



STRUCTURAL DESIGN

ENCLOSED BUILDING

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

**20 August 2019
Revision 0
M&A Project No. 19164S**

Prepared for:

**TOL Buildings, Inc.
330 N. Meridian Rd.
Youngstown, Ohio 44509**

Prepared by:

**Moore and Associates Engineering and Consulting, Inc.
1009 East Avenue
North Augusta, SC 29841**

**401 S. Main Street, Suite 200
Mt. Airy, NC 27030**



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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SCALE: NTS

JOB NO: 19164S

SHT. 1

DWG. NO: SK-3

REV: 0

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DRAWING INDEX

| | |
|----------|----------------------------------------------------------------------------------------|
| SHEET 1 | PE SEAL COVER SHEET |
| SHEET 2 | DRAWING INDEX |
| SHEET 2A | DRAWING INDEX |
| SHEET 3 | INSTALLATION NOTES AND SPECIFICATIONS AND TYPICAL SIDE AND END ELEVATIONS |
| SHEET 4 | TYPICAL END AND SIDE ELEVATIONS |
| SHEET 5 | TYPICAL RAFTER/COLUMN END FRAMING SECTIONS (BOX EAVE RAFTER) EXPOSURE B |
| SHEET 5A | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOX EAVE RAFTER) EXPOSURE B |
| SHEET 5B | TYPICAL RAFTER/COLUMN END FRAMING SECTION (BOX EAVE RAFTER) EXPOSURE C |
| SHEET 5C | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOX EAVE RAFTER) EXPOSURE C |
| SHEET 5D | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 5E | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 5F | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 6 | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B LACED COLUMN OPTION |
| SHEET 6A | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B |
| SHEET 6B | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE C LACED COLUMN OPTION |
| SHEET 6C | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE C |
| SHEET 6D | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C LACED COLUMN OPTION |
| SHEET 6E | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C LACED COLUMN OPTION |
| SHEET 6F | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 6G | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 7 | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE B |
| SHEET 7A | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE B |
| SHEET 7B | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE C |
| SHEET 7C | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE C |
| SHEET 7D | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE B/C |
| SHEET 7E | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE B/C |
| SHEET 7F | TYPICAL RAFTER/COLUMN END AND SIDE FRAMING SECTION (BOW RAFTER) EXPOSURE B/C |

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| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0"X20'-0" ENCLOSED STRUCTURE | | |
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DRAWING INDEX

| | |
|-----------|----------------------------------------------------------------------------------------|
| SHEET 8 | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B LACED COLUMN OPTION |
| SHEET 8A | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B |
| SHEET 8B | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE C LACED COLUMN OPTION |
| SHEET 8C | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE C |
| SHEET 8D | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C LACED COLUMN OPTION |
| SHEET 8E | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C LACED COLUMN OPTION |
| SHEET 8F | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 8G | RAFTER/COLUMN CONNECTION DETAILS (BOX EAVE RAFTER) EXPOSURE B/C |
| SHEET 9 | BASE RAIL ANCHORAGE OPTIONS |
| SHEET 9A | BASE RAIL ANCHORAGE OPTIONS |
| SHEET 10 | TYPICAL END WALL AND SIDE WALL FRAMING SECTIONS (BOX EAVE RAFTER) |
| SHEET 11 | TYPICAL END WALL AND SIDE WALL FRAMING SECTIONS (BOX RAFTER) |
| SHEET 12 | WALL OPENING DETAILS |
| SHEET 13 | WALL OPENING DETAILS |
| SHEET 14 | LEAN-TO OPTIONS (BOX EAVE RAFTER) |
| SHEET 14A | LEAN-TO OPTIONS (BOX EAVE RAFTER) |
| SHEET 15 | LEAN-TO OPTIONS (BOX RAFTER) |
| SHEET 15A | LEAN-TO OPTIONS (BOX RAFTER) |
| SHEET 16 | VERTICAL ROOF OPTION END AND SIDE ELEVATION AND SECTION |
| SHEET 17 | OPTIONAL HEADER DETAILS (< 41 PSF < TO < 70 PSF) |
| SHEET 18 | OPTIONAL HEADER DETAILS (< 40 PSF) |

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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 THE 2018 NORTH CAROLINA BUILDING CODE, 2015 INTERNATIONAL BUILDING CODE (IBC), AND 2012 IBC
- 3 DESIGN LOADS ARE AS FOLLOWS
 - A) DEAD LOAD = 15 PSF
 - B) LIVE LOAD = 12 PSF (20 PSF FOR RISK CAT. II)
 - C) GROUND SNOW LOAD = 30 PSF (< 24'-0") FOR U-CHANNEL PEAK BRACE
 - = 60 PSF (< 30'-0"), WITH WELDED RAFTER TIE TO SINGLE 12 GA TS @ 3'-0" O.C.
 - = 70 PSF (24'-0" < W < 30'-0")
- 4 ULTIMATE WIND SPEED (LW) 105 (RC I) (115 MPH (RC I/II) TO 145 (RC I) (155 MPH (RC I/II)) (NOMINAL WIND SPEED 81 (89) TO 108 (120) MPH) MAXIMUM RAFTER/POST AND END POST SPACING = 40 FEET (50 FEET FOR WIND SPEED 105 MPH < TO < 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
- 7 WIND EXPOSURE CATEGORY B OR C
- 8 SPECIFICATIONS APPLICABLE TO 29 GAUGE (FOR SL < 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 AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR HAT CHANNELS AND COLUMNS (INTERIOR OR END) = 8" O.C. (MAX)
- 10 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
- 11 ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES
- 12 STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 30" LONG SOIL NAILS MAY BE USED FOR WIND SPEEDS < 145 MPH AND IN SUITABLE SOIL CONDITIONS OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED FOR WIND SPEEDS > 145 MPH AND/OR IN UNSUITABLE SOILS AS NOTED
- 13 WIND FORCES GOVERN OVER SEISMIC FORCES SEISMIC PARAMETERS ANALYZED ARE
 - SOIL SITE CLASS = D
 - RISK CATEGORY I/II/III
 - R = 3.25 I_E = 1.0
 - S_{DS} = 2.039 g V = C_sW
 - S_{D1} = 1.258 g
- 14 FOR RISK CATEGORY II, MAXIMUM THRESHOLD HEIGHT FOR PERSONNEL DOOR(S) USED FOR DEFINED MEANS OF EGRESS IS 1/2'
- 15 APPLY LAP SEALANT TO METAL ROOF PANELS FOR ROOF SLOPES LESS THAN 3:12

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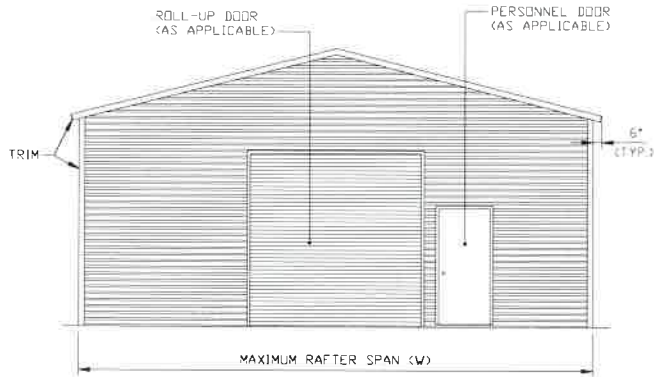
DWG. NO: SK-3

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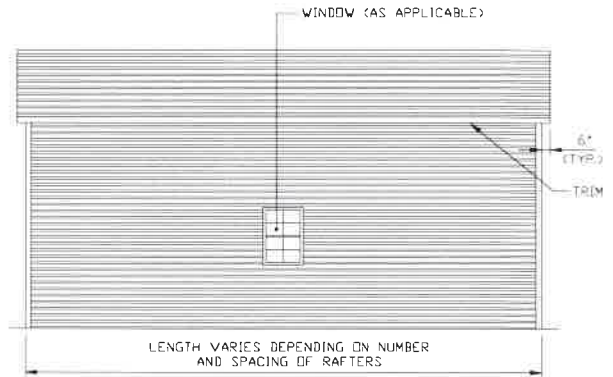
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BOX EAVE FRAME RAFTER STRUCTURE (Sheets 4, 5, 5A, 5B, 5C, 5D, 5E, 6, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 9, 9A, 10, 12, 13, 14, 14A, 16, 17, AND 18)

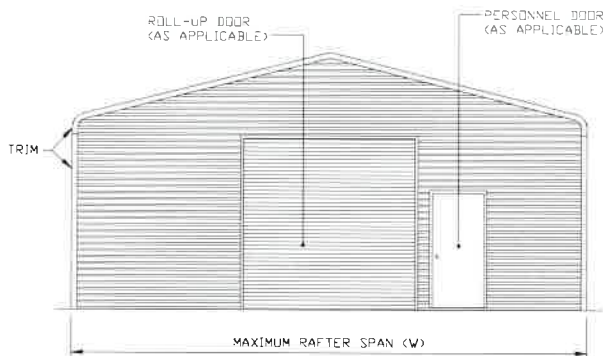


TYPICAL END ELEVATION
SCALE: NTS

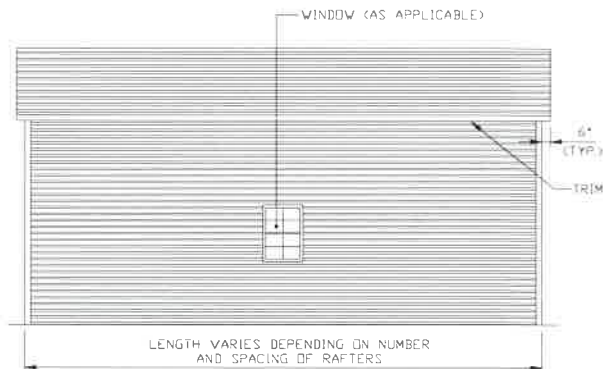


TYPICAL SIDE ELEVATION
SCALE: NTS

BOX FRAME RAFTER STRUCTURE (Sheets 4, 7, 7A, 7B, 7C, 7D, 7E, 8, 8A, 8B, 8C, 8D, 8E, 8F, 8G, 9, 9A, 11, 12, 13, 15, 15A, 17 AND 18)



TYPICAL END ELEVATION
SCALE: NTS



TYPICAL SIDE ELEVATION
SCALE: NTS

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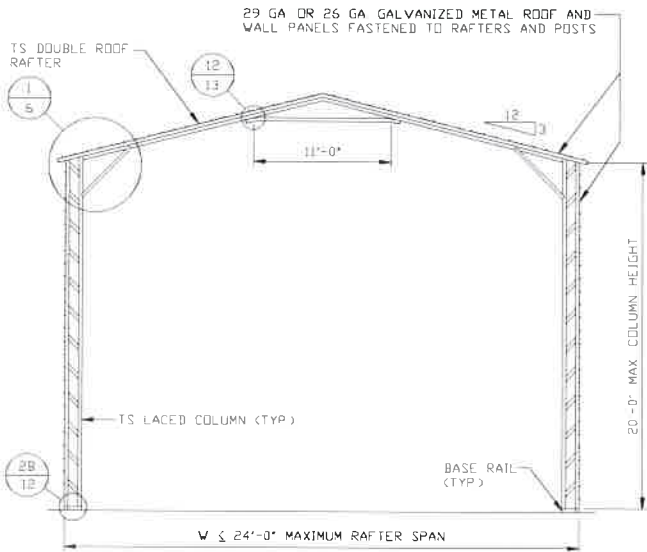
SHT. 4

DWG. NO: SK-3

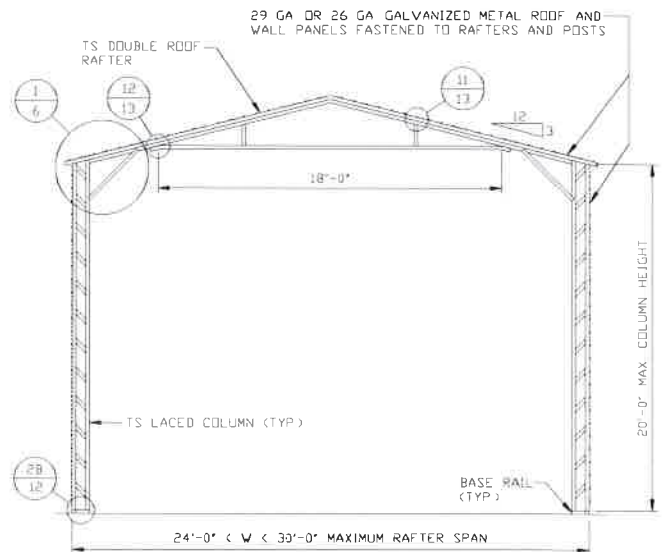
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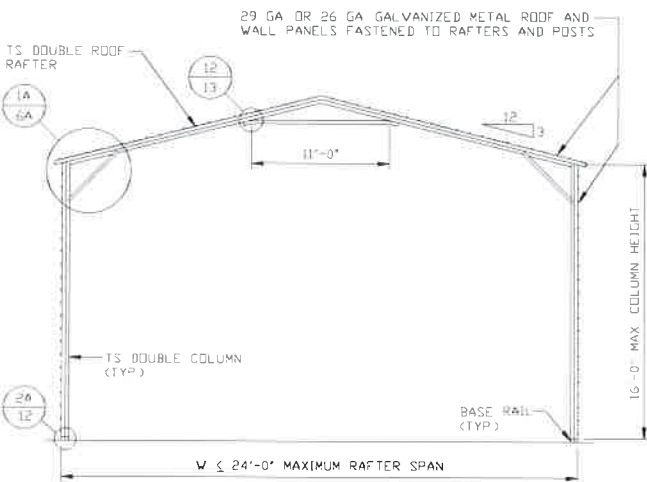
60 PSF < SL ≤ 70 PSF
EXPOSURE B



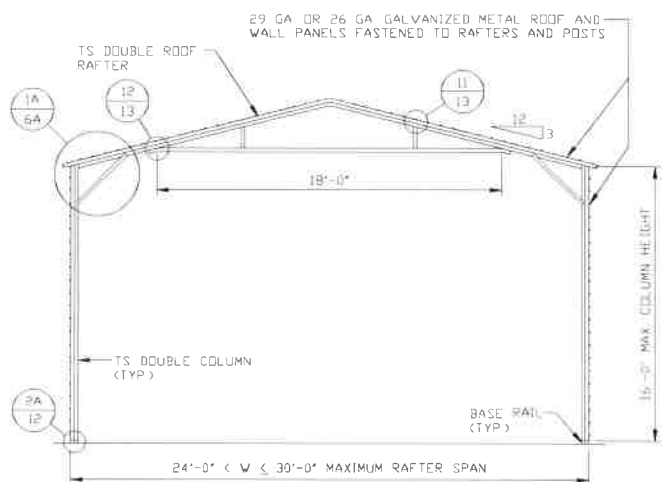
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
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SHT. 5

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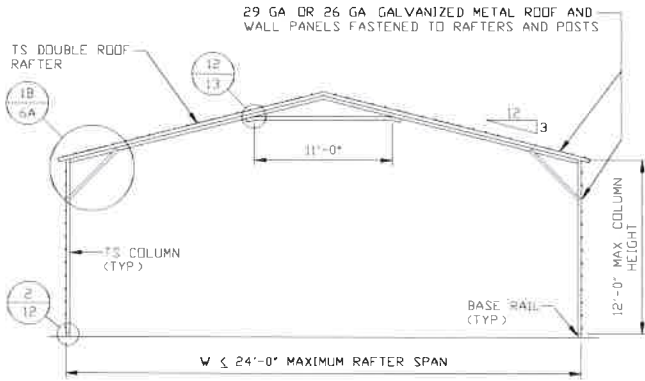
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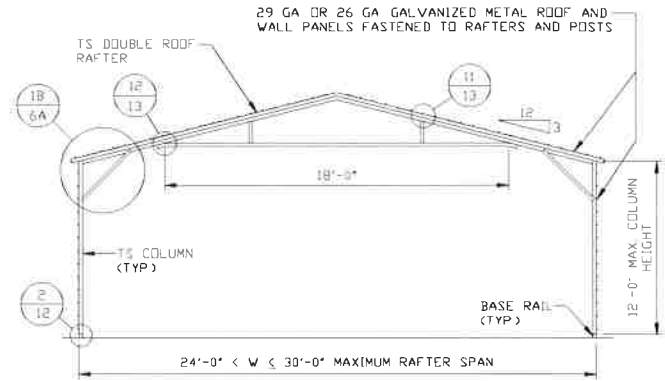
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60 PSF < SL ≤ 70 PSF

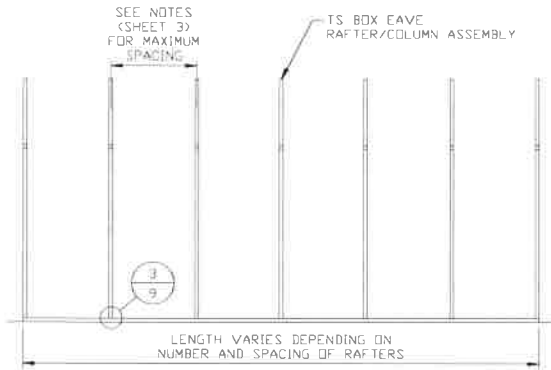
EXPOSURE B



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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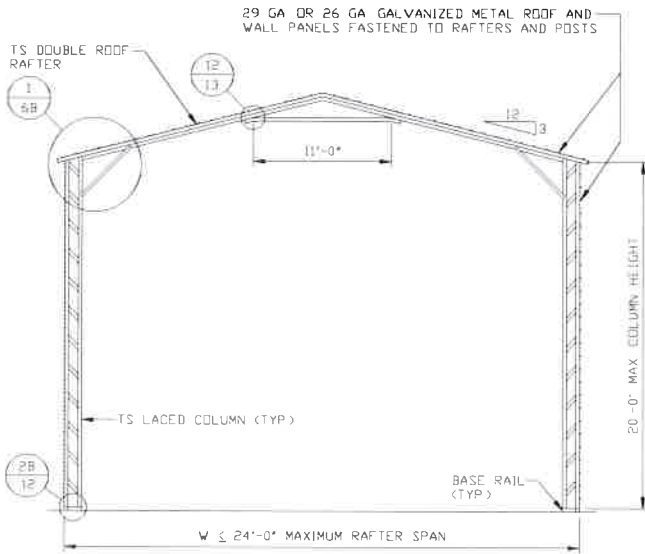
SHT. 5A

