16C LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 10'-0" < TO ≤ 12'-0"
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 12A	DWG. NO: SK-3	REV: 0

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



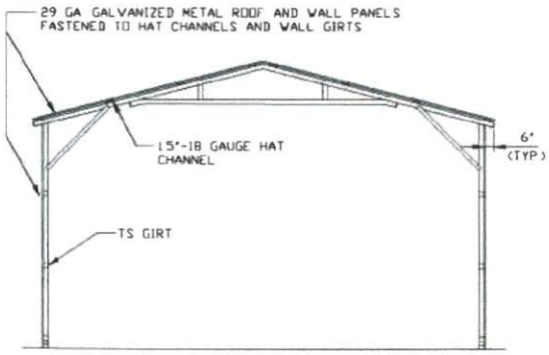
TYPICAL END ELEVATION VERTICAL ROOF/SIDING
SCALE: NTS



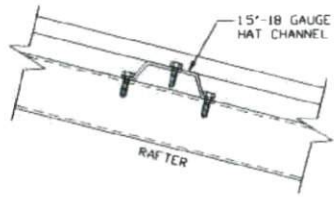
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE	
THIS DOCUMENT IS THE PROPERTY OF MOORE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS / JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 13	DWG. NO: SK-3 / REV: 0

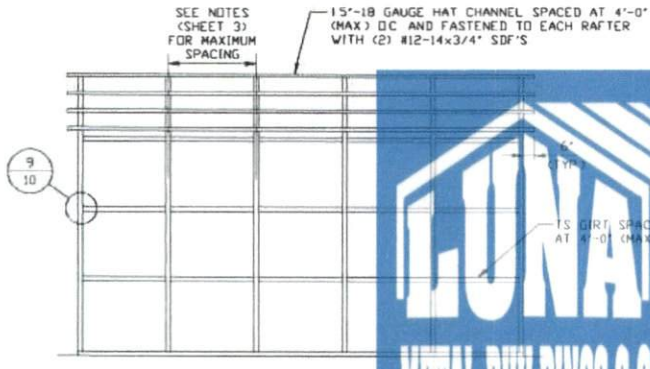
BOX EAVE RAFTER VERTICAL ROOF/SIDING



TYPICAL SECTION VERTICAL ROOF/SIDING
SCALE: NTS



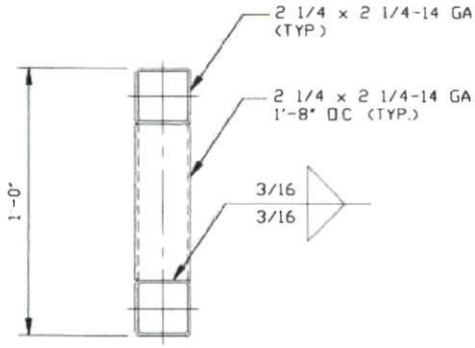
PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS



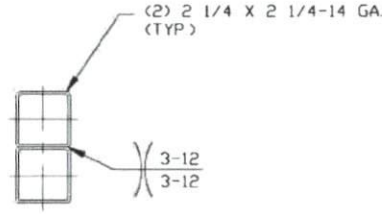
TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 13A	DWG. NO: SK-3	REV.: 0

EXPOSURE B
SIDE WALL HEADER OPTIONS

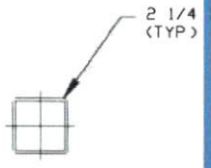


HEADER DETAIL FOR
SPANS 10'-0" < TO ≤ 14'-0"
SCALE: NTS



HEADER DETAIL FOR
SPANS ≤ 10'-0"
SCALE: NTS

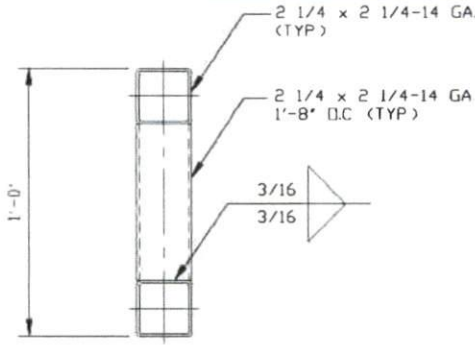
END WALL HEADER OPTIONS



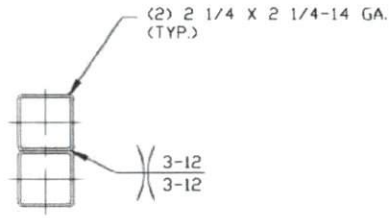
HEADER DETAIL FOR
SPANS ≤ 14'-0"
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE	
	CHECKED BY: PDH		
	PROJECT MGR: VSH	DATE: 11-10-20	SCALE: NTS / JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 14	DWG. NO: SK-3 / REV: 0

EXPOSURE C
SIDE WALL HEADER OPTIONS

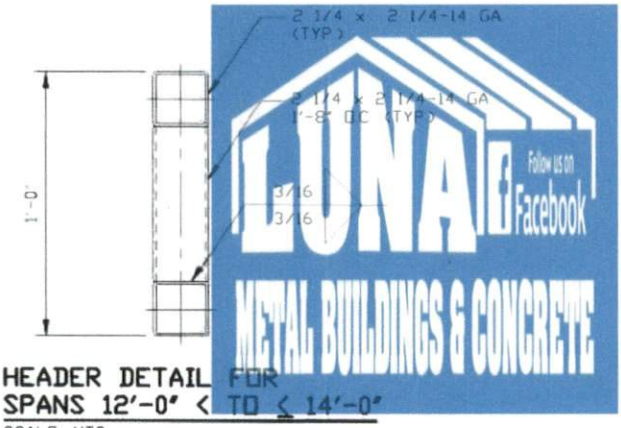


HEADER DETAIL FOR
SPANS 8'-0" < TO ≤ 14'-0"
SCALE: NTS

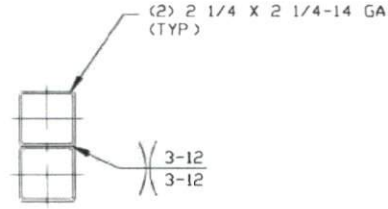


HEADER DETAIL FOR
SPANS ≤ 8'-0"
SCALE: NTS

END WALL HEADER OPTIONS



HEADER DETAIL FOR
SPANS 12'-0" < TO ≤ 14'-0"
SCALE: NTS



HEADER DETAIL FOR
SPANS 7'-0" < TO ≤ 12'-0"
SCALE: NTS

HEADER DETAIL FOR
SPANS ≤ 7'-0"
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	LUNA METAL BUILDINGS 468 N FAYETTEVILLE ST. ASHEBORO, NC 27203 30'-0"x20'-0" RC I / II ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
	PROJECT MGR: WSH	DATE: 11-10-20	SCALE: NTS	JOB NO: 20214S
	CLIENT: LUNA METAL	SHT. 14A	DWG. NO: SK-3	REV: 0