



## STRUCTURAL DESIGN

### ENCLOSED BUILDING

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

21 March 2022

Revision 1

M&A Project No. 19164S/22020S

Prepared for:

**TOL Buildings, Inc.**

**P.O. Box 542**

**Toast, NC 27049**

Prepared by:

**Moore and Associates Engineering and Consulting, Inc.**

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**MOORE AND ASSOCIATES**  
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		<p>CLIENT: TOL</p>	<p>SHT. 1</p>	<p>DWG. NO: SK-3</p>	<p>REV: 1</p>

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**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSH**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**

P.O. BOX 542

TOAST, NC 27049

30'-0"x20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SCALE: NTS**

**JOB NO**

**19164S/22020S**

**SHT. 2**

**DWG. NO: SK-3**

**REV: 1**

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## 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 ALL APPLICABLE BUILDING CODES LISTED ON SHEET 3A.
3. DESIGN LOADS ARE AS FOLLOWS:
  - A) ROOF DEAD LOADS:
    - SELF-WEIGHT = 1.5 PSF
    - MEP = 0 PSF FOR RISK CAT. I (10 PSF FOR RISK CAT. II)
    - COLLATERAL = 0 PSF
  - B) ROOF LIVE LOAD = 12 PSF FOR RISK CAT. I (20 PSF FOR RISK CAT. II)
  - C) FLOOR LIVE LOAD = 100 PSF (4" CONCRETE SLAB-ON-GRADE)
  - D) GROUND SNOW LOAD = 30 PSF ( $\leq 24'-0"$ ) FOR U-CHANNEL PEAK BRACE
    - = 60 PSF ( $\leq 30'-0"$ ), WITH WELDED RAFTER TIE TO SINGLE 12 GA. TS. @ 3'-0" O.C.
    - = 70 PSF ( $24'-0" < W \leq 30'-0"$ )

NOTE: UNBALANCED LOADING DUE TO SNOW DRIFTING FROM AN ADJACENT TALLER STRUCTURE HAS NOT BEEN EVALUATED.
4. ULTIMATE WIND SPEED (LW) 105 (RC I) (115 MPH (RC II) TO 145 (RC I) (155 MPH (RC II)) (NOMINAL WIND SPEED 81 (89) TO 112 (120) MPH); MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET (5.0 FEET FOR WIND SPEED 105 MPH  $< T \leq 145$  MPH RC I ONLY).
5. END WALL COLUMN/POSTS ARE EQUIVALENT TO SIDE WALL COLUMN/POSTS IN SIZE AND SPACING UNLESS NOTED OTHERWISE.
6. RISK CATEGORY I AND II (RISK CATEGORY I NOT FOR HUMAN HABITATION).
7. WIND EXPOSURE CATEGORY B OR C.
8. SPECIFICATIONS APPLICABLE TO 29 GAUGE (FOR SL  $\leq 60$  PSF) AND 26 GAUGE (FOR SL  $> 60$  PSF) METAL PANELS FASTENED DIRECTLY TO 2 1/2"x2 1/2"-14 GAUGE TUBE STEEL (TS) FOR (RC I) AND 2 1/4"x2 1/4"-12 GAUGE (TS) FOR (RC II). FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
9. CONNECTOR SLEEVES ARE MINIMUM 6' LONG, TS 2 1/4"x2 1/4"-14 GAUGE FOR 2 1/2"x2 1/2"-14 GAUGE AND TS 2"x2"-12 GAUGE FOR 2 1/4"x2 1/4"-12 GAUGE FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
10. STRUCTURAL ANALYSIS/DESIGN IS BASED ON TS MEETING THE REQUIREMENTS OF ASTM A653 GRADE 50 WITH MINIMUM YIELD STRENGTH (Fy) OF 54 KSI AND GALVANIZING MEETING THE MINIMUM REQUIREMENTS OF G60.
11. AVERAGE PANEL FASTENER SPACING ON-CENTERS = 8' O.C. (MAX).
12. 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. ROOF SLOPES VARY FROM 4:12, 3:12, 2:12 TO 1:12.
13. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL AT OR WITHIN 6" OF EVERY COLUMN.
14. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG AND MAY ONLY BE USED FOR RC I STRUCTURES IN SUITABLE SOILS FOR WIND SPEEDS  $\leq 145$  MPH. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS  $> 145$  MPH. 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.
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 STABILITY BEFORE COMPLETION.
16. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
  - SOIL SITE CLASS = D
  - RISK CATEGORY I/II
  - R = 3.25                      I<sub>E</sub> = 1.0
  - S<sub>DS</sub> = 2.625 g                V = C<sub>s</sub>W
  - S<sub>D1</sub> = 2.13 g
17. FOR RISK CATEGORY II, MAXIMUM THRESHOLD HEIGHT FOR PERSONNEL DOOR(S) USED FOR DEFINED MEANS OF EGRESS IS 1/2'.
18. APPLY LAP SEALANT TO METAL ROOF PANELS FOR ROOF SLOPES LESS THAN 3:12.
19. IF MORE THAN 50% OF COLUMN (LEG) ARE REMOVED IN ANY LONGITUDINAL (SIDE) WALLS OF A BUILDING, THE ENGINEER IS TO BE NOTIFIED TO DETERMINE WHETHER PORTAL FRAMES OR OTHER LONGITUDINAL STABILITY ELEMENTS WILL BE REQUIRED.
20. THIS MASTER DESIGN IS A GENERIC MASTER DESIGN PRIMARILY INTENDED FOR PLANT FABRICATION AND ERECTION ACHN TO SHOP DRAWINGS. THE MASTER DESIGN IS NOT PRIMARILY INTENDED FOR CONSTRUCTION PERMIT. WHEN APPLYING FOR BUILDING PERMIT, THE CERTIFIED BUILDING OFFICIAL MUST BE CONSULTED TO VERIFY WHETHER THE USE OF THE MASTER DESIGN IS ADEQUATE OR IF A SITE-SPECIFIC DESIGN IS REQUIRED FOR BUILDING PERMIT. ANY VARIATION FROM THE ANALYSIS/DESIGN PARAMETERS OF THE MASTER DESIGN REQUIRES THE DEVELOPMENT OF A SITE-SPECIFIC DESIGN.

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSH**

**CLIENT: TOL**

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049

30'-0"x20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 3**

**SCALE: NTS**

**DWG. NO: SK-3**

**JOB NO:  
19164S/B2020S**

**REV: 1**

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## LIST OF APPLICABLE BUILDING CODES

2021 INTERNATIONAL BUILDING CODE (IBC 2021)

2018 INTERNATIONAL BUILDING CODE (IBC 2018)

2015 INTERNATIONAL BUILDING CODE (IBC 2015)

2012 INTERNATIONAL BUILDING CODE (IBC 2012)

BUILDING CODE 2015 OF ALABAMA  
 (ADOPTS THE IBC 2015 WITHOUT AMENDMENTS)  
 (IBC 2015, IBC 2018 (DEPENDENT UPON LOCAL JURISDICTION))

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

MA STATE BUILDING CODE, 9TH ED, BASE VOLUME  
 (ADOPTS THE IBC 2015 WITH AMENDMENTS)

2020 BUILDING CODE OF NEW YORK STATE  
 (ADOPTS THE IBC 2018 WITH AMENDMENTS)  
 NYC BUILDING CODE 2014  
 (ADOPTS THE IBC 2009 WITH AMENDMENTS)

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

OHIO BUILDING CODE 2017  
 (ADOPTS THE 2015 WITH AMENDMENTS)

BUILDING CODE 2018 OF PENNSYLVANIA  
 (ADOPTS THE IBC 2018 WITH AMENDMENTS)  
 PHILADELPHIA BUILDING CODE  
 (ADOPTS THE IBC 2018 WITH AMENDMENTS)

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

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

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

BUILDINGS

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

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 P.O. BOX 542  
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**SHT. 3A**

**SCALE: NTS**

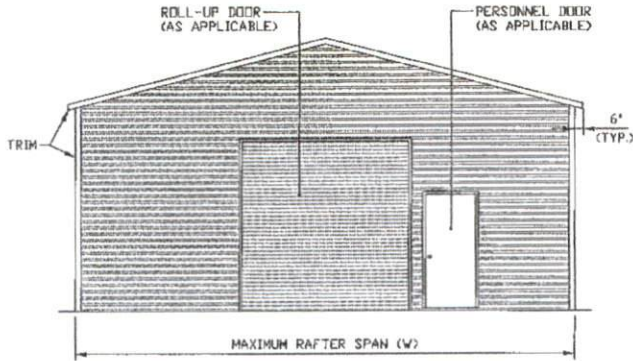
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**JOB NO:  
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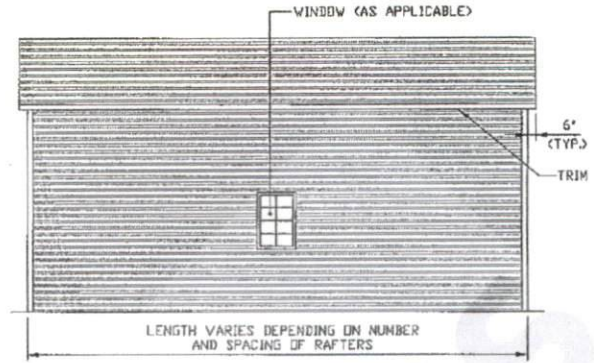
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## BOX EAVE FRAME RAFTER STRUCTURE

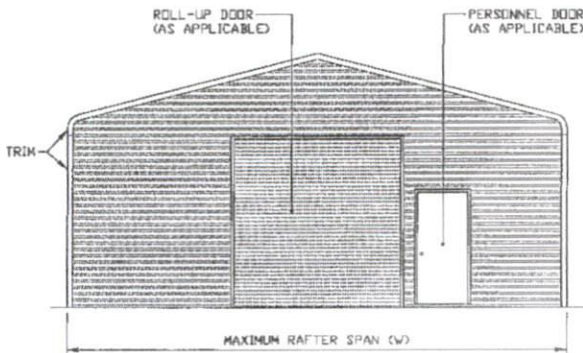


**TYPICAL END ELEVATION**  
SCALE: NTS

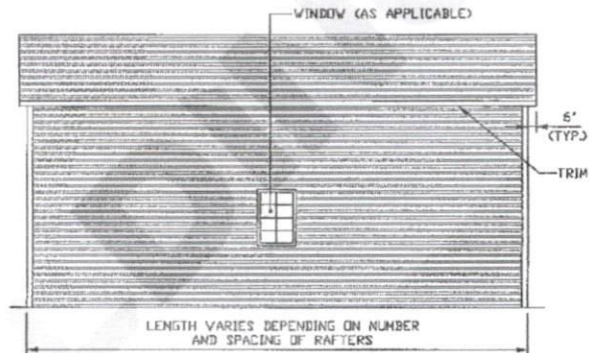


**TYPICAL SIDE ELEVATION**  
SCALE: NTS

## BOX EAVE FRAME RAFTER STRUCTURE



**TYPICAL END ELEVATION**  
SCALE: NTS



**TYPICAL SIDE ELEVATION**  
SCALE: NTS

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**SHT. 4**

**SCALE: NTS**

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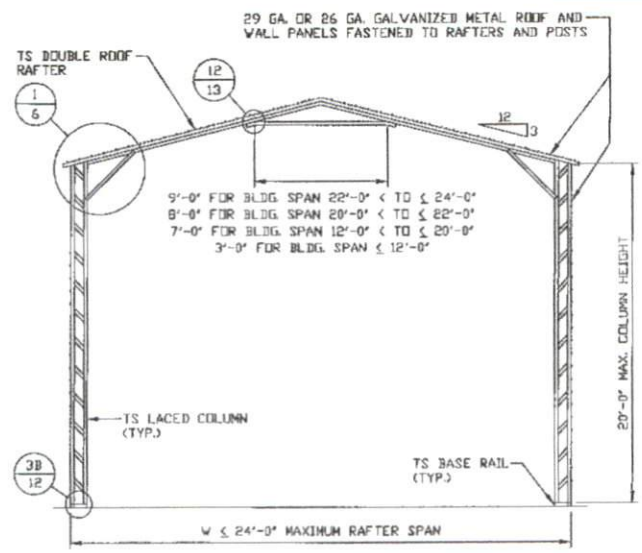
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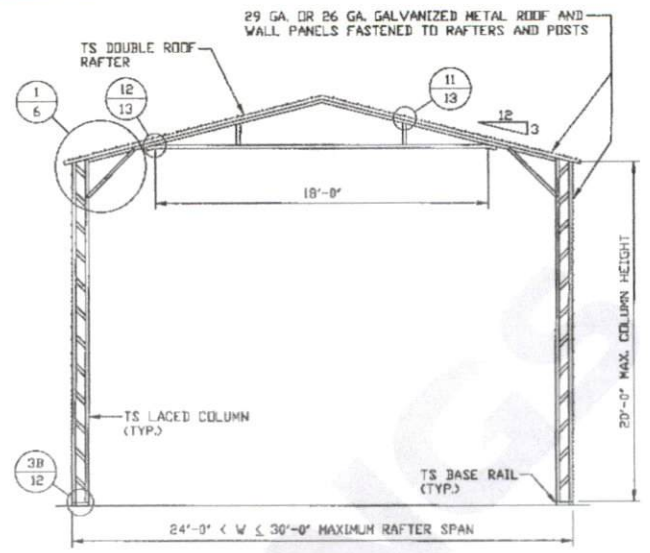
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60 PSF < SL ≤ 70 PSF

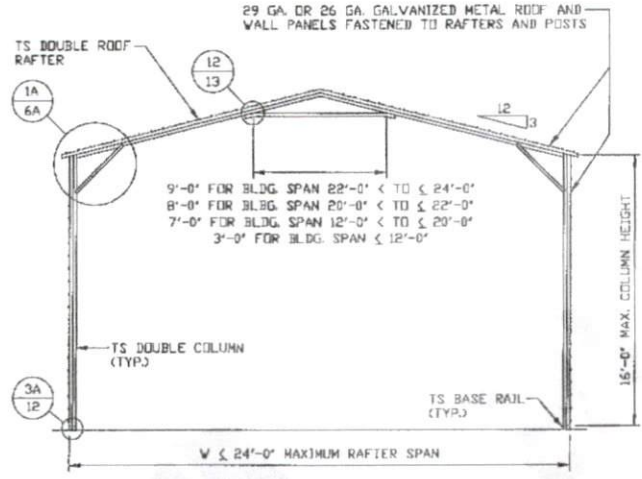
**EXPOSURE B**



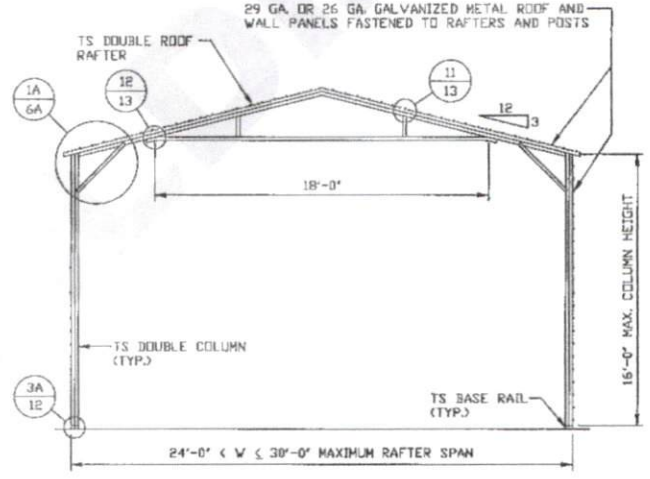
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
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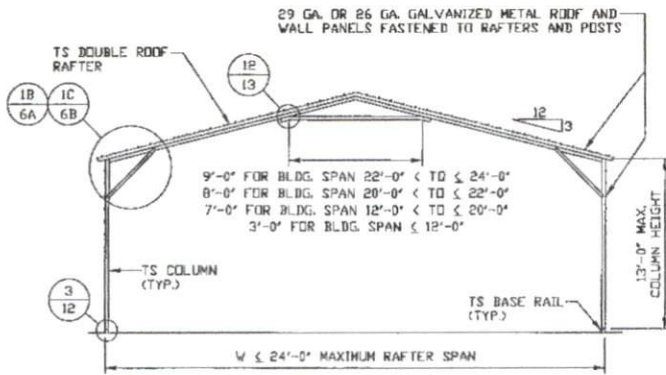
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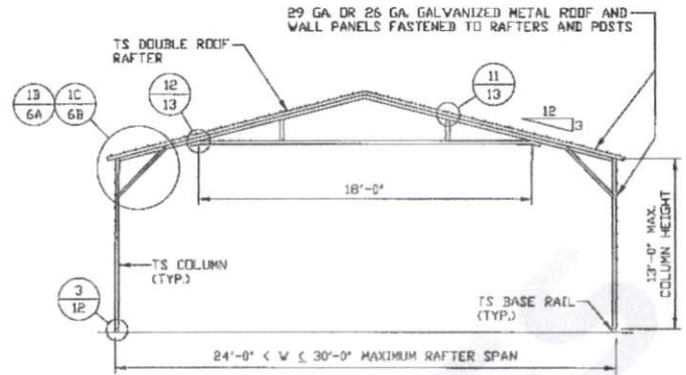
60 PSF < SL ≤ 70 PSF

**EXPOSURE B**



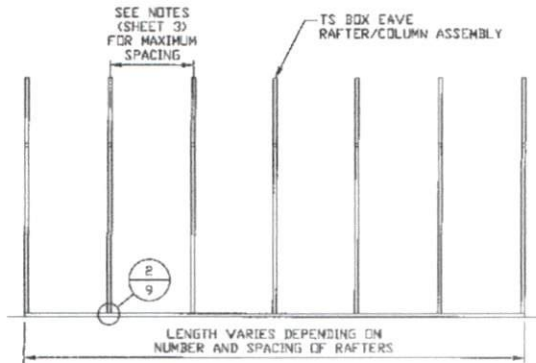
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**

SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**

SCALE: NTS

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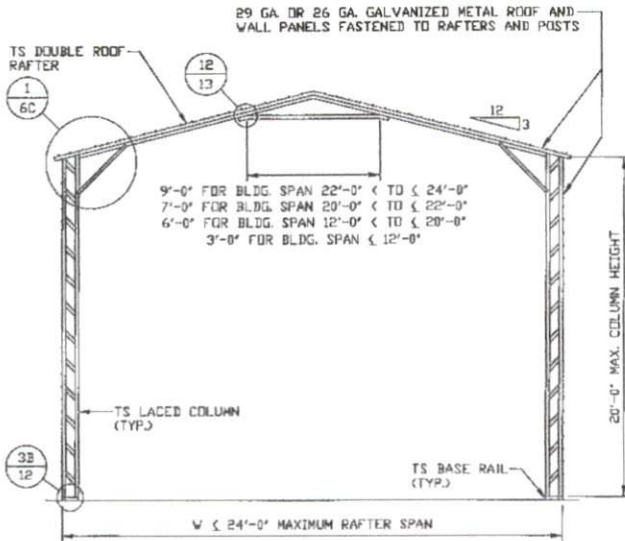
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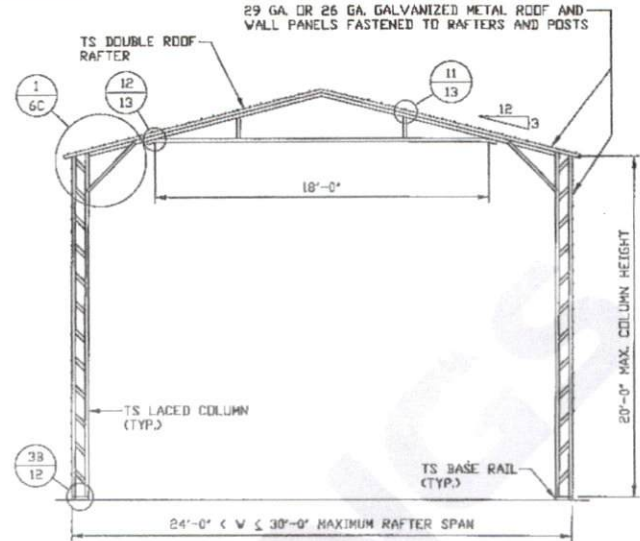
60 PSF < SL ≤ 70 PSF

EXPOSURE C



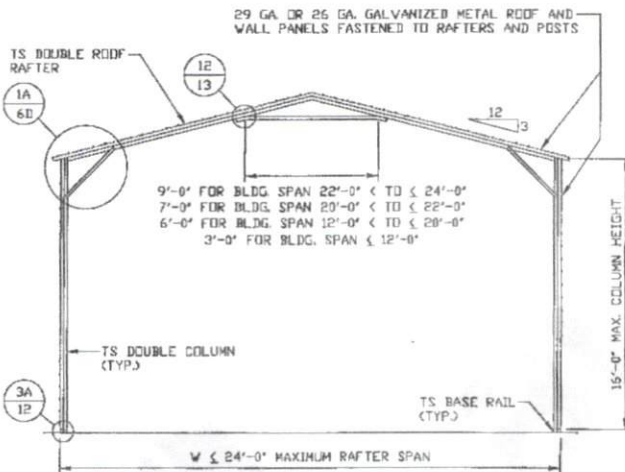
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



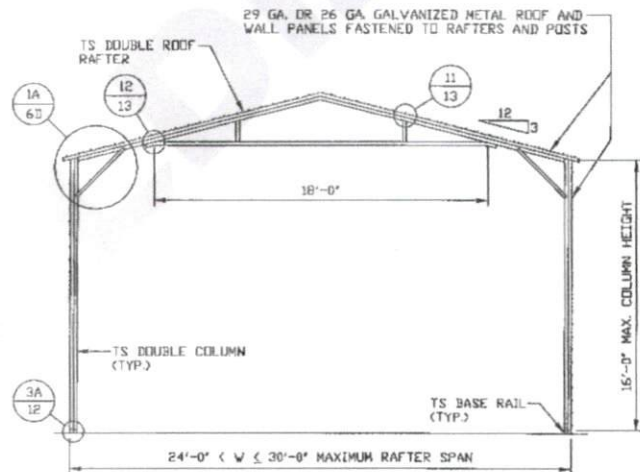
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS

MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 5B

SCALE: NTS

DWG. NO: SK-3

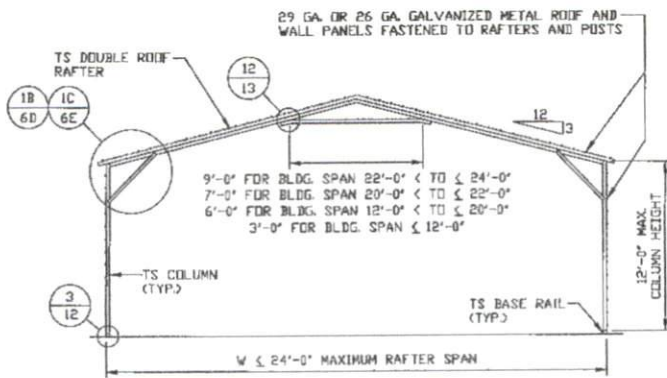
JOB NO:  
19164S/22020S

REV: 1

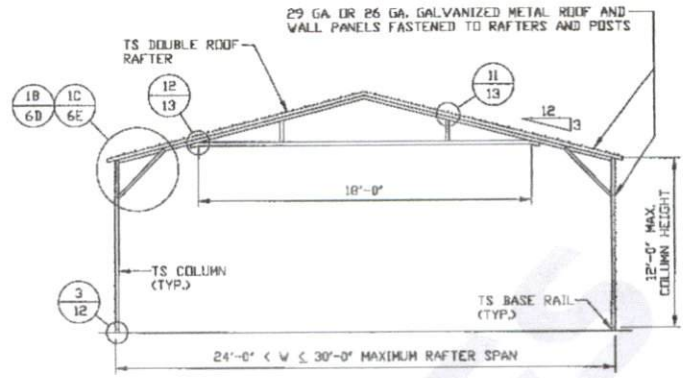
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**60 PSF < SL ≤ 70 PSF**