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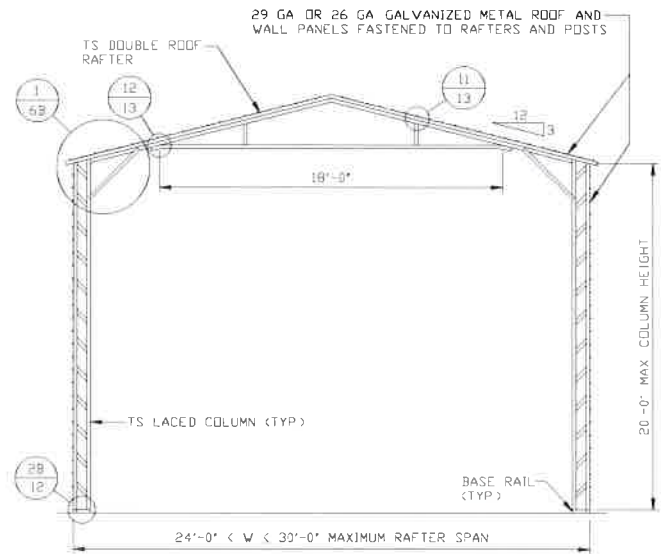
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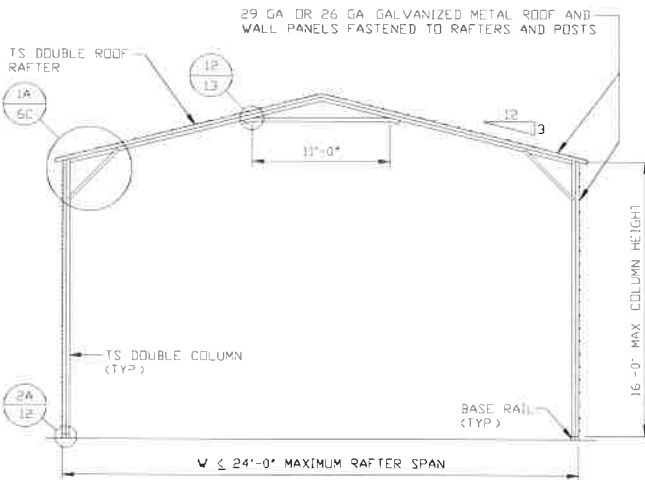
60 PSF < SL ≤ 70 PSF
EXPOSURE C



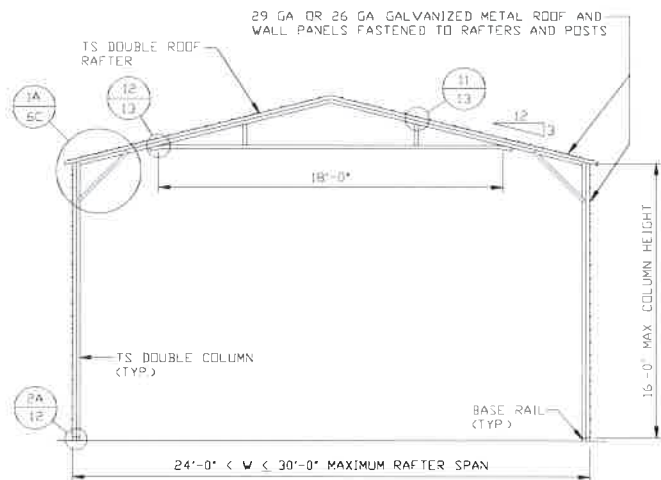
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



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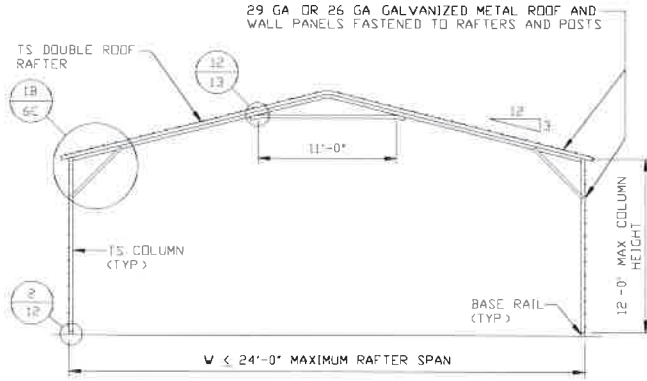
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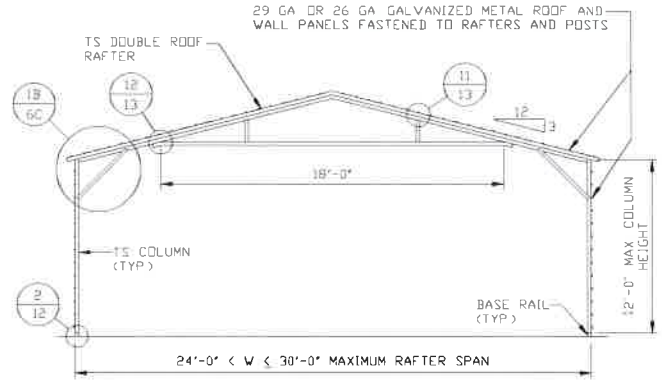
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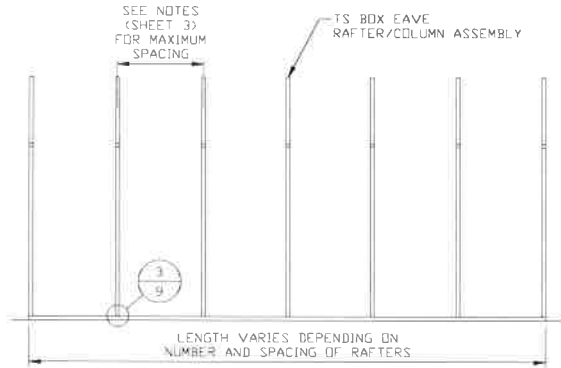
60 PSF < SL ≤ 70 PSF
EXPOSURE C



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



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
 SCALE: NTS

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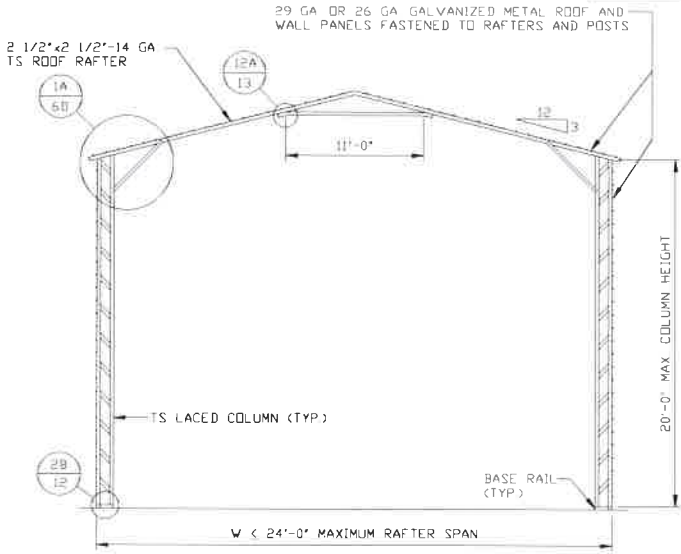
SHT. 5C

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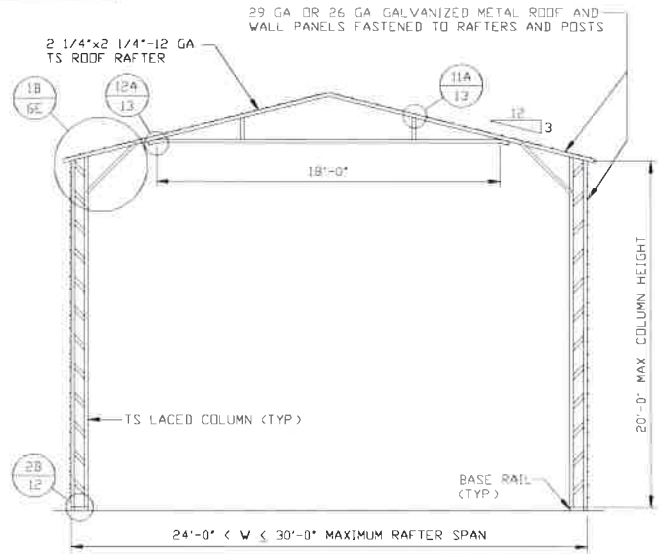
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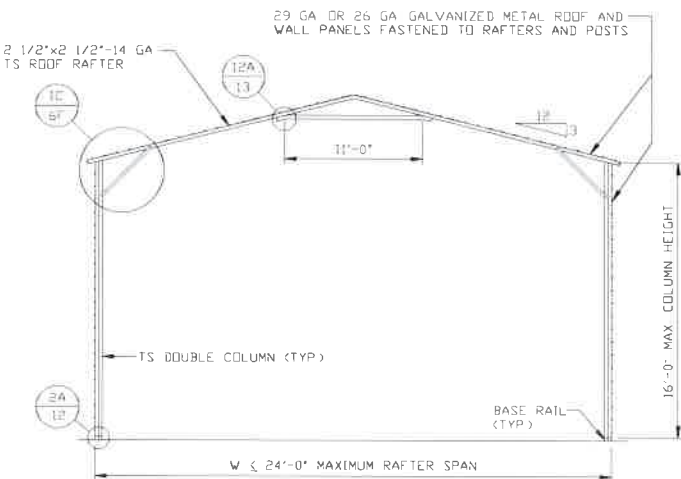
**SL ≤ 60 PSF
EXPOSURE B/C**



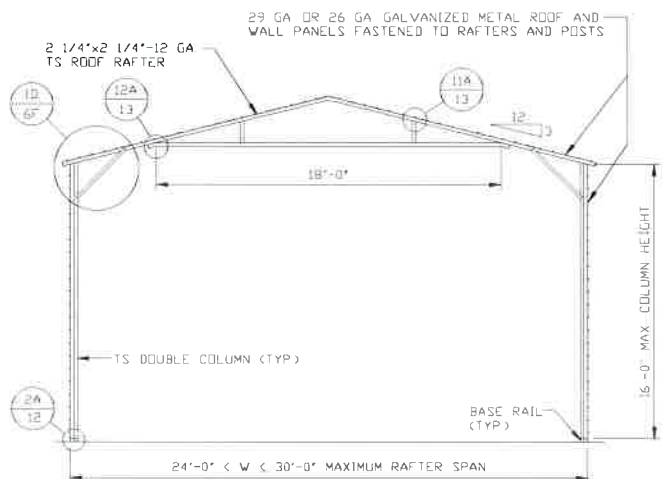
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE NTS



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TYPICAL RAFTER/COLUMN END FRAME SECTION
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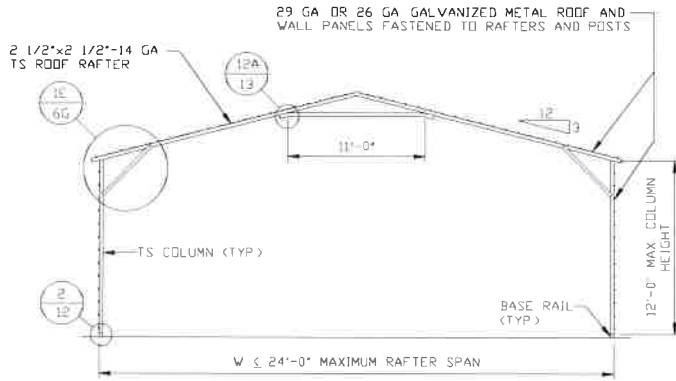
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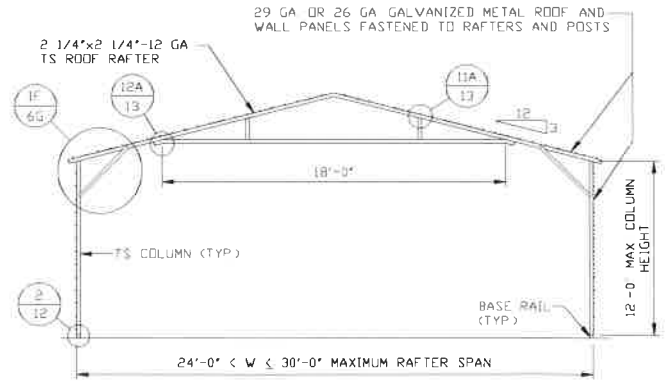
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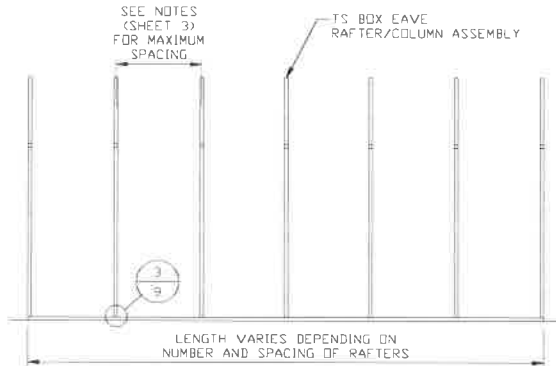
SL ≤ 60 PSF
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TYPICAL RAFTER/COLUMN END FRAME SECTION
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TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
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SHT. 5E

SCALE: NTS

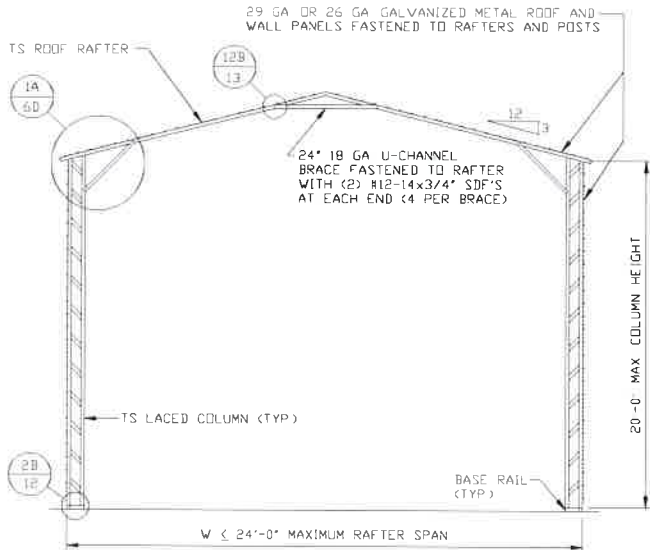
DWG. NO: SK-3

JOB NO: 19164S

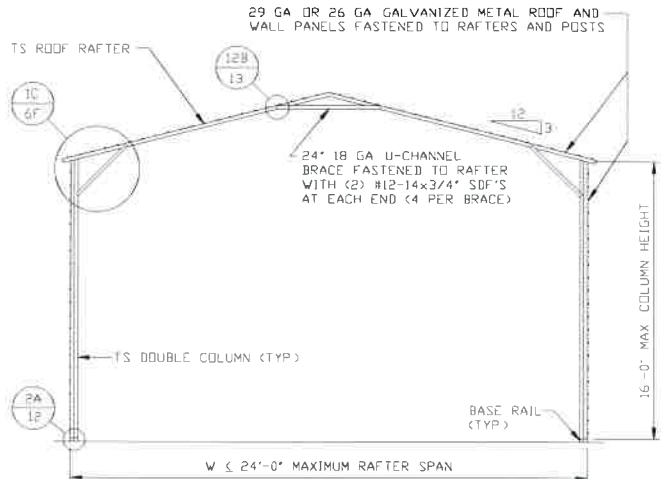
REV: 0

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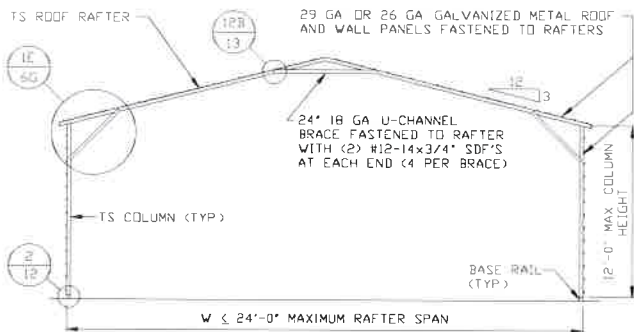
**SL ≤ 30 PSF
EXPOSURE B/C**



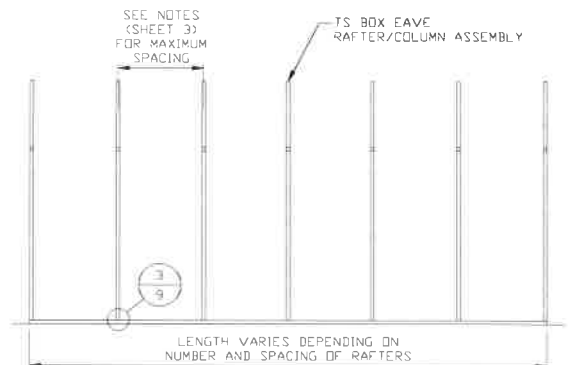
TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



