



STRUCTURAL DESIGN

ENCLOSED BUILDING

**MAXIMUM 30'-0" WIDE X 14'- 0" EAVE HEIGHT-
BOX EAVE FRAME AND BOW FRAME**

**14 January 2021
Revision 0
M&A Project No. 20320S**

Prepared for:




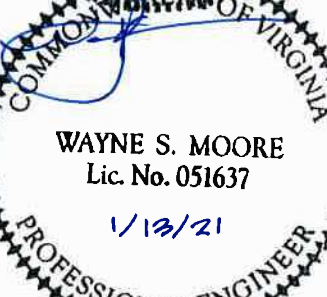
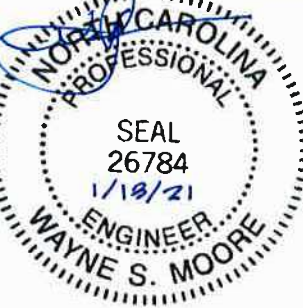
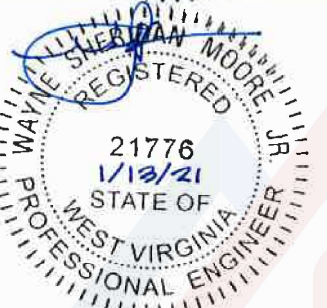


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Dobson, NC 27017**

Prepared by:

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CARPORITSNSHEDS.COM

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	<p>CHECKED BY: PDH</p>	<p>PROJECT MGR: WSM</p>	<p>DATE: 1-14-21</p>	<p>SCALE: NTS</p>
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INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 14'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE, 2018 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC AND 2012 IBC
3. DESIGN LOADS ARE AS FOLLOWS:
 - A) DEAD LOAD = 1.5 PSF
 - B) LIVE LOAD = 12 PSF
 - C) GROUND SNOW LOAD = 30 PSF ($W \leq 24'-0"$), 35 PSF ($24'-0" < W \leq 30'-0"$)

NOTE: UNBALANCED SNOW LOAD DUE TO DRIFTING 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 = 50 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 #12-14x3/4" 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.
12. 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 30" LONG AND MAY ONLY 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.
14. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
 - SOIL SITE CLASS = D
 - RISK CATEGORY I
 - $R = 3.25$ $I_E = 1.0$
 - $S_{DS} = 2.039 g$ $V = C_S W$
 - $S_{M1} = 1.258 g$



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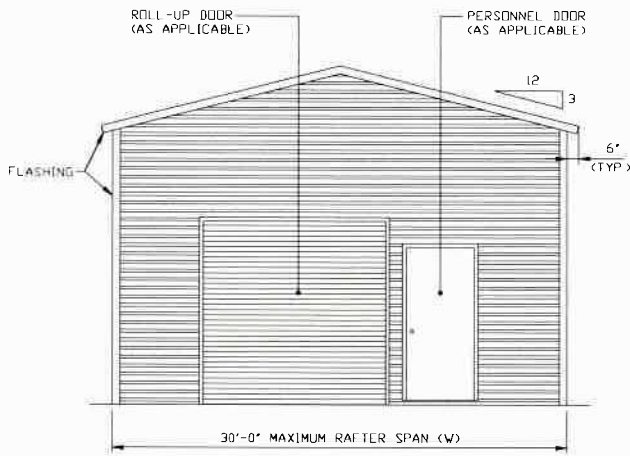
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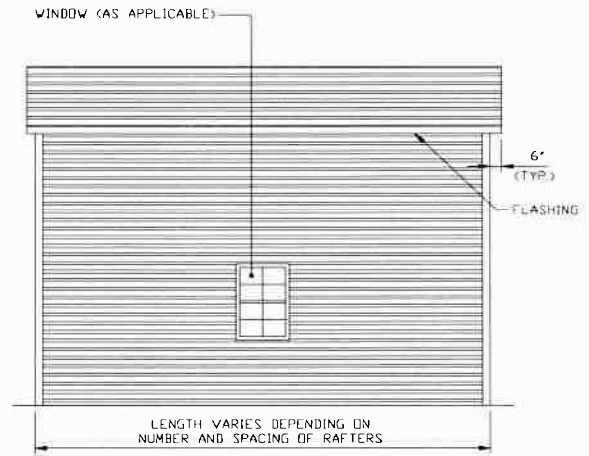
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BOX EAVE FRAME RAFTER STRUCTURE