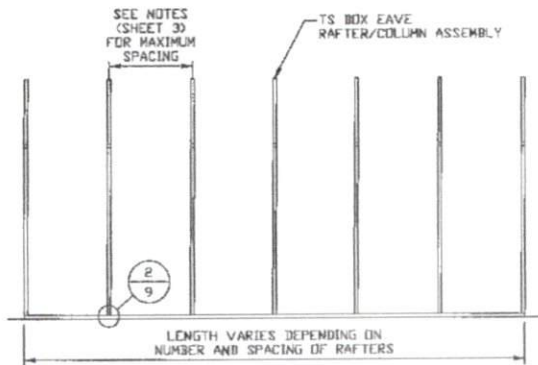
**EXPOSURE C**



**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: LT

CHECKED BY: PDH

PROJECT MGR: WSH

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 5C

SCALE: NTS

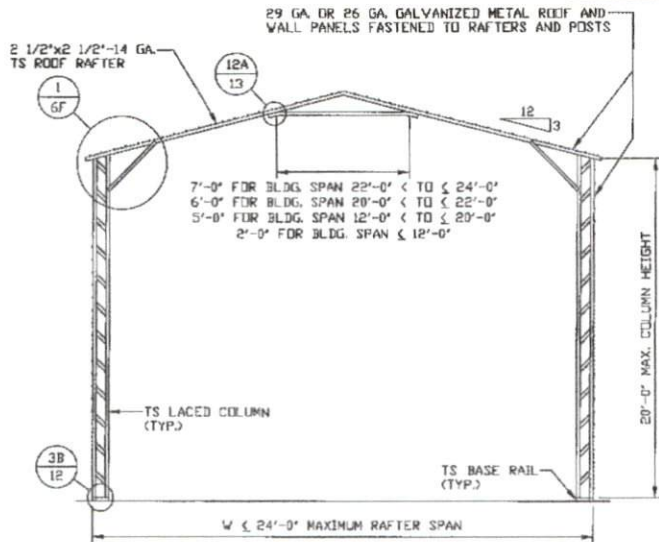
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JOB NO:  
19164S/22020S

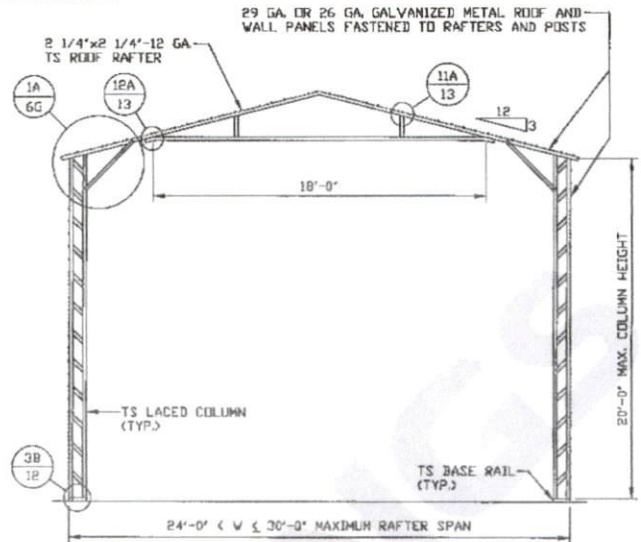
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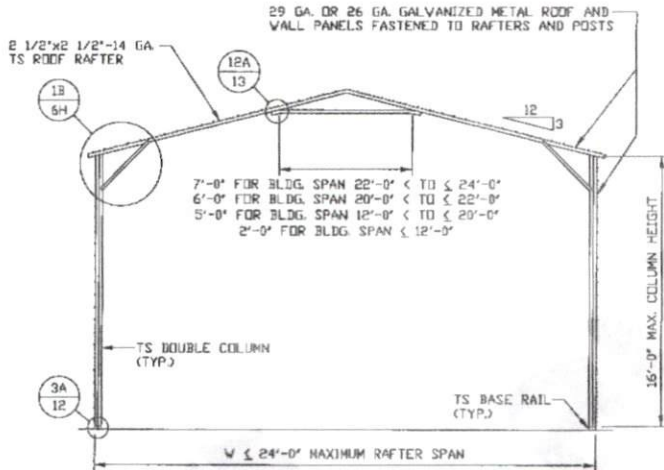
**SL ≤ 60 PSF**  
**EXPOSURE B/C**



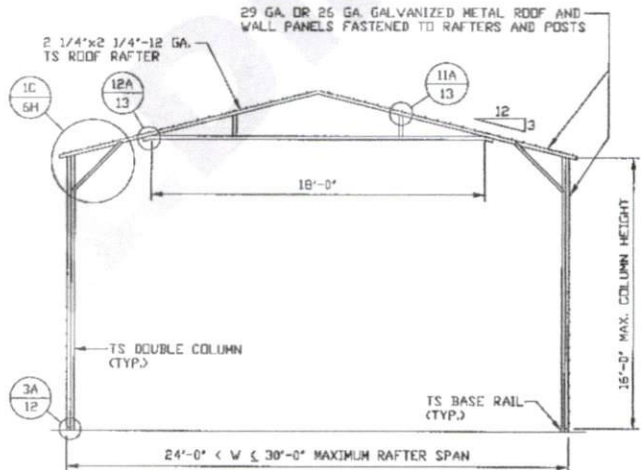
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSH**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**

P.O. BOX 542

TOAST, NC 27049

30'-0"x20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 5D**

**SCALE: NTS**

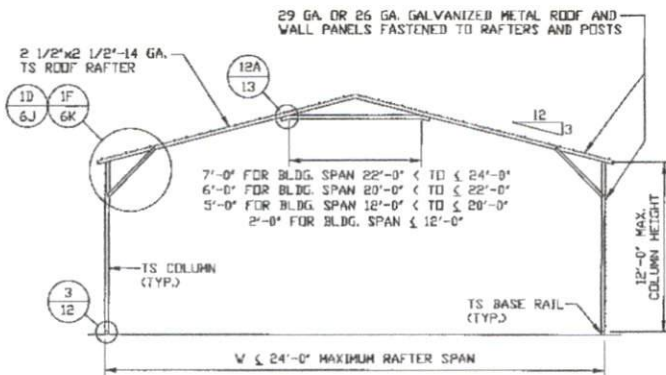
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**JOB NO:**  
19164S/22026S

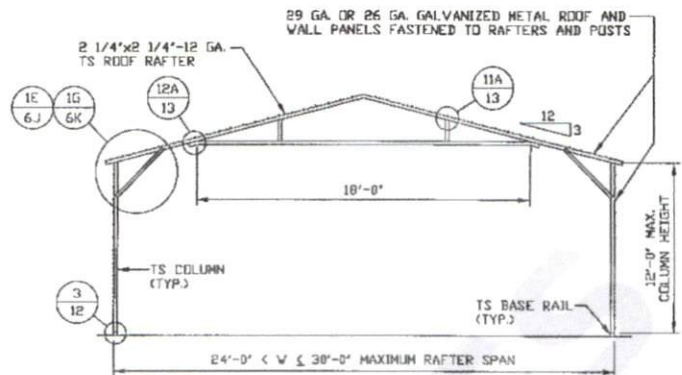
**REV: 1**

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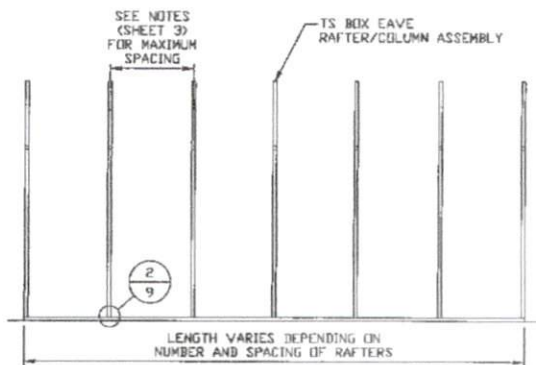
**SL ≤ 60 PSF**  
**EXPOSURE B/C**



**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: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 5E

SCALE: NTS

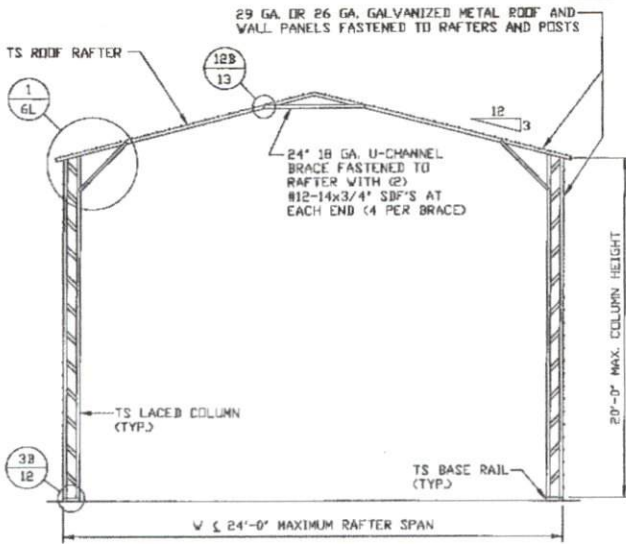
DWG. NO: SK-3

JOB NO:  
19164S/22020S

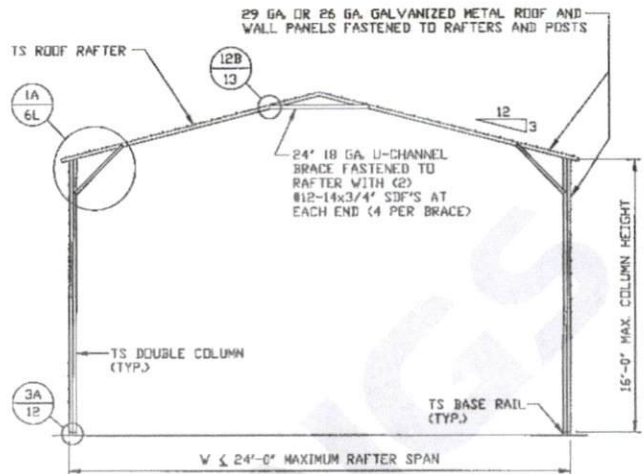
REV: 1

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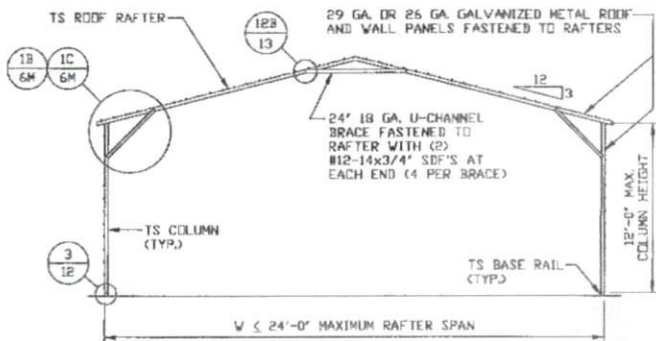
**SL ≤ 30 PSF**  
**EXPOSURE B/C**



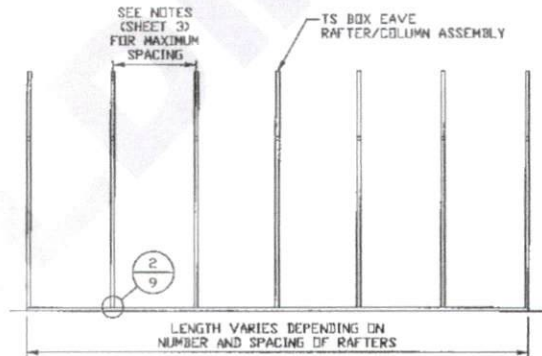
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**

**P.O. BOX 542**

**TOAST, NC 27049**

**30'-0" x 20'-0" ENCLOSED STRUCTURE**

**DATE: 3-21-22**

**SHT. 5F**

**SCALE: NTS**

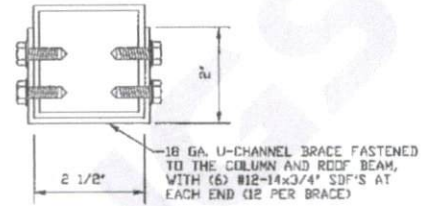
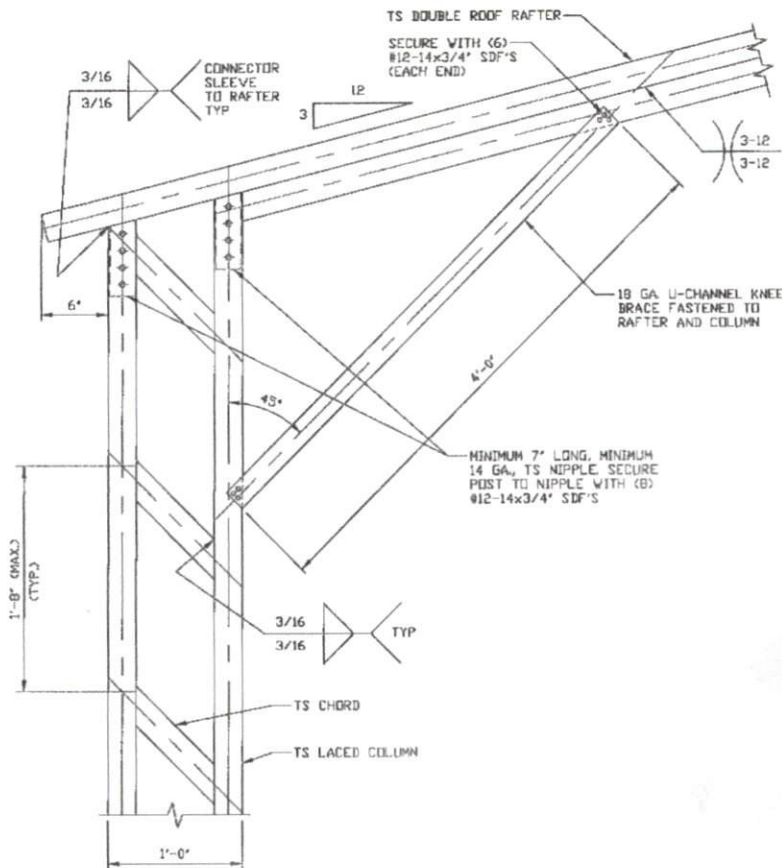
**DWG. NO: SK-3**

**JOB NO:  
19164S/22020S**

**REV: 1**

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**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE B**



**BRACE SECTION**  
SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**  
**HEIGHTS 15'-0" < TO ≤ 20'-0"**  
**FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1**  
SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
**P.O. BOX 542**  
**TOAST, NC 27049**  
**30'-0" x 20'-0" ENCLOSED STRUCTURE**

**DATE: 3-21-22**

**SHT. 6**

**SCALE: NTS**

**DWG. NO: SK-3**

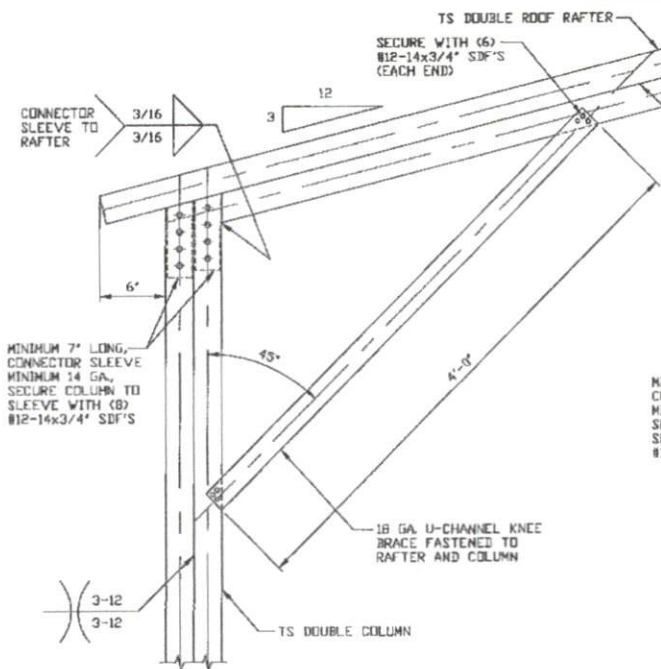
**JOB NO:**  
**19164S/22020S**

**REV: 1**

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60 PSF < SL ≤ 70 PSF

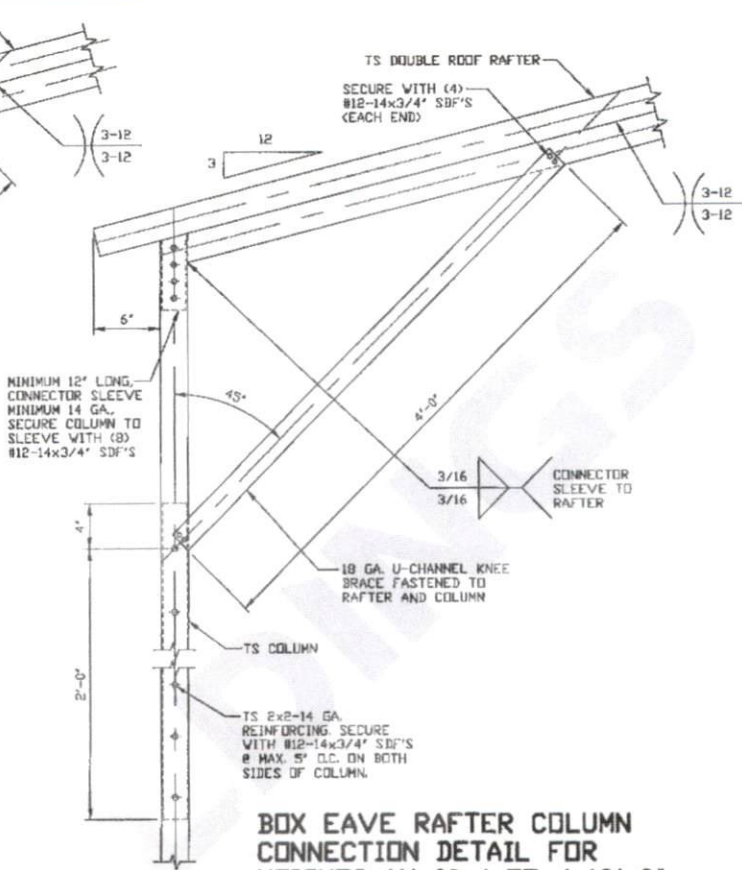
**EXPOSURE B**



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 13'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1A

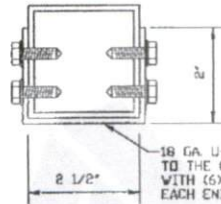
SCALE: NTS



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 13'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

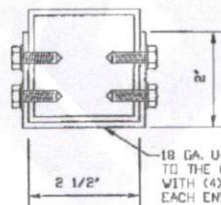
1B

SCALE: NTS



**BRACE SECTION**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 6A

SCALE: NTS

DWG. NO. SK-3

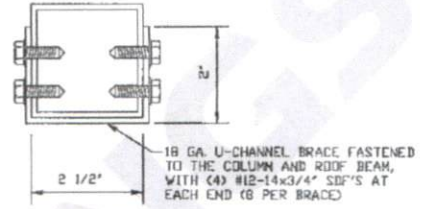
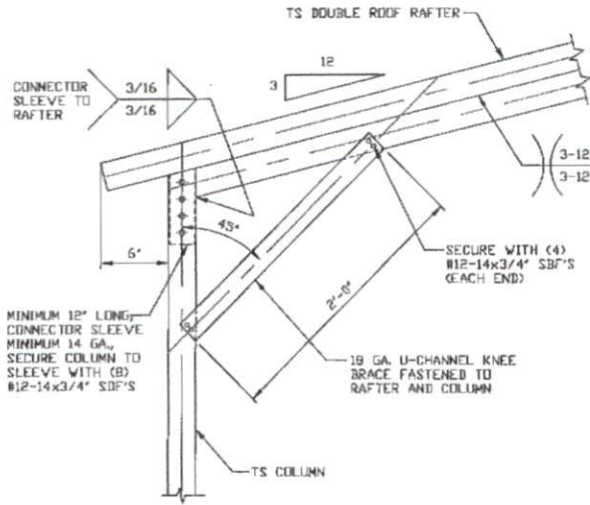
JOB NO. 19164S/22020S

REV. 1

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**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE B**



**BRACE SECTION**  
 SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1C

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSH

CLIENT: TOL

TOL BUILDINGS, INC.  
 P.O. BOX 542  
 TOAST, NC 27049  
 30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 6B

SCALE: NTS

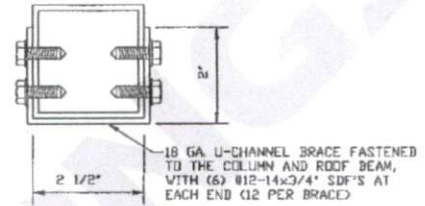
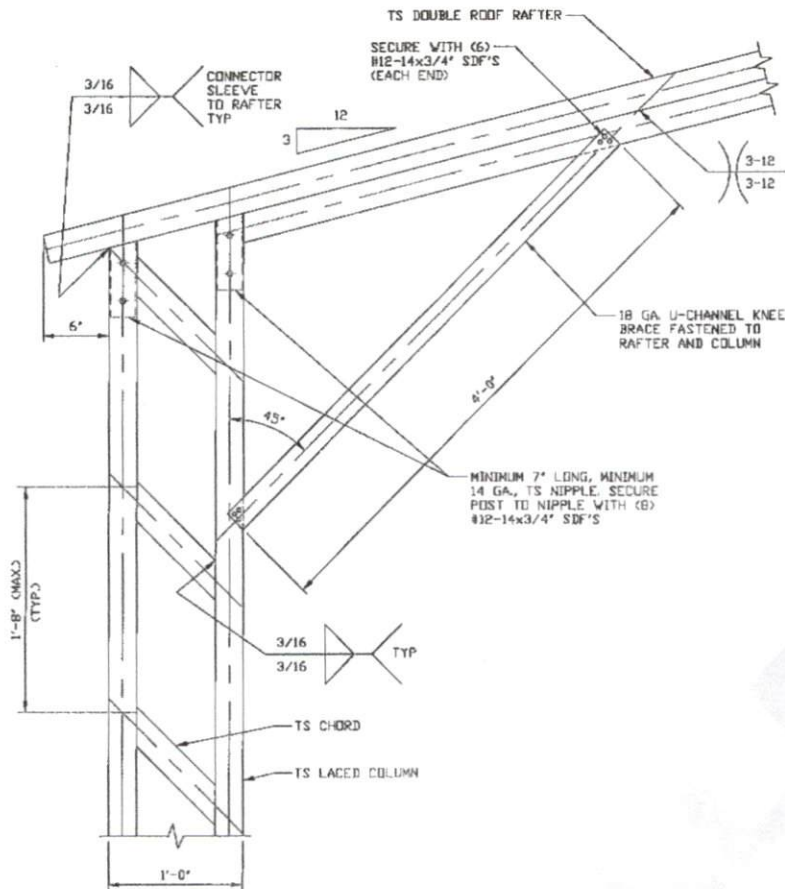
DWG. NO: SK-3

JOB NO: 19164S/P2020S

REV: 1

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**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE C**



**BRACE SECTION**  
SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**  
**HEIGHTS 14'-0" < TO ≤ 20'-0"**  
**FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1**  
SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 6C**

**SCALE: NTS**

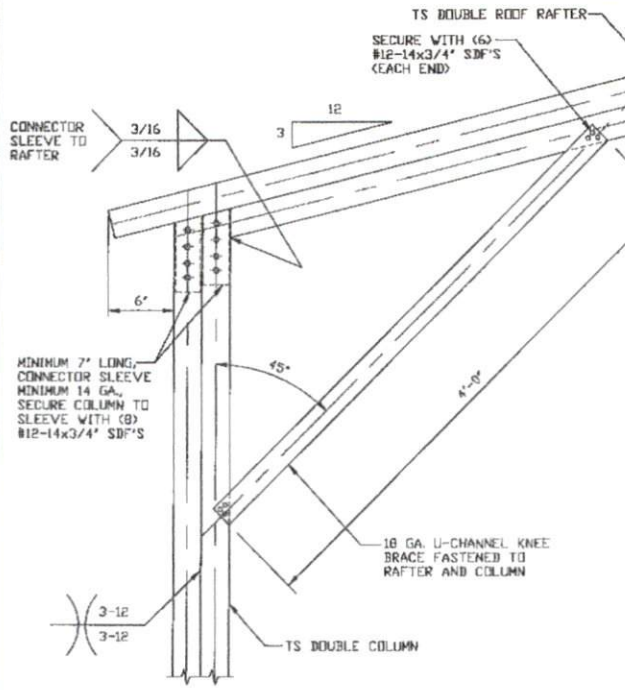
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**JOB NO:**  
**19164S/22080S**