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: JG

CHECKED BY: PDH

PROJECT MGR: VSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 5F

SCALE: NTS

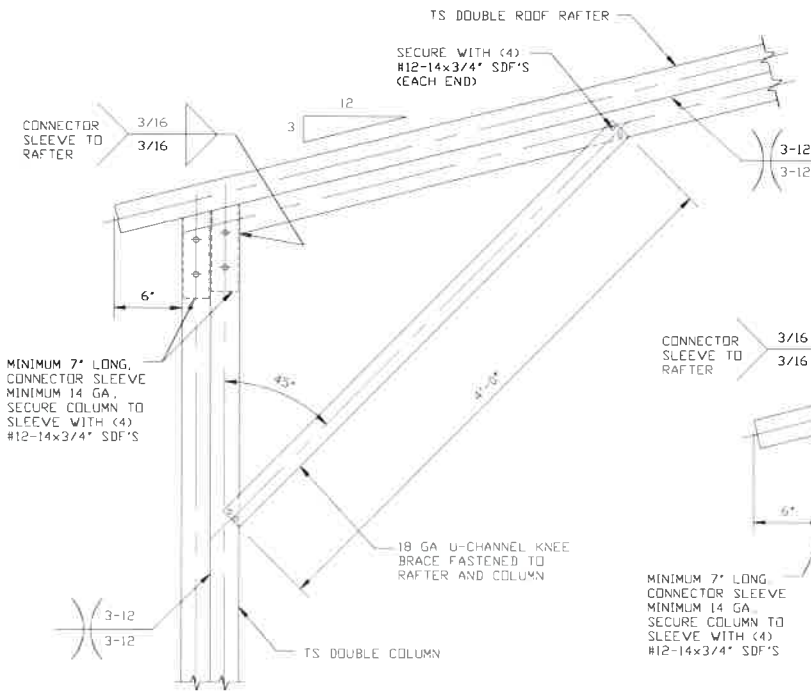
DWG. NO: SK-3

JOB NO: 19164S

REV: 0

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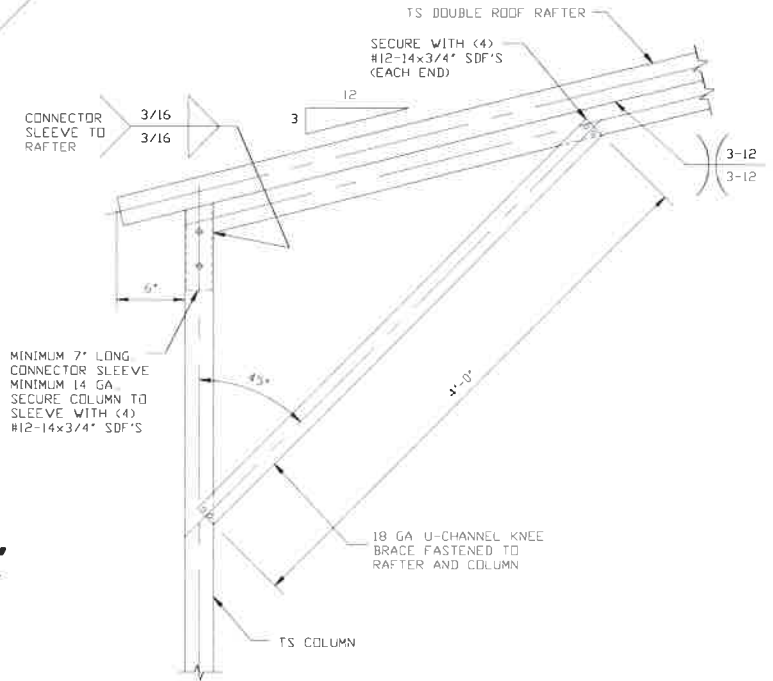
60 PSF < SL ≤ 70 PSF
EXPOSURE B



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"

1A

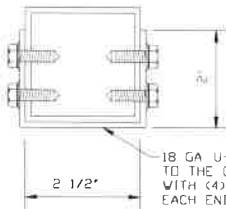
SCALE: NTS



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

1B

SCALE: NTS



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

BRACE SECTION

SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 6A

SCALE: NTS

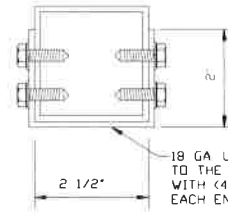
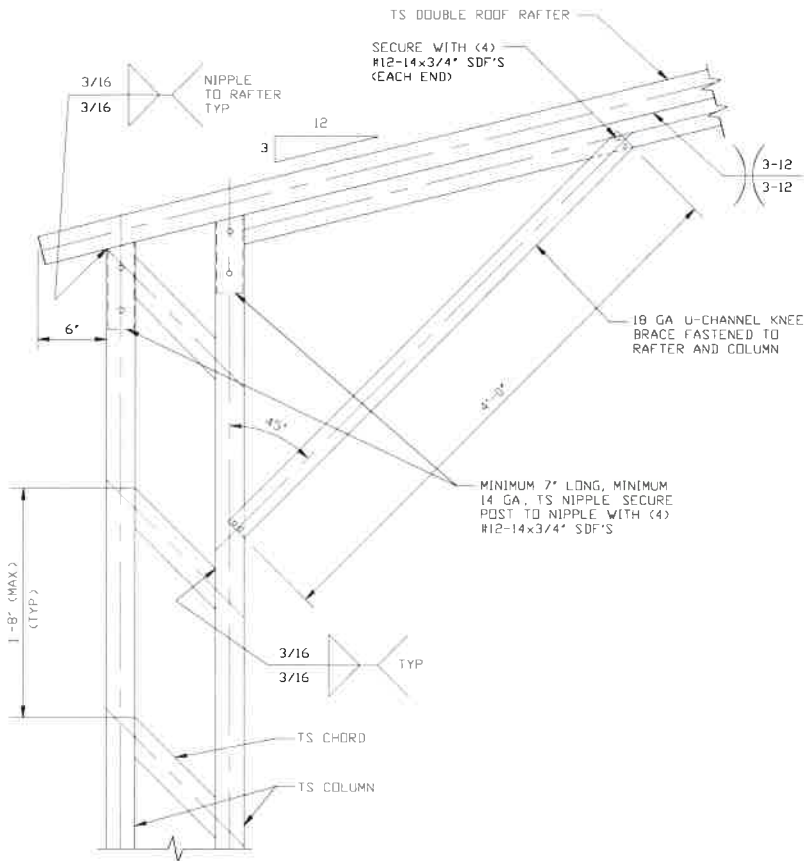
DWG. NO: SK-3

JOB NO: 19164S

REV: 0

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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"

1

SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

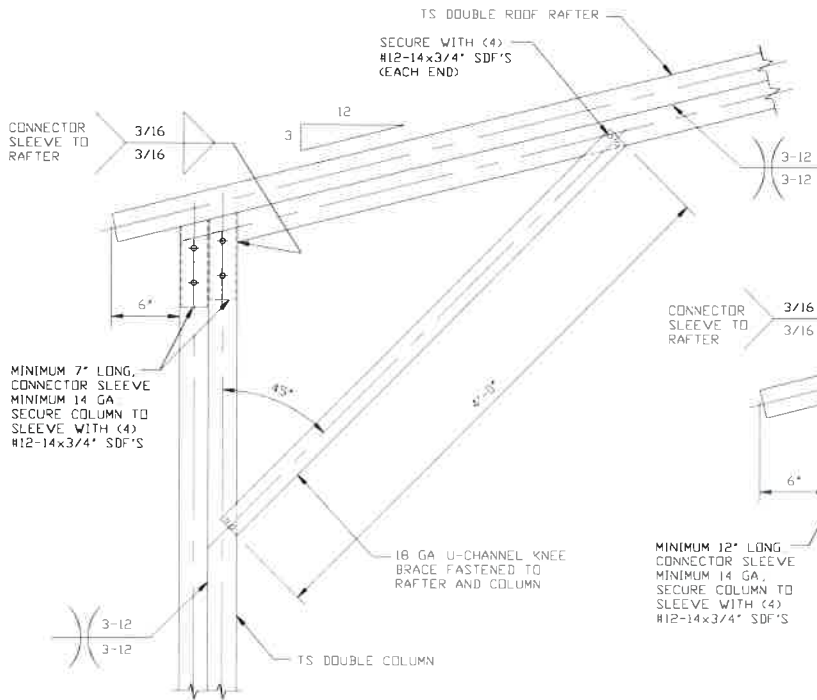
DRAWN BY: JG
CHECKED BY: PDH

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

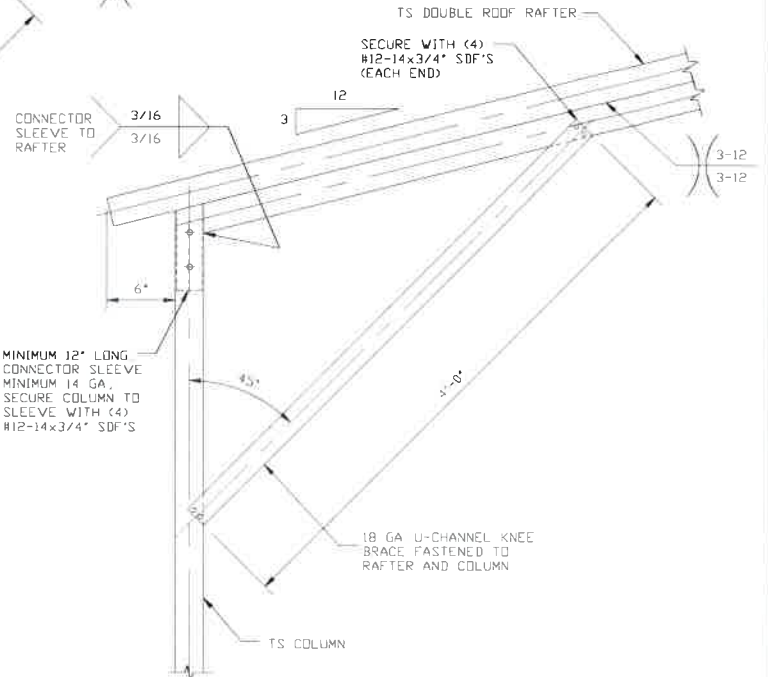
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| PROJECT MGR: WSM | DATE: 8-20-19 | SCALE: NTS | JOB NO: 19164S |
| CLIENT: TOL | SHT. 6B | DWG. NO: SK-3 | REV: 0 |

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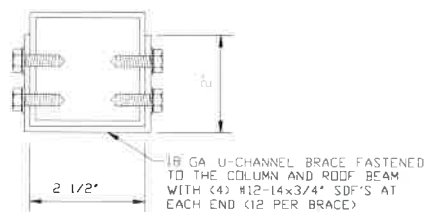
60 PSF < SL ≤ 70 PSF
EXPOSURE C



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS



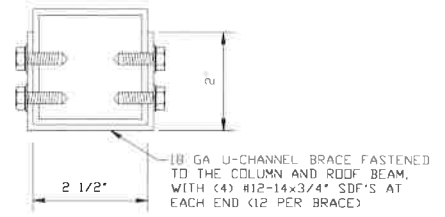
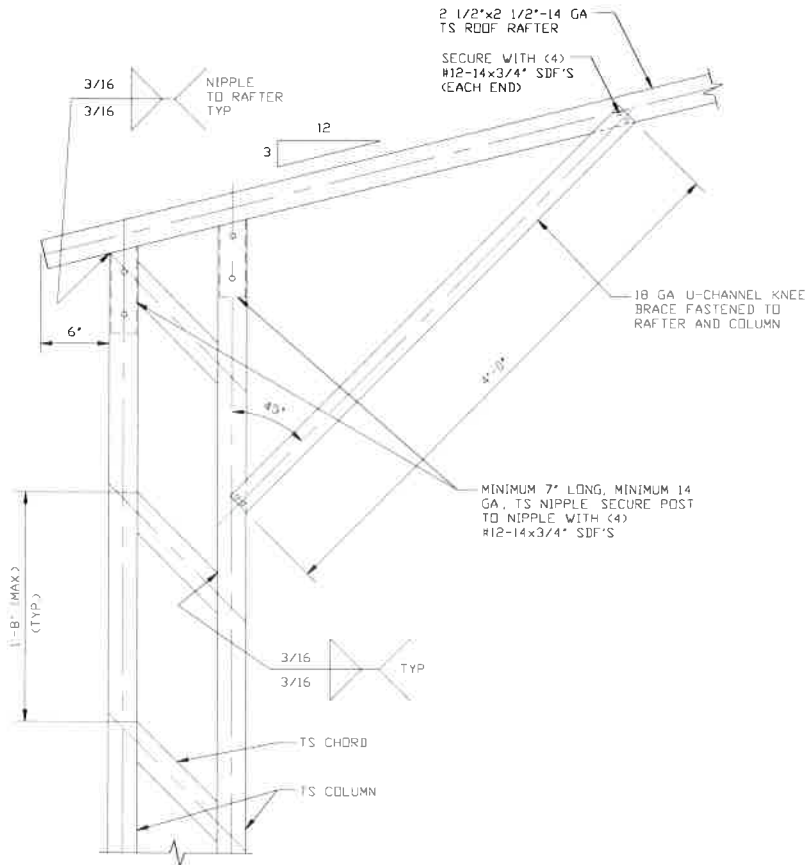
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"
SCALE: NTS



BRACE SECTION
SCALE: NTS

| | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------|---------------|----------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0" x 20'-0" ENCLOSED STRUCTURE | | |
| | CHECKED BY: PDH | | | |
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| | CLIENT: TOL | SHT. 6C | DWG. NO: SK-3 | REV: 0 |

SL ≤ 60 PSF
EXPOSURE B/C



BRACE SECTION
SCALE: NTS

**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 16'-0" < TO ≤ 20'-0"**

1A

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

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PROJECT MGR: WSM

CLIENT: TOL

DATE: 8-20-19

SHT. 6D

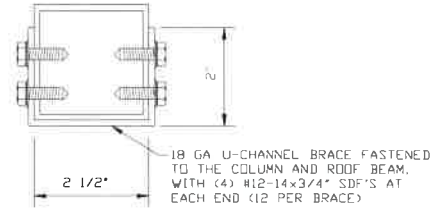
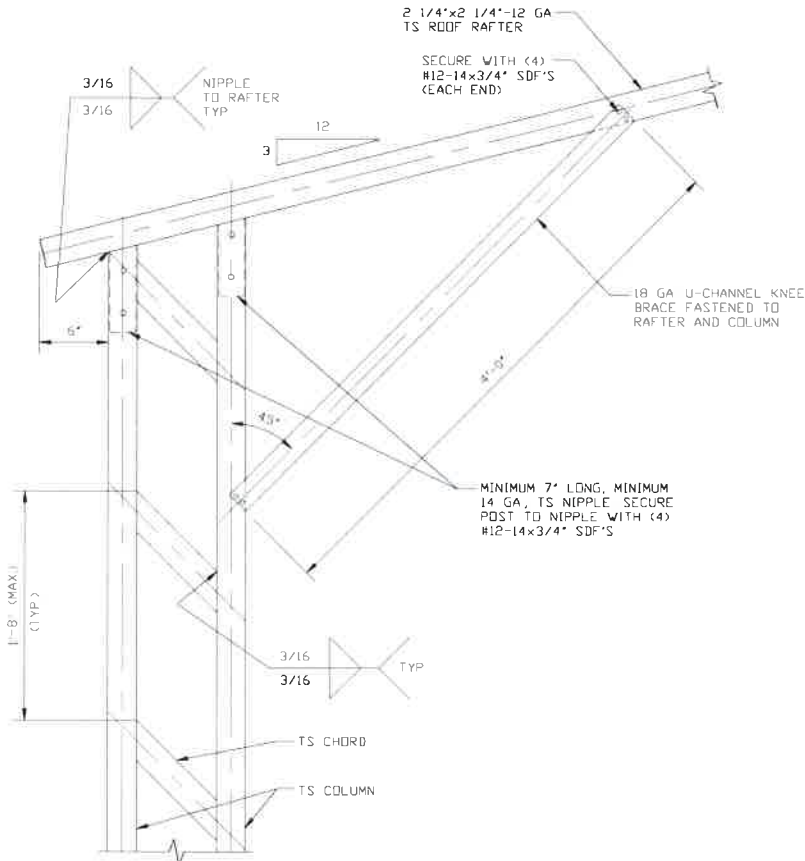
SCALE: NTS

DWG. NO: SK-3

JOB NO: 19164S

REV: 0

**SL ≤ 60 PSF
EXPOSURE B/C**



BRACE SECTION
SCALE: NTS

**BOX EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS 16'-0" < TO ≤ 20'-0"**

1B

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 6E

SCALE: NTS

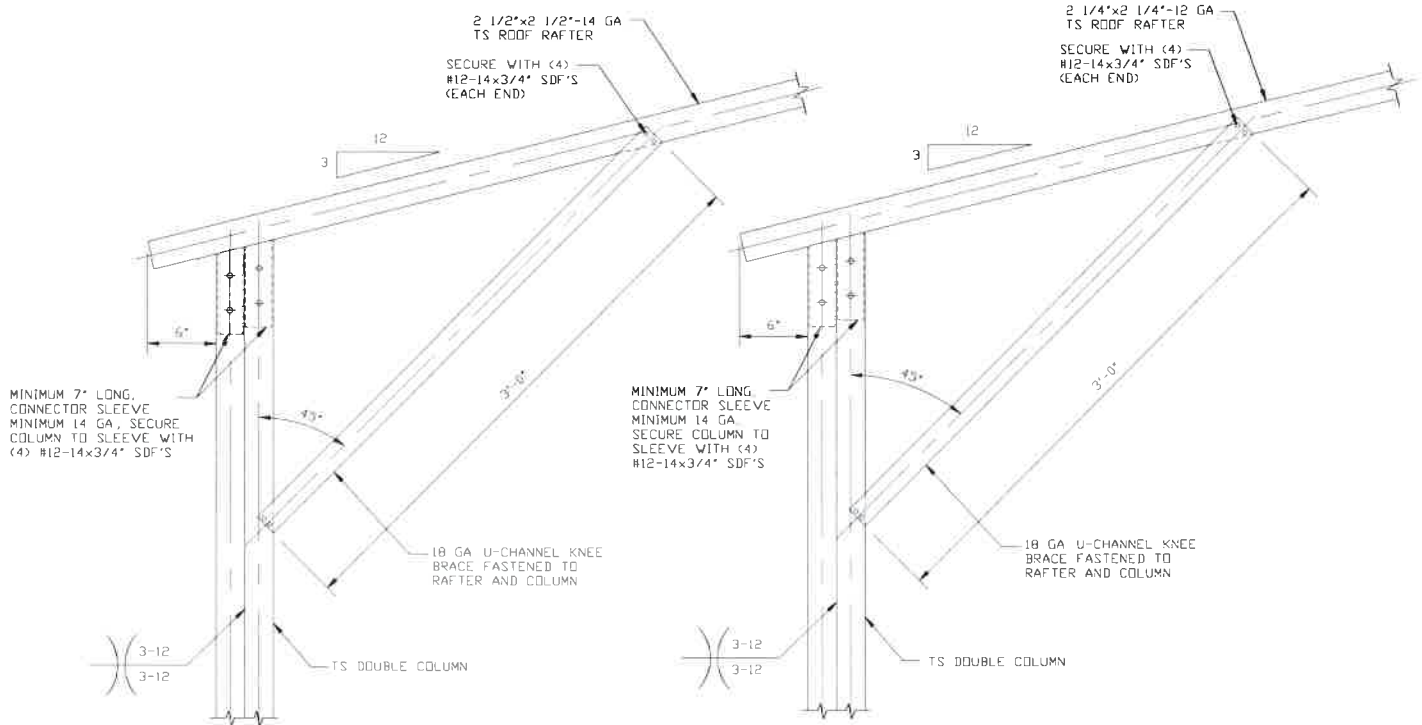
DWG. NO: SK-3

JOB NO: 19164S

REV: 0

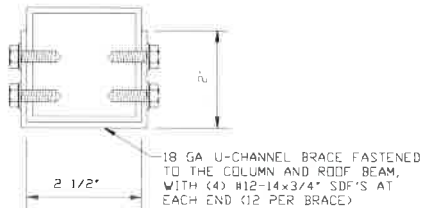
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SL ≤ 60 PSF
EXPOSURE B/C