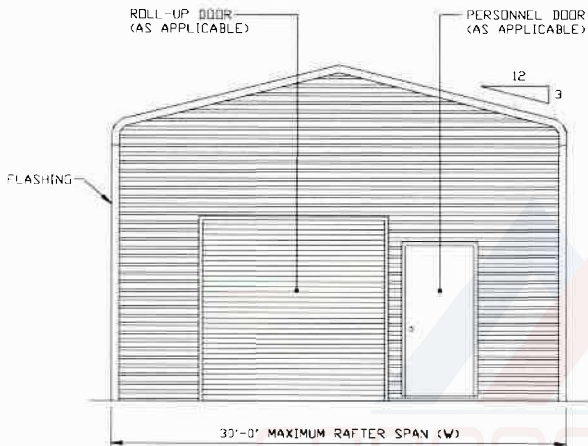


TYPICAL END ELEVATION
 SCALE: NTS

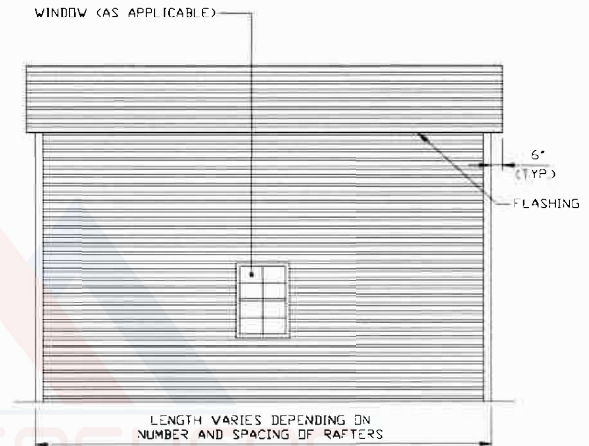


TYPICAL SIDE ELEVATION
 SCALE: NTS

BOX EAVE FRAME RAFTER STRUCTURE



TYPICAL END ELEVATION
 SCALE: NTS



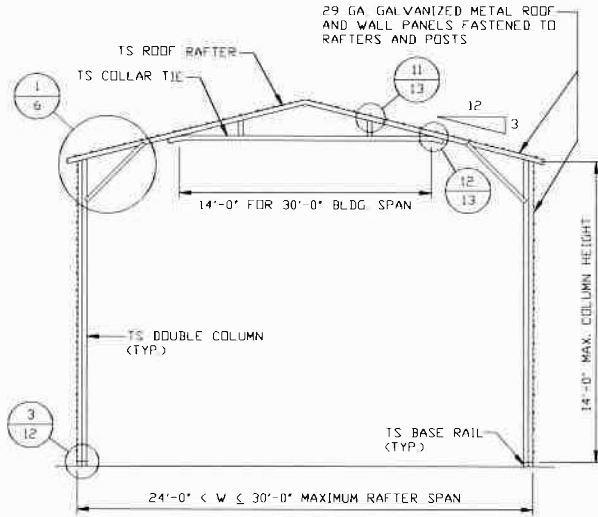
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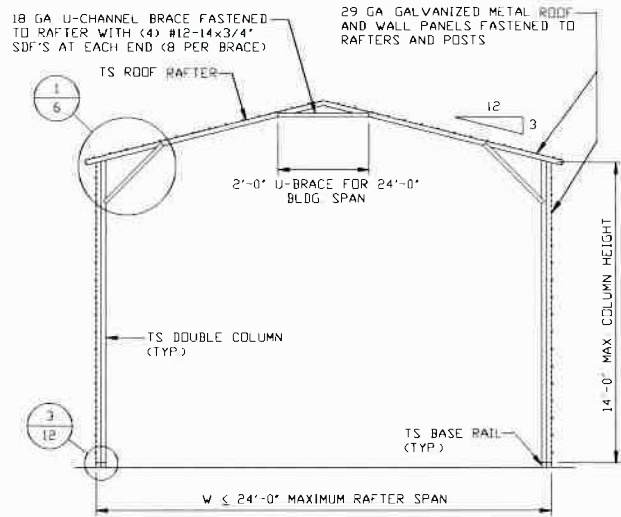
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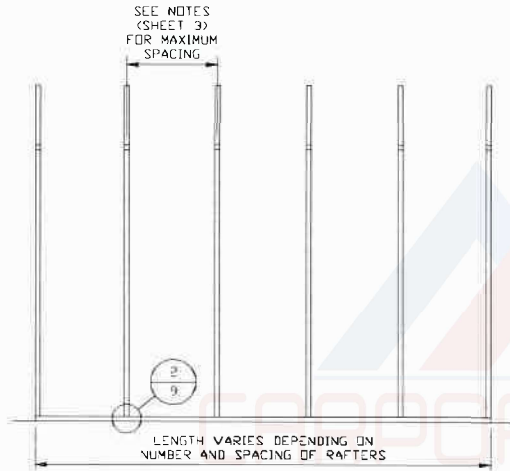
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TYPICAL RAFTER/COLUMN FRAME SECTION
 SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
 SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
 SCALE: NTS

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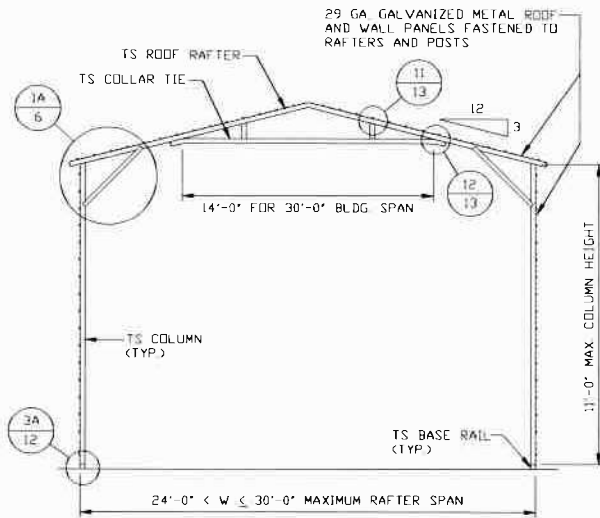
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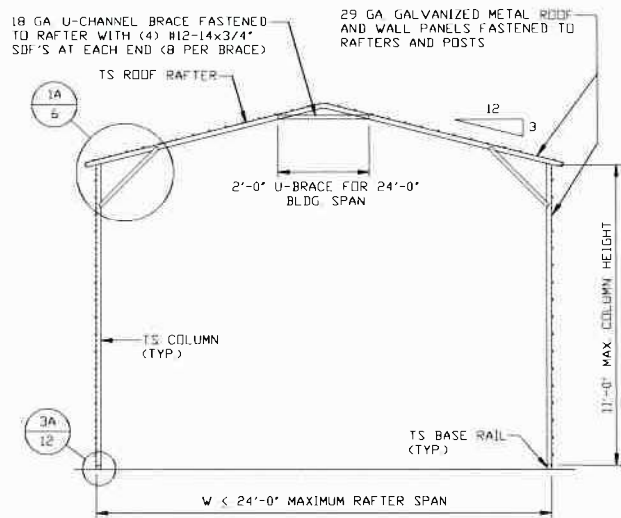
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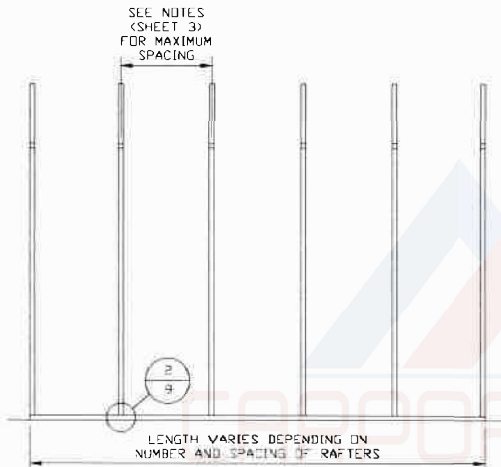
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TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
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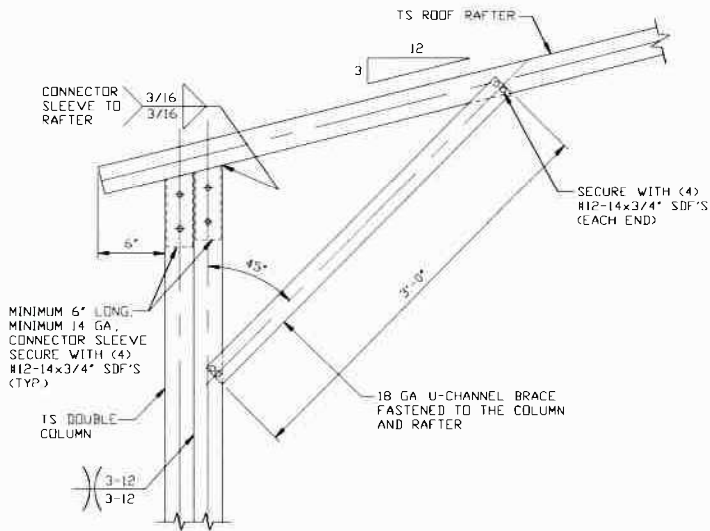
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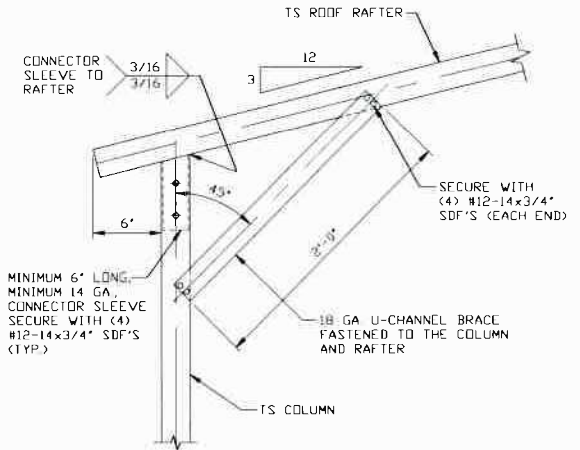
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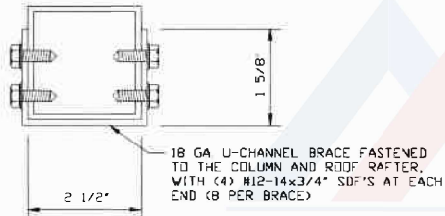
1 BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO <= 14'-0"