**REV: 1**

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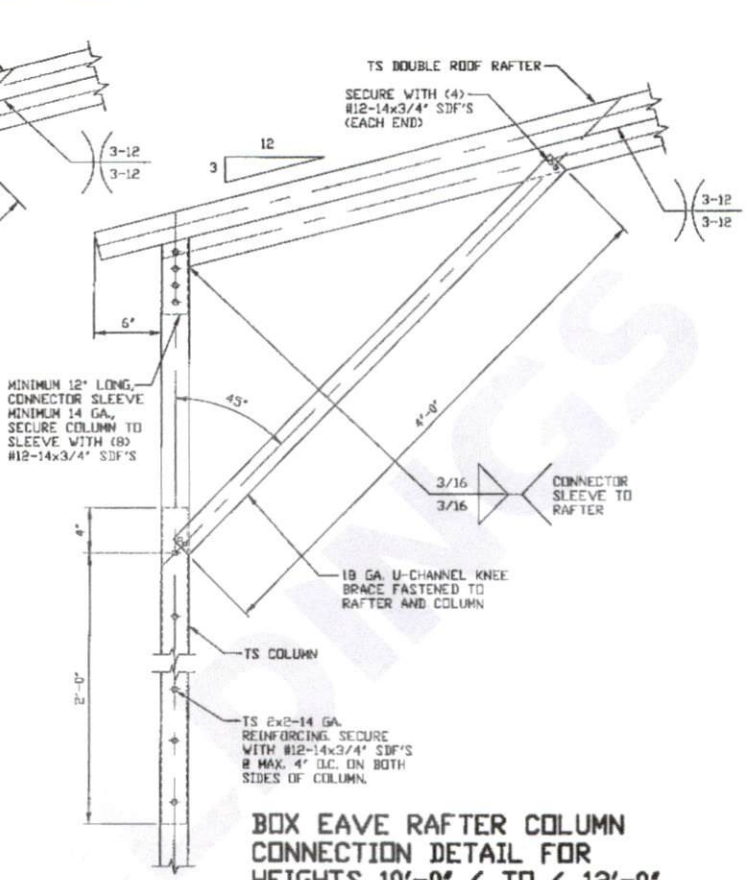
**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE C**



**1A**

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 10'-0" < TO ≤ 14'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

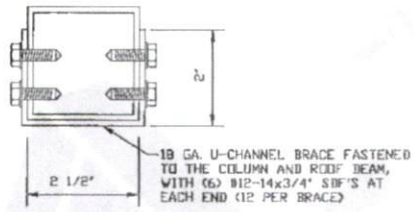
SCALE: NTS



**1B**

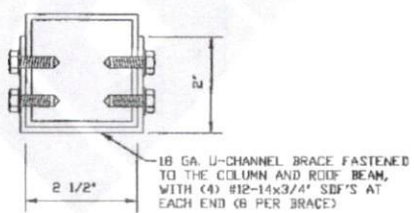
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 10'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS

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

**DRAWN BY: LT**  
**CHECKED BY: PDH**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

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**PROJECT MGR: WSM**  
**CLIENT: TOL**

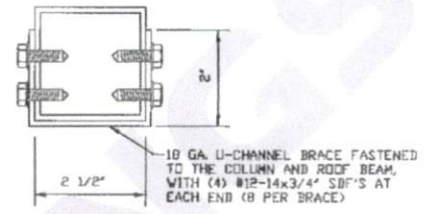
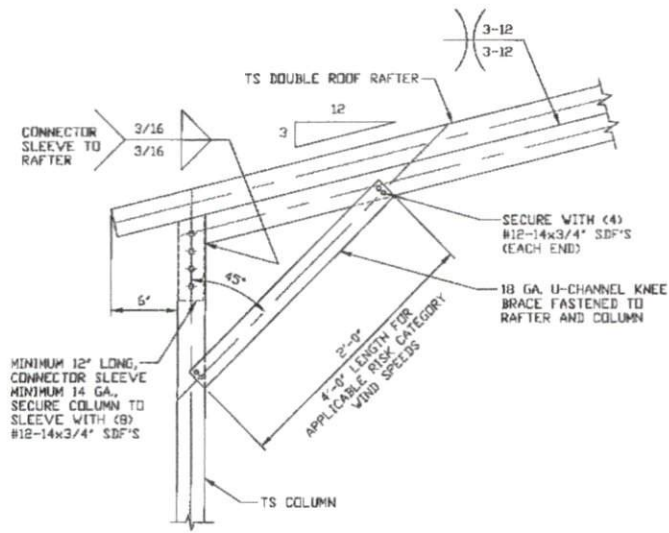
**DATE: 3-21-22**  
**SHT. 6D**

**SCALE: NTS**  
**DWG. NO: SK-3**

**JOB NO: 19164S/22020S**  
**REV: 1**

**60 PSF < SL ≤ 70 PSF**

**EXPOSURE C**



**BRACE SECTION**  
SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1C**

SCALE: NTS

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

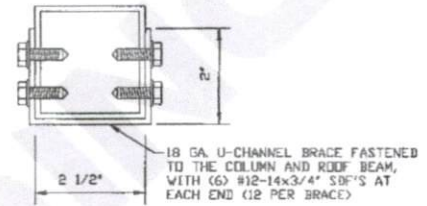
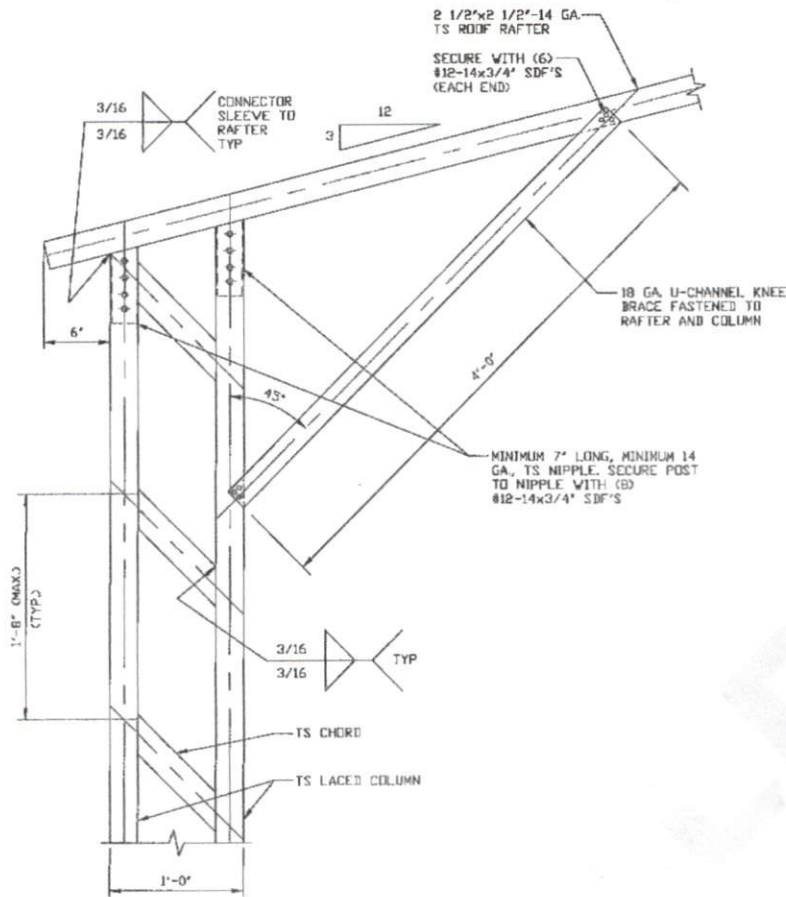
**DRAWN BY: LT**  
**CHECKED BY: PDH**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

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<b>PROJECT MGR: WSM</b>	<b>DATE: 9-21-22</b>	<b>SCALE: NTS</b>	<b>JOB NO: 19164S/PR020S</b>
<b>CLIENT: TOL</b>	<b>SHT. 6E</b>	<b>DWG. NO: SK-3</b>	<b>REV: 1</b>

**SL ≤ 60 PSF**  
**EXPOSURE B/C**



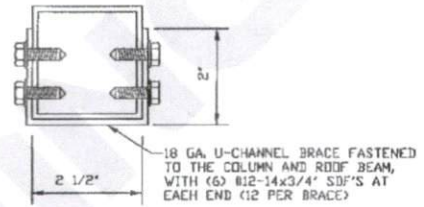
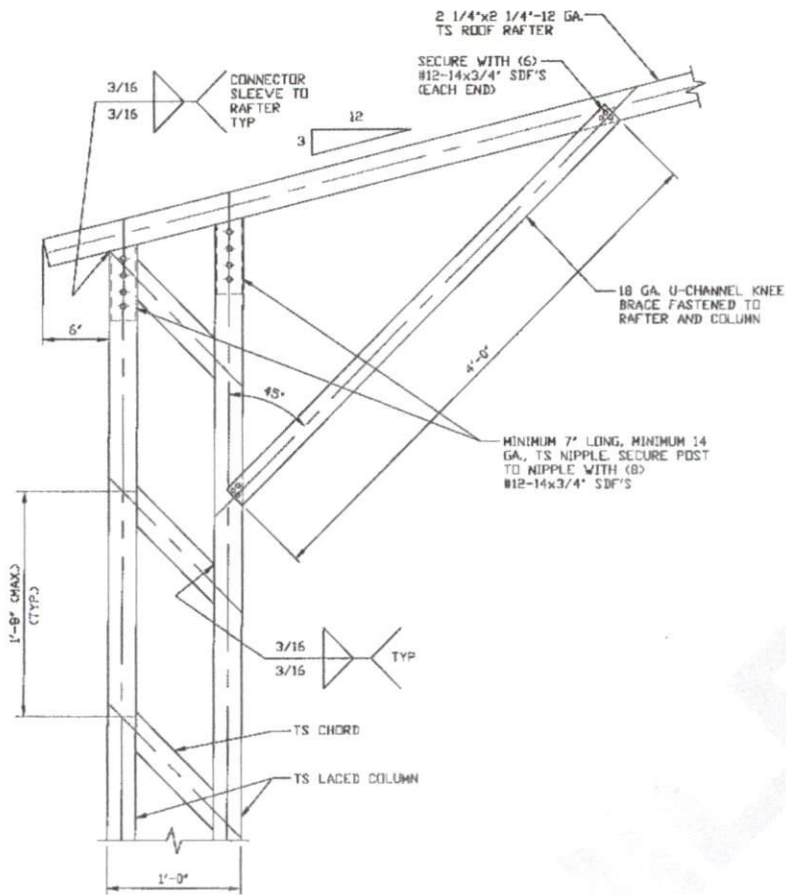
**BRACE SECTION**  
SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0\"**

1  
SCALE: NTS

<b>MOORE AND ASSOCIATES</b> <b>ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: LT	TOL BUILDINGS, INC. P.O. BOX 542 TOAST, NC 27049 30'-0" x 20'-0" ENCLOSED STRUCTURE		
	CHECKED BY: PDH	PROJECT MGR: WSM	DATE: 3-21-22	SCALE: NTS
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**SL ≤ 60 PSF**  
**EXPOSURE B/C**



**BRACE SECTION**  
SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**  
**HEIGHTS 15'-0" < TO ≤ 20'-0"**  
**FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1A

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDM

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.

P.O. BOX 542

TOAST, NC 27049

30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 6G

SCALE: NTS

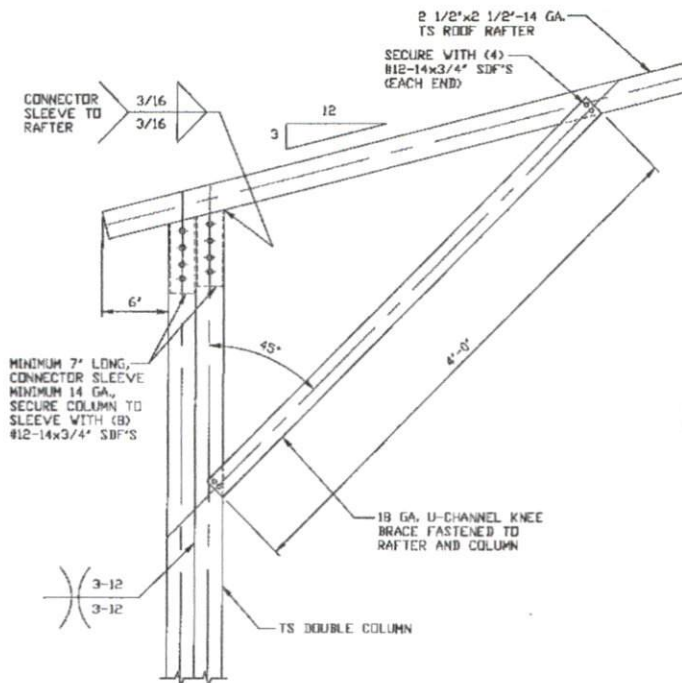
DWG. NO: SK-3

JOB NO:  
19164S/22020S

REV: 1

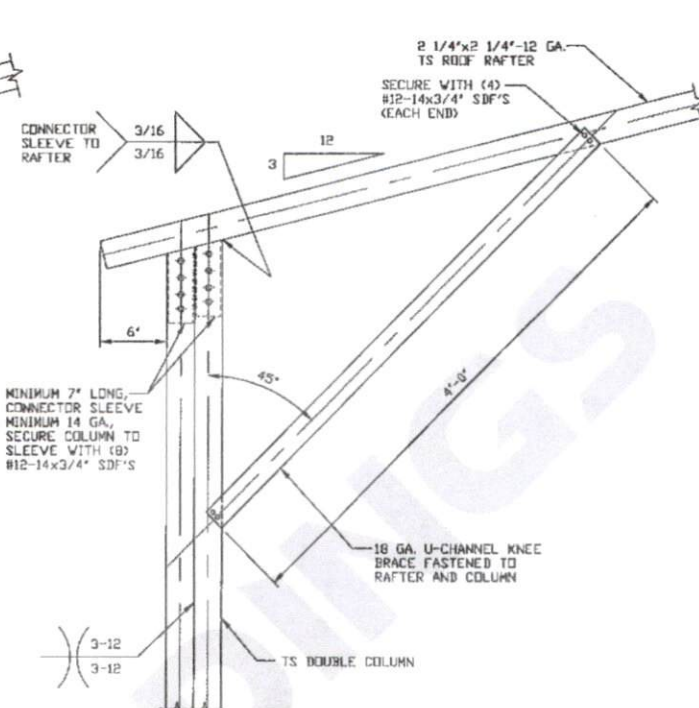
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**SL ≤ 60 PSF**  
**EXPOSURE B/C**



**1B**

SCALE: NTS

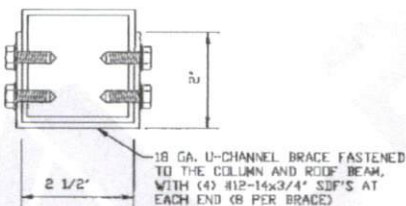


**1C**

SCALE: NTS

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE WIND RISK CATEGORY WIND SPEEDS**

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**



**BRACE SECTION**

SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 6H**

**SCALE: NTS**

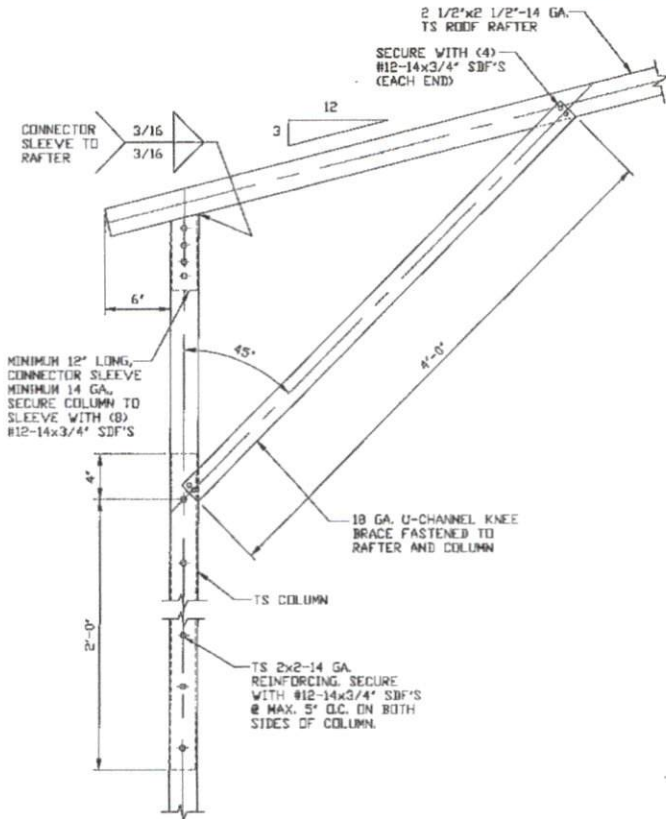
**DWG. NO: SK-3**

**JOB NO: 19164S/22020S**

**REV. 1**

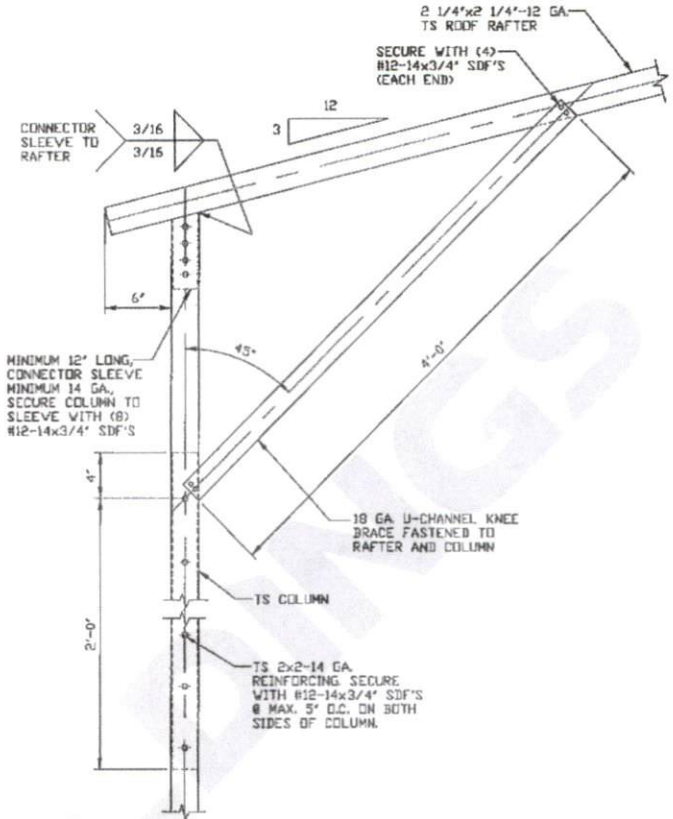
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**SL ≤ 60 PSF  
EXPOSURE B/C**



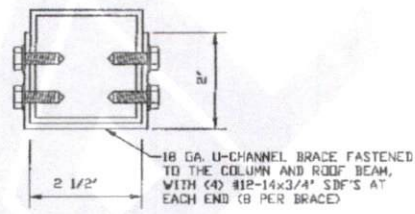
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1D**  
SCALE: NTS



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1E**  
SCALE: NTS



**BRACE SECTION**  
SCALE: NTS

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

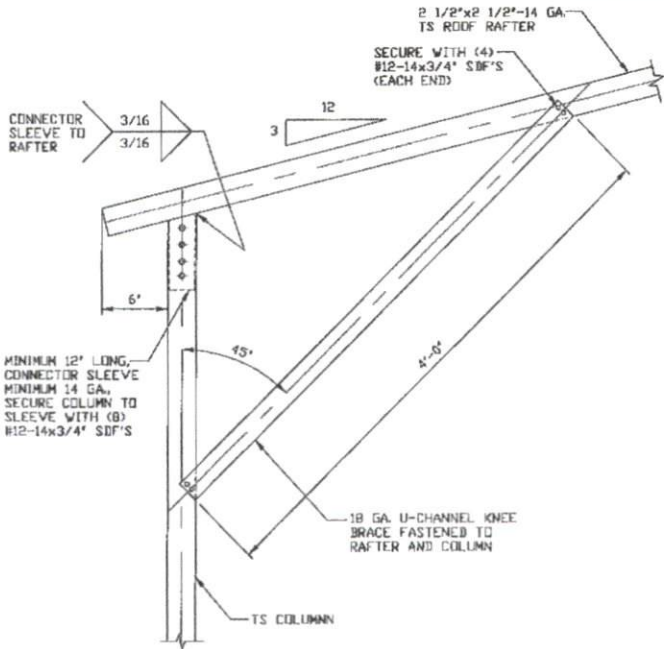
**DRAWN BY: LT**  
**CHECKED BY: PDH**  
**PROJECT MGR: VSM**  
**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE  
**DATE: 3-21-22**  
**SCALE: NTS**  
**SHT. 6J**  
**DWG. NO: SK-3**  
**JOB NO: 19164S/2R020S**  
**REV. 1**

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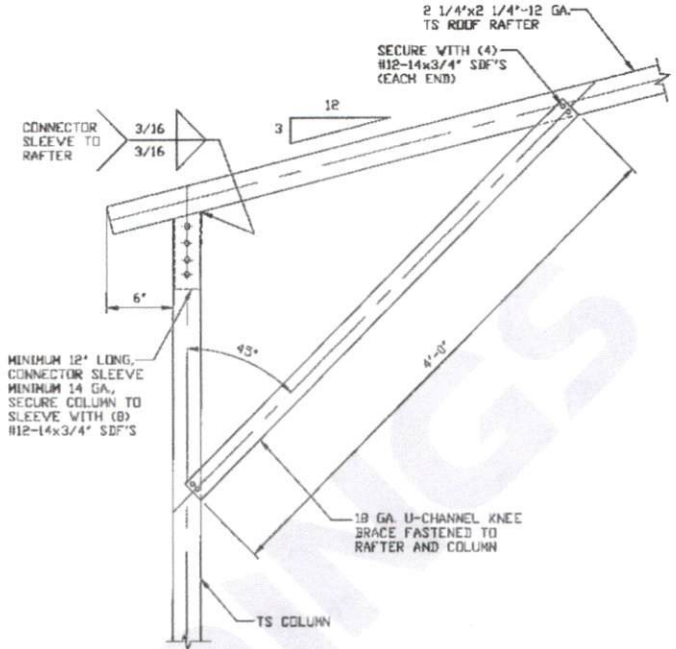


**SL ≤ 60 PSF**  
**EXPOSURE B/C**



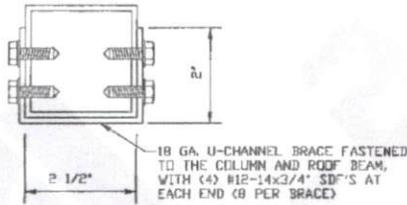
1F

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**  
SCALE: NTS



1G

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**  
SCALE: NTS



**BRACE SECTION**  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049

30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 6K

SCALE: NTS

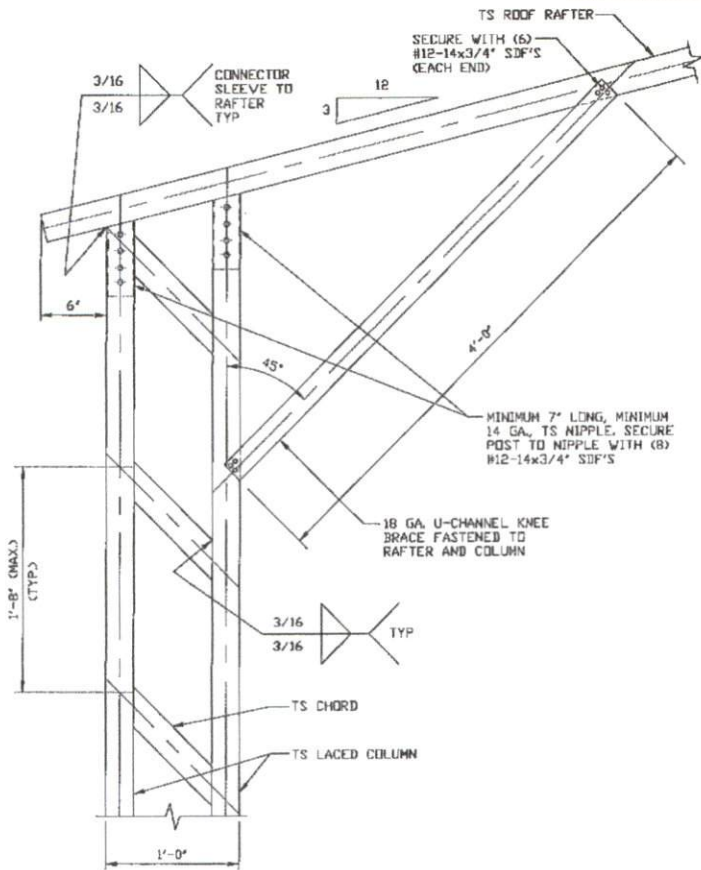
DWG. NO. SK-3

JOB NO. 19164S/22020S

REV: 1

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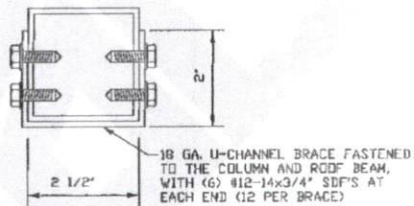
**SL ≤ 30 PSF**  
**EXPOSURE B/C**