1C
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS

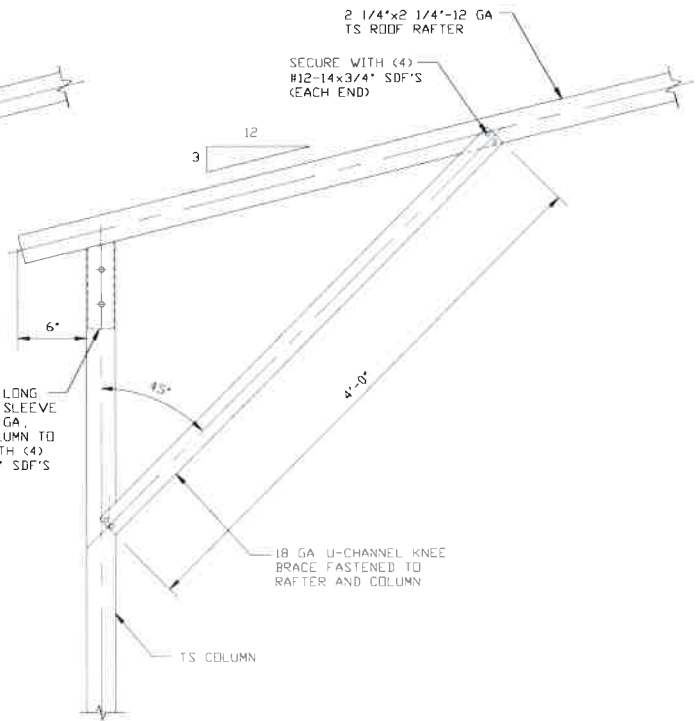
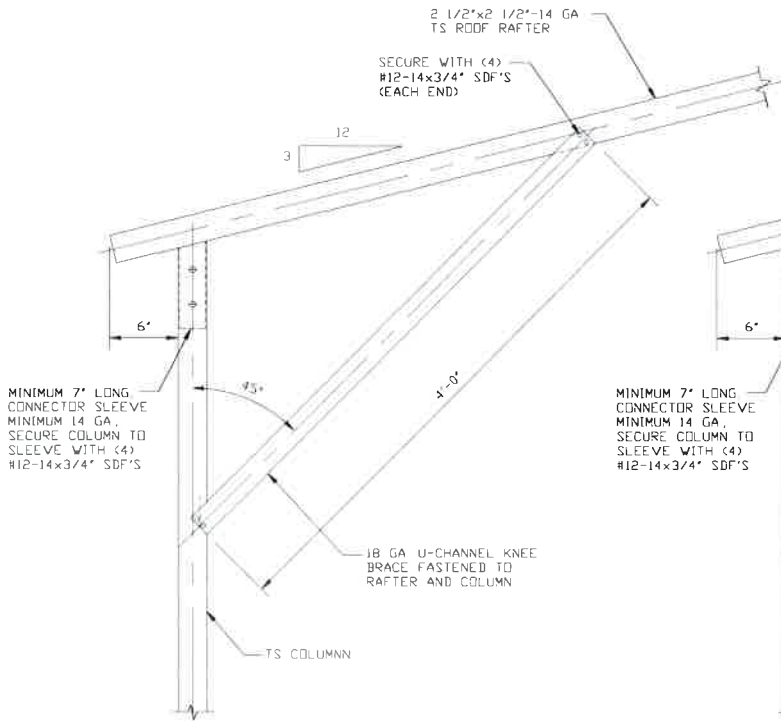
1D
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS



BRACE SECTION
SCALE: NTS

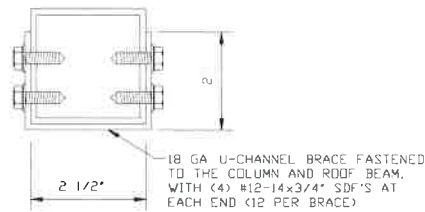
| | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------|----------------------|-----------------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0"x20'-0" ENCLOSED STRUCTURE | | |
| | CHECKED BY: PDH | | | |
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| | CLIENT: TOL | SHT. 6F | DWG. NO: SK-3 | REV.: 0 |

SL ≤ 60 PSF
EXPOSURE B/C



1E BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"
SCALE: NTS

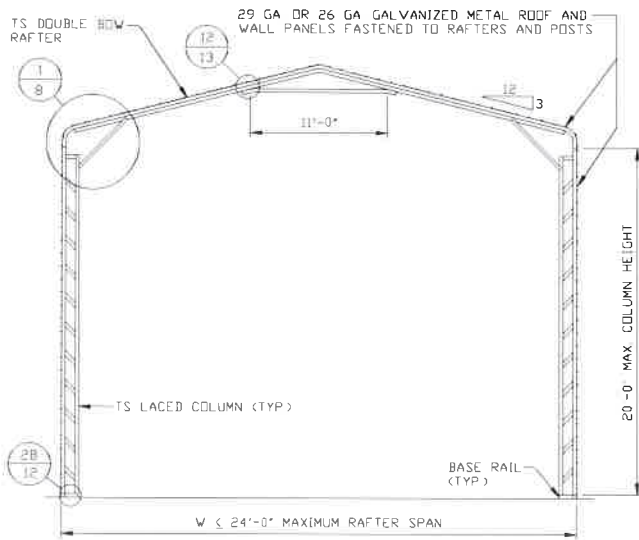
1F BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"
SCALE: NTS



BRACE SECTION
SCALE: NTS

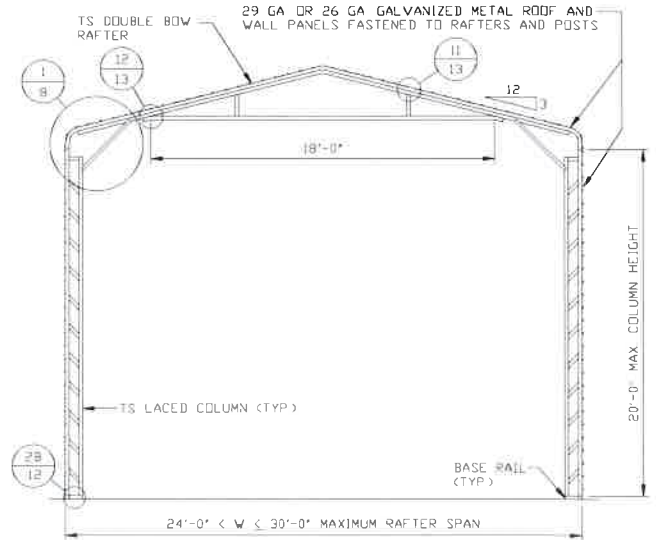
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------|---------------|----------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0" x 20'-0" ENCLOSED STRUCTURE | | |
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| | CLIENT: TOL | SHT. 6G | DWG. NO: SK-3 | REV: 0 |

60 PSF < SL ≤ 70 PSF
EXPOSURE B



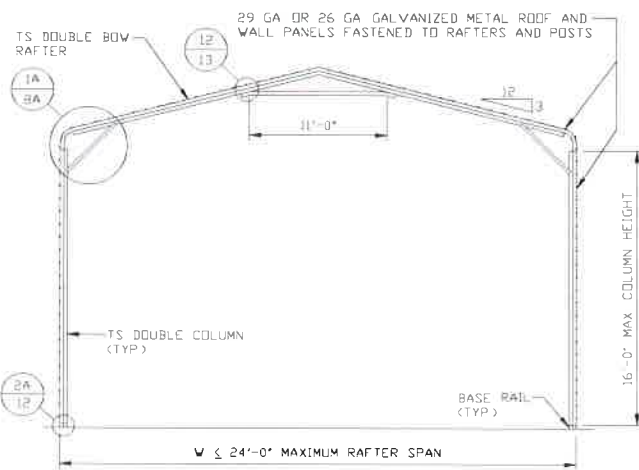
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



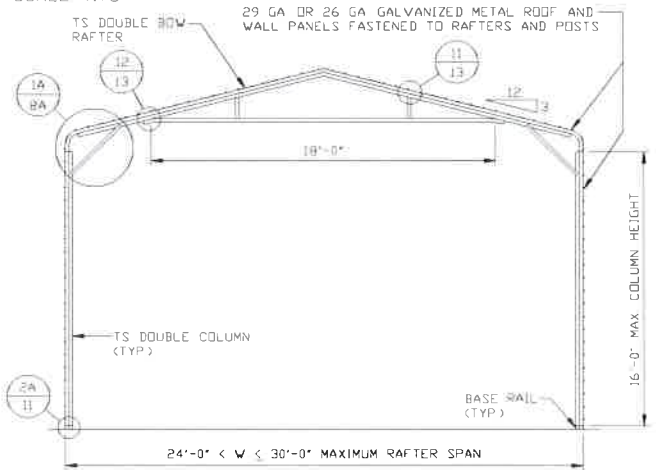
TYPICAL RAFTER/COLUMN END FRAME SECTION

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: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
 330 N. MERIDIAN RD.
 YOUNGSTOWN, OH 44509
 30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 7

SCALE: NTS

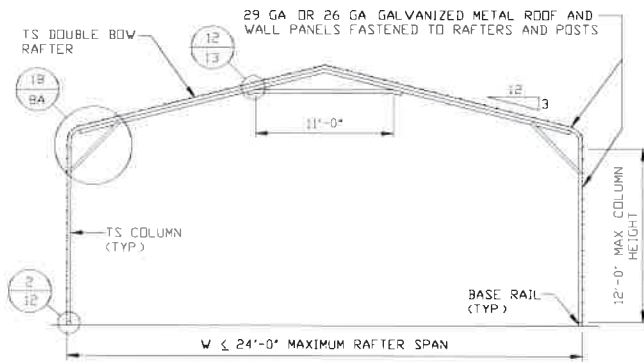
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JOB NO: 19164S

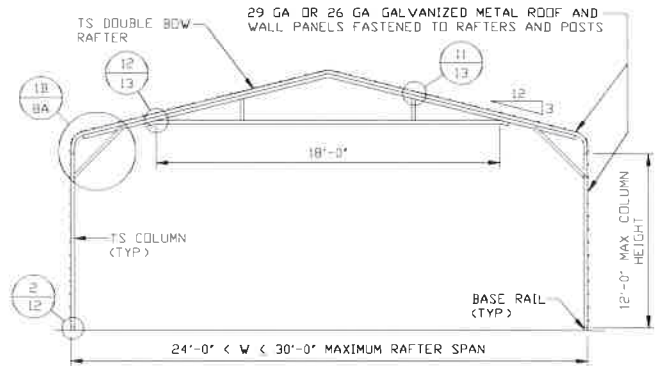
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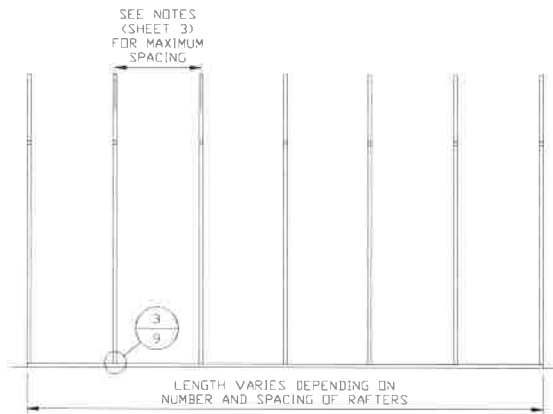
60 PSF < SL ≤ 70 PSF
EXPOSURE B



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 7A

SCALE: NTS

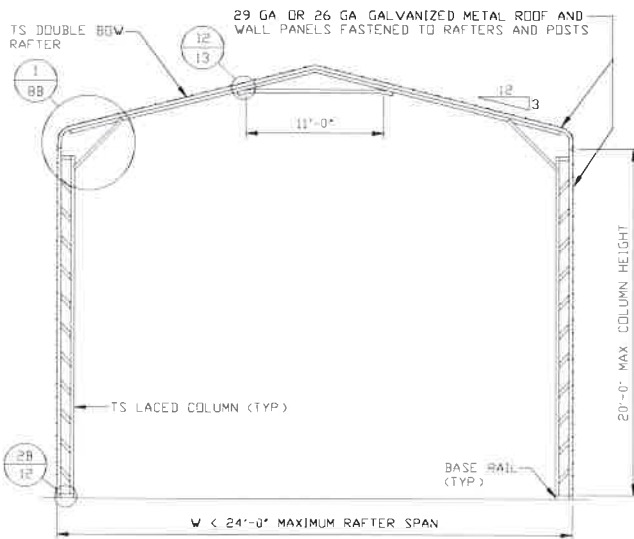
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JOB NO: 19164S

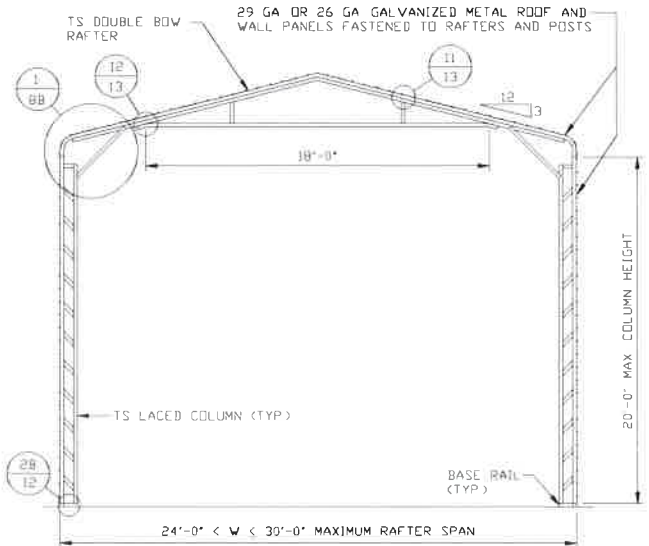
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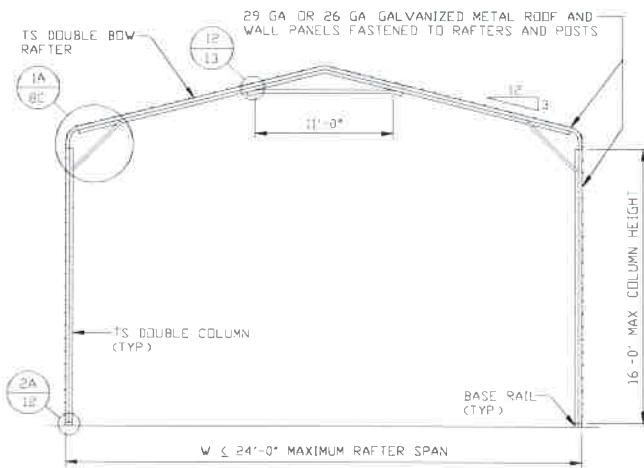
60 PSF < SL ≤ 70 PSF
EXPOSURE C



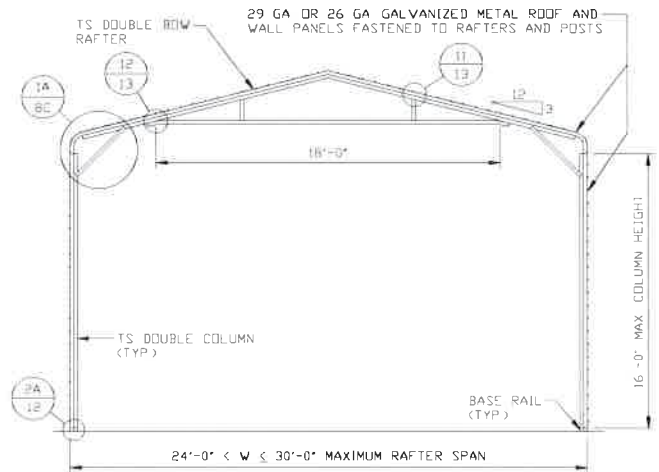
TYPICAL RAFTER/COLUMN END FRAME SECTION
 SCALE: NTS



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: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
 330 N. MERIDIAN RD.
 YOUNGSTOWN, OH 44509
 30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 7B