SCALE: NTS



1A BOX EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS <= 11'-0"

SCALE: NTS



BRACE SECTION

SCALE: NTS

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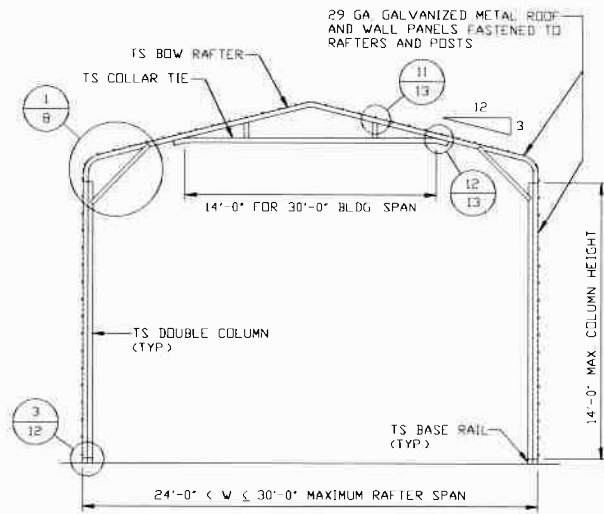
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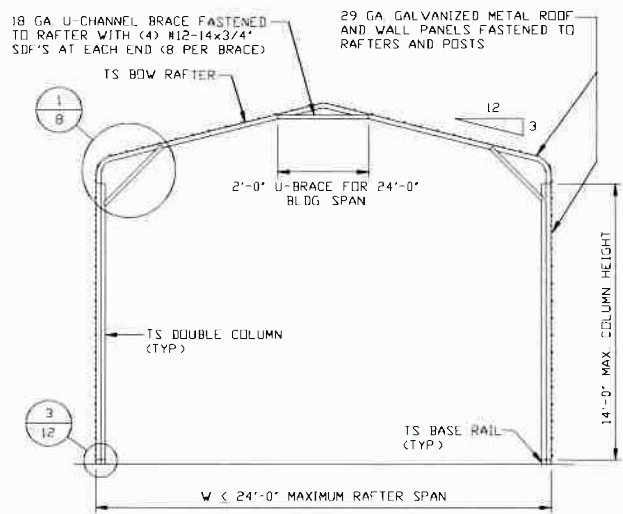
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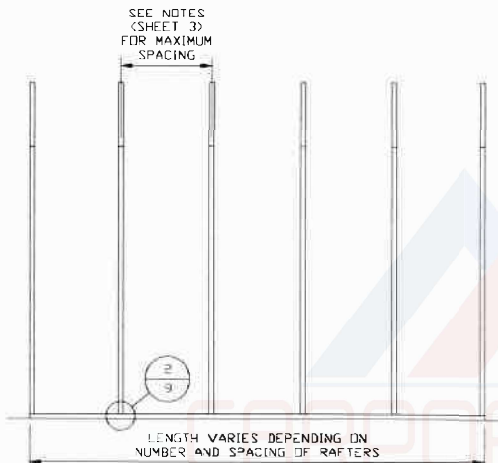
TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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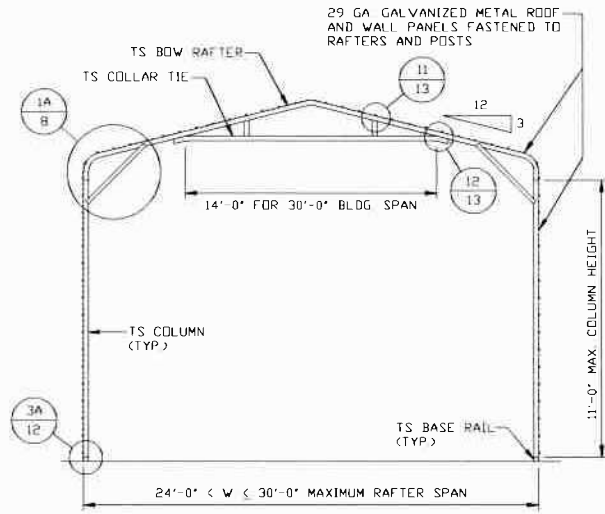
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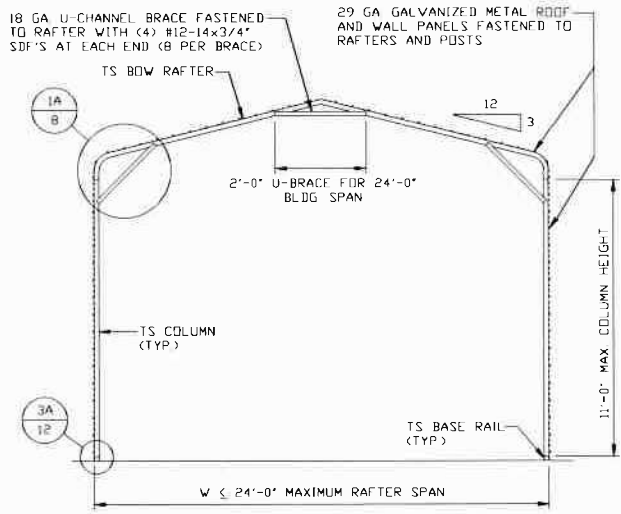
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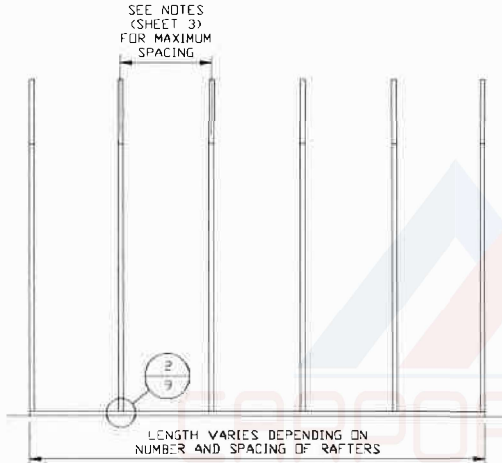
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TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
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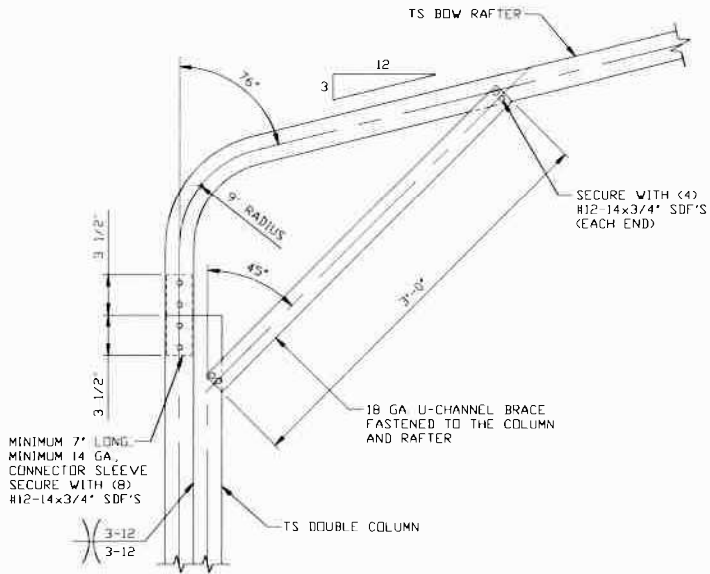
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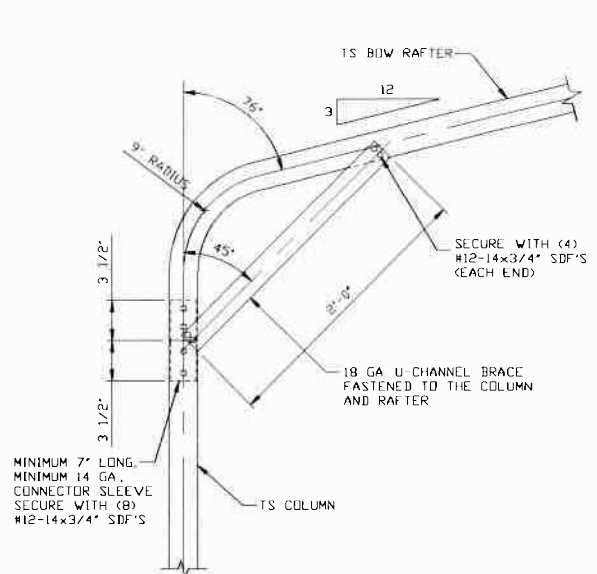
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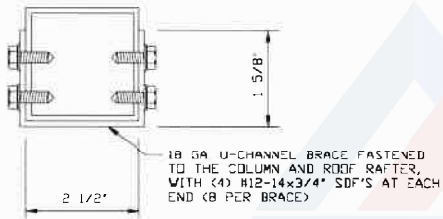
1 BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 14'-0"