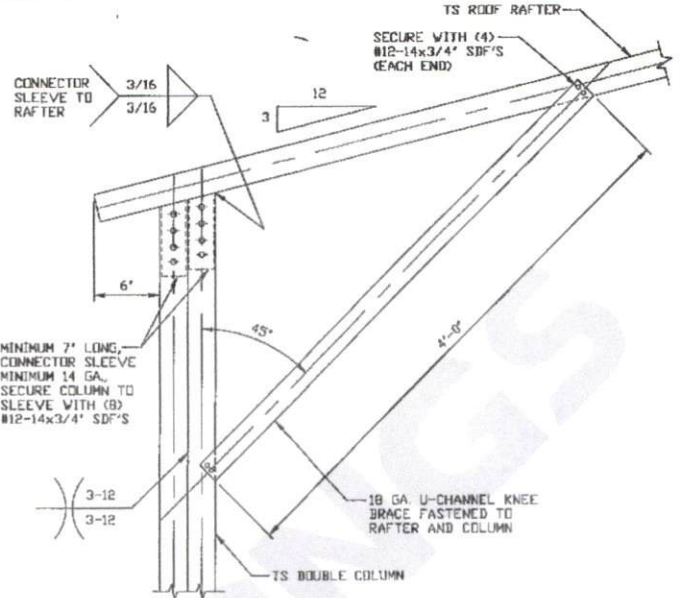
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0" HEIGHTS 15'-0" < TO ≤ 20'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1

SCALE: NTS



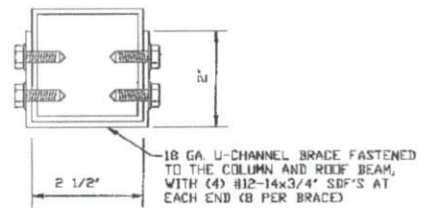
**BRACE SECTION**  
SCALE: NTS



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1A

SCALE: NTS



**BRACE SECTION**  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 6L

SCALE: NTS

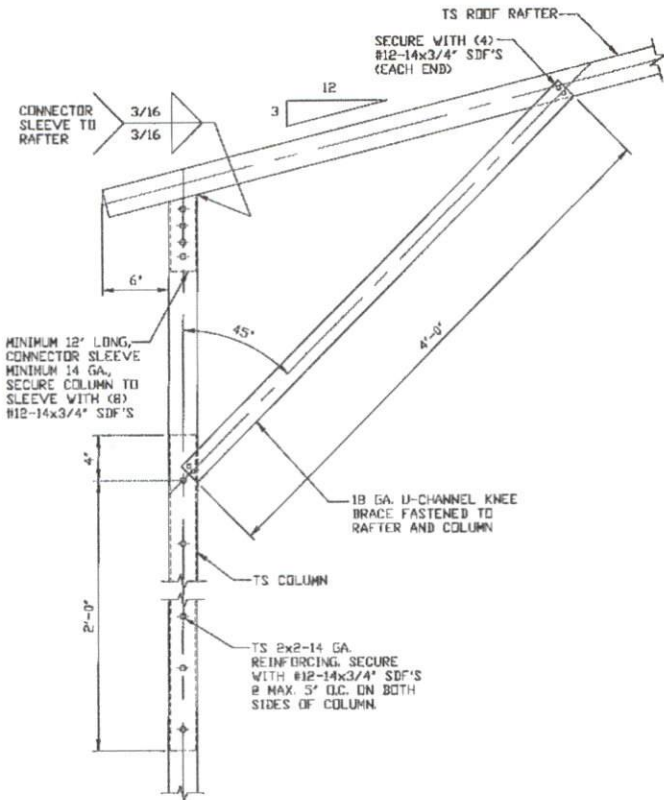
DWG. NO: SK-3

JOB NO: 19164S/22020S

REV: 1

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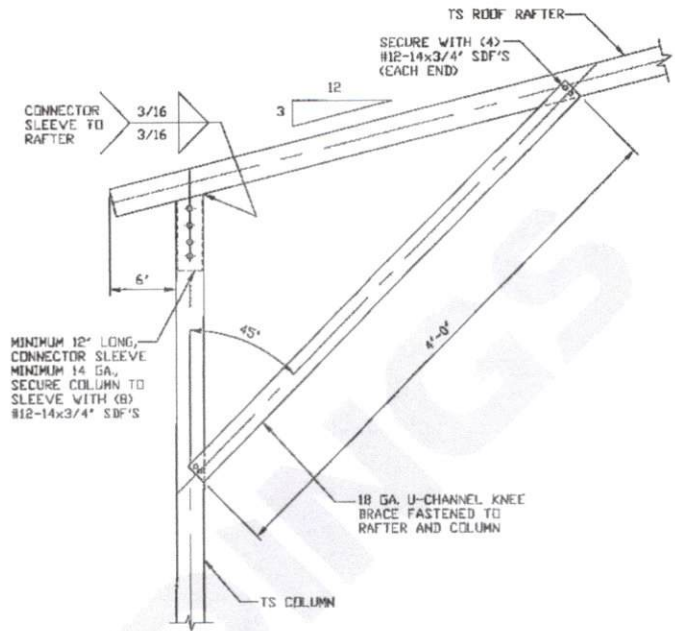
**SL ≤ 30 PSF**  
**EXPOSURE B/C**



**1B**

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

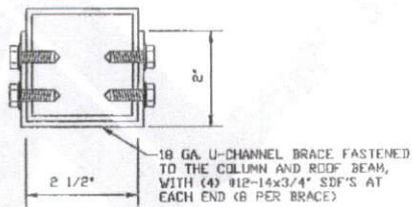
SCALE: NTS



**1C**

**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSN**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 6H**

**SCALE: NTS**

**DWG. NO: SK-3**

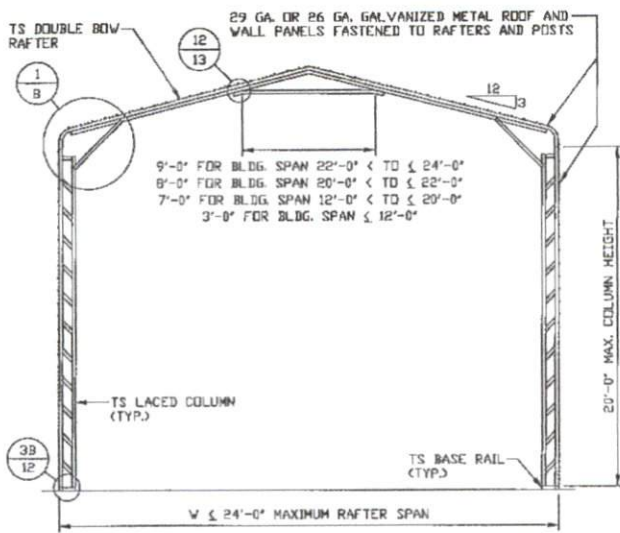
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**REV: 1**

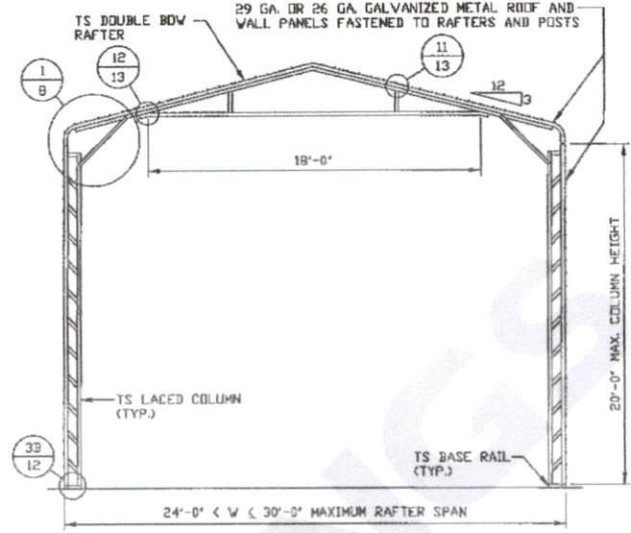
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**60 PSF < SL ≤ 70 PSF**

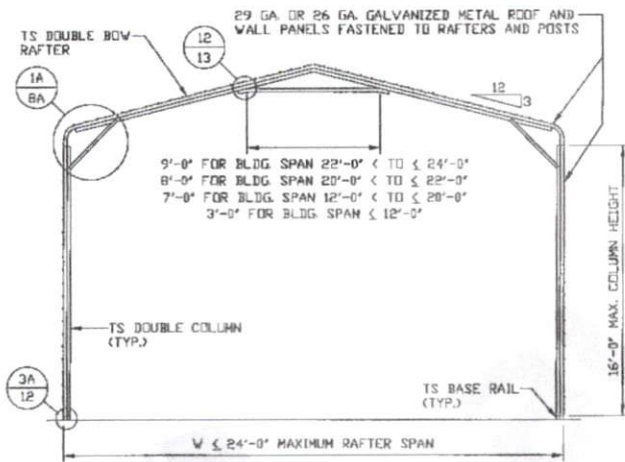
**EXPOSURE B**



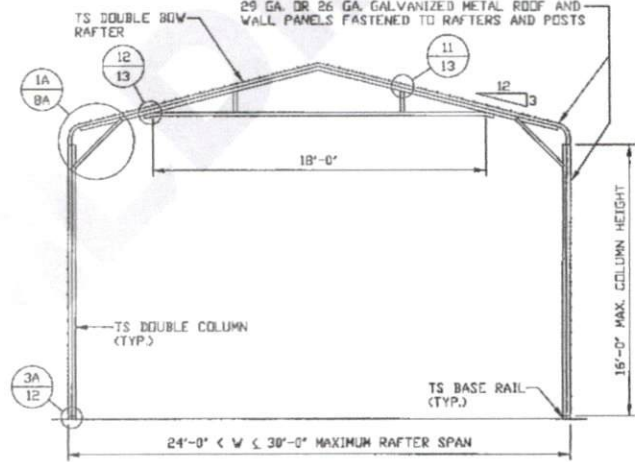
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**  
**CHECKED BY: PDH**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" X 20'-0" ENCLOSED STRUCTURE

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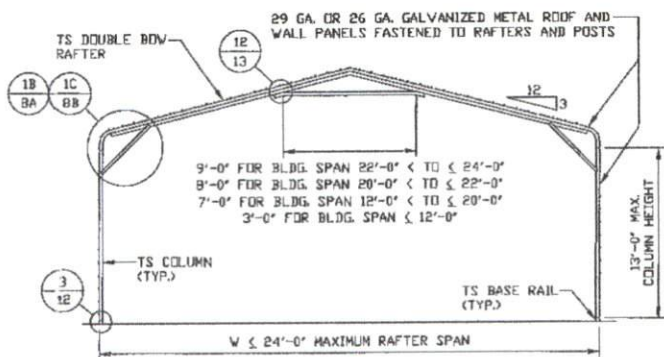
**PROJECT MGR: VSH**  
**CLIENT: TOL**

**DATE: 3-21-22**  
**SHT. 7**

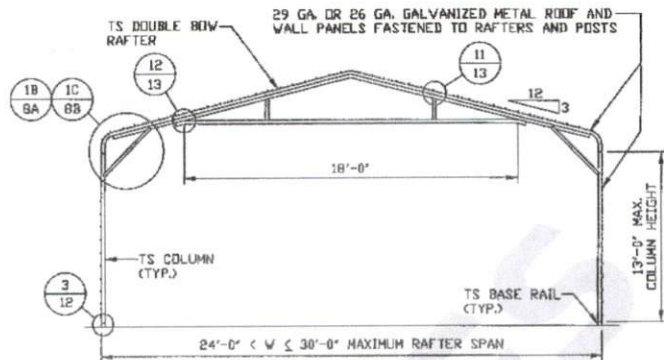
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**DWG. NO: SK-3**

**JOB NO: 19164S/22020S**  
**REV: 1**

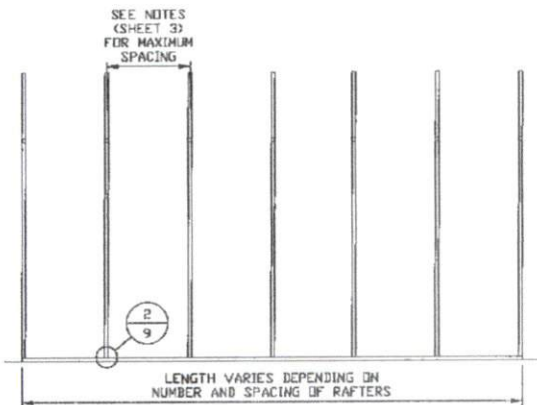
**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE B**



**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: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 7A

SCALE: NTS

DWG. NO. SK-3

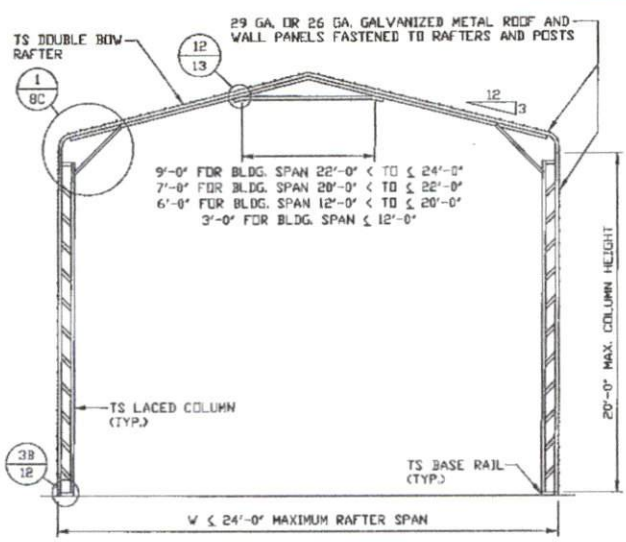
JOB NO.  
19164S/22020S

REV: 1

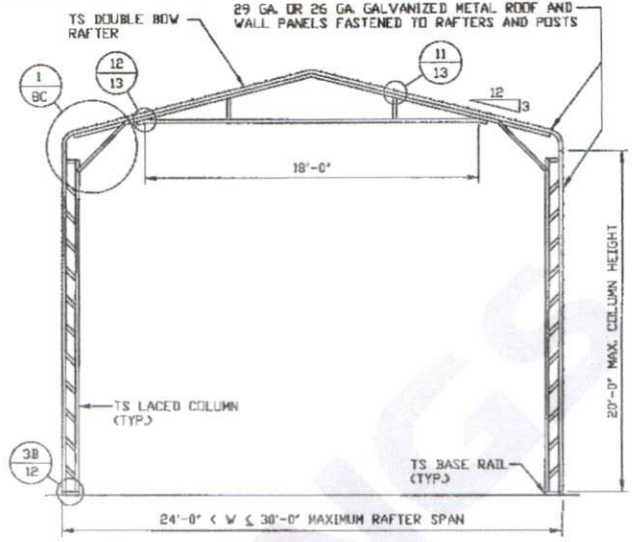
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60 PSF < SL ≤ 70 PSF

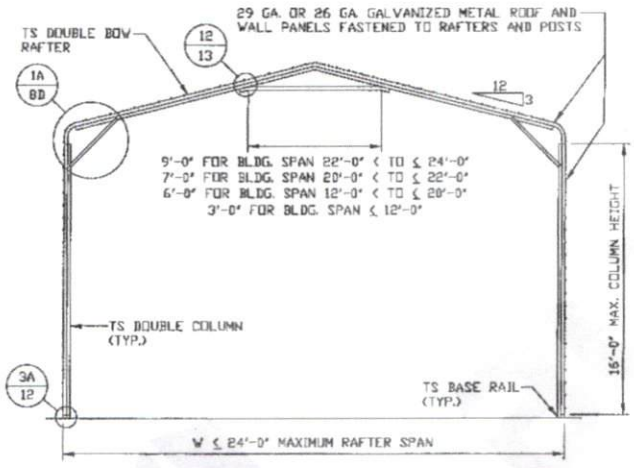
EXPOSURE C



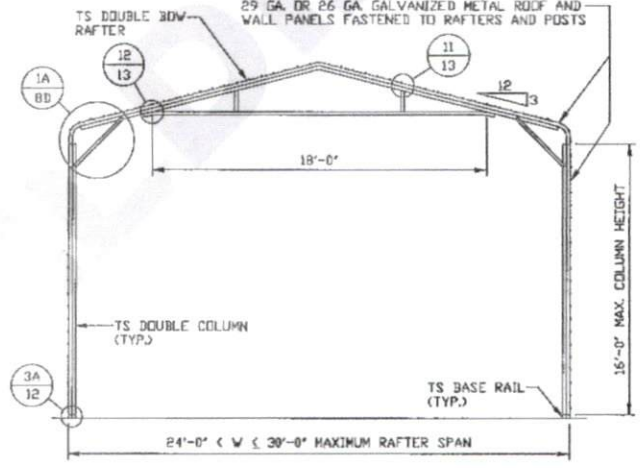
TYPICAL RAFTER/COLUMN END FRAME SECTION  
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION  
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION  
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION  
SCALE: NTS

MOORE AND ASSOCIATES  
ENGINEERING AND CONSULTING, INC.

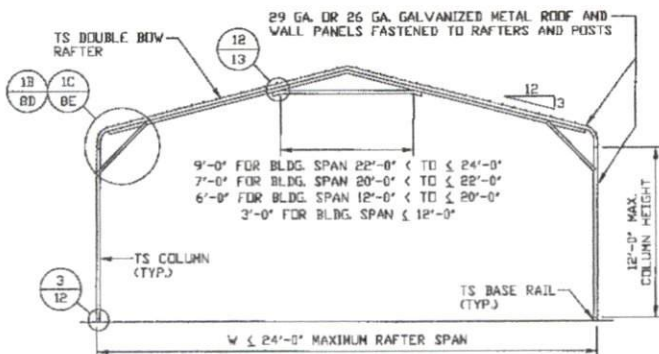
DRAWN BY: LT  
CHECKED BY: PDH

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

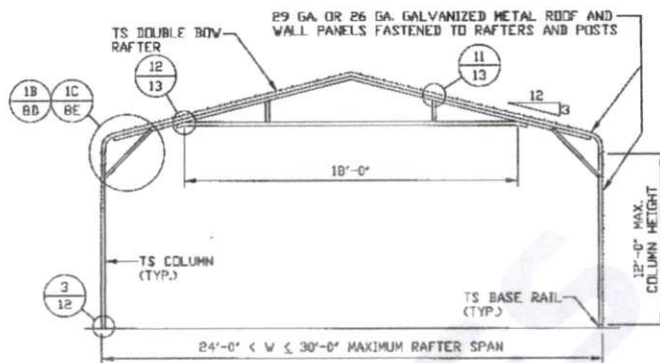
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PROJECT MGR: VSM	DATE: 3-21-22	SCALE: NTS	JOB NO: 19164S/22080S
CLIENT: TOL	SHT. 7B	DWG. NO: SK-3	REV: 1

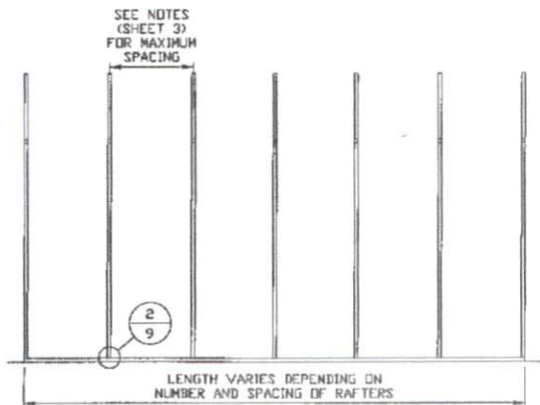
**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE C**



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.

P.O. BOX 542

TOAST, NC 27049

30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 7C

SCALE: NTS

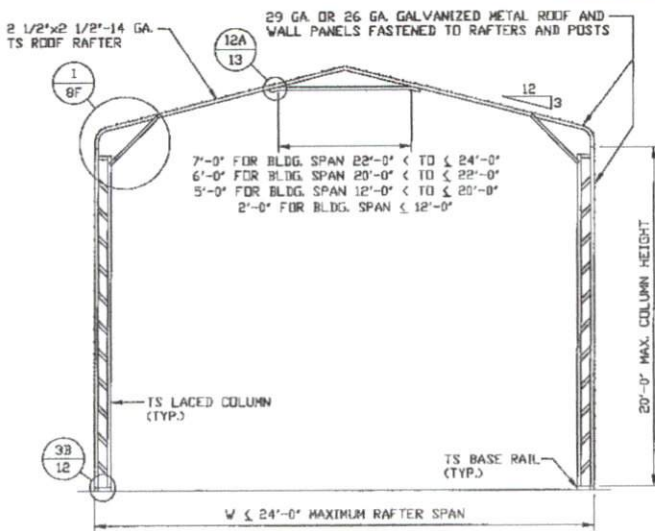
DWG. NO. SK-3

JOB NO.  
19164S/22020S

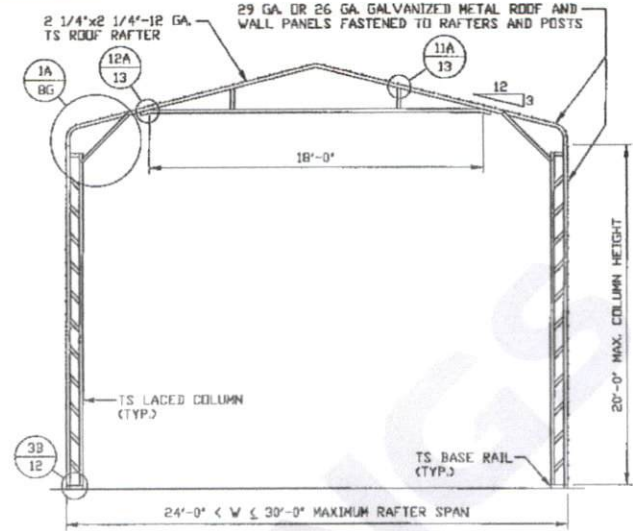
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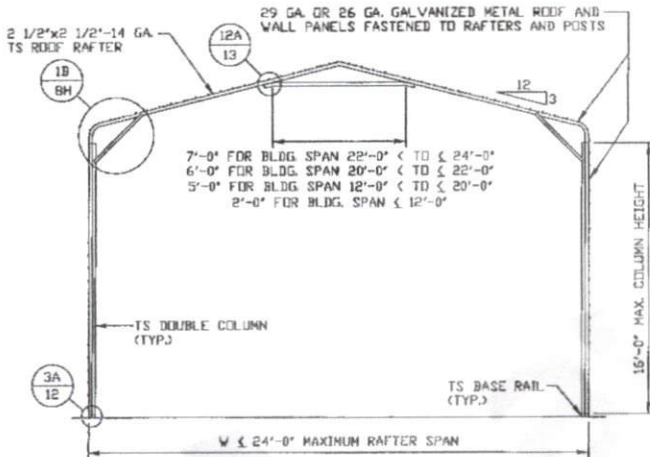
**SL ≤ 60 PSF**  
**EXPOSURE B/C**



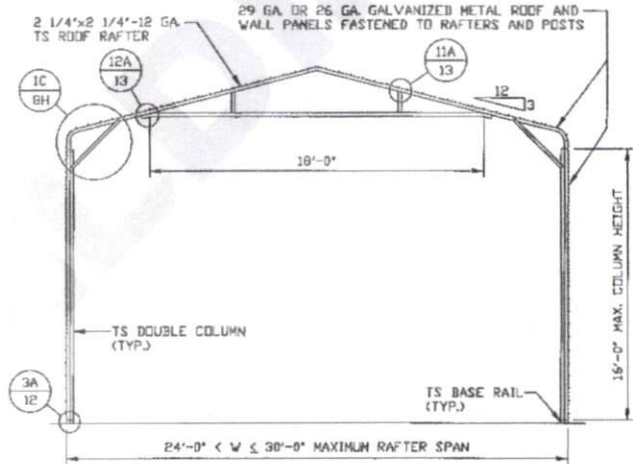
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PJH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SCALE: NTS