SCALE: NTS

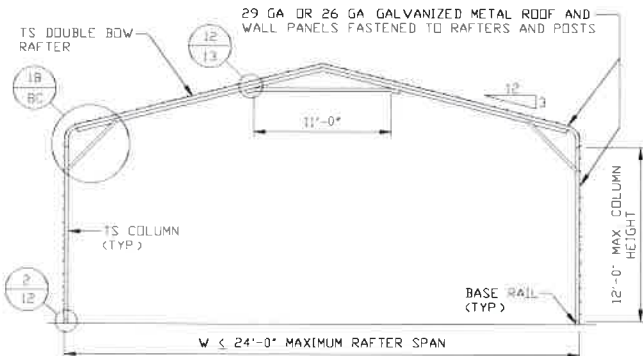
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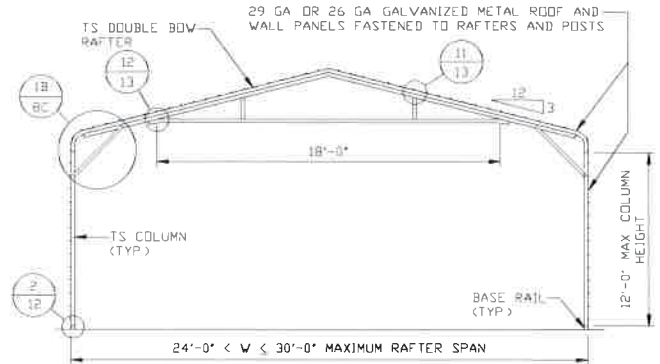
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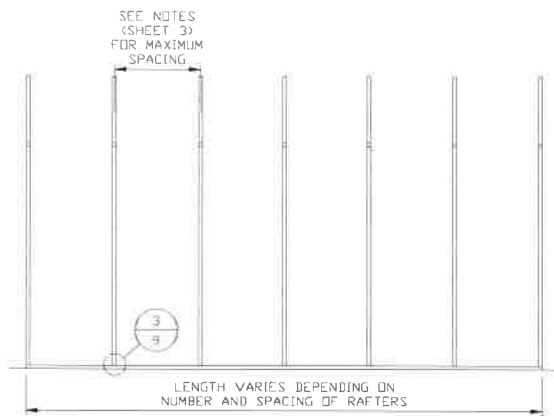
60 PSF < SL ≤ 70 PSF
EXPOSURE B/C



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: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
 330 N. MERIDIAN RD.
 YOUNGSTOWN, OH 44509
 30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SCALE: NTS

JOB NO: 19164S

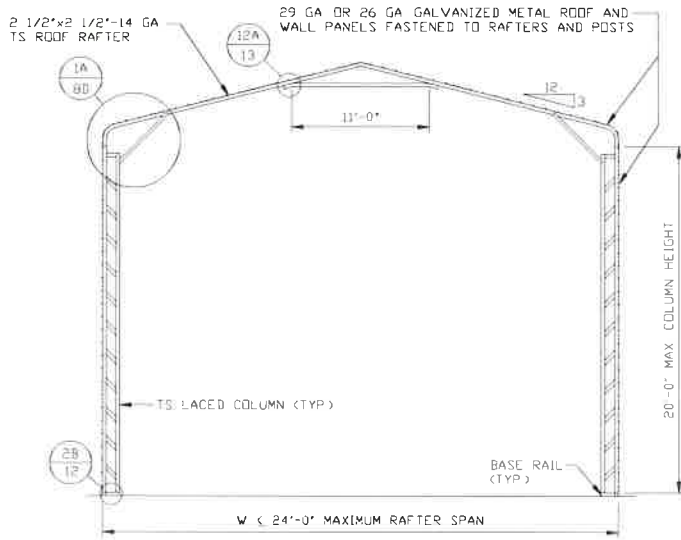
SHT. 7C

DWG. NO: SK-3

REV: 0

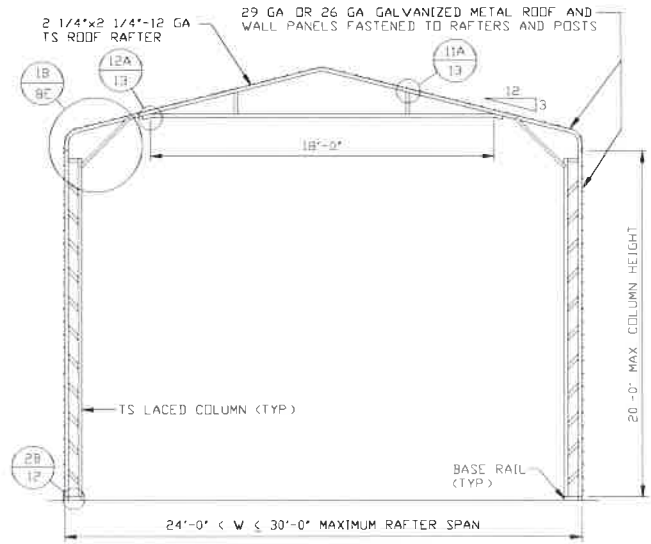
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SL ≤ 60 PSF
EXPOSURE B/C



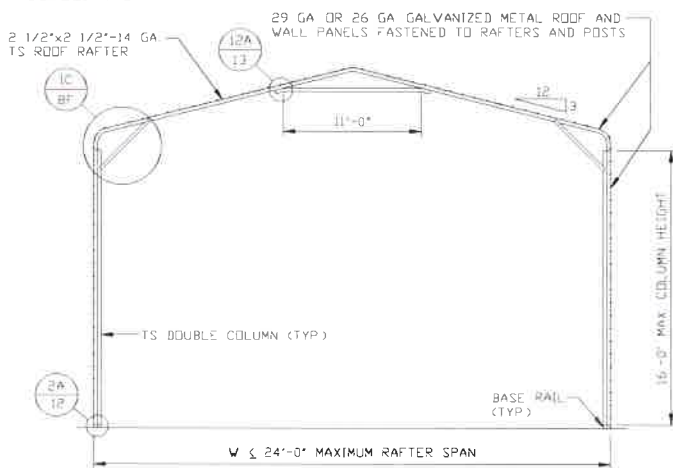
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



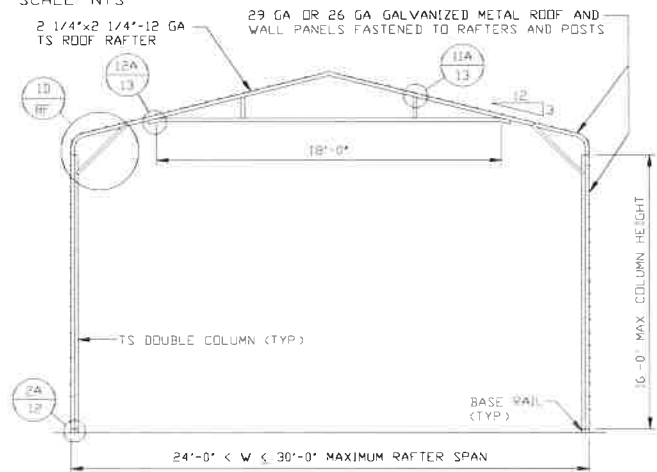
TYPICAL RAFTER/COLUMN END FRAME SECTION

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: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 7D

SCALE: NTS

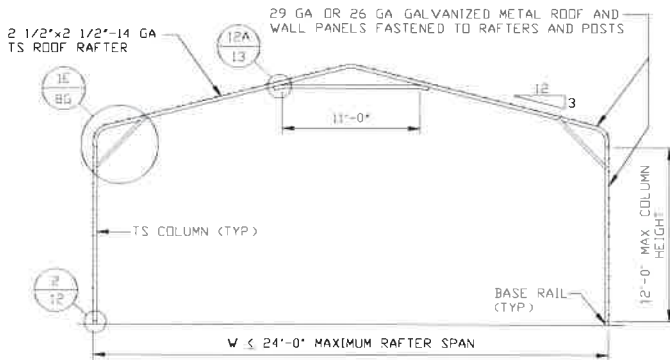
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JOB NO: 19164S

REV: 0

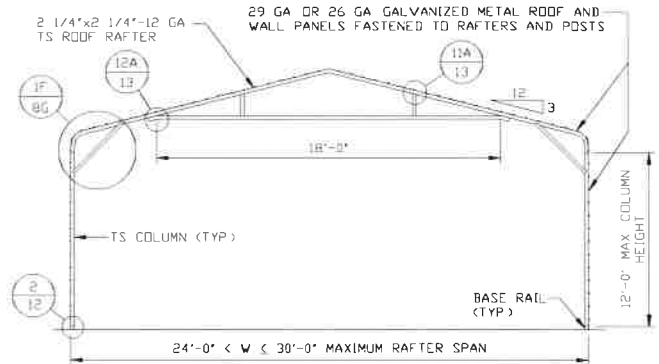
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SL ≤ 60 PSF
EXPOSURE B/C



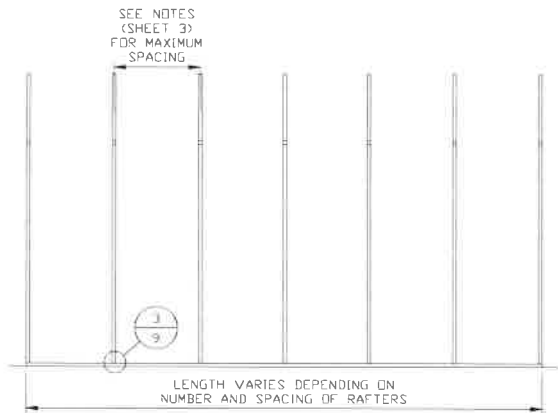
TYPICAL RAFTER/COLUMN END FRAME SECTION

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: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 7E

SCALE: NTS

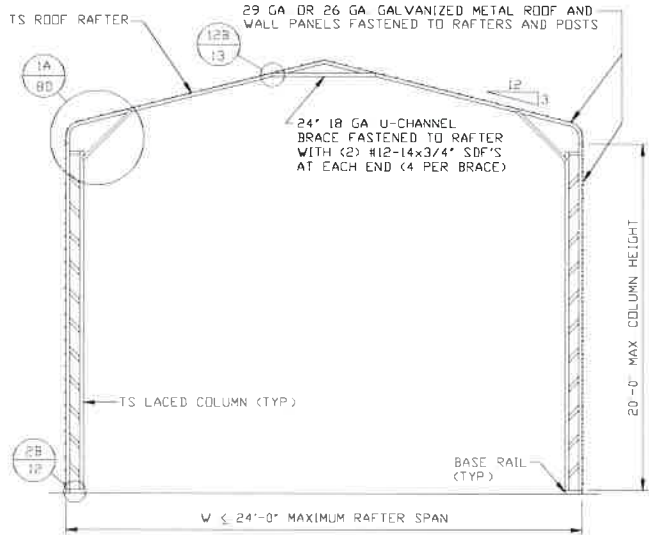
DWG. NO: SK-3

JOB NO: 19164S

REV: 0

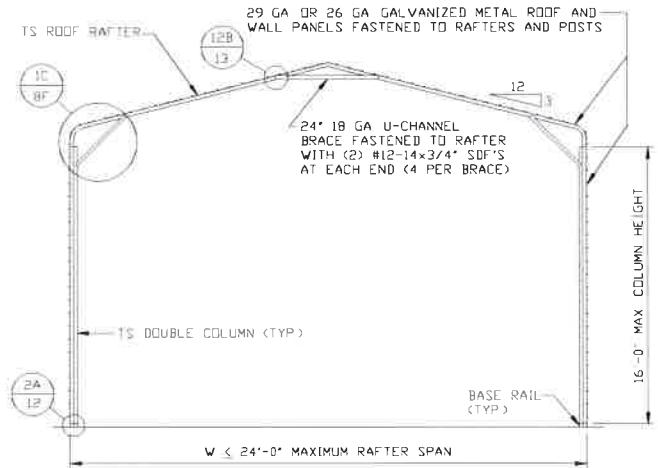
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SL ≤ 30 PSF
EXPOSURE B/C



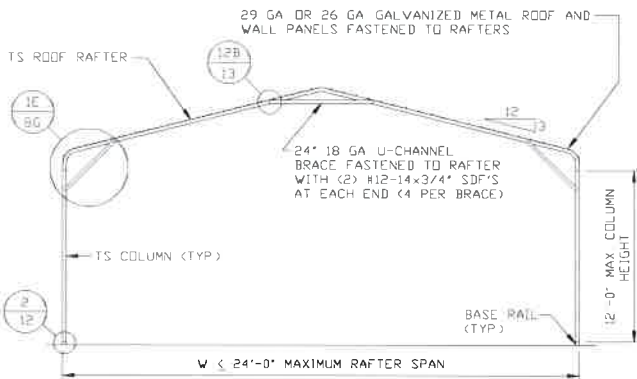
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



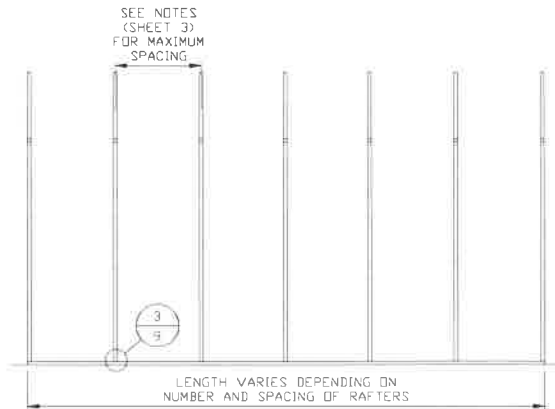
TYPICAL RAFTER/COLUMN END FRAME SECTION

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: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 7F

SCALE: NTS

DWG. NO: SK-3

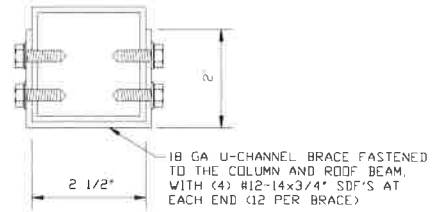
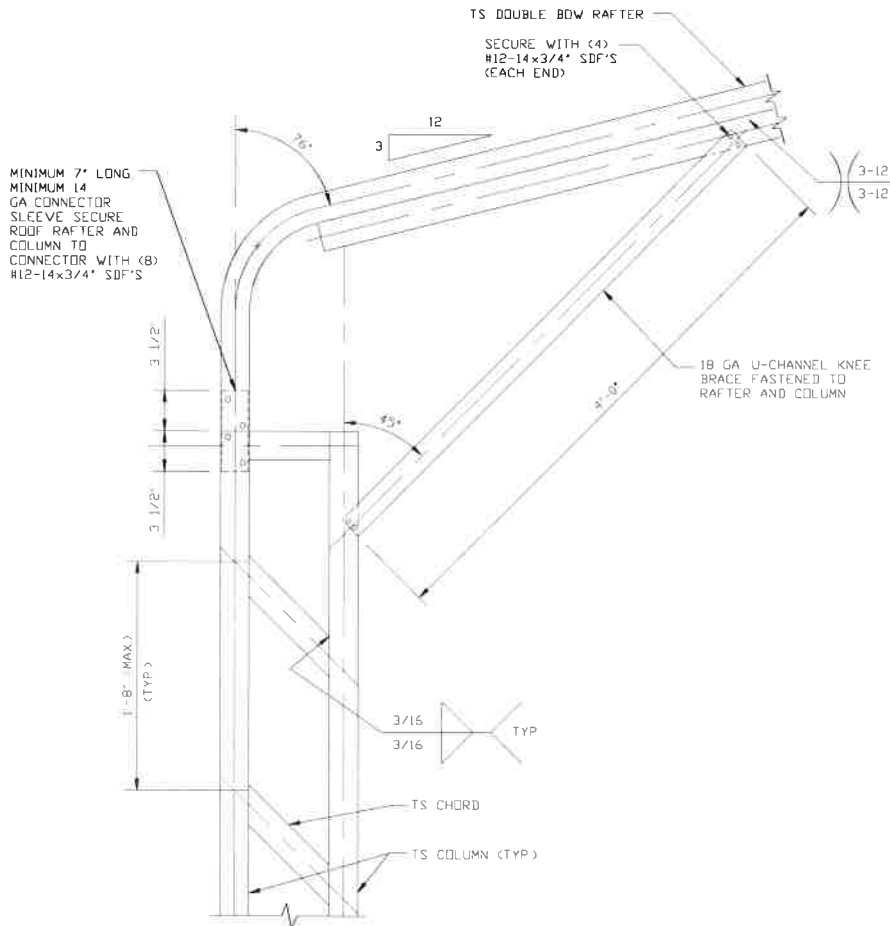
JOB NO: 19164S