SCALE: NTS



1A BOW EAVE RAFTER/CORNER POST CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0"

SCALE: NTS



BRACE SECTION

SCALE: NTS



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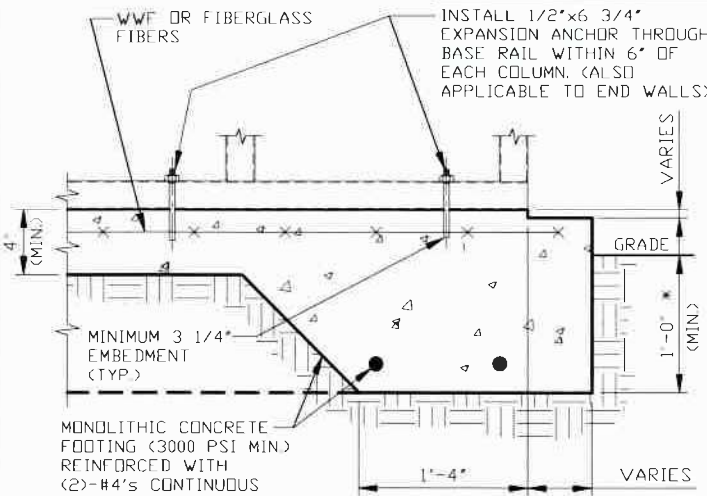
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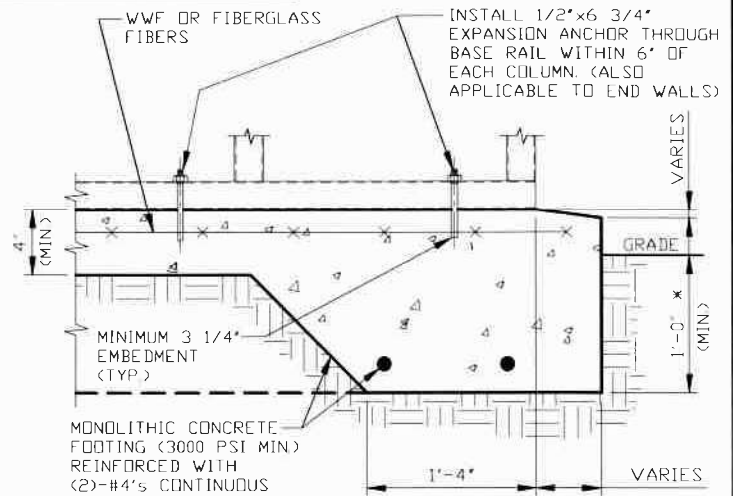
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BASE RAIL ANCHORAGE OPTIONS



2 CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE
 SCALE: NTS
 MINIMUM ANCHOR EDGE DISTANCE IS 4"
 * COORDINATE WITH LOCAL CODES/ORD. REGARDING MINIMUM FROST DEPTH REQ.



2A CONCRETE SLAB BASE RAIL ANCHORAGE
 SCALE: NTS
 MINIMUM ANCHOR EDGE DISTANCE IS 4"
 * COORDINATE WITH LOCAL CODES/ORD. REGARDING MINIMUM FROST DEPTH REQ.

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:

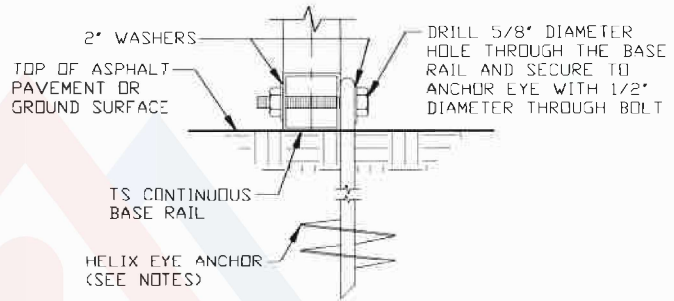
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE SO THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

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 LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 60" EMBEDMENT.