DWG. NO: SK-3

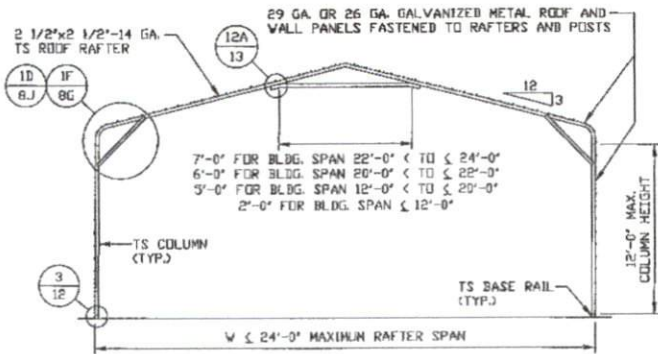
JOB NO:  
19164S/22020S

REV: 1

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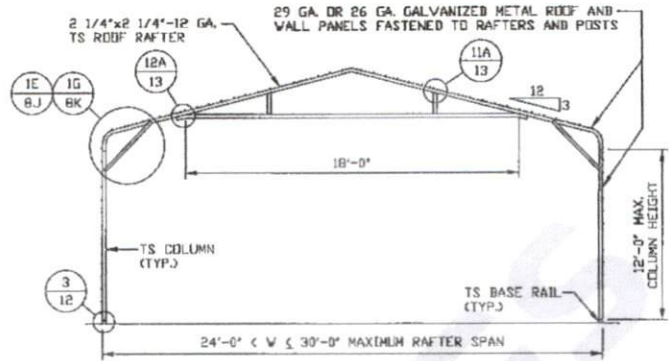


**SL ≤ 60 PSF**  
**EXPOSURE B/C**



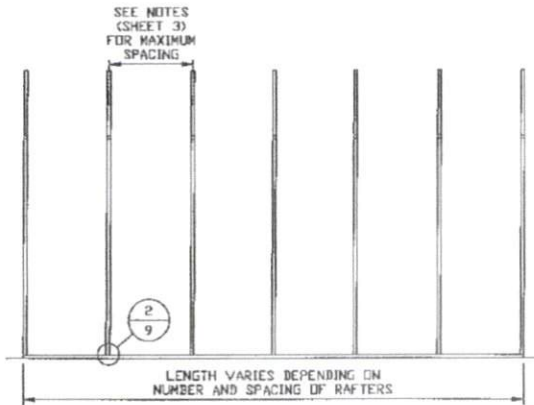
**TYPICAL RAFTER/COLUMN END FRAME SECTION**

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: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 7E

SCALE: NTS

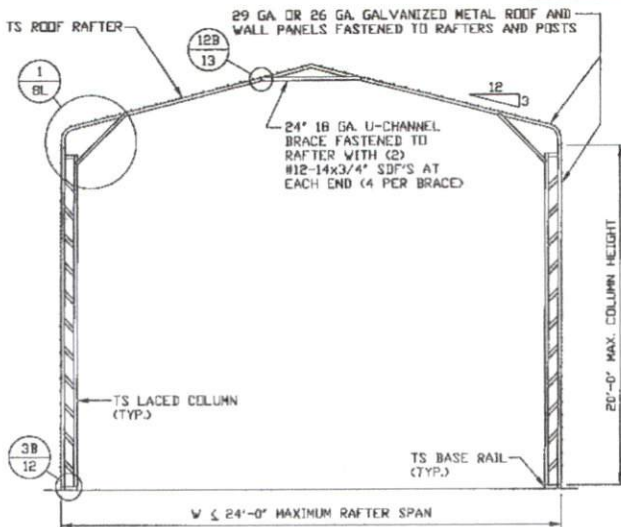
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19164S/22020S

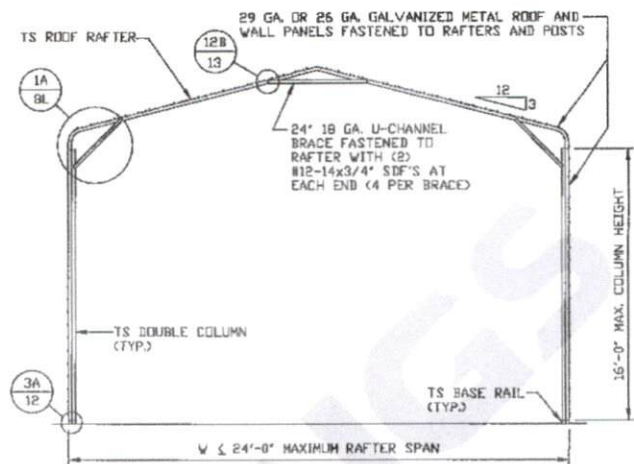
REV. 1

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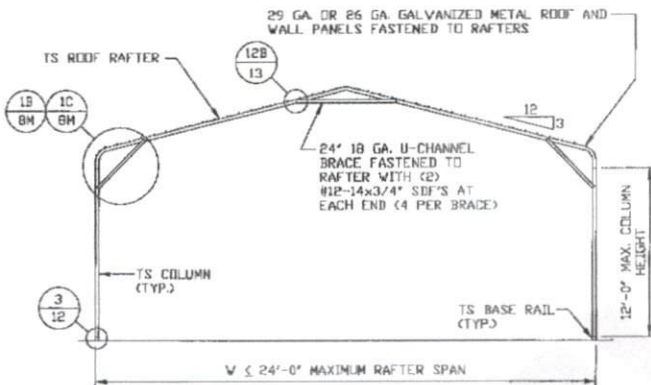
**SL ≤ 30 PSF**  
**EXPOSURE B/C**



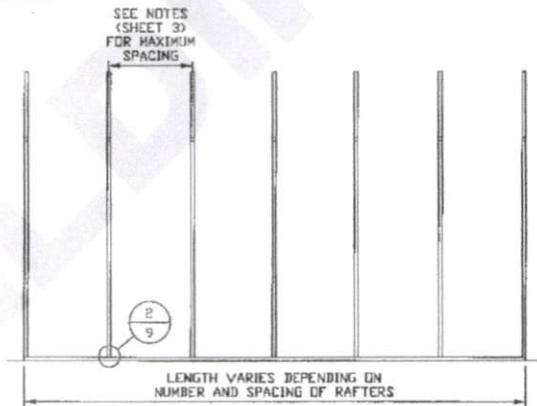
**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN END FRAME SECTION**  
SCALE: NTS



**TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**  
**CHECKED BY: PDH**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

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**PROJECT MGR: WSH**  
**CLIENT: TOL**

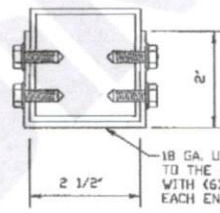
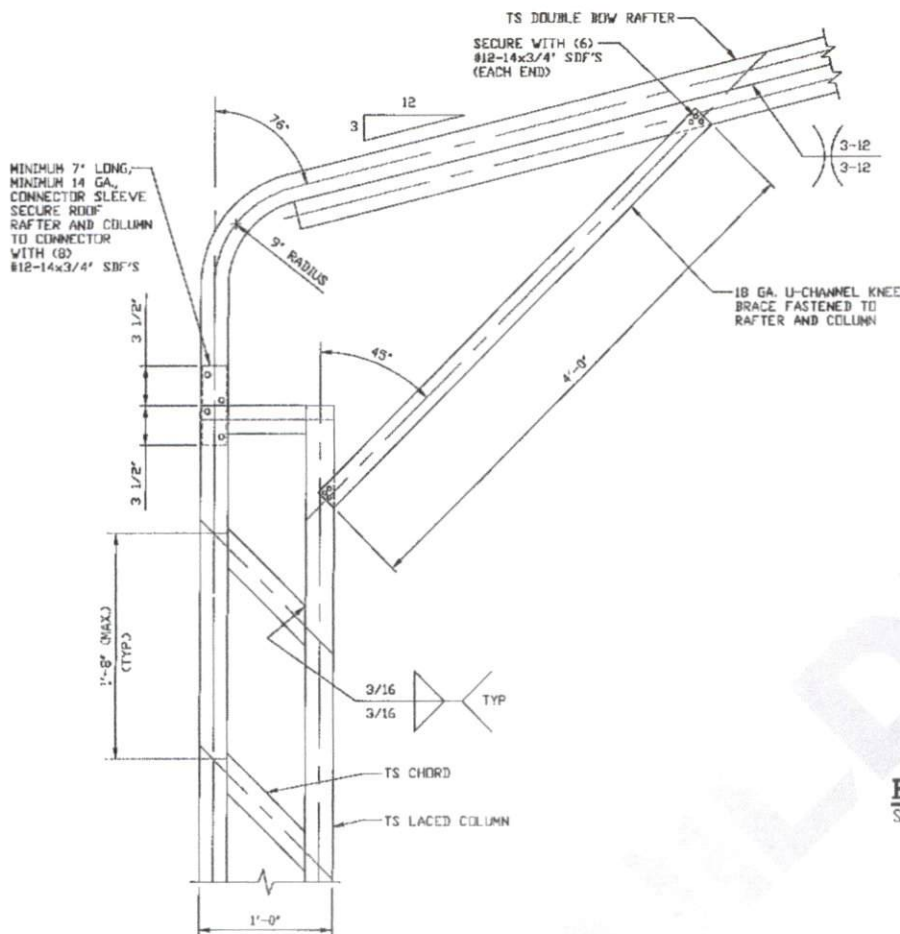
**DATE: 3-21-22**  
**SHT. 7F**

**SCALE: NTS**  
**DWG. NO: SK-3**

**JOB NO: 19164S/22020S**  
**REV: 1**

60 PSF < SL ≤ 70 PSF

**EXPOSURE B**



**BRACE SECTION**

SCALE: NTS

**BOW EAVE RAFTER COLUMN CONNECTION DETAIL  
FOR HEIGHTS 16'-0" < TO ≤ 20'-0"  
HEIGHTS 15'-0" < TO ≤ 20'-0"  
FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1

SCALE: NTS

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

**DRAWN BY: LT**  
**CHECKED BY: PDH**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0"x20'-0" ENCLOSED STRUCTURE

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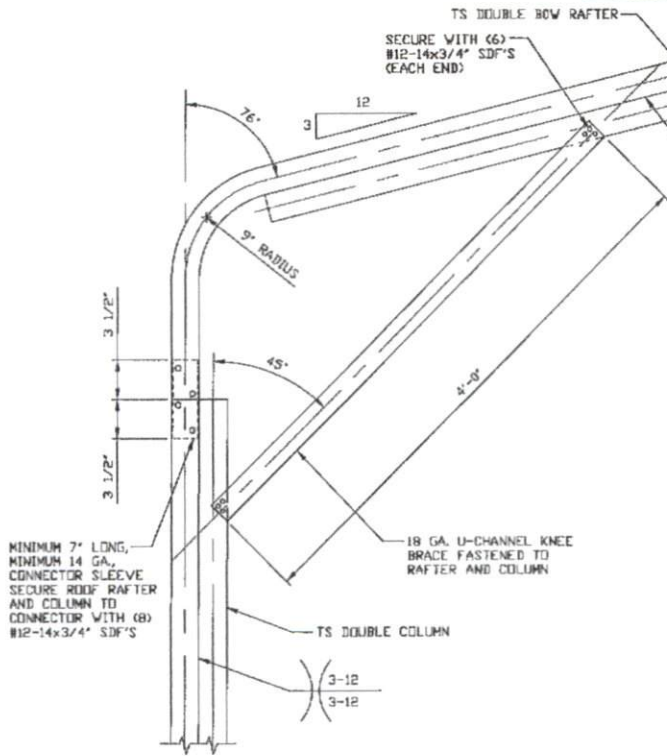
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**CLIENT: TOL**

**DATE: 3-21-22**  
**SHT. 8**

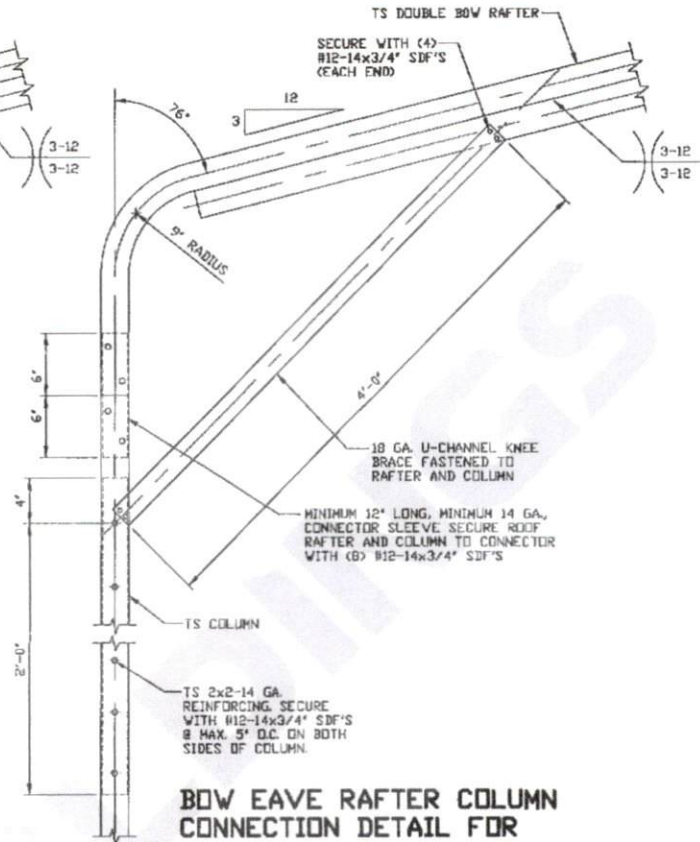
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**DWG. NO: SK-3**  
**JOB NO: 19164S/22020S**  
**REV: 1**

60 PSF < SL ≤ 70 PSF

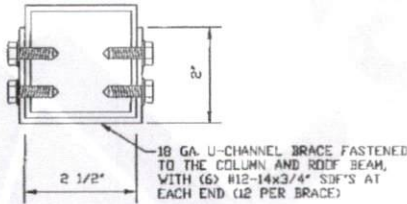
**EXPOSURE B**



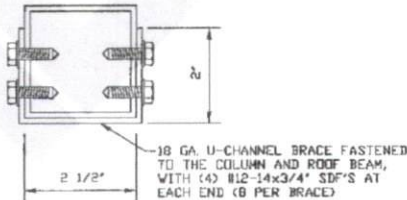
**1A**  
SCALE: NTS  
**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 13'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**



**1B**  
SCALE: NTS  
**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 13'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**



**BRACE SECTION**  
SCALE: NTS



**BRACE SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 8A**

**SCALE: NTS**

**DWG. NO. SK-3**

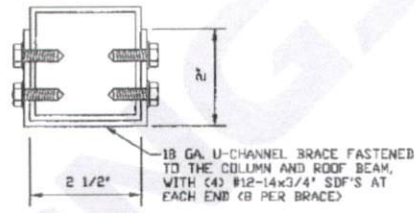
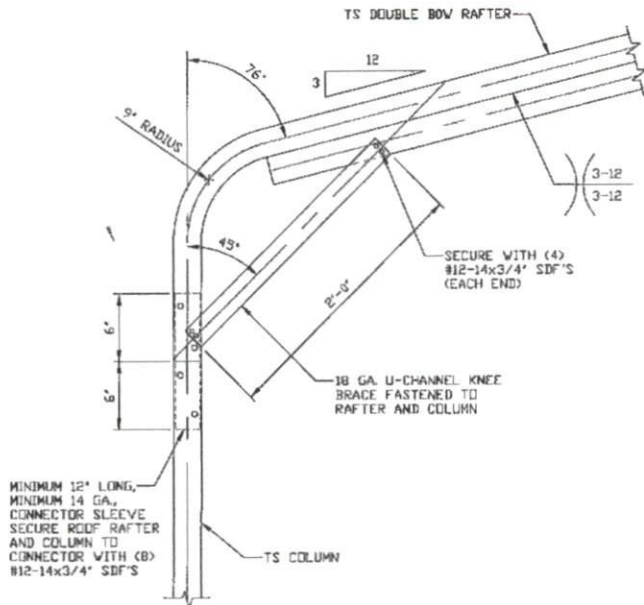
**JOB NO. 19164S/22028S**

**REV. 1**

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**60 PSF < SL ≤ 70 PSF**

**EXPOSURE B**



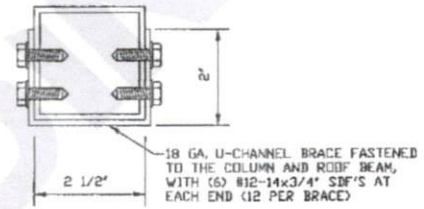
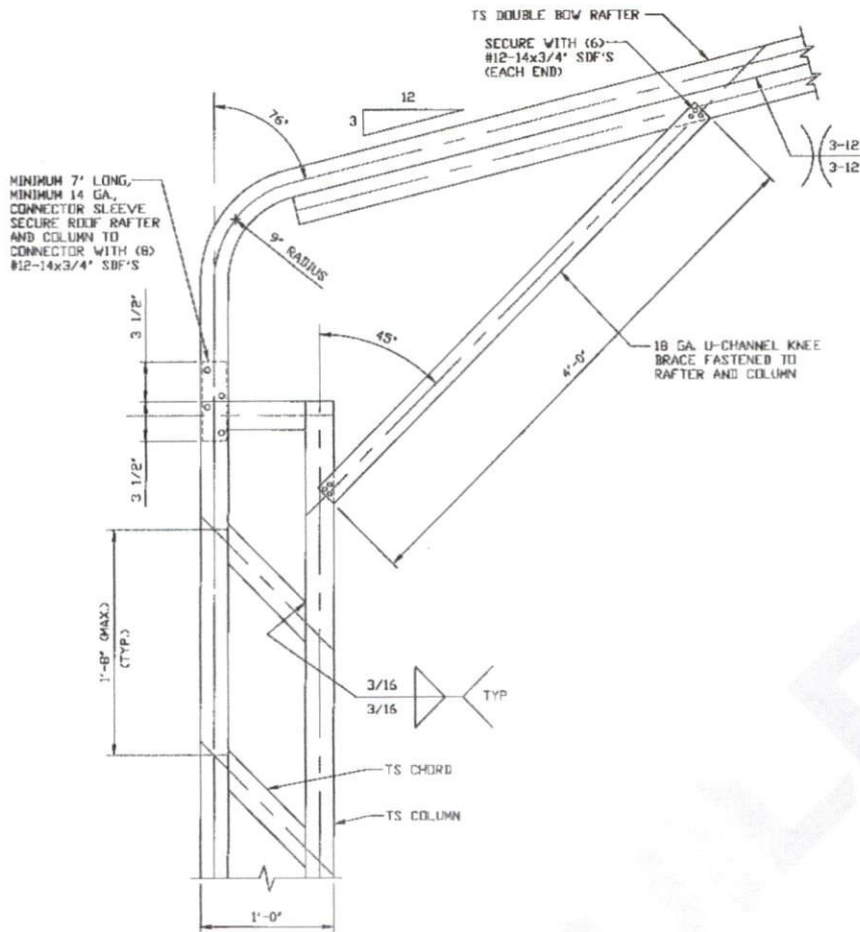
**BRACE SECTION**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN  
CONNECTION DETAIL FOR  
HEIGHTS ≤ 11'-0"  
HEIGHTS ≤ 9'-0"  
FOR APPLICABLE RISK  
CATEGORY WIND SPEEDS**

**1C**  
SCALE: NTS

<b>MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</b>	DRAWN BY: LT		TOL BUILDINGS, INC. P.O. BOX 542 TOAST, NC 27049 30'-0" x 20'-0" ENCLOSED STRUCTURE	
	CHECKED BY: PDH			
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	CLIENT: TOL	SHT. 08	DWG. NO: SK-3	REV. 1

**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE C**



**BRACE SECTION**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**  
**HEIGHTS 14'-0" < TO ≤ 20'-0"**  
**FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1  
SCALE: NTS

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

**DRAWN BY: LT**  
**CHECKED BY: POH**

**TOL BUILDINGS, INC.**  
**P.O. BOX 542**  
**TOAST, NC 27049**  
**30'-0"x20'-0" ENCLOSED STRUCTURE**

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**PROJECT MGR: VSM**  
**CLIENT: TOL**

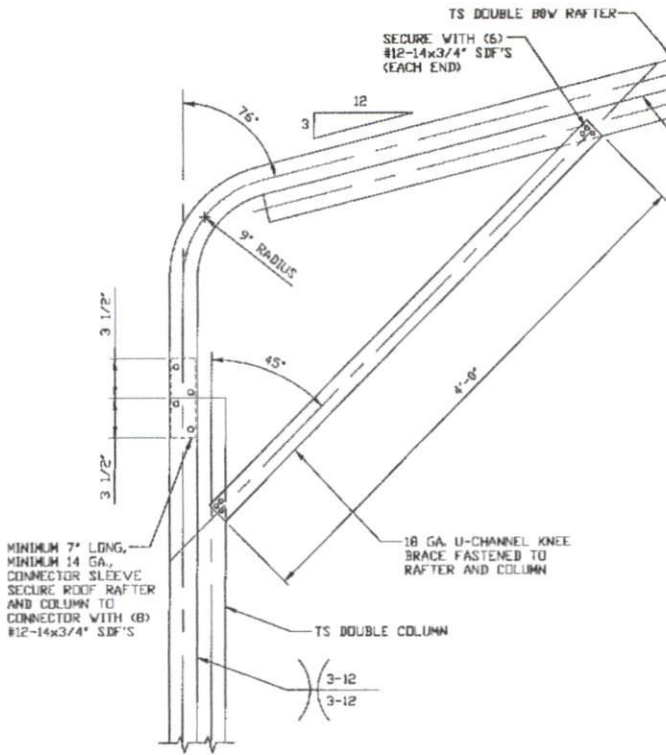
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**SHT. 8C**

**SCALE: NTS**  
**DWG. NO: SK-3**

**JOB NO: 19164S/22020S**  
**REV: 1**

60 PSF < SL ≤ 70 PSF

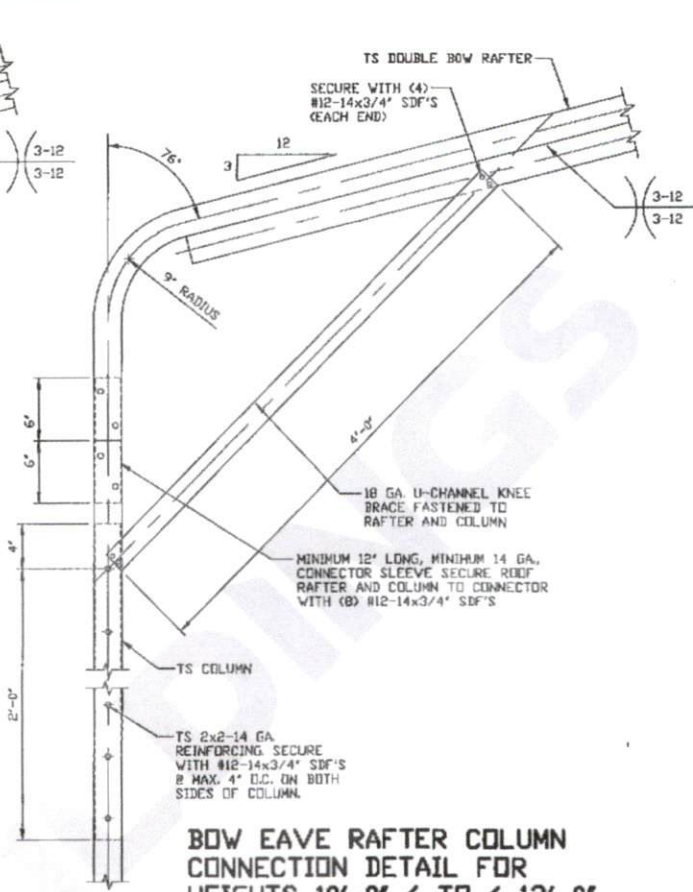
**EXPOSURE C**



**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 10'-0" < TO ≤ 14'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1A