REV: 0

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60 PSF < SL ≤ 70 PSF

EXPOSURE B



BRACE SECTION
SCALE: NTS

BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

1

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SCALE: NTS

JOB NO: 19164S

SHT. 8

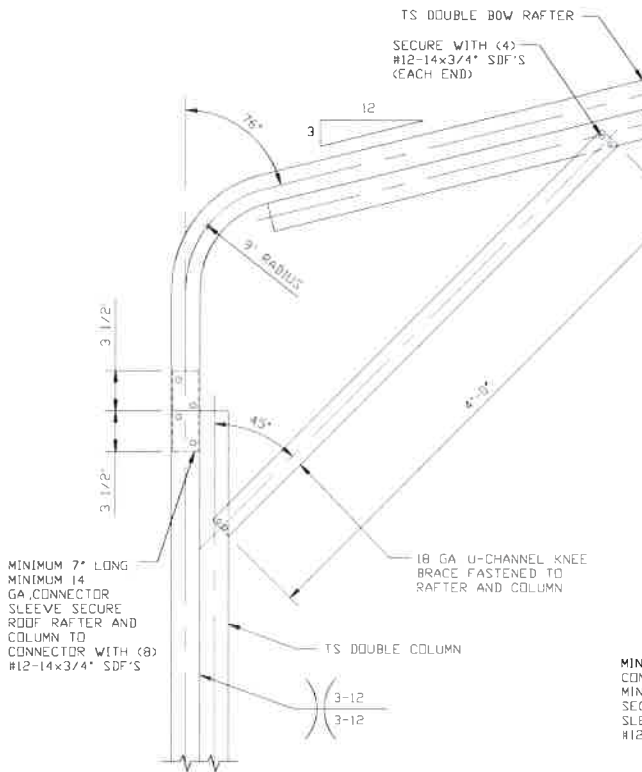
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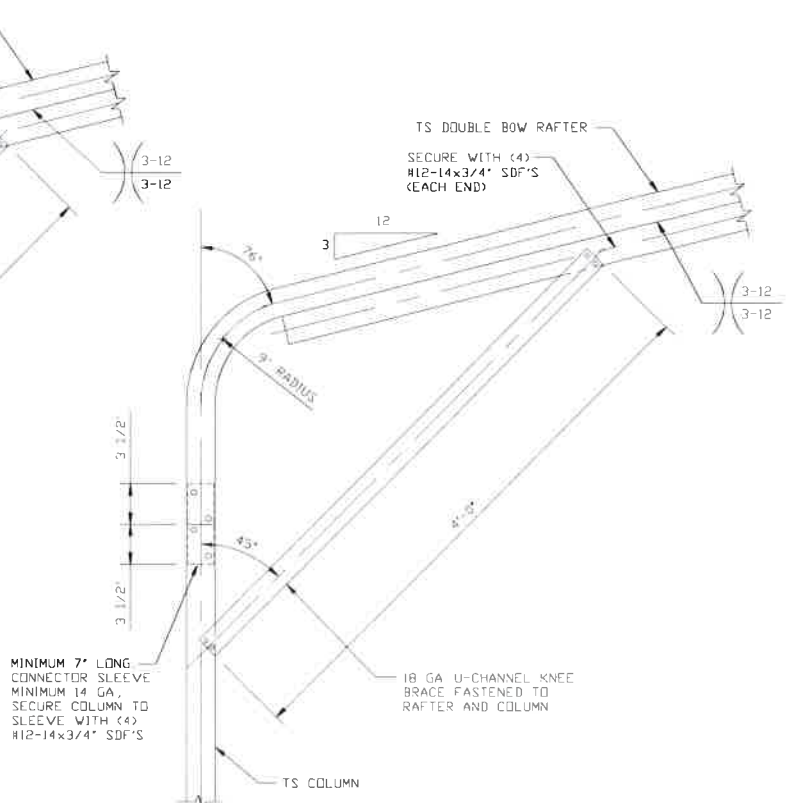
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60 PSF < SL ≤ 70 PSF

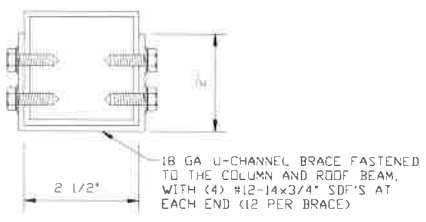
EXPOSURE B



1A
BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
 SCALE: NTS



1B
BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 12'-0"
 SCALE: NTS



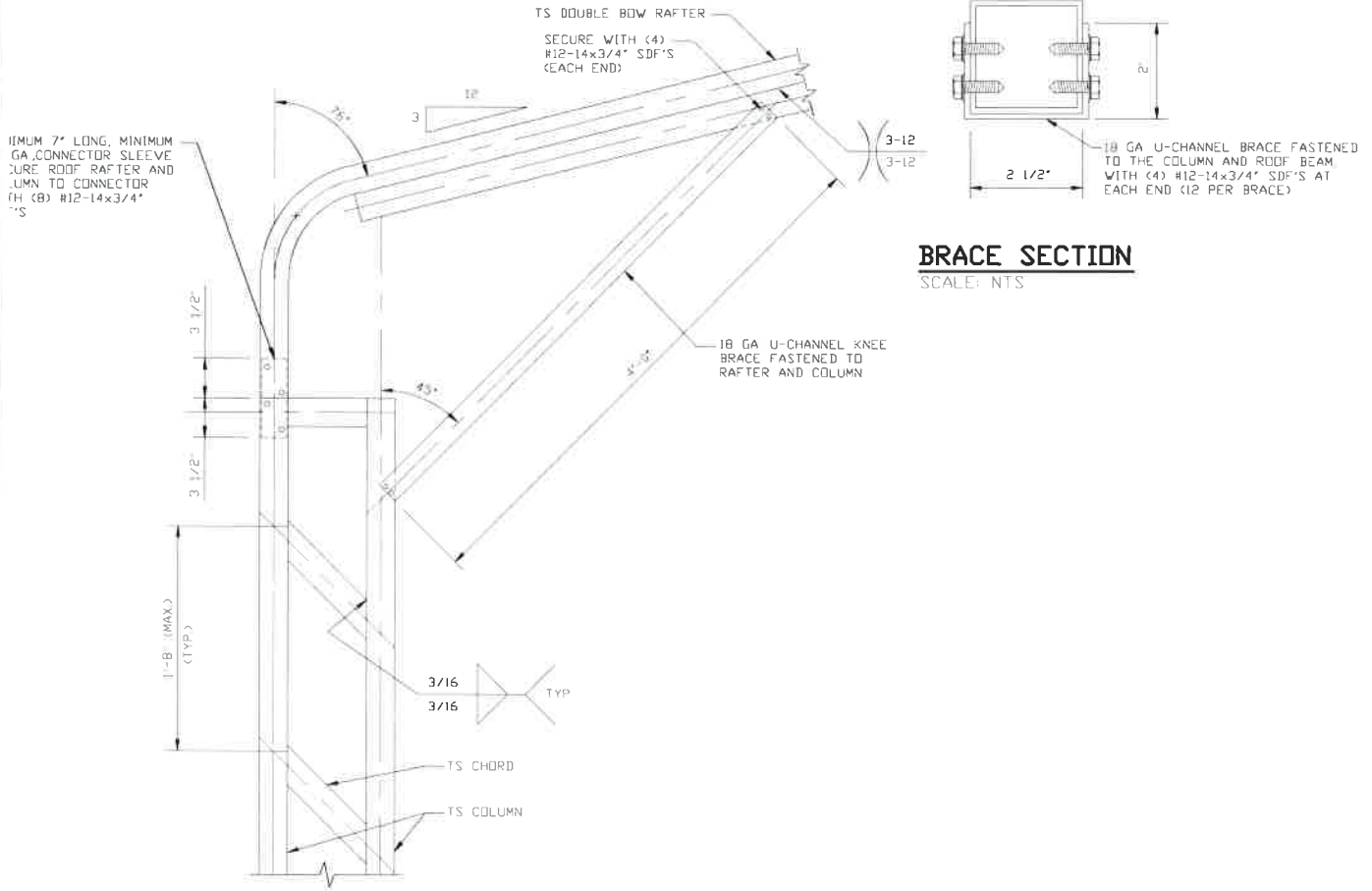
BRACE SECTION
 SCALE: NTS

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

| | | | |
|-------------------------|--------------------------------------------------------------------------------------------------------|----------------------|-----------------------|
| DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0"x20'-0" ENCLOSED STRUCTURE | | |
| CHECKED BY: PDH | | | |
| PROJECT MGR: WSM | DATE: 8-20-19 | SCALE: NTS | JOB NO: 19164S |
| CLIENT: TOL | SHT: 8A | DWG. NO: SK-3 | REV: 0 |

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60 PSF < SL ≤ 70 PSF
EXPOSURE C



BRACE SECTION
SCALE: NTS

1
BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TD ≤ 20'-0"

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 08

SCALE: NTS

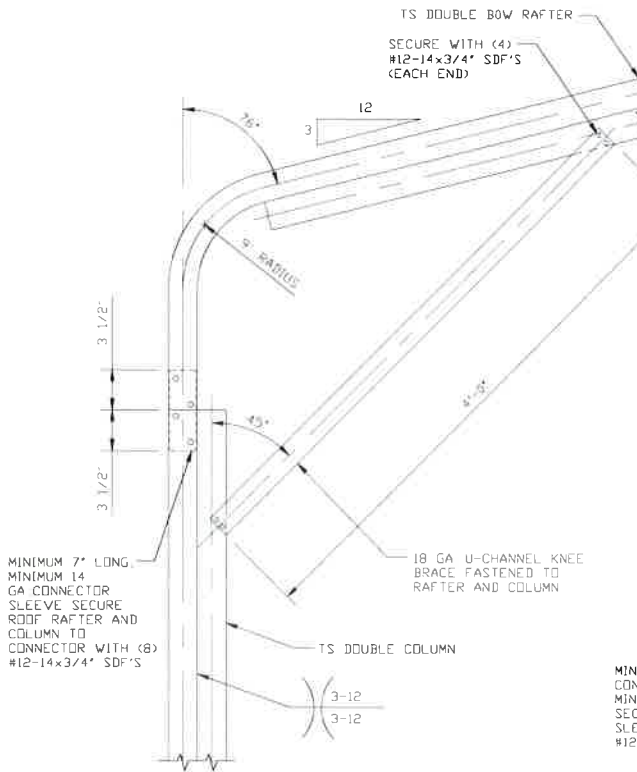
DWG. NO: SK-3

JOB NO: 19164S

REV: 0

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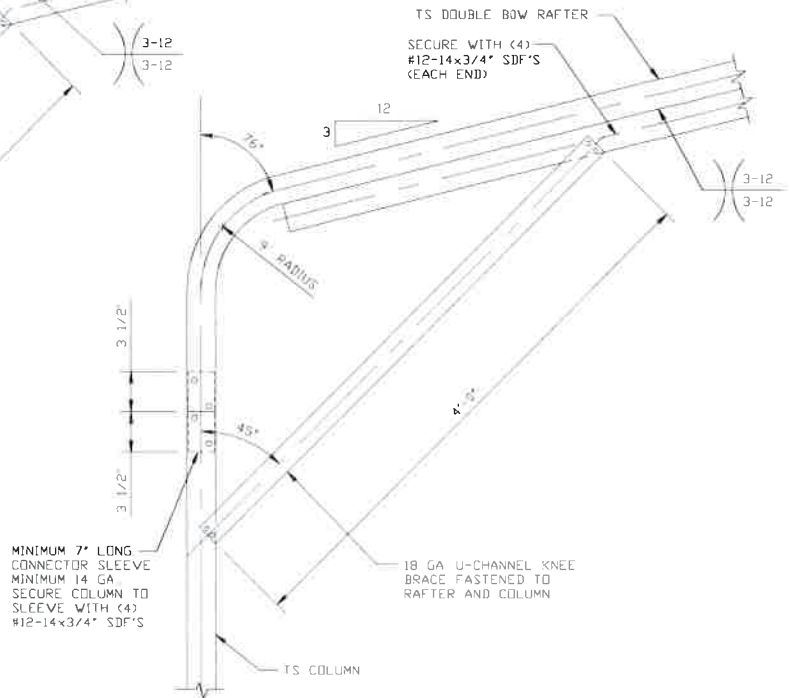
60 PSF < SL ≤ 70 PSF
EXPOSURE C



1A

BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"

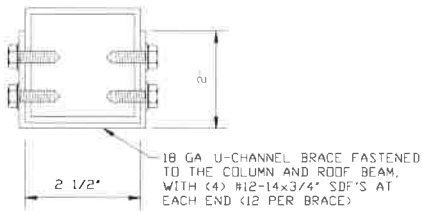
SCALE: NTS



1B

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

SCALE: NTS



BRACE SECTION

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 8C

SCALE: NTS

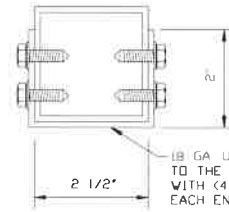
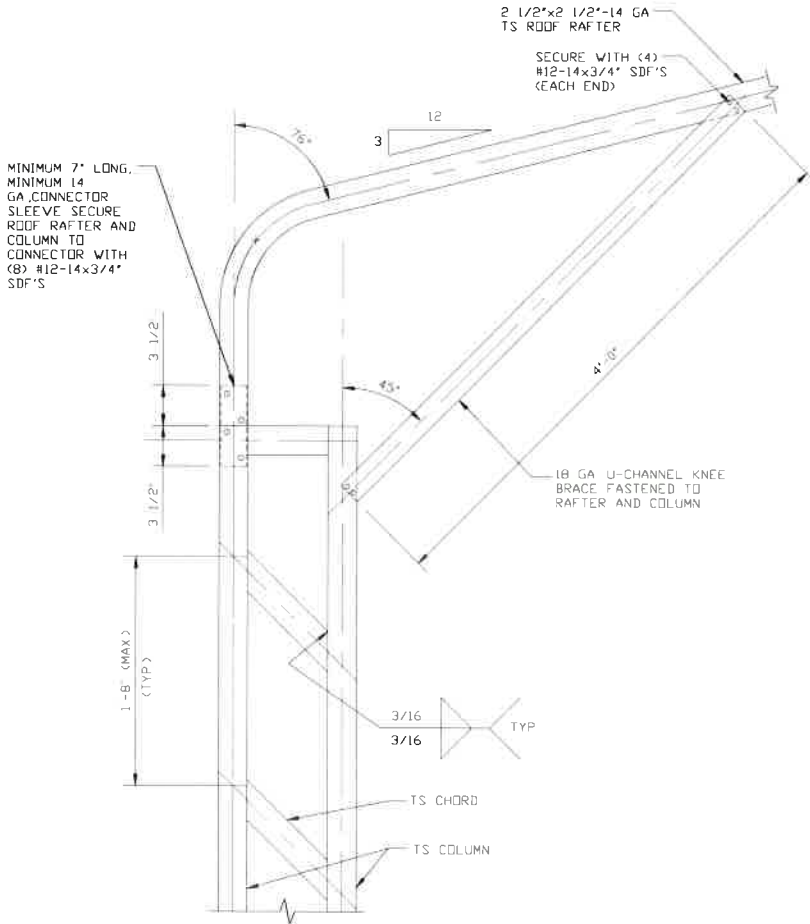
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JOB NO: 19164S

REV: 0

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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"

1A

SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
 330 N. MERIDIAN RD.
 YOUNGSTOWN, OH 44509
 30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SCALE: NTS

JOB NO: 19164S

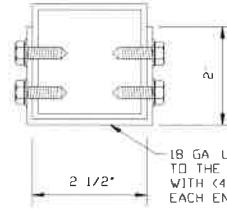
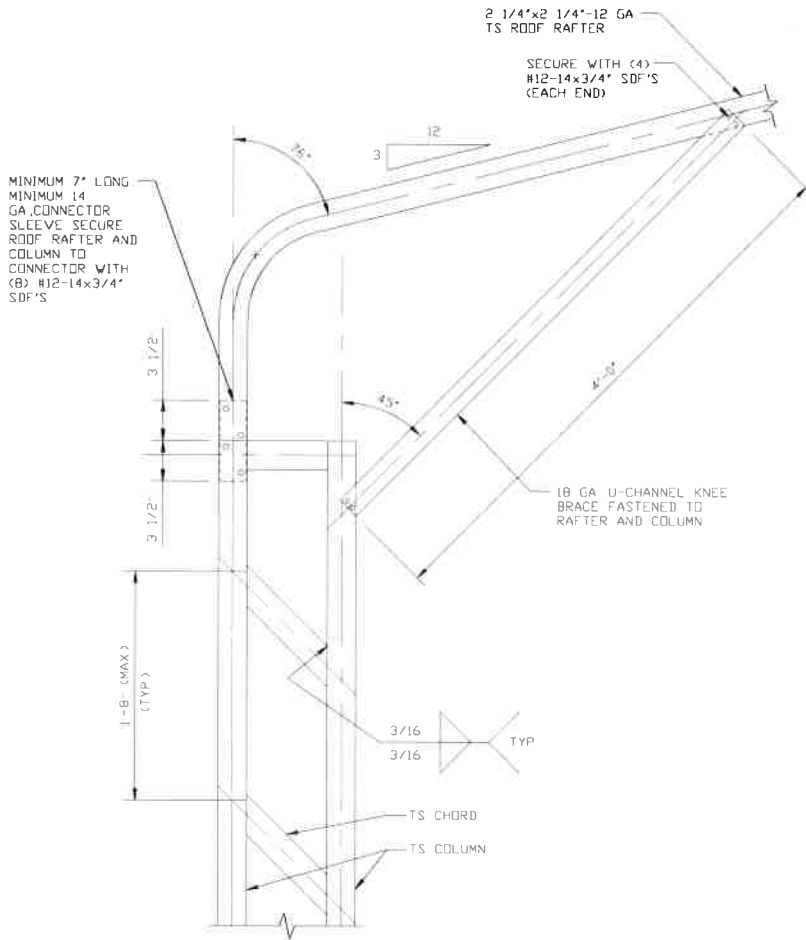
SHT. 8D

DWG. NO: SK-3

REV: 0

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SL ≤ 60 PSF
EXPOSURE B/C



18 GA U-CHANNEL BRACE FASTENED TO THE COLUMN AND ROOF BEAM WITH (4) #12-14x3/4\"/>

BRACE SECTION

SCALE: NTS

BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0\"/>

1B

SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TDL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 0E

SCALE: NTS

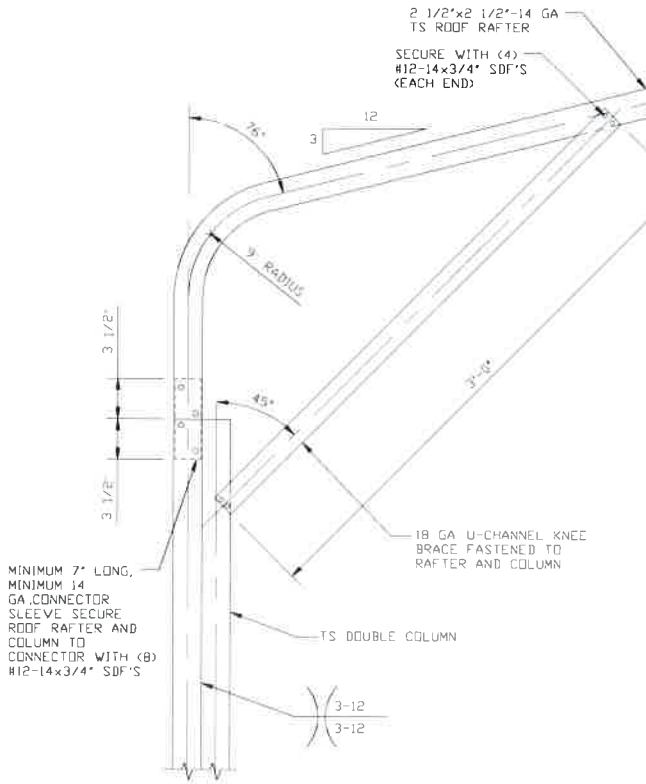
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JOB NO: 19164S