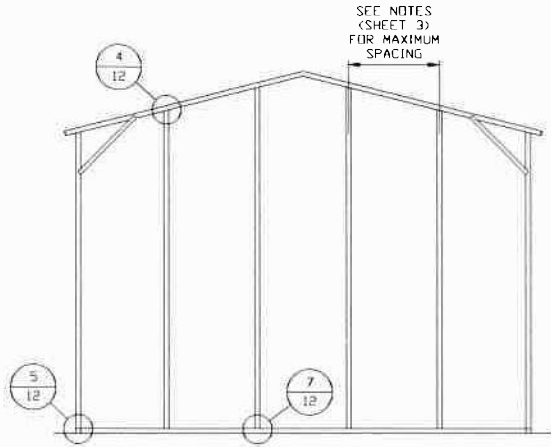
2B GROUND BASE HELIX ANCHORAGE
 SCALE: NTS
 (CAN BE USED FOR ASPHALT)
 * COORDINATE WITH LOCAL CODES/ORD. REGARDING MINIMUM FROST DEPTH REQ.

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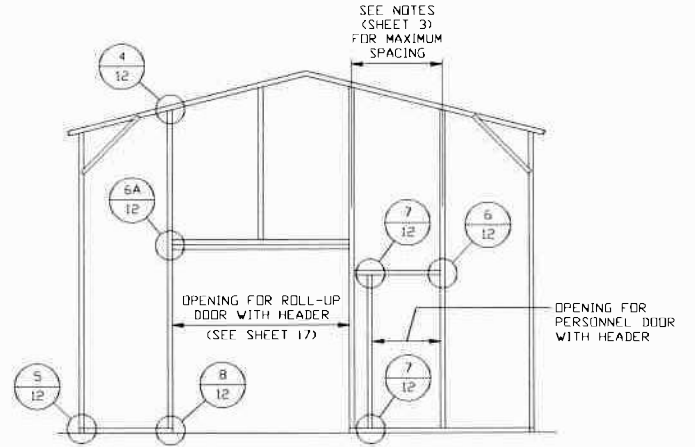
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BOX EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



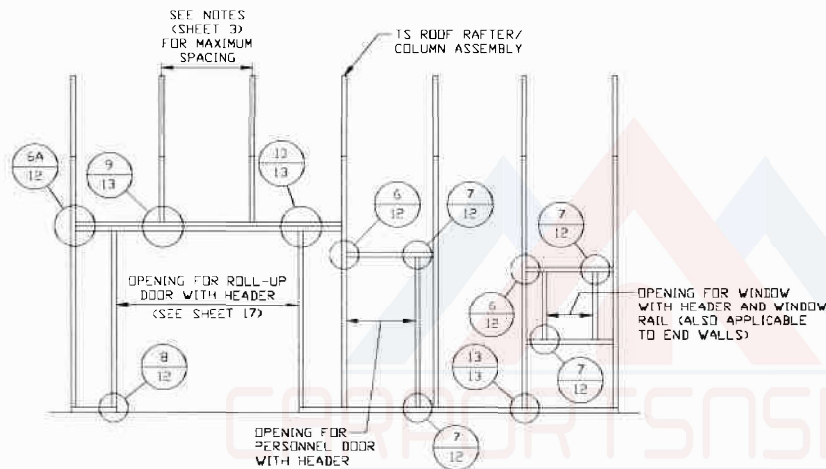
**TYPICAL BOX EAVE RAFTER
 END WALL FRAMING SECTION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER END
 WALL OPENINGS FRAMING SECTION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER
 SIDE WALL OPENINGS FRAMING SECTION**

SCALE: NTS

**MOORE AND ASSOCIATES
 ENGINEERING AND CONSULTING, INC.**

DRAWN BY: LT
CHECKED BY: PDH

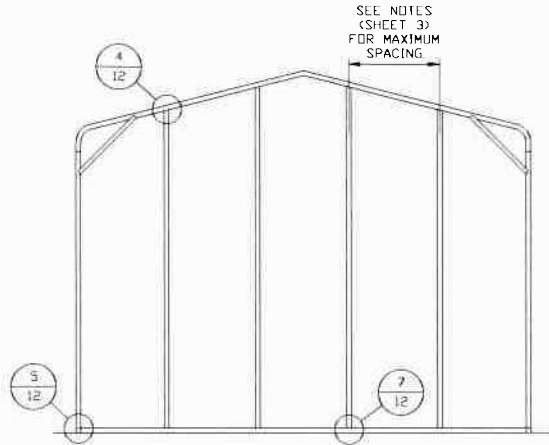
CARPORTSNSHEDS, LLC
 158 GATEHOUSE LN.
 DOBSON, NC 27017
 30'-0" x 14'-0" ENCLOSED STRUCTURE

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PROJECT MGR: WSM
CLIENT: CARPORTSNSHEDS

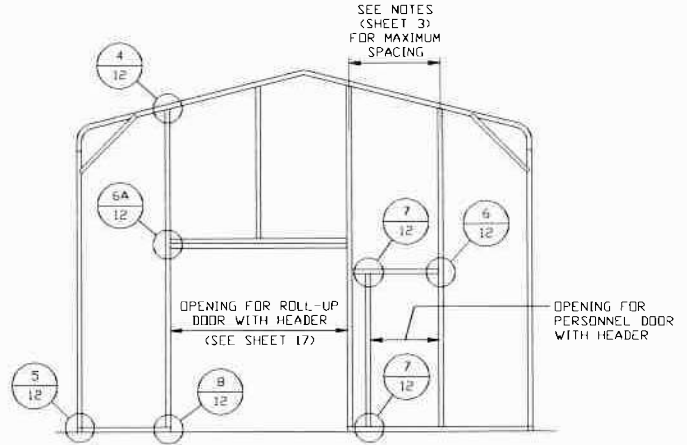
DATE: 1-14-21
SCALE: NTS
JOB NO: 20320S
SHT. 10
DWG. NO: SK-3
REV: 0