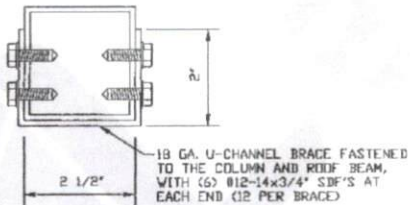
SCALE: NTS



**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 10'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

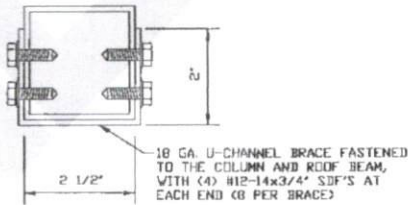
1B

SCALE: NTS



**BRACE SECTION**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 8D

SCALE: NTS

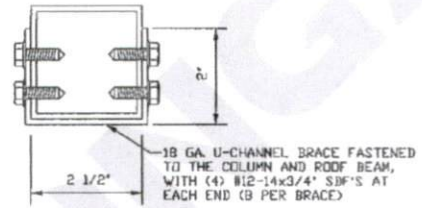
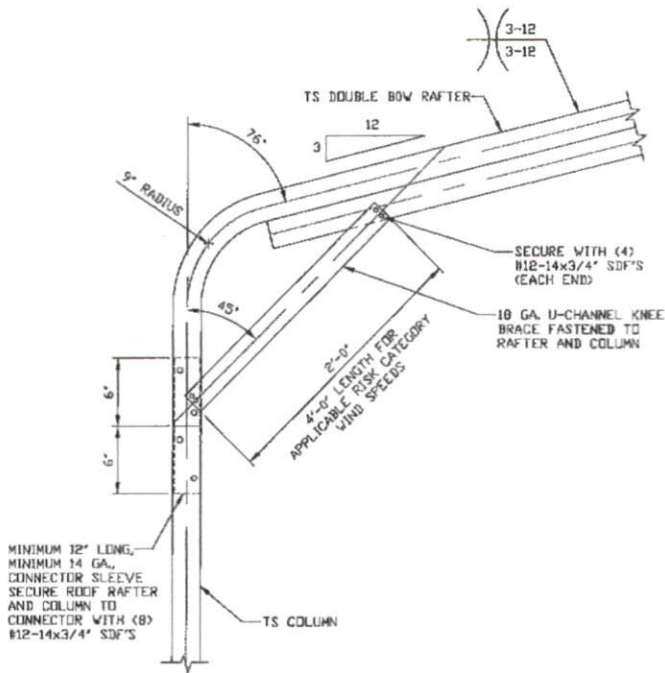
DWG. NO. SK-3

JOB NO. 19164S/22020S

REV: 1

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**60 PSF < SL ≤ 70 PSF**  
**EXPOSURE C**



**BRACE SECTION**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1C

SCALE: NTS

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

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CHECKED BY: PDH

PROJECT MGR: WSH

CLIENT: TOL

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SCALE: NTS

DWG. NO. SK-3

JOB NO.  
19164S/22020S

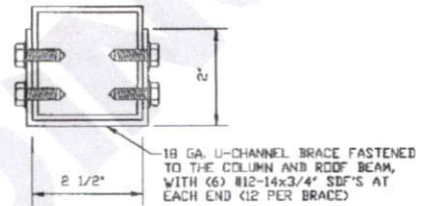
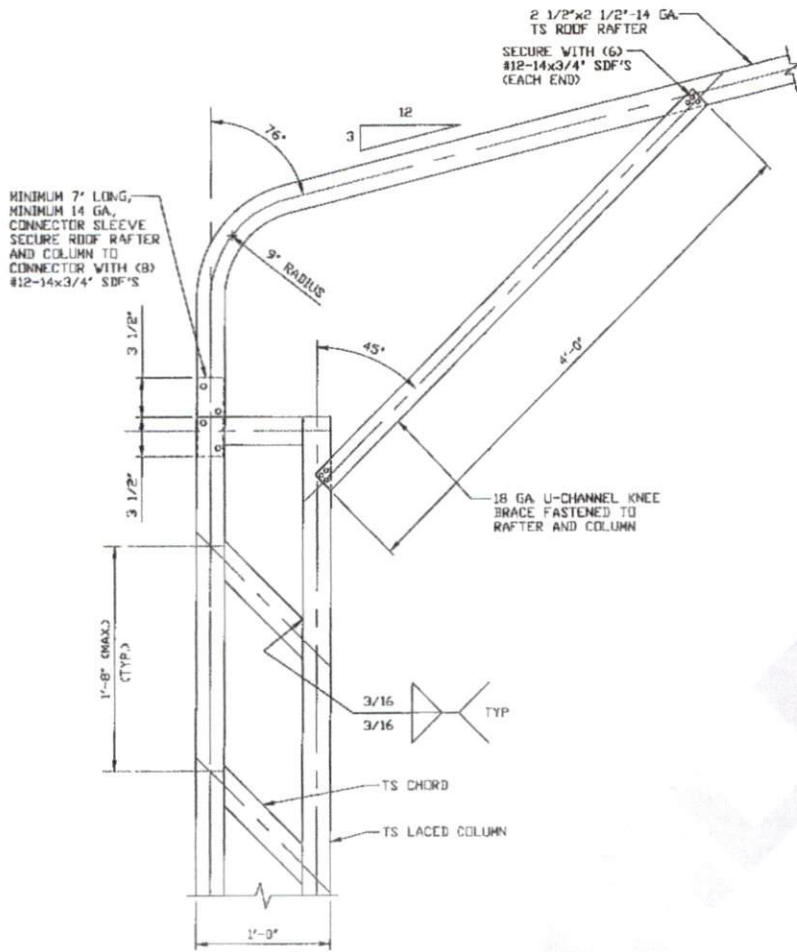
SHT. 0E

REV. 1

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**SL ≤ 60 PSF**  
**EXPOSURE B/C**



**BRACE SECTION**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**  
**HEIGHTS 15'-0" < TO ≤ 20'-0"**  
**FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

1

SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: WSH**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
**P.O. BOX 542**  
**TOAST, NC 27049**  
**30'-0" x 20'-0" ENCLOSED STRUCTURE**

**DATE: 3-21-22**

**SHT. 8F**

**SCALE: NTS**

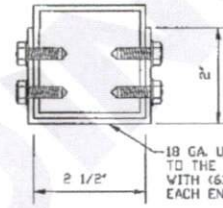
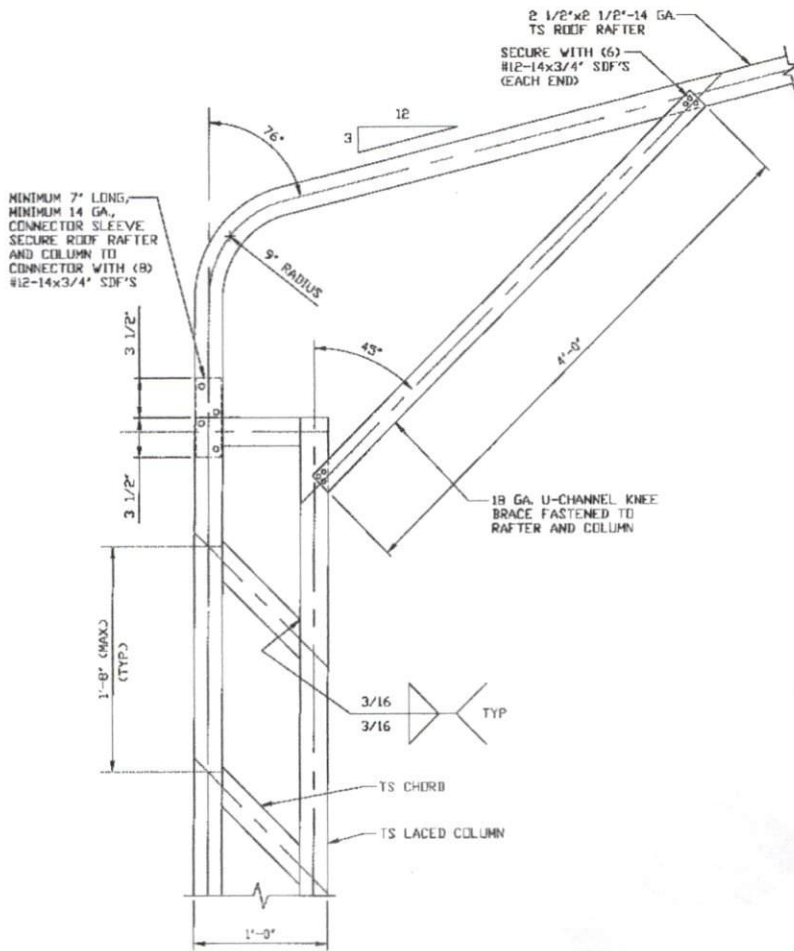
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**JOB NO:**  
**19164S/22020S**

**REV: 1**

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**SL ≤ 60 PSF**  
**EXPOSURE B/C**



**BRACE SECTION**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN CONNECTION DETAIL**  
**FOR HEIGHTS 16'-0" < TO ≤ 20'-0"**  
**HEIGHTS 15'-0" < TO ≤ 20'-0"**  
**FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1A**

SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
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30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 8G**

**SCALE: NTS**

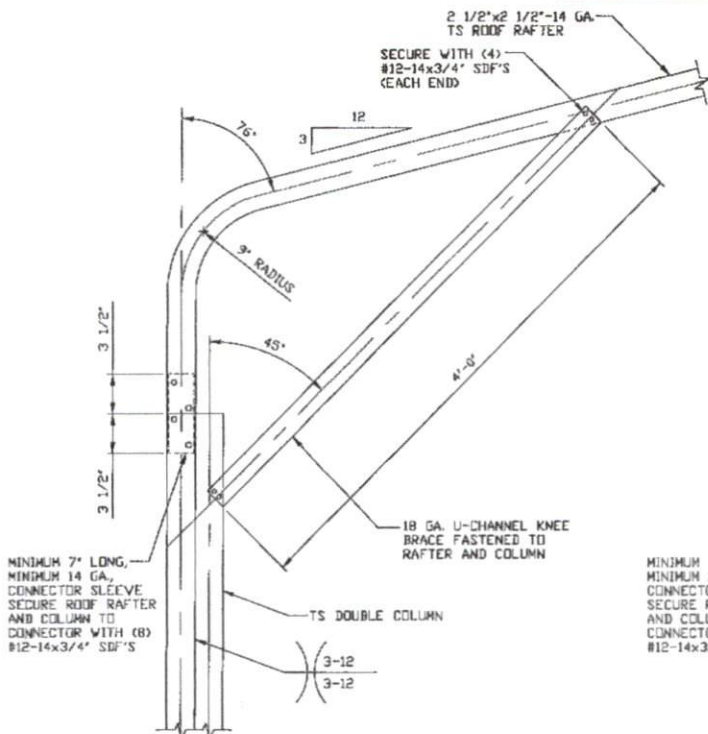
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**JOB NO:**  
19164S/22020S

**REV: 1**

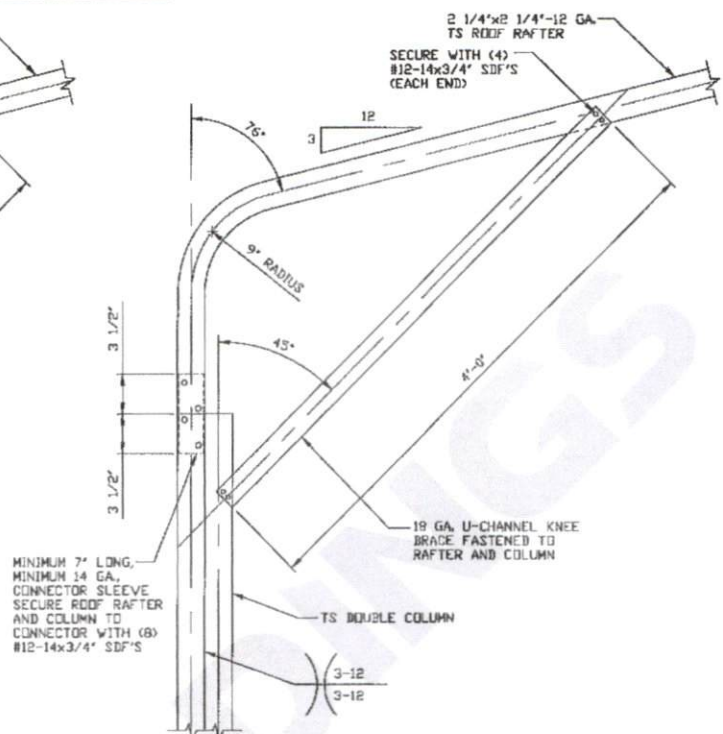
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**SL ≤ 60 PSF**  
**EXPOSURE B/C**



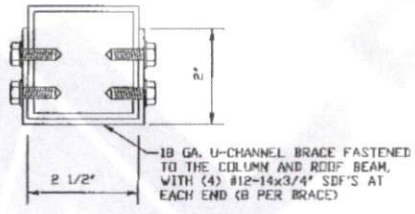
**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1B**  
SCALE: NTS



**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1C**  
SCALE: NTS



**BRACE SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**  
**CHECKED BY: PDH**

**TOL BUILDINGS, INC.**  
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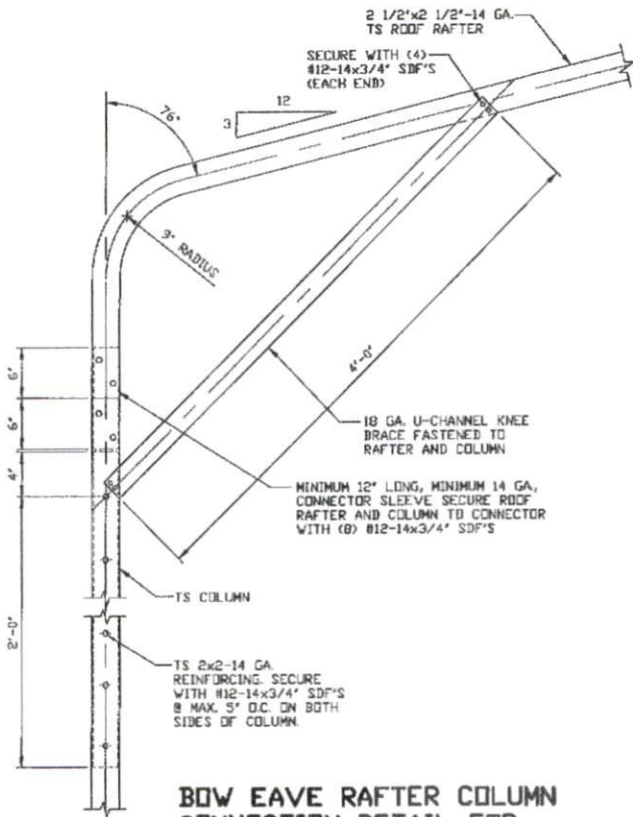
**PROJECT MGR: WSM**  
**CLIENT: TOL**

**DATE: 3-21-22**  
**SHT. 8H**

**SCALE: NTS**  
**DWG. NO: SK-3**

**JOB NO: 19164S/22020S**  
**REV: 1**

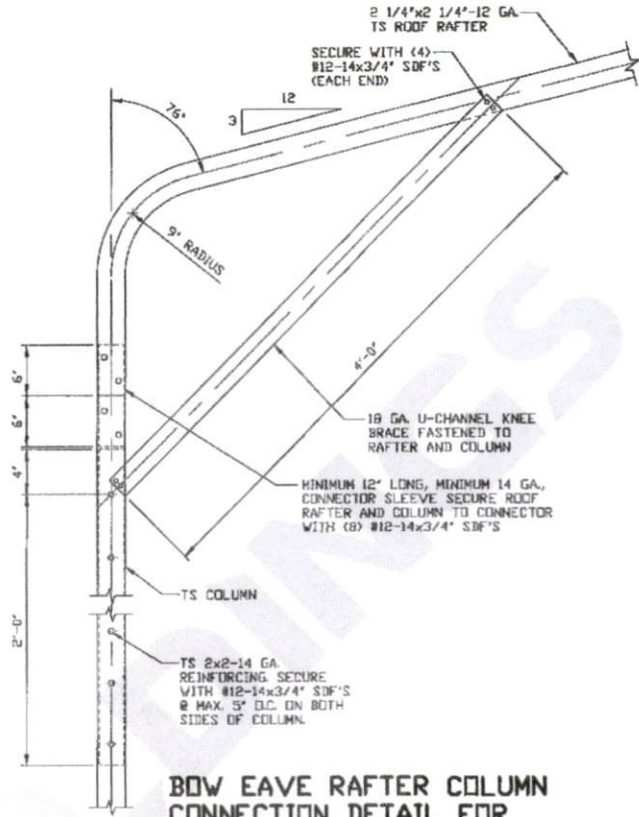
**SL ≤ 60 PSF**  
**EXPOSURE B/C**



**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1D**

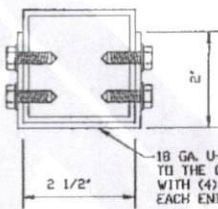
SCALE: NTS



**BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1E**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 8J

SCALE: NTS

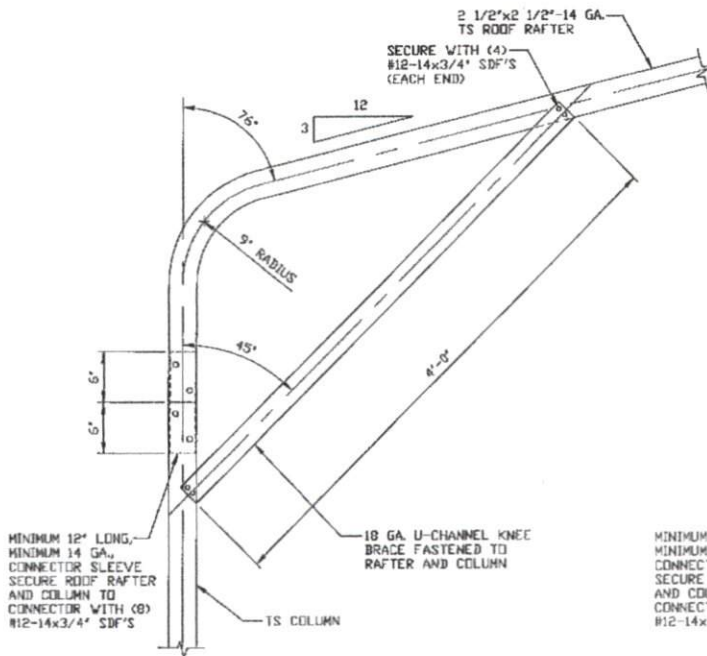
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JOB NO. 19164S/22020S

REV. 1

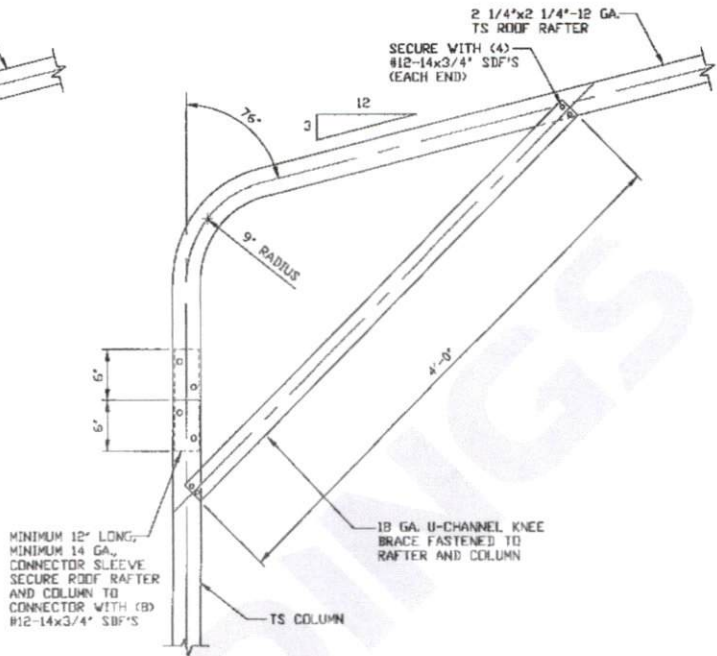
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**SL ≤ 60 PSF  
EXPOSURE B/C**



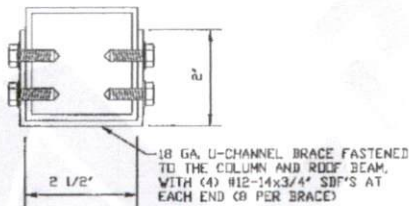
**1F**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN  
CONNECTION DETAIL FOR  
HEIGHTS ≤ 11'-0"  
HEIGHTS ≤ 9'-0"  
FOR APPLICABLE RISK  
CATEGORY WIND SPEEDS**



**1G**  
SCALE: NTS

**BOW EAVE RAFTER COLUMN  
CONNECTION DETAIL FOR  
HEIGHTS ≤ 11'-0"  
HEIGHTS ≤ 9'-0"  
FOR APPLICABLE RISK  
CATEGORY WIND SPEEDS**



**BRACE SECTION**  
SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PMH**

**PROJECT MGR: VSH**

**CLIENT: TOL**

**TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE**

**DATE: 3-21-22**

**SHT. BK**

**SCALE: NTS**

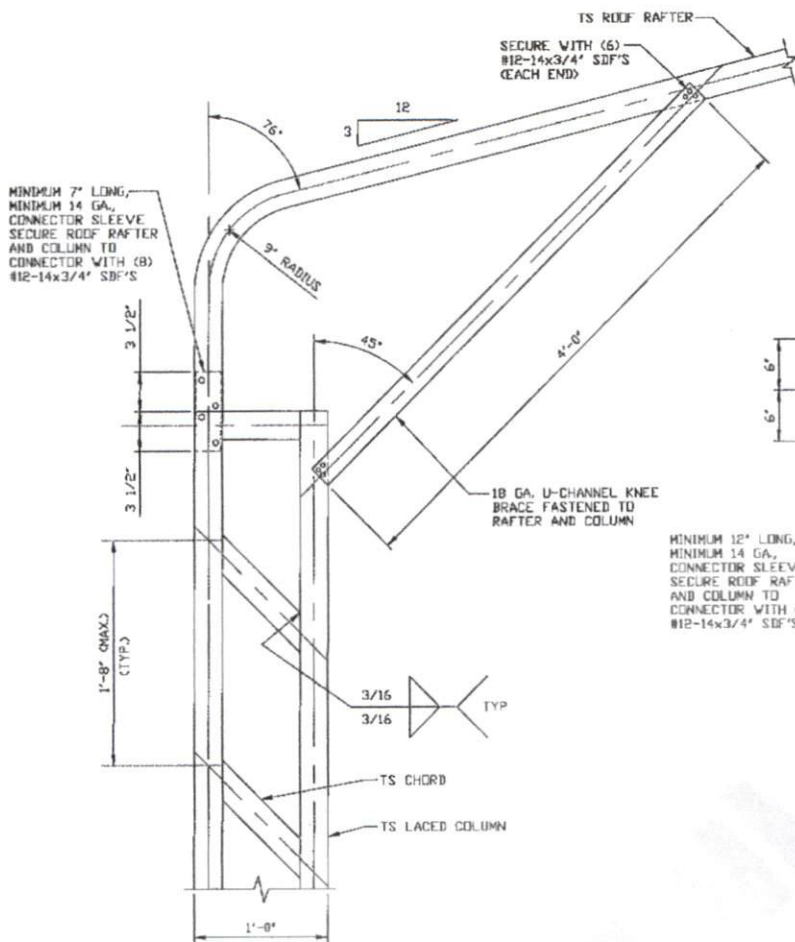
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**JOB NO:  
19164S/22020S**

**REV: 1**

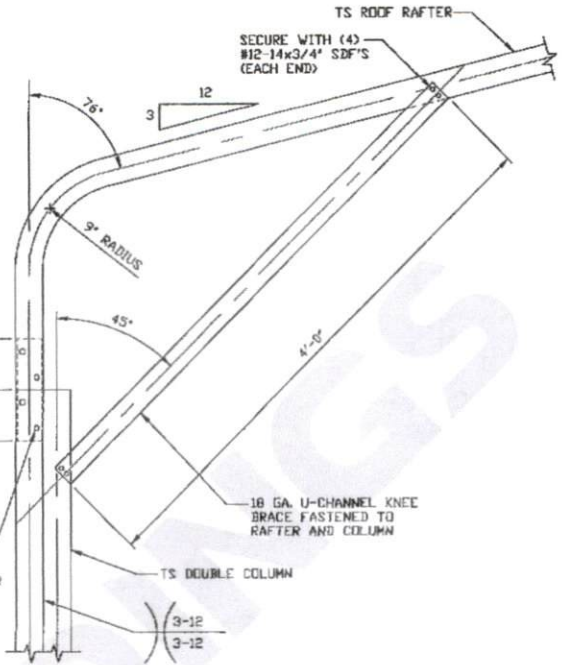
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**SL ≤ 30 PSF  
EXPOSURE B/C**



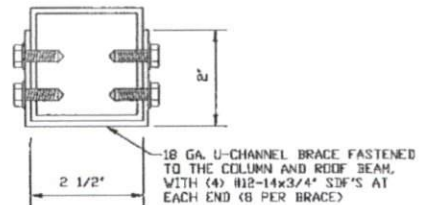
**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0" HEIGHTS 11'-0" < TO ≤ 15'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1**  
SCALE: NTS

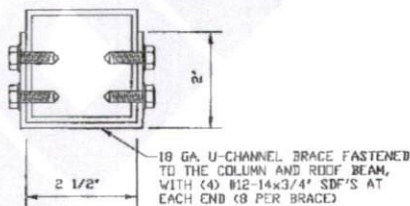


**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0" HEIGHTS 15'-0" < TO ≤ 20'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1A**  
SCALE: NTS