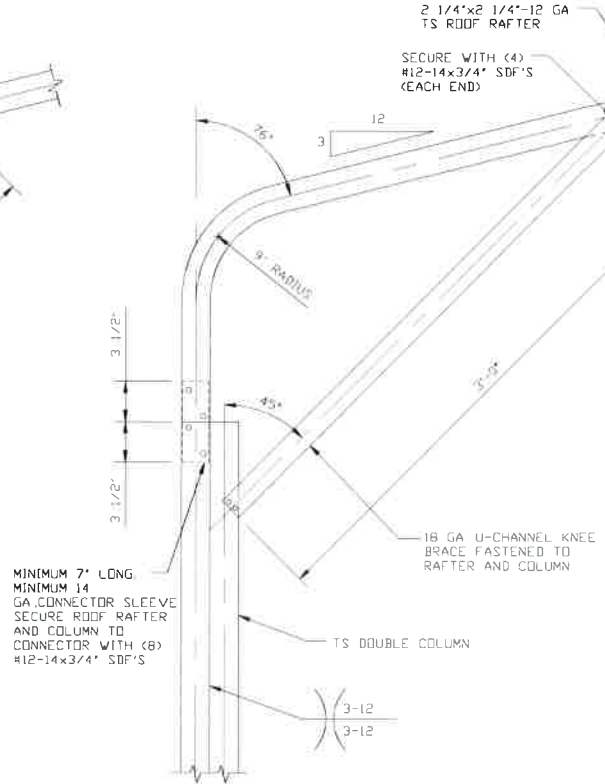
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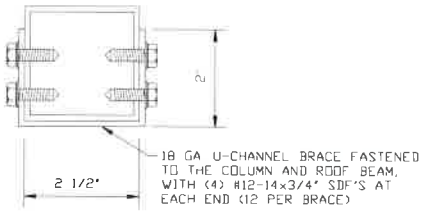
SL ≤ 60 PSF
EXPOSURE B/C



1C
BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS



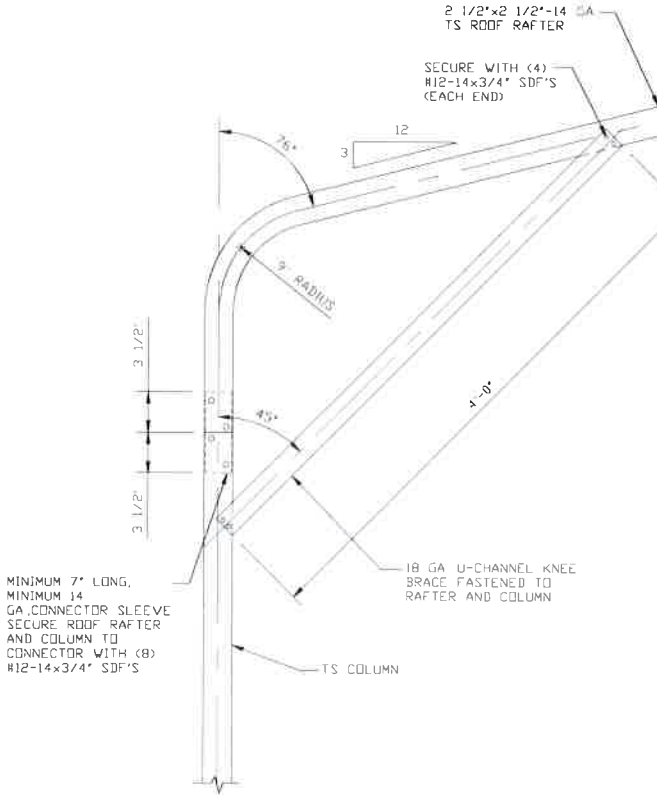
1D
BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤ 16'-0"
SCALE: NTS



BRACE SECTION
SCALE: NTS

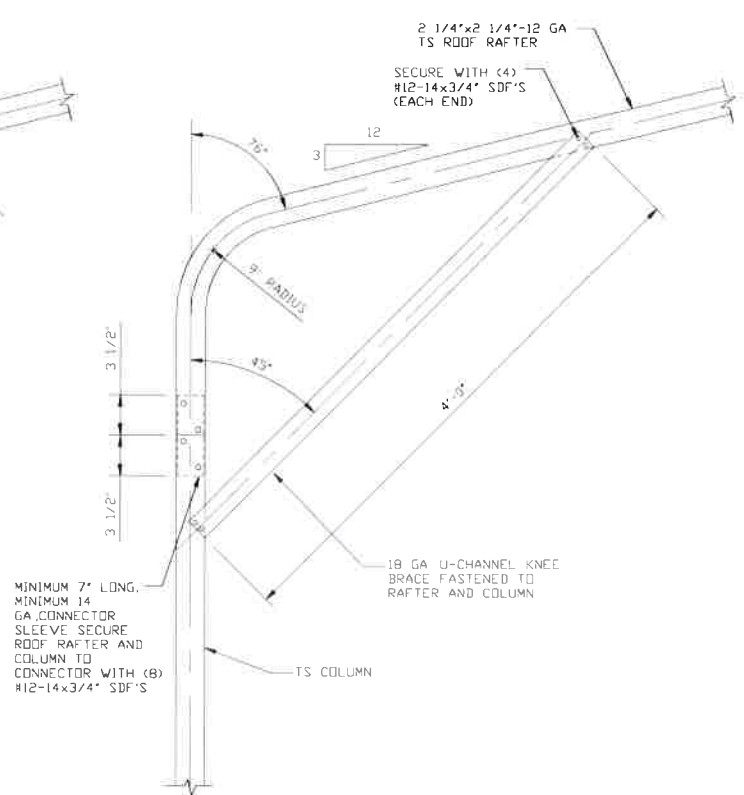
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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------|-----------------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0" x 20'-0" ENCLOSED STRUCTURE | | |
| | CHECKED BY: PDH | | | |
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| | CLIENT: TOL | SHT. 0F | DWG. NO: SK-3 | REV: 0 |

**SL ≤ 60 PSF
EXPOSURE B/C**



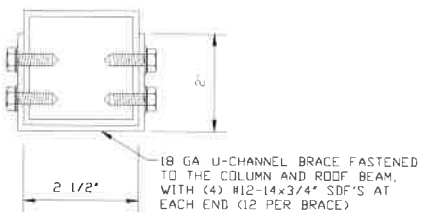
**BOW EAVE RAFTER COLUMN
CONNECTION DETAIL FOR
HEIGHTS ≤ 12'-0"**

1E
SCALE: NTS



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

1F
SCALE: NTS

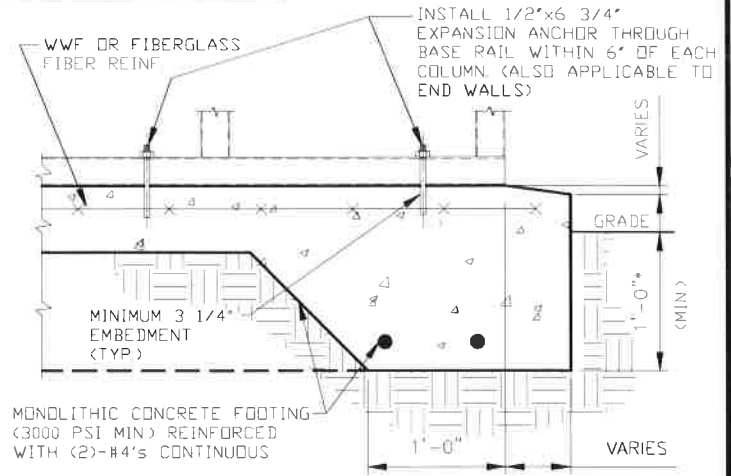
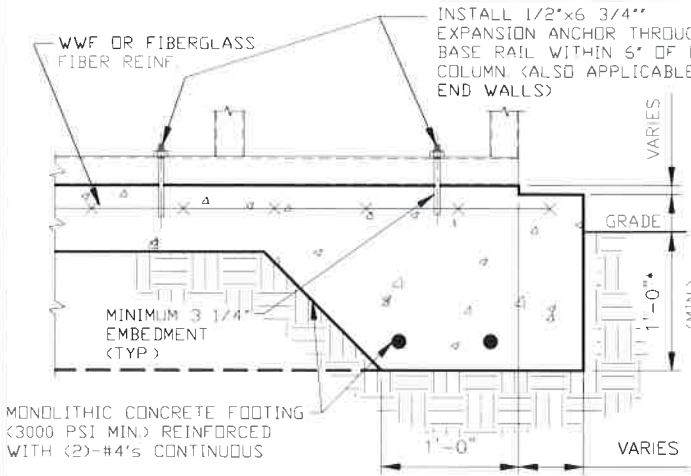


BRACE SECTION
SCALE: NTS

| | | | | |
|------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------|-----------------------|--|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0"x20'-0" ENCLOSED STRUCTURE | | |
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| CLIENT: TOL | SHT. 06 | DWG. NO: SK-3 | REV: 0 | |

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BASE RAIL ANCHORAGE OPTIONS



3A CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE
 SCALE: NTS
 (MINIMUM ANCHOR EDGE DISTANCE IS 4")
 * COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH

3B CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE
 SCALE: NTS
 (MINIMUM ANCHOR EDGE DISTANCE IS 4")
 * COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL 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:

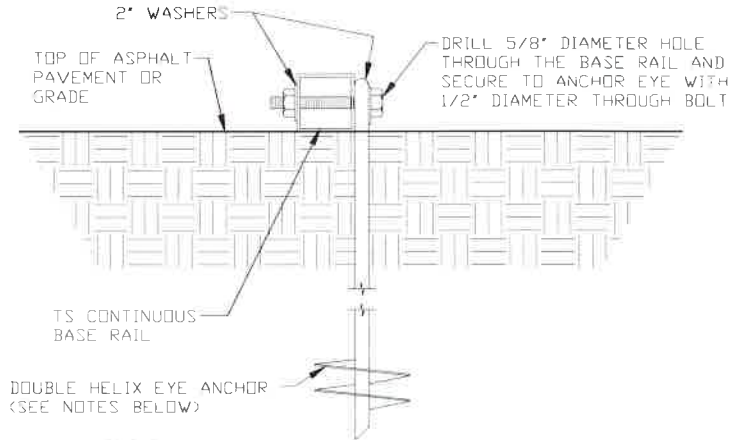
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT

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 LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES WITH MINIMUM 50" EMBEDMENT



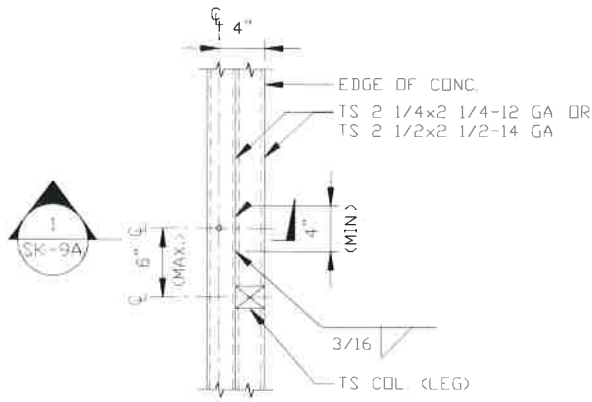
3C GROUND BASE HELIX ANCHORAGE
 SCALE: NTS (CAN BE USED FOR ASPHALT)

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

| | | | |
|------------------------|--------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------|
| DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0"x20'-0" ENCLOSED STRUCTURE | | |
| CHECKED BY: PDH | PROJECT MGR: WSM | DATE: 8-20-19 | SCALE: NTS |
| CLIENT: TOL | SHT.: 9 | DWG. NO.: SK-3 | JOB NO.: 19164S REV.: 0 |

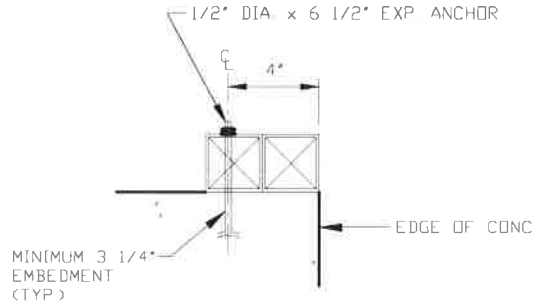
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BASE RAIL ANCHORAGE OPTIONS



TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

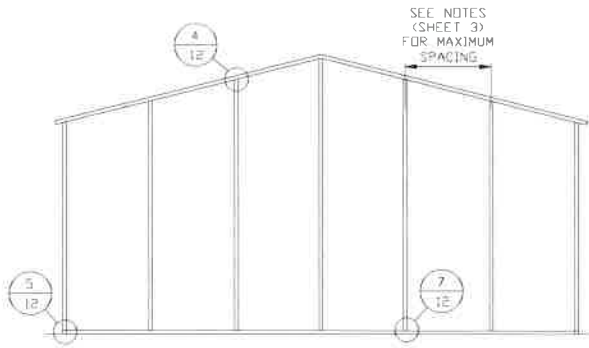
SCALE: NTS



SECTION 1
SCALE: NTS

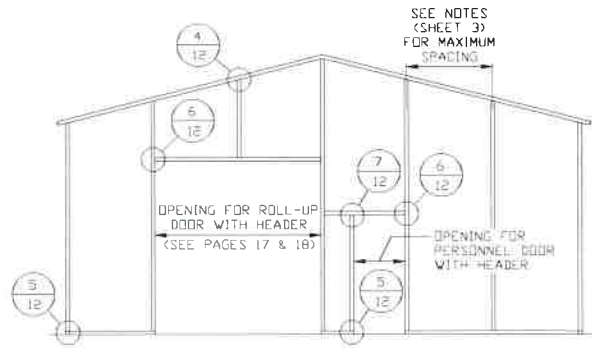
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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------|---------------|----------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0" x 20'-0" ENCLOSED STRUCTURE | | |
| | CHECKED BY: PDH | | | |
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| | CLIENT: TOL | SHT. 9A | DWG. NO: SK-3 | REV: 0 |

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



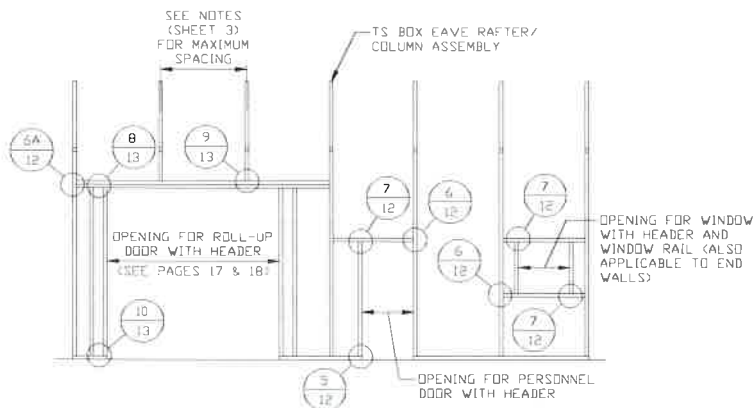
**TYPICAL BOX EAVE RAFTER
END WALL FRAMING SECTION**

SCALE: NTS



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

SCALE: NTS



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

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 10

SCALE: NTS

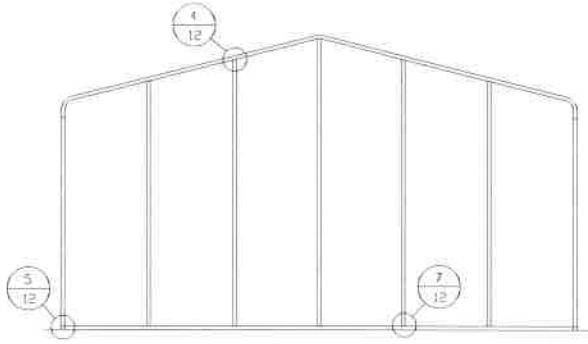
DWG. NO SK-3

JOB NO: 19164S

REV: 0

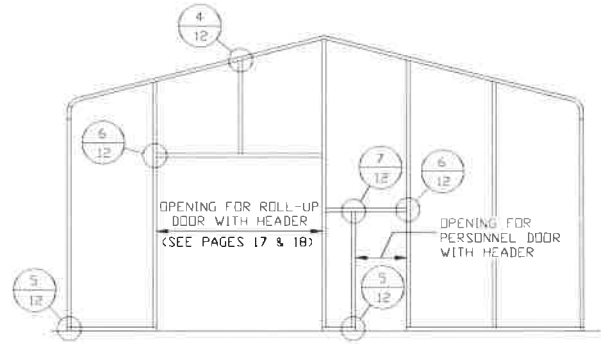
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BOW RAFTER END WALL AND SIDE WALL OPENINGS



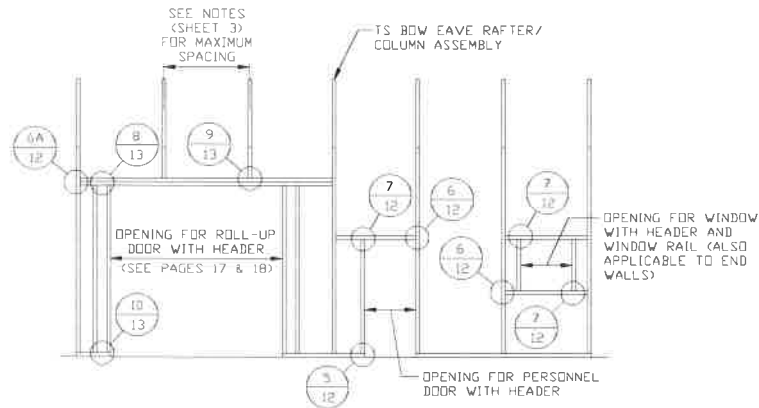
TYPICAL BOW RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOW RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOW RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 11