BOW EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



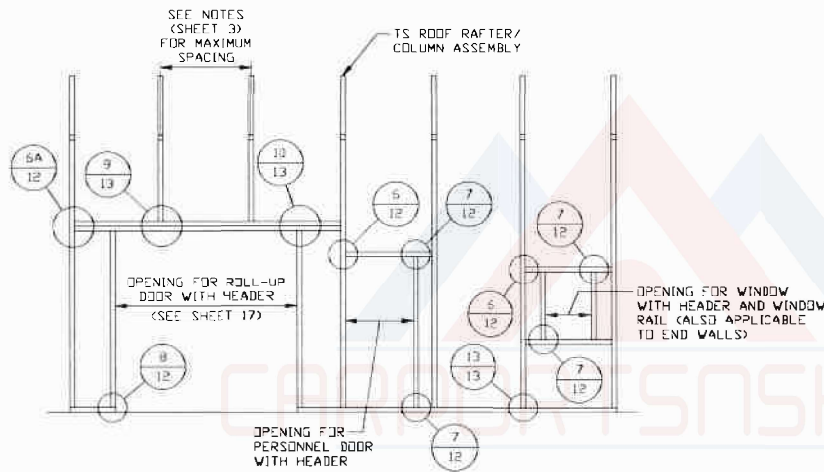
**TYPICAL BOW EAVE RAFTER
 END WALL FRAMING SECTION**

SCALE: NTS



**TYPICAL BOW EAVE RAFTER END
 WALL OPENINGS FRAMING SECTION**

SCALE: NTS



**TYPICAL BOW EAVE RAFTER
 SIDE WALL OPENINGS FRAMING SECTION**

SCALE: NTS

**MOORE AND ASSOCIATES
 ENGINEERING AND CONSULTING, INC.**

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CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: CARPORTSNSHEDS

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 158 GATEHOUSE LN.
 DOBSON, NC 27017
 30'-0" x 14'-0" ENCLOSED STRUCTURE**

DATE: 1-14-21

SCALE: NTS

JOB NO: 20320S

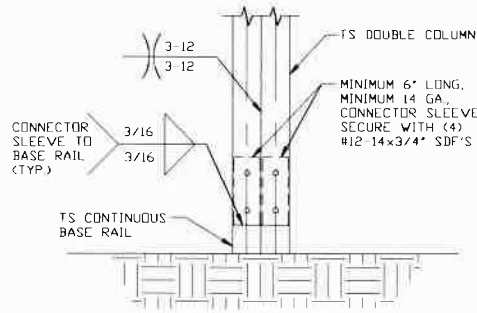
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ISHT. 11

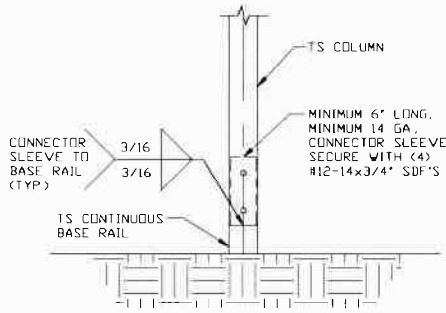
DWG. NO SK-3

REV: 0

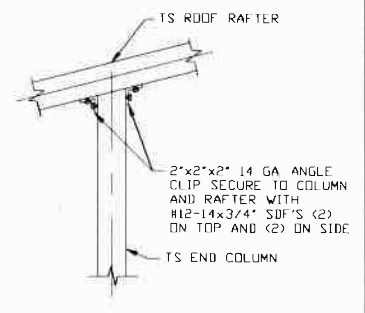
CONNECTION DETAILS



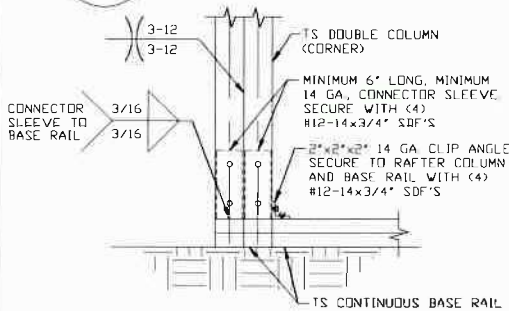
3 POST/BASE RAIL CONNECTION DETAIL
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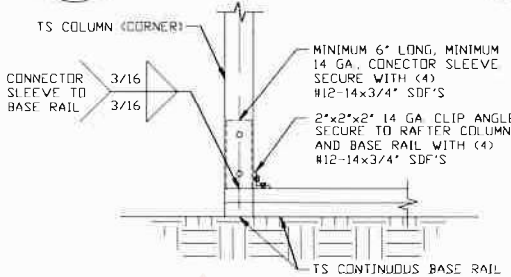
3A POST/BASE RAIL CONNECTION DETAIL
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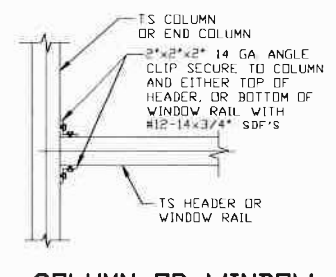
4 END COLUMN/RAFTER CONNECTION DETAIL
 SCALE: NTS



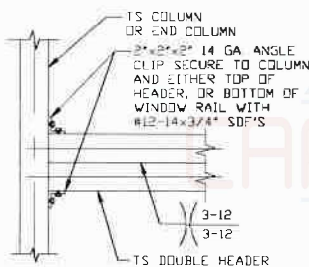
5 END COLUMN/BASE RAIL CONNECTION DETAIL
 SCALE: NTS



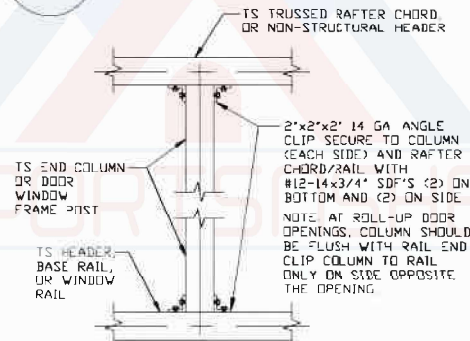
5A END COLUMN/BASE RAIL CONNECTION DETAIL
 SCALE: NTS



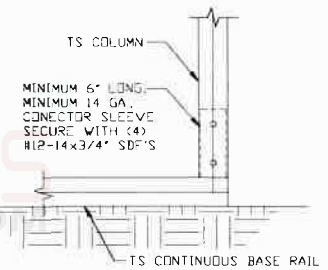
6 COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL
 SCALE: NTS



6A COLUMN/DOUBLE HEADER CONNECTION DETAIL
 SCALE: NTS



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



8 COLUMN/BASE RAIL CONNECTION DETAIL
 SCALE: NTS

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CARPORTSNSHEDS, LLC
 158 GATEHOUSE LN.
 DOBSON, NC 27017
 30'-0" x 14'-0" ENCLOSED STRUCTURE

DATE: 1-14-21

SHT. 12

SCALE: NTS

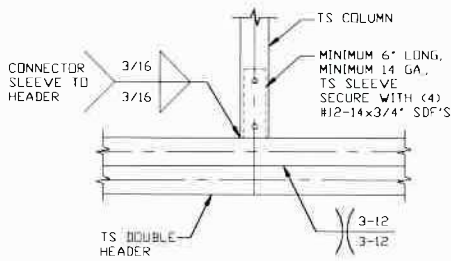
DWG. NO: SK-3

JOB NO: 20320S

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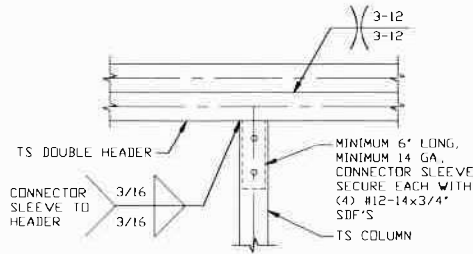
CONNECTION DETAILS