**BRACE SECTION**  
SCALE: NTS



**BRACE SECTION**  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSH

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
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30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 8L

SCALE: NTS

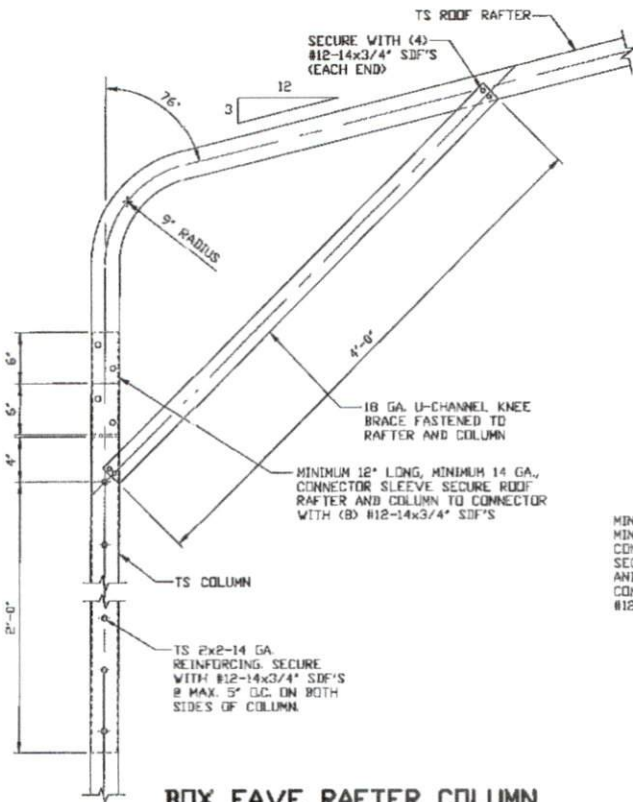
DWG. NO: SK-3

JOB NO:  
19164S/22020S

REV: 1

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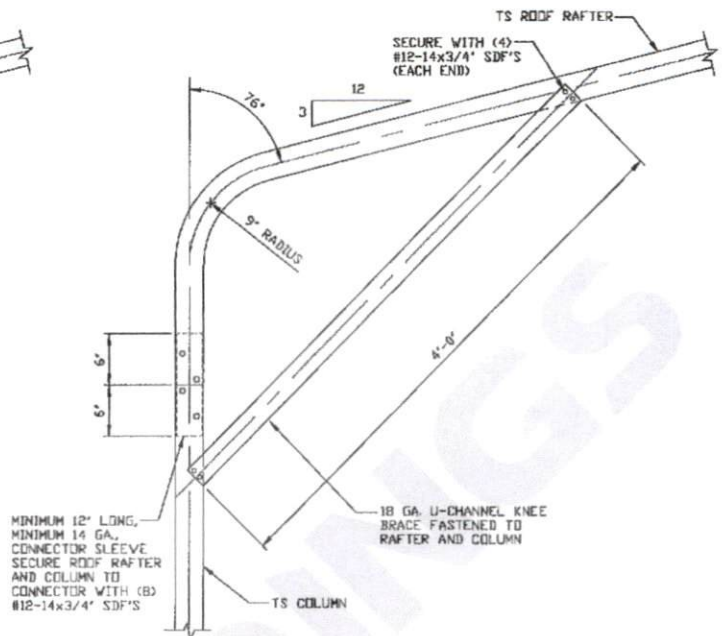
**SL ≤ 30 PSF**  
**EXPOSURE B/C**



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0" HEIGHTS 9'-0" < TO ≤ 11'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1B**

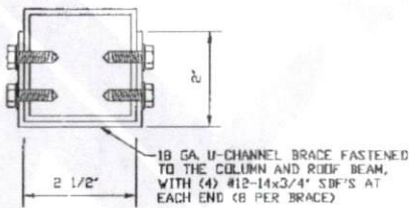
SCALE: NTS



**BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0" HEIGHTS ≤ 9'-0" FOR APPLICABLE RISK CATEGORY WIND SPEEDS**

**1C**

SCALE: NTS



**BRACE SECTION**

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 8M

SCALE: NTS

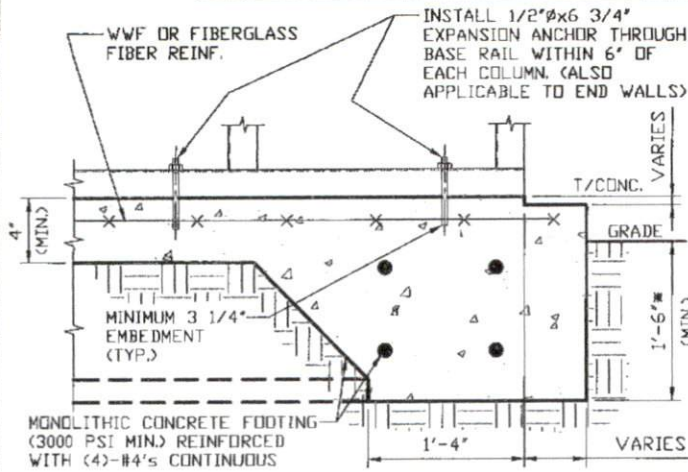
DWG. NO. SK-3

JOB NO. 19164S/22020S

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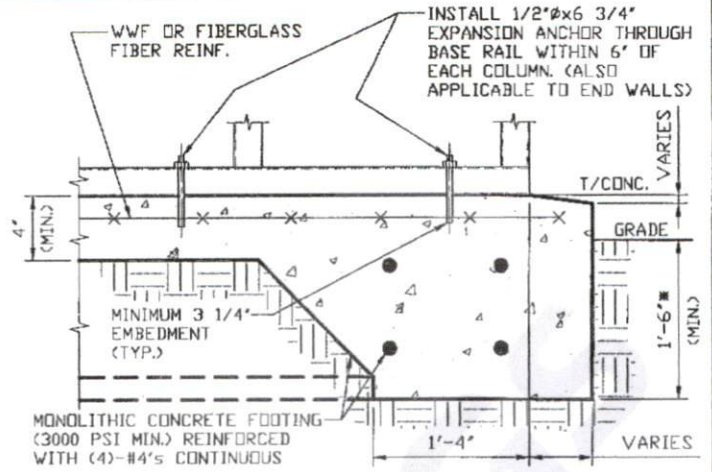
## BASE RAIL ANCHORAGE OPTIONS WITH ATTACHED LEAN-TO



2

### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS  
(MINIMUM ANCHOR EDGE DISTANCE IS 4")  
\* COORDINATE WITH LOCAL BUILDING CODE AND/OR DR. REGARDING REQUIRED FOOTING DEPTH.



2A

### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS  
(MINIMUM ANCHOR EDGE DISTANCE IS 4")  
\* COORDINATE WITH LOCAL BUILDING CODE AND/OR DR. REGARDING REQUIRED FOOTING DEPTH.

### 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:

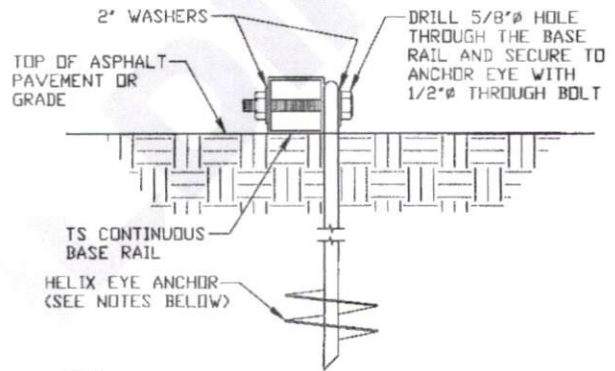
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

#### 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.



2B

### GROUND BASE HELIX ANCHORAGE

SCALE: NTS (CAN BE USED FOR ASPHALT)  
\* COORDINATE WITH LOCAL CODES/DR. REGARDING MINIMUM FROST DEPTH REQ.  
NOTE: TWO EXPANSION ANCHORS ARE REQ'D. AT EVERY COLUMN WHEN LEAN-TO ARE ATTACHED TO STRUCTURE.

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 9-21-22

SHT. 9

SCALE: NTS

DWG. NO: SK-3

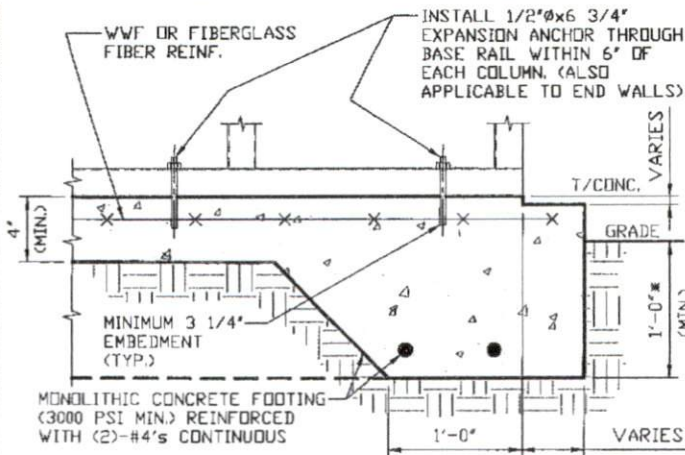
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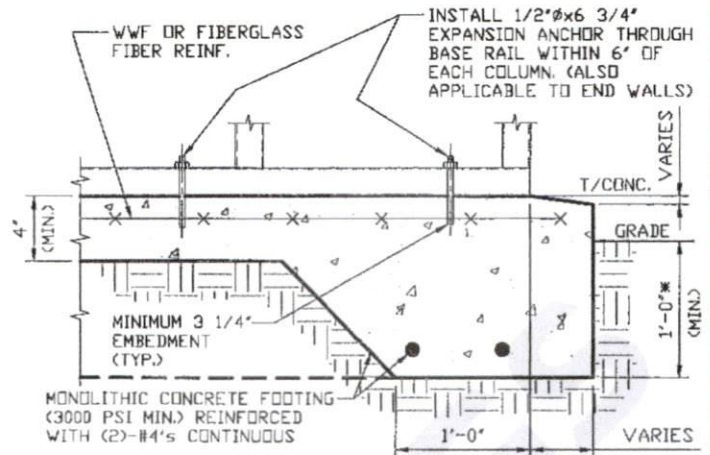
# BASE RAIL ANCHORAGE OPTIONS WITHOUT ATTACHED LEAN-TO



2

## CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS  
(MINIMUM ANCHOR EDGE DISTANCE IS 4")  
\* COORDINATE WITH LOCAL BUILDING CODE  
AND/OR D. REGARDING REQUIRED FOOTING DEPTH.



2A

## CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS  
(MINIMUM ANCHOR EDGE DISTANCE IS 4")  
\* COORDINATE WITH LOCAL BUILDING CODE  
AND/OR D. REGARDING REQUIRED FOOTING DEPTH.

### 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:

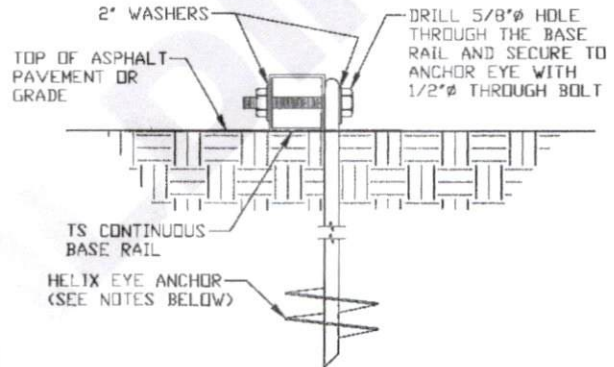
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE  
60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC  
MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

#### 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.



2B

## GROUND BASE HELIX ANCHORAGE

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

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 9A

SCALE: NTS

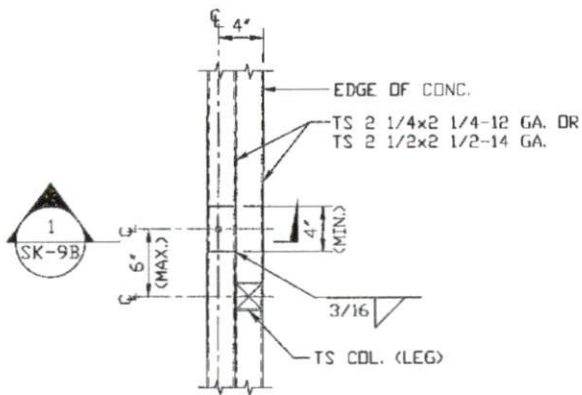
DWG. NO: SK-3

JOB NO:  
19164S/22020S

REV: 1

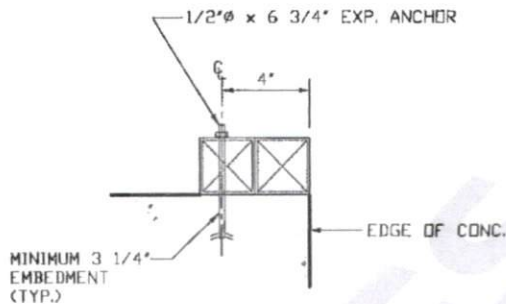
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## BASE RAIL ANCHORAGE OPTIONS



**TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE**

SCALE: NTS



**SECTION 1**  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TDL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 9B

SCALE: NTS

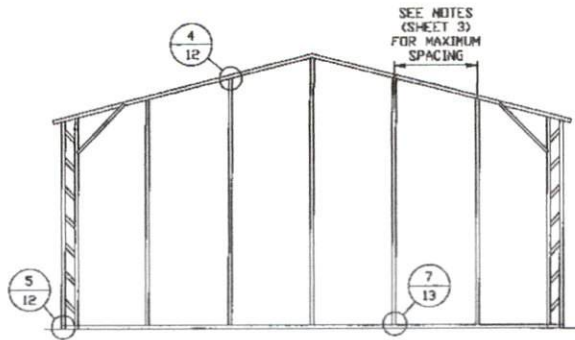
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JOB NO:  
19164S/P2020S

REV: 1

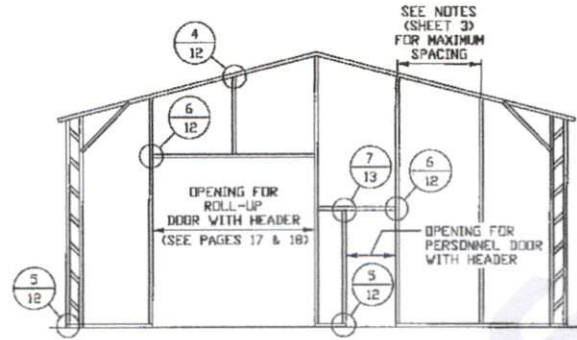
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## BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



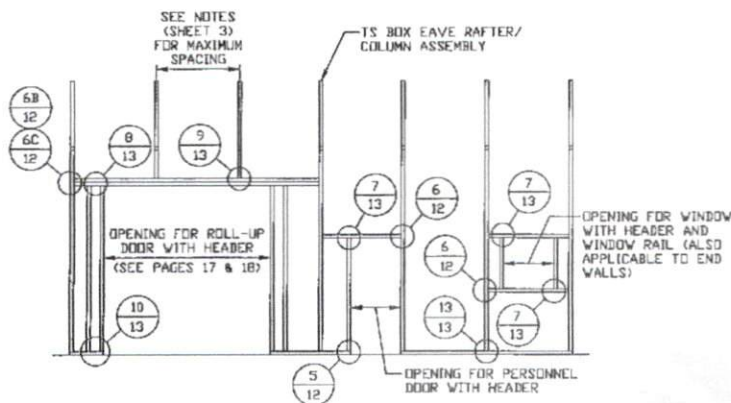
**TYPICAL BOX EAVE RAFTER  
END WALL FRAMING SECTION**

SCALE: NTS



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

SCALE: NTS



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

SCALE: NTS

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**PROJECT MGR: WSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 10**

**SCALE: NTS**

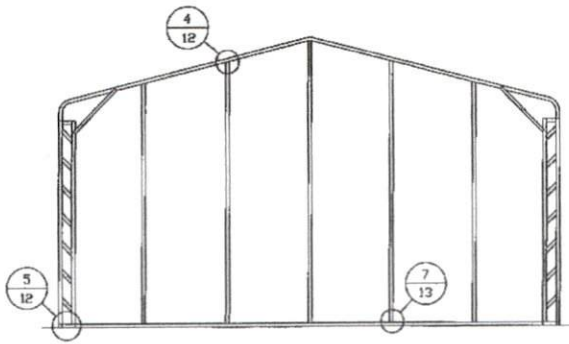
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**JOB NO:  
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**REV: 1**

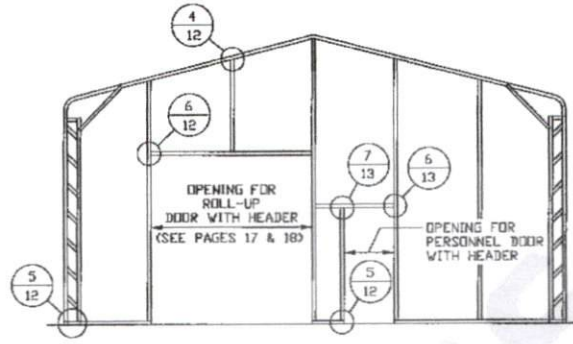
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## BOW RAFTER END WALL AND SIDE WALL OPENINGS



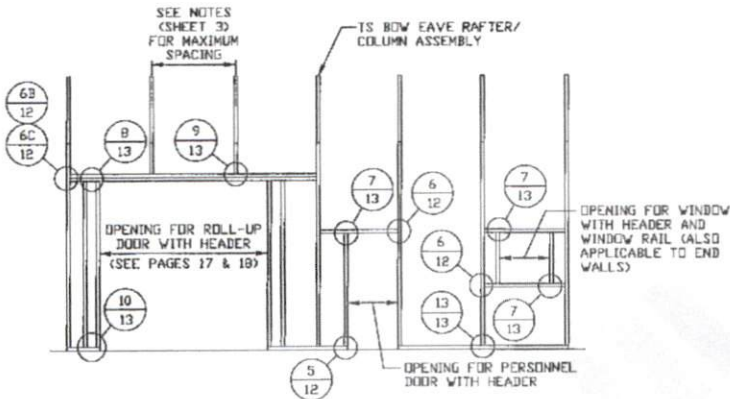
**TYPICAL BOW RAFTER END WALL FRAMING SECTION**

SCALE: NTS



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

SCALE: NTS



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

SCALE: NTS

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**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: TOL**

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P.O. BOX 542  
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30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 11**

**SCALE: NTS**

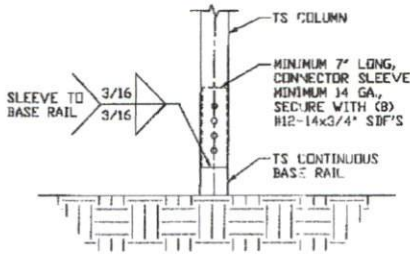
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**JOB NO:  
19164S/22020S**

**REV: 1**

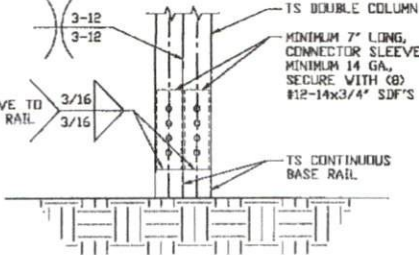
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## CONNECTION DETAILS



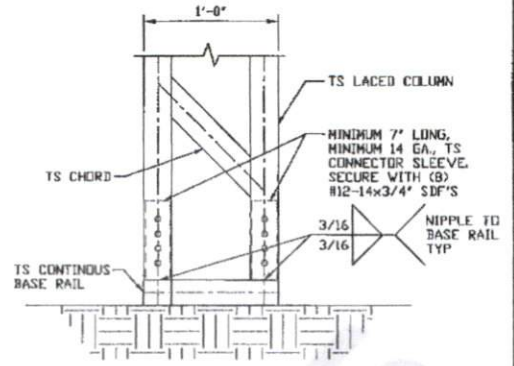
**3** COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



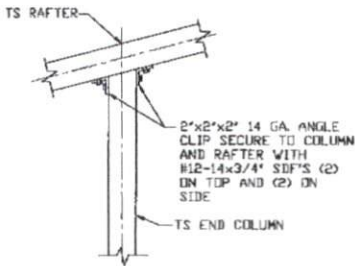
**3A** DOUBLE COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



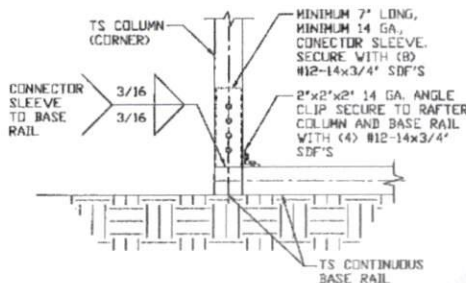
**3B** LACED COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



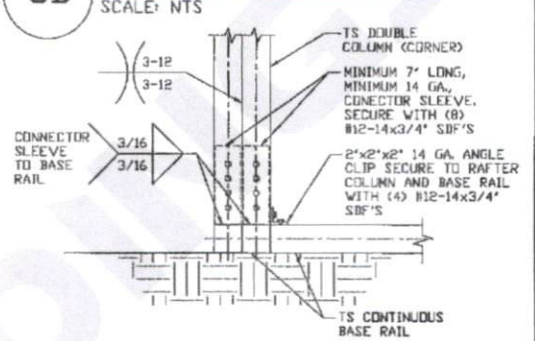
**4** END COLUMN/RAFTER CONNECTION DETAIL

SCALE: NTS



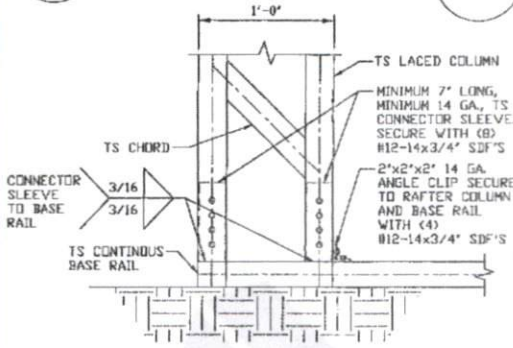
**5** END COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



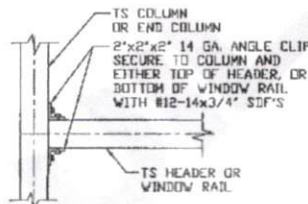
**5A** END COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



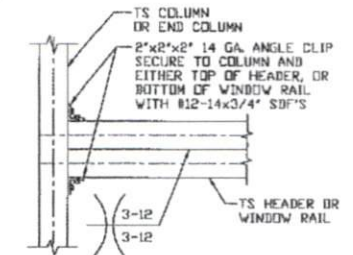
**5B** END COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



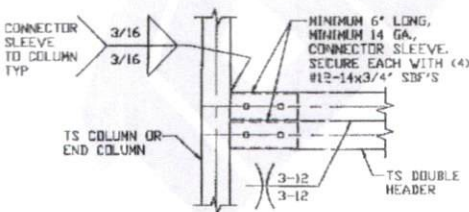
**6** COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL

SCALE: NTS



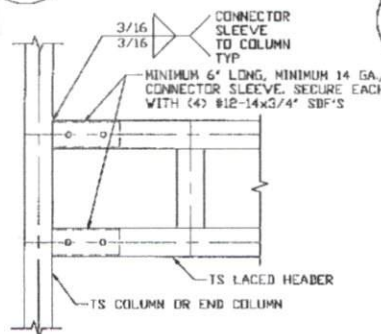
**6A** DOUBLE HEADER/COLUMN CONNECTION DETAIL

SCALE: NTS



**6B** SIDE WALL DOUBLE HEADER/COLUMN CONNECTION DETAIL

SCALE: NTS



**6C** SIDE WALL LACED HEADER/COLUMN CONNECTION DETAIL

SCALE: NTS

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ENGINEERING AND CONSULTING, INC.**