SCALE: NTS

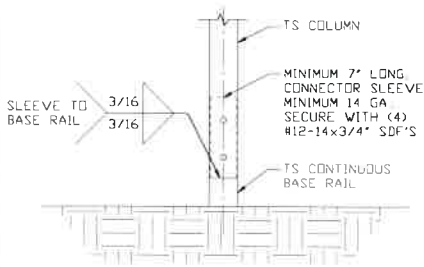
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JOB NO: 19164S

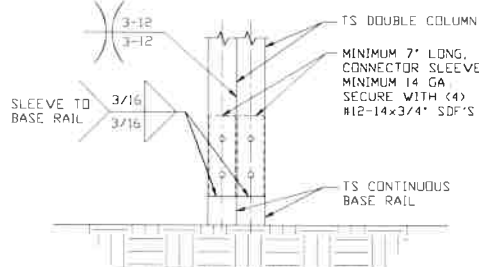
REV: 0

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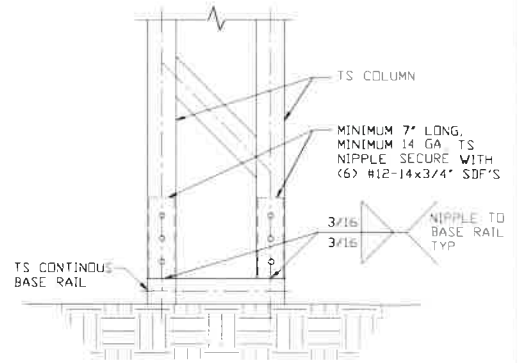
BOW AND BOX EAVE RAFTER WALL OPENING DETAILS



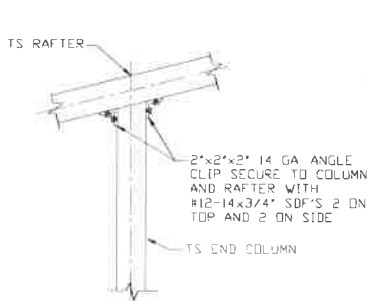
2 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



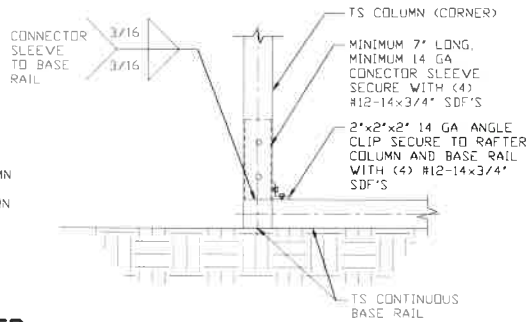
2A COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



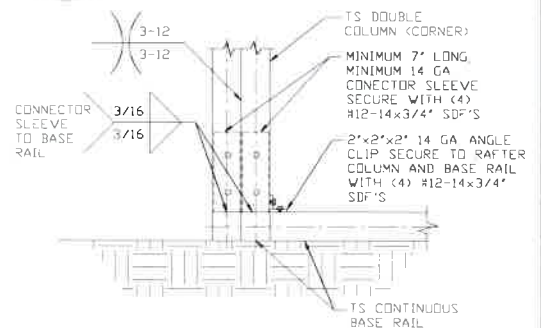
2B COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



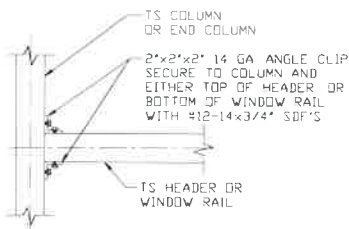
4 END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS



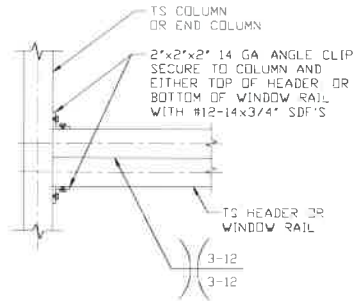
5 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



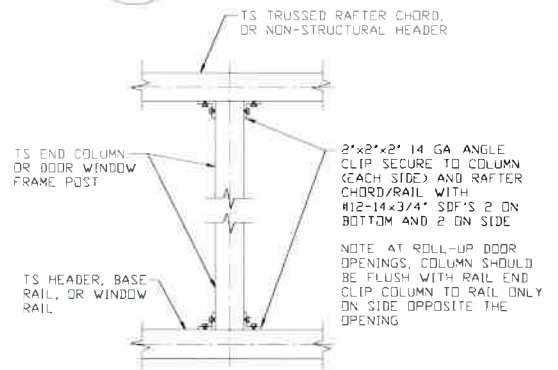
5A END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



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



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



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

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 12

SCALE: NTS

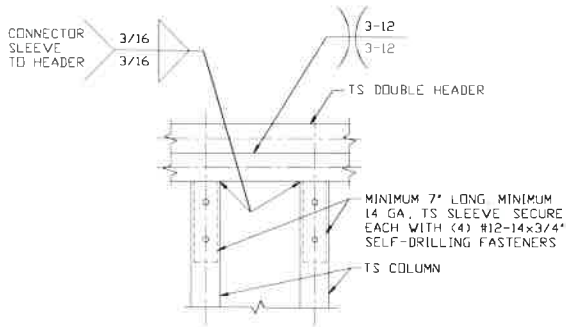
DWG. NO: SK-3

JOB NO: 19164S

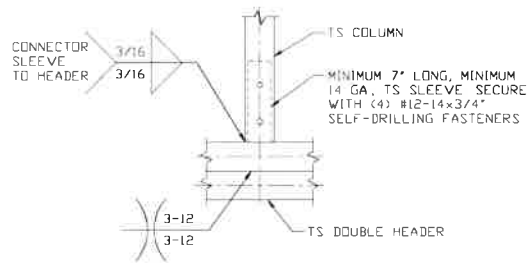
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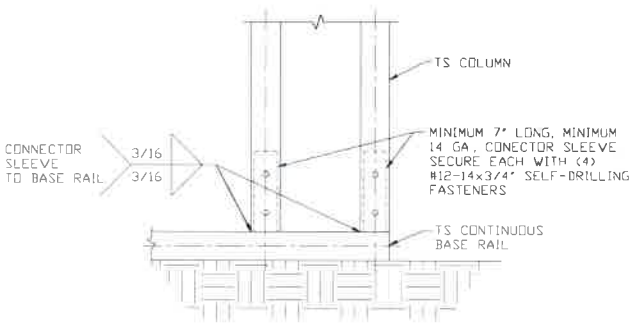
BOW AND BOX EAVE RAFTER WALL OPENING DETAILS



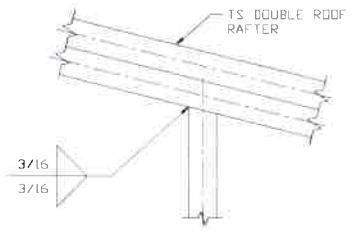
8 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS



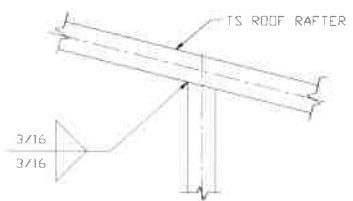
9 COLUMN/DOUBLE HEADER CONNECTION DETAIL
SCALE: NTS



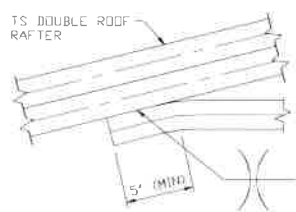
10 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



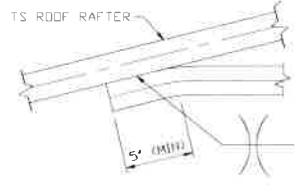
11 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



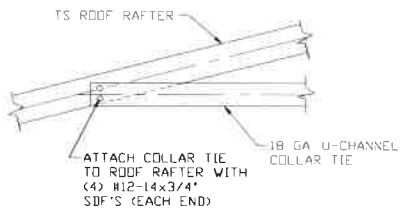
11A RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



12 COLLAR TIE CONNECTION DETAIL
SCALE: NTS



12A COLLAR TIE CONNECTION DETAIL
SCALE: NTS



12B COLLAR TIE CONNECTION DETAIL
SCALE: NTS

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

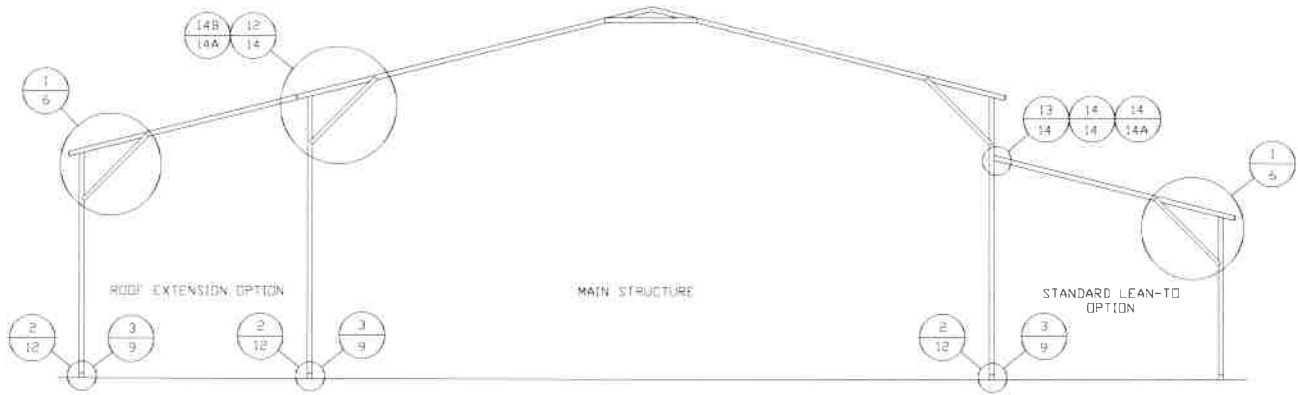
DRAWN BY: JG
CHECKED BY: PDH

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0" x 20'-0" ENCLOSED STRUCTURE

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| | | | |
|-------------------------|----------------------|----------------------|-----------------------|
| PROJECT MGR: WSH | DATE: 8-20-19 | SCALE: NTS | JOB NO: 19164S |
| CLIENT: TOL | SHT. 13 | DWG. NO: SK-3 | REV: 0 |

BOX EAVE RAFTER LEAN-TO OPTIONS

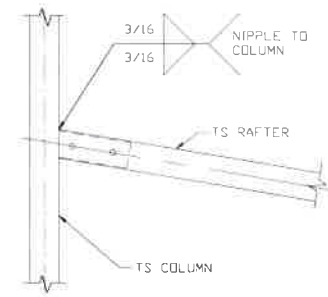
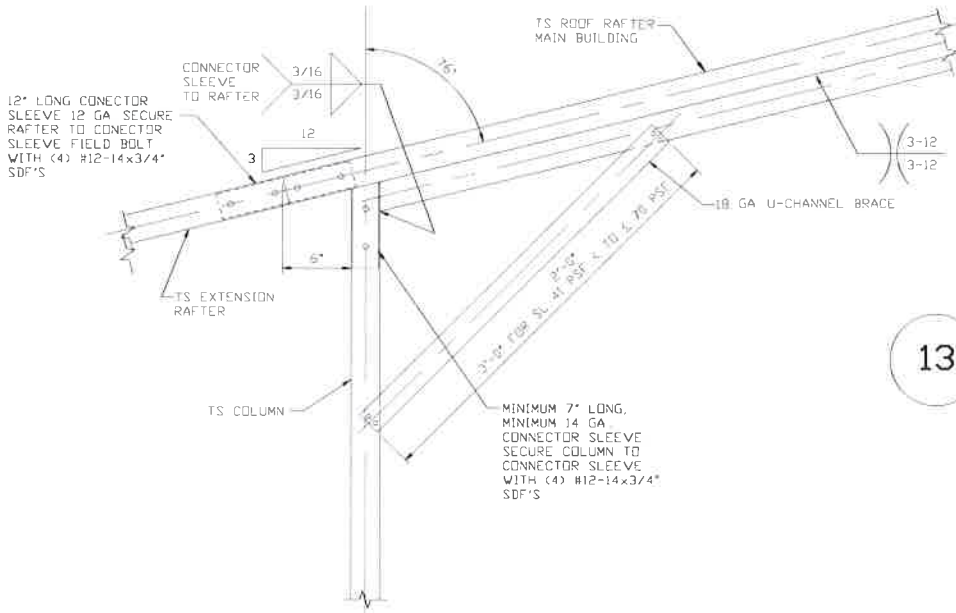


TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)

SCALE: NTS

NOTE:

- MAX WIDTH OF SINGLE MEMBER RAFTER LEAN-TO W/SL 41 PSF < TD < 70 PSF = 9'-0"
- MAX WIDTH OF SINGLE MEMBER RAFTER LEAN-TO W/SL < 40 PSF = 11'-0"
- MAX WIDTH OF DOUBLE MEMBER RAFTER LEAN-TO W/SL 41 PSF < TD < 70 PSF = 16'-0"
- MAX WIDTH OF DOUBLE MEMBER RAFTER LEAN-TO W/SL < 40 PSF = 18'-0"

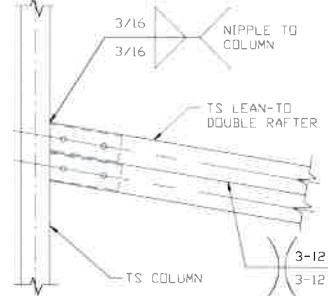


LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

12 SIDE EXTENSION RAFTER/COLUMN DETAIL

SCALE: NTS

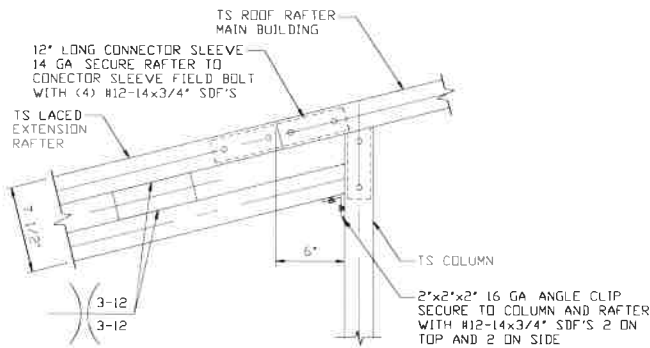


14 DOUBLE TUBE LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

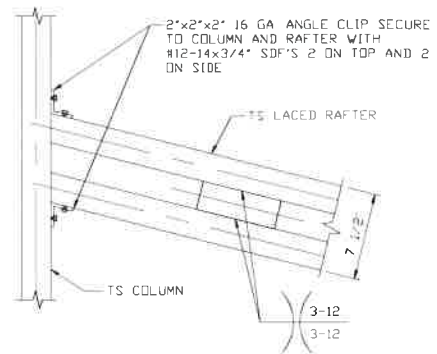
| | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------|---------------|--------------------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC. | DRAWN BY: JG | TOL BUILDINGS, INC. 330 N. MERIDIAN RD. YOUNGSTOWN, OH 44509 30'-0" x 20'-0" ENCLOSED STRUCTURE | | |
| | CHECKED BY: PDH | PROJECT MGR: WSM | DATE: 8-20-19 | SCALE: NTS |
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BOX EAVE RAFTER LEAN-TO OPTIONS



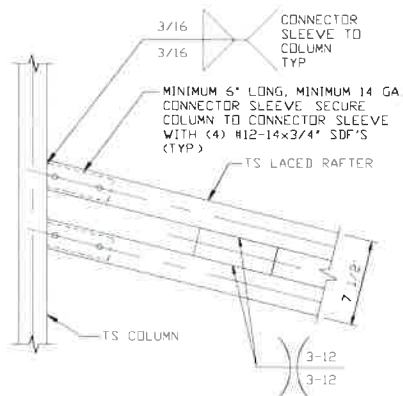
14B

**SIDE EXTENSION RAFTER/COLUMN
DETAIL FOR SPAN 16'-0" < L ≤ 24'-0"**
SCALE: NTS



14C

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



14D

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

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SCALE: NTS

JOB NO: 19164S

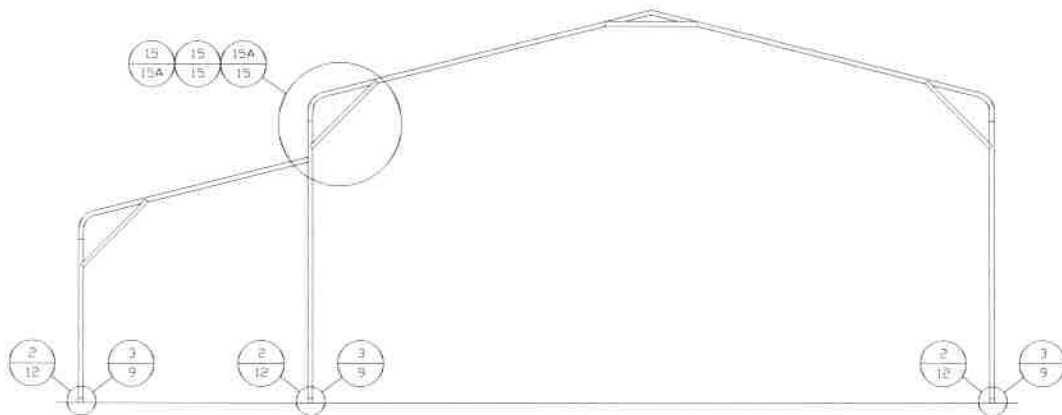
SHT. 14A

DWG. NO: SK-3

REV: 0

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BOW RAFTER LEAN-TO OPTION