9

COLUMN/DOUBLE HEADER CONNECTION DETAIL

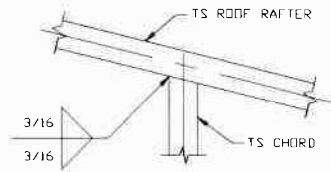
SCALE: NTS



10

DOUBLE HEADER/COLUMN CONNECTION DETAIL

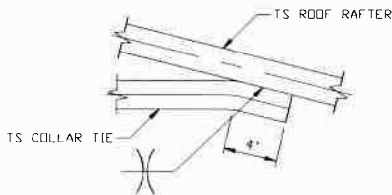
SCALE: NTS



11

RAFTER TO CHORD CONNECTION DETAIL

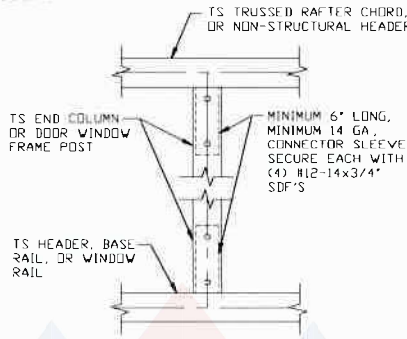
SCALE: NTS



12

COLLAR TIE CONNECTION DETAIL

SCALE: NTS



13

COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL

SCALE: NTS

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158 GATEHOUSE LN.

DOBSON, NC 27017

30'-0" x 14'-0" ENCLOSED STRUCTURE

DATE: 1-14-21

SHT. 13

SCALE: NTS

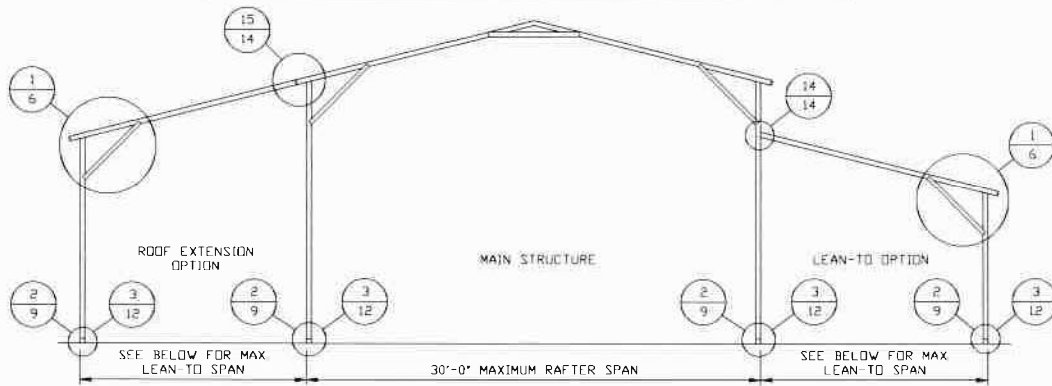
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JOB NO: 20320S

REV: 0

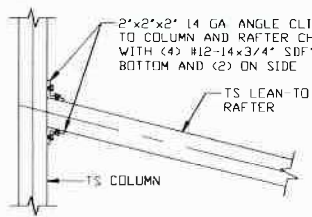
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BOX EAVE RAFTER LEAN-TO OPTIONS



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

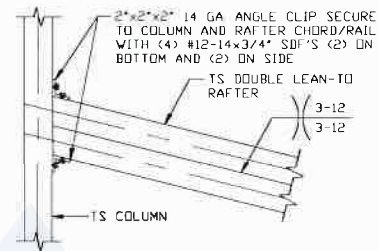
SCALE: NTS
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 11'-0" < TO ≤ 14'-0".
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 11'-0".



14

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

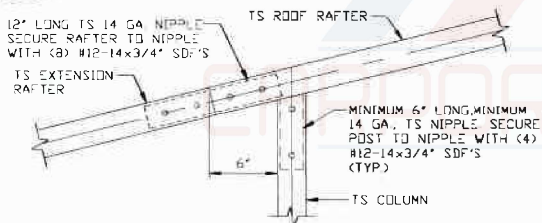
SCALE: NTS



14A

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN 12'-0" < L ≤ 15'-0"

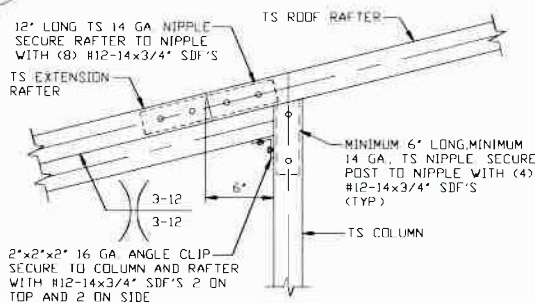
SCALE: NTS



15

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

SCALE: NTS



15A

SIDE EXTENSION RAFTER/COLUMN DETAIL FOR SPAN 12'-0" < L ≤ 15'-0"

SCALE: NTS

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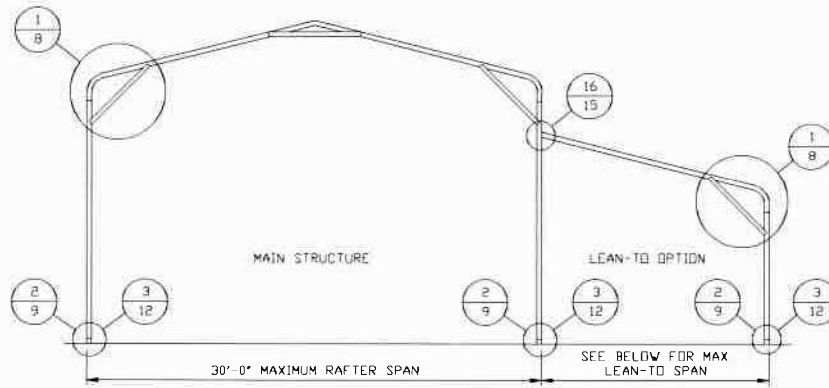
DRAWN BY: LT
CHECKED BY: PDH