**DRAWN BY:** LT

**CHECKED BY:** PDH

**PROJECT MGR:** WSM

**CLIENT:** TOL

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

**DATE:** 3-21-22

**SHT.** 12

**SCALE:** NTS

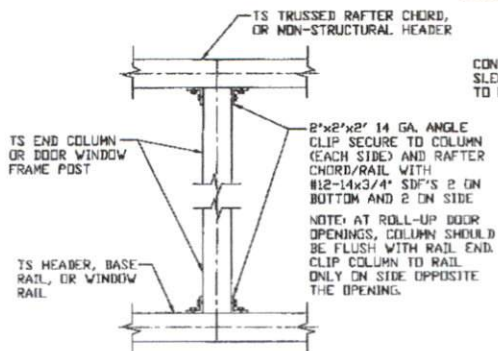
**DWG. NO.:** SK-3

**JOB NO.:** 19164S/22020S

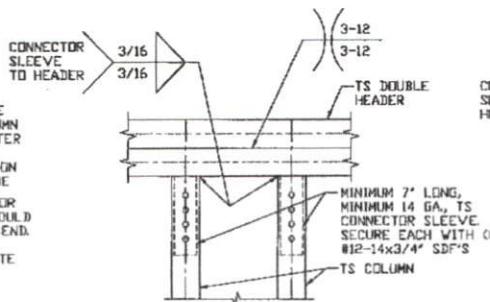
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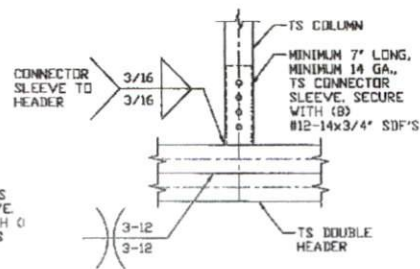
# CONNECTION DETAILS



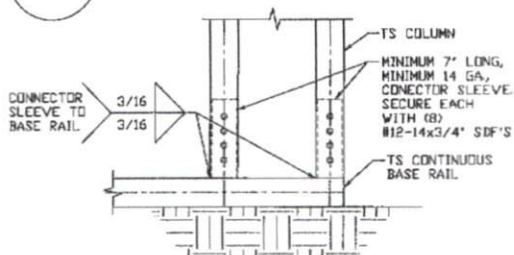
**7** COLUMN TO HEADER, BASE RAIL OR WINDOW RAIL CONNECTION DETAIL  
SCALE: NTS



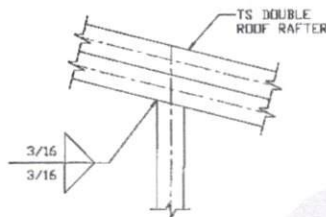
**8** DOUBLE HEADER / COLUMN CONNECTION DETAIL  
SCALE: NTS



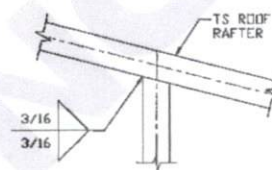
**9** COLUMN / DOUBLE HEADER CONNECTION DETAIL  
SCALE: NTS



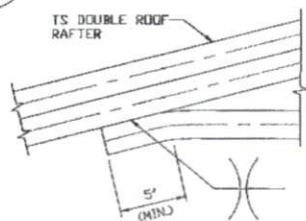
**10** COLUMN / BASE RAIL CONNECTION DETAIL  
SCALE: NTS



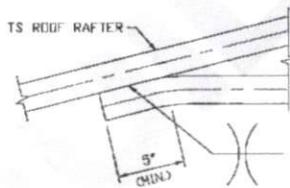
**11** RAFTER TO CHORD CONNECTION DETAIL  
SCALE: NTS



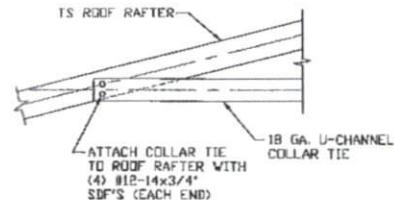
**11A** RAFTER TO CHORD CONNECTION DETAIL  
SCALE: NTS



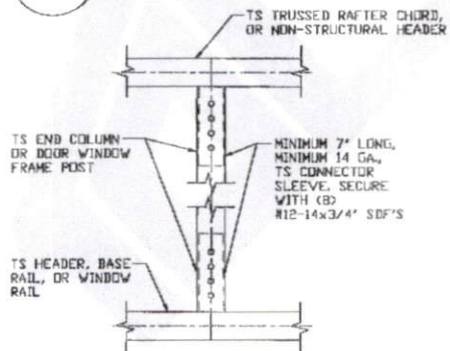
**12** COLLAR TIE CONNECTION DETAIL  
SCALE: NTS



**12A** COLLAR TIE CONNECTION DETAIL  
SCALE: NTS



**12B** COLLAR TIE CONNECTION DETAIL  
SCALE: NTS



**13** COLUMN TO HEADER OR BASE RAIL CONNECTION DETAIL  
SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.

P.O. BOX 542

TOAST, NC 27049

30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 13

SCALE: NTS

DWG. NO: SK-3

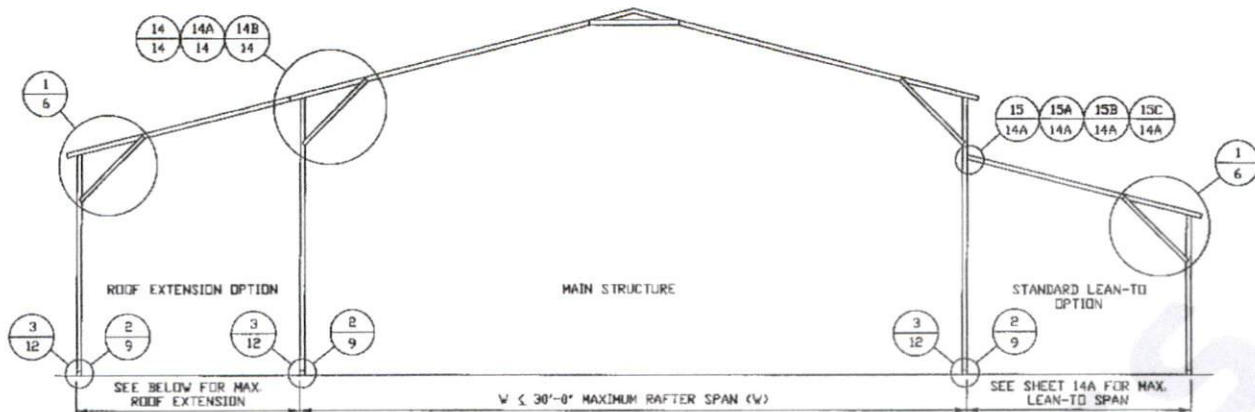
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# BOX EAVE RAFTER LEAN-TO OPTIONS



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

SCALE: NTS

MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION AND LEAN-TO IS 10'-0".

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

MAXIMUM WIDTH OF LACED MEMBER ROOF EXTENSION AND LEAN-TO IS 24'-0".

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR

EAVE HEIGHTS 14'-0" < TO ≤ 20'-0".

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR

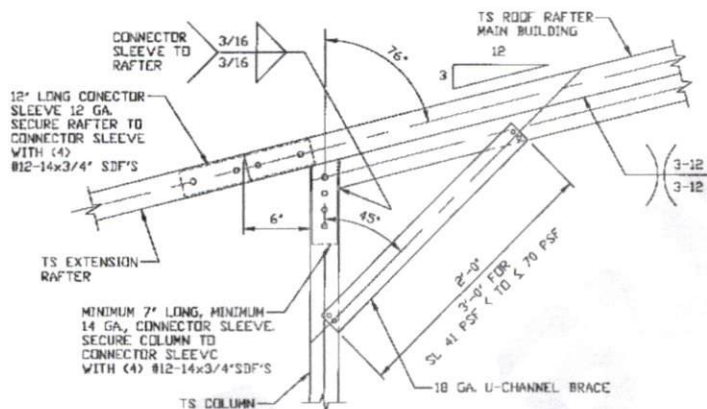
EAVE HEIGHTS 10'-0" < TO ≤ 16'-0".

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS WITH

INSERTS FOR EAVE HEIGHTS 9'-0" < TO ≤ 12'-0".

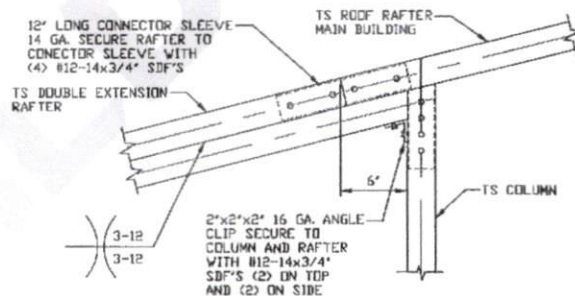
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR

EAVE HEIGHTS ≤ 9'-0".



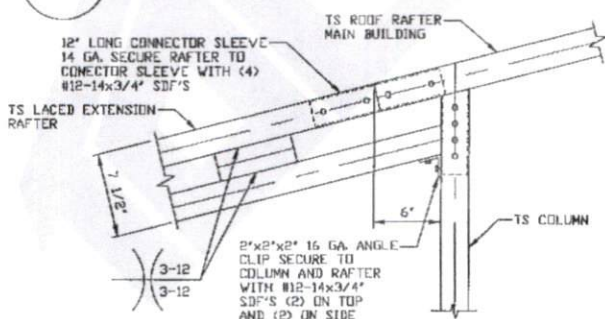
### 14 SIDE EXTENSION RAFTER/COLUMN DETAIL FOR SPAN ≤ 10'-0"

SCALE: NTS



### 14A SIDE EXTENSION RAFTER/COLUMN DETAIL FOR SPAN 10'-0' < L ≤ 16'-0"

SCALE: NTS



### 14B SIDE EXTENSION RAFTER/COLUMN DETAIL FOR SPAN 16'-0' < L ≤ 24'-0"

SCALE: NTS

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ENGINEERING AND CONSULTING, INC.**

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.

P.O. BOX 542

TOAST, NC 27049

30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 14

SCALE: NTS

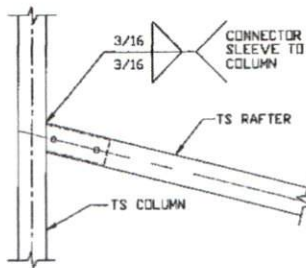
DWG. NO. SK-3

JOB NO.  
19164S/22020S

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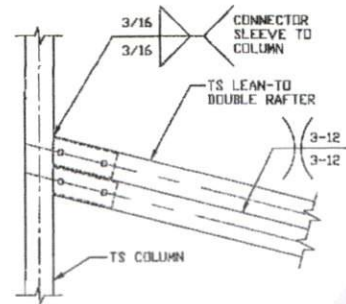
## BOX EAVE RAFTER LEAN-TO OPTIONS



15

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL  
FOR SPAN  $\le 10'-0''$**

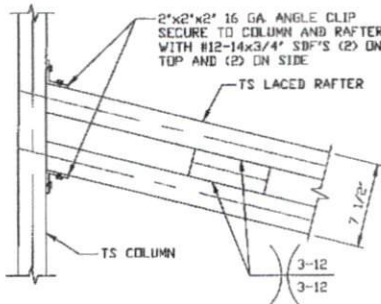
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15A

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL  
FOR SPAN  $10'-0'' < L \le 16'-0''$**

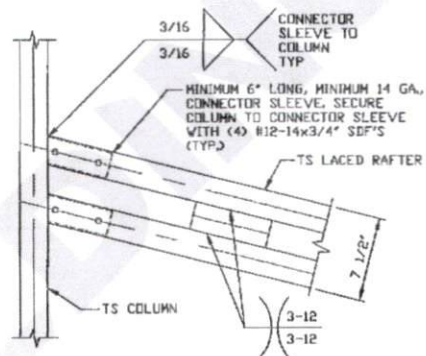
SCALE: NTS



15B

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL  
FOR SPAN  $16'-0'' < L \le 24'-0''$**

SCALE: NTS



15C

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL  
FOR SPAN  $16'-0'' < L \le 24'-0''$**

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SCALE: NTS

DWG. NO: SK-3

JOB NO:  
19164S/22020S

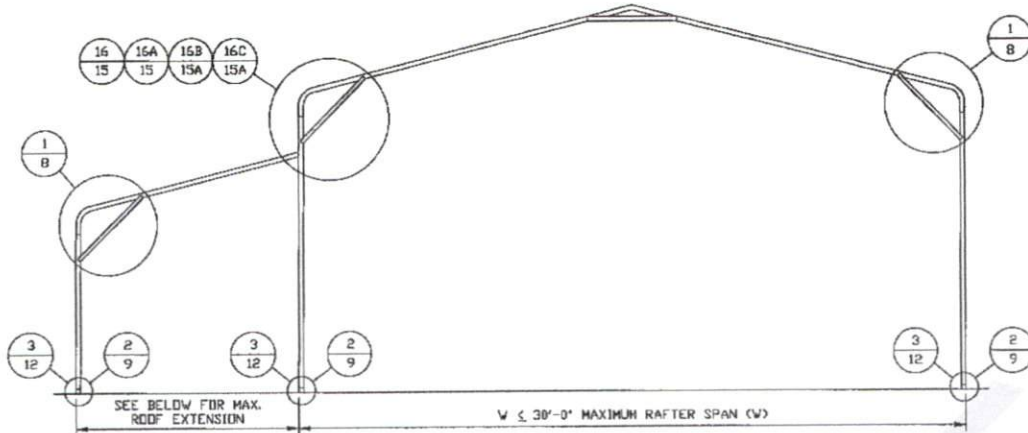
SHT. 14A

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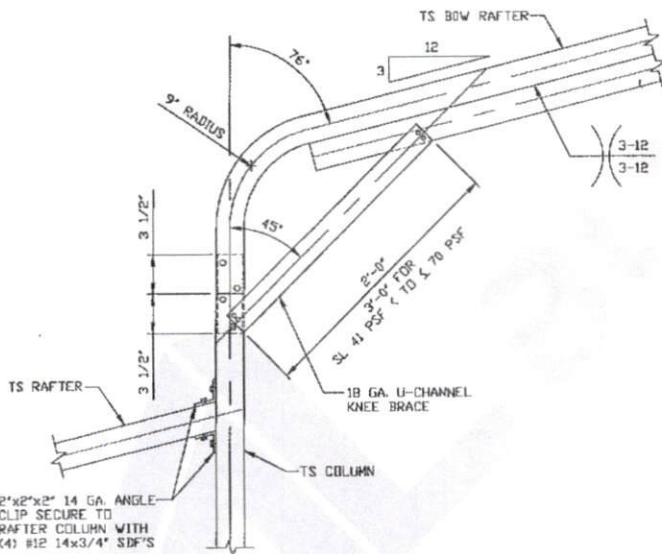
# BOW RAFTER LEAN-TO OPTION



## TYPICAL BOW EAVE RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

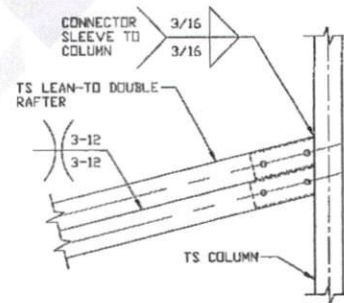
MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION AND LEAN-TO IS 10'-0".  
 MAXIMUM WIDTH OF DOUBLE MEMBER ROOF EXTENSION AND LEAN-TO IS 16'-0".  
 MAXIMUM WIDTH OF LACED MEMBER ROOF EXTENSION AND LEAN-TO IS 24'-0".  
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 14'-0" < TO ≤ 20'-0".  
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 10'-0" < TO ≤ 16'-0".  
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS WITH INSERTS FOR EAVE HEIGHTS 9'-0" < TO ≤ 12'-0".  
 MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 9'-0".



### LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN ≤ 10'-0"

16

SCALE: NTS



### LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN 10'-0" < L ≤ 16'-0"

16A

SCALE: NTS

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PROJECT MGR: WSM

CLIENT: TDL

TOL BUILDINGS, INC.

P.O. BOX 542

TOAST, NC 27049

30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 15

SCALE: NTS

DWG. NO: SK-3

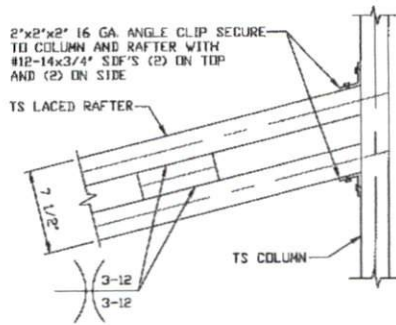
JOB NO

19164S/22020S

REV: 1

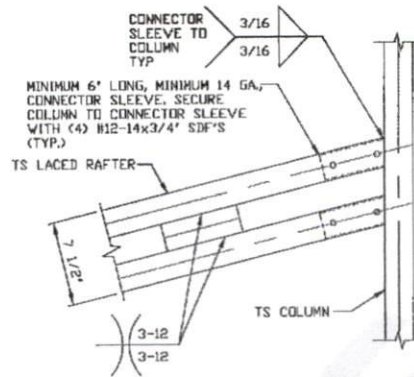
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## BOW RAFTER LEAN-TO OPTION



15B

**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN 16'-0" < L ≤ 24'-0"**  
SCALE: NTS



15C

**LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR SPAN 16'-0" < L ≤ 24'-0"**  
SCALE: NTS

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CLIENT: TOL

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P.O. BOX 542  
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30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 3-21-22

SHT. 15A

SCALE: NTS

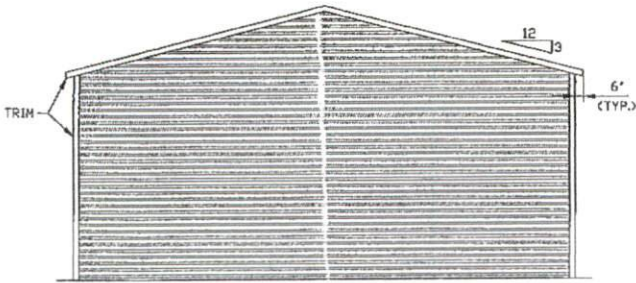
DWG. NO: SK-3

JOB NO:  
19164S/22020S

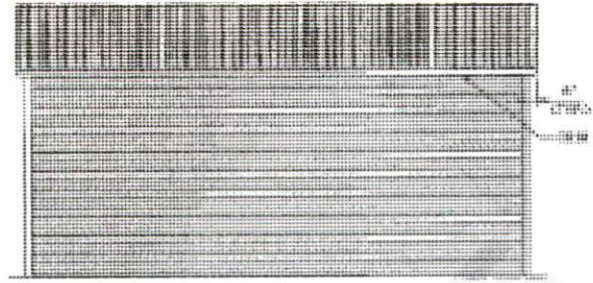
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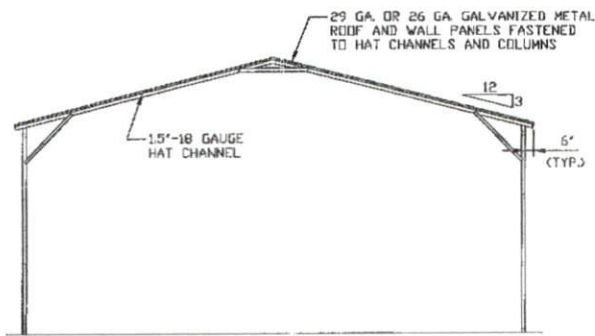
# BOX EAVE RAFTER VERTICAL ROOF OPTION



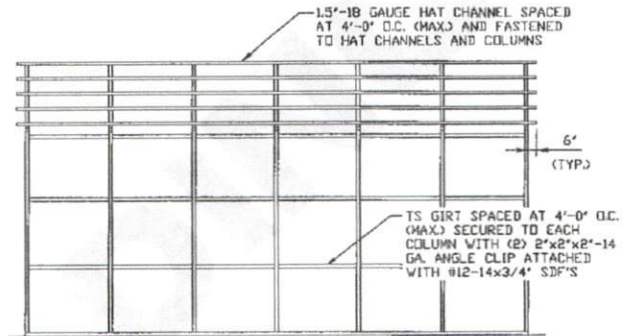
**TYPICAL END ELEVATION-VERTICAL ROOF**  
SCALE: NTS



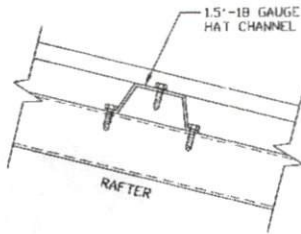
**TYPICAL SIDE ELEVATION-VERTICAL ROOF OPTION**  
SCALE: NTS



**TYPICAL SECTION-VERTICAL ROOF**  
SCALE: NTS



**TYPICAL FRAMING SECTION-VERTICAL ROOF OPTION**  
SCALE: NTS  
NOTE: HAT CHANNELS CAN BE USED AS AN OPTION IN PLACE OF TS GIRTS. HAT CHANNELS MUST BE SPACED AT 4'-0" O.C. (MAX.) AND FASTENED TO EACH COLUMN (LEG) WITH #12-14x3/4" SDF'S.



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

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

DRAWN BY: LT  
CHECKED BY: PDH

TOL BUILDINGS, INC.  
P.O. BOX 542  
TOAST, NC 27049  
30'-0"x20'-0" ENCLOSED STRUCTURE

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PROJECT MGR: WSM  
CLIENT: TOL

DATE: 3-21-22  
SHT. 16

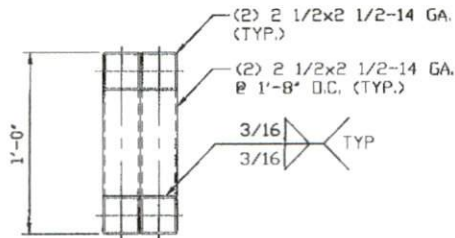
SCALE: NTS  
DWG. NO: SK-3

JOB NO: 19164S/22020S  
REV: 1

## SIDE WALL HEADER OPTIONS

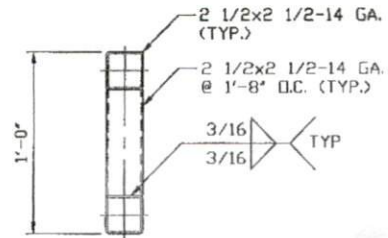
41 PSF < TO ≤ 70 PSF

NOTE: HEADER DESIGN DOES NOT TAKE IN TO ACCOUNT ADDITIONAL ROOF LOADING FROM ATTACHED LEAN-TO STRUCTURES.



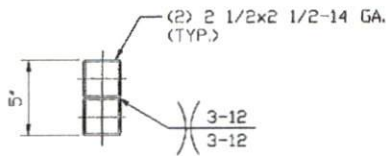
**HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 15'-0" < LENGTH ≤ 20'-0"**

SCALE: NTS



**HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 8'-0" < LENGTH ≤ 15'-0"**

SCALE: NTS

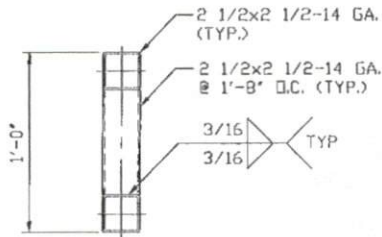


**HEADER DETAIL FOR SIDE WALL DOOR OPENINGS ≤ 8'-0"**

SCALE: NTS

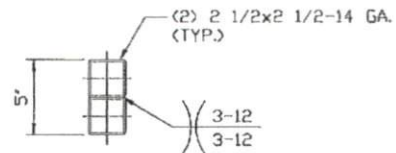
## SIDE WALL HEADER OPTIONS

≤ 40 PSF



**HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 10'-0" < LENGTH ≤ 20'-0"**

SCALE: NTS



**HEADER DETAIL FOR SIDE WALL DOOR OPENINGS ≤ 10'-0"**

SCALE: NTS

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

**DRAWN BY: LT**

**CHECKED BY: PDH**

**PROJECT MGR: VSM**

**CLIENT: TOL**

**TOL BUILDINGS, INC.**  
P.O. BOX 542  
TOAST, NC 27049  
30'-0"x20'-0" ENCLOSED STRUCTURE

**DATE: 3-21-22**

**SHT. 17**

**SCALE: NTS**

**DWG. NO. SK-3**

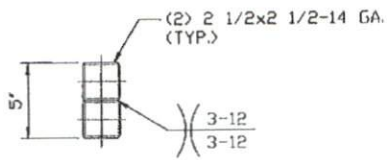
**JOB NO. 19164S/22020S**

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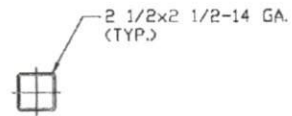
## END WALL HEADER OPTIONS

NOTE: HEADER DESIGN DOES NOT TAKE IN TO ACCOUNT ADDITIONAL ROOF LOADING FROM ATTACHED LEAN-TO STRUCTURES.



**HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 13'-0" < LENGTH ≤ 20'-0"**

SCALE: NTS



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

SCALE: NTS

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

DRAWN BY: LT

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

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30'-0"x20'-0" ENCLOSED STRUCTURE

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SHT. 18

SCALE: NTS

DWG. NO: SK-3

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