CARPORTSNSHEDS, LLC
 158 GATEHOUSE LN.
 DOBSON, NC 27017
 30'-0" x 14'-0" ENCLOSED STRUCTURE

PROJECT MGR: VSM	DATE: 1-14-21	SCALE: NTS	JOB NO: 20320S
CLIENT: CARPORTSNSHEDS	SHT. 14	DWG. NO: SK-3	REV: 0

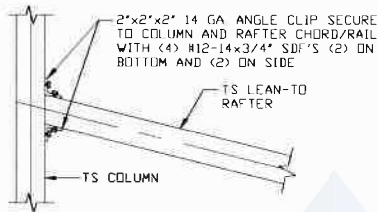
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BOW EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

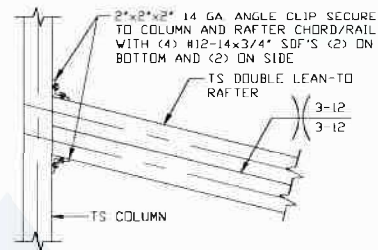
SCALE: NTS
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 11'-0" < TO < 14'-0"
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS < 11'-0"



16

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $\leq 12'-0"$

SCALE: NTS



16A

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN $12'-0" < L \leq 15'-0"$

SCALE: NTS

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SHT. 15

SCALE: NTS

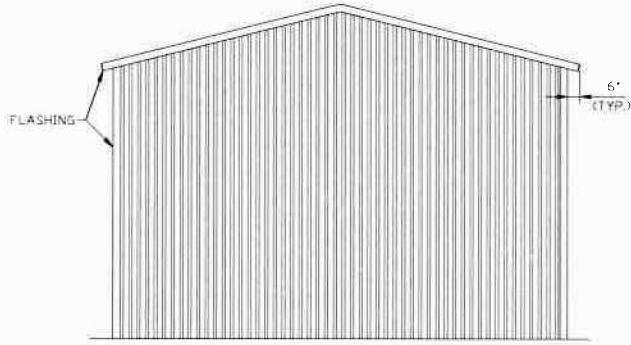
DWG. NO: SK-3

JOB NO: 20320S

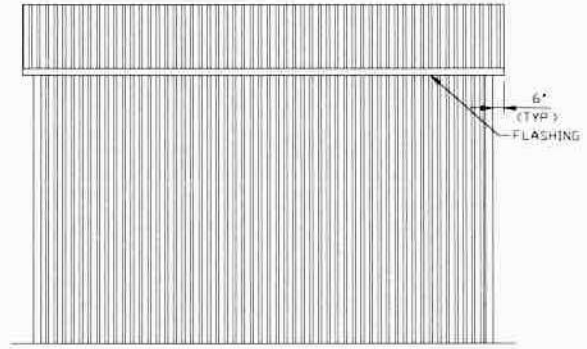
REV: 0

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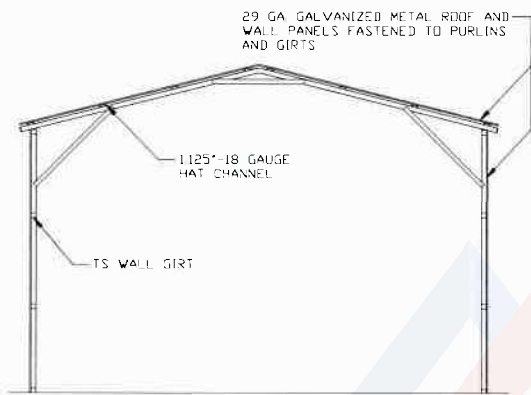
BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



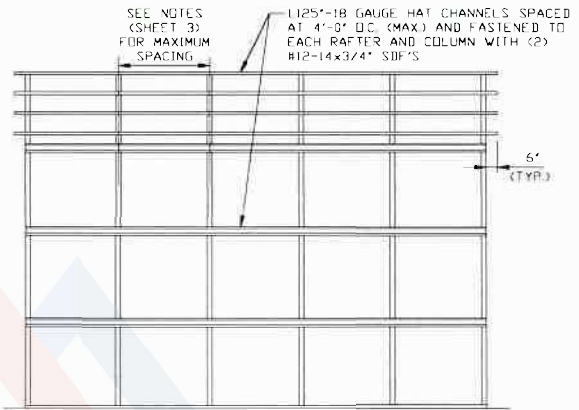
**TYPICAL END ELEVATION
 VERTICAL ROOF/SIDING**
 SCALE: NTS



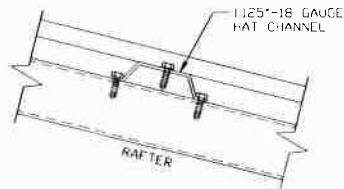
**TYPICAL SIDE ELEVATION
 VERTICAL ROOF/SIDING**
 SCALE: NTS



**TYPICAL SECTION VERTICAL
 ROOF/SIDING OPTION**
 SCALE: NTS



**TYPICAL FRAMING SECTION
 VERTICAL ROOF/SIDING OPTION**
 SCALE: NTS



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

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SCALE: NTS

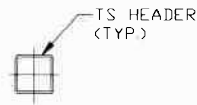
JOB NO: 20320S

DWG. NO: SK-3

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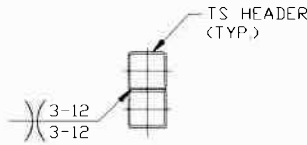
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SIDE WALL HEADER OPTIONS



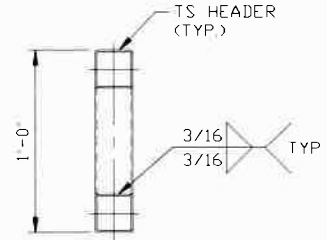
**HEADER DETAIL FOR
 SIDE WALL DOOR
 OPENINGS $\leq 7'-0"$**

SCALE: NTS



**HEADER DETAIL FOR
 SIDE WALL DOOR OPENINGS
 $7'-0" < \text{LENGTH} \leq 11'-0"$**

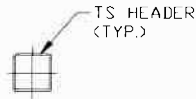
SCALE: NTS



**HEADER DETAIL FOR
 SIDE WALL DOOR OPENINGS
 $11'-0" < \text{LENGTH} \leq 16'-0"$**

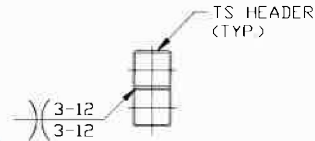
SCALE: NTS

END WALL HEADER OPTIONS



**HEADER DETAIL FOR END WALL
 DOOR OPENINGS $\leq 13'-0"$**

SCALE: NTS



**HEADER DETAIL FOR
 END WALL DOOR OPENINGS
 $13'-0" < \text{LENGTH} \leq 16'-0"$**

SCALE: NTS

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PROJECT MGR: WSM

CLIENT: CARPORTSNSHEDS

CARPORTSNSHEDS, LLC

158 GATEHOUSE LN.

DOBSON, NC 27017

30'-0" x 14'-0" ENCLOSED STRUCTURE

DATE: 1-14-21

SHT. 17

SCALE: NTS

DWG. NO: SK-3

JOB NO: 20320S

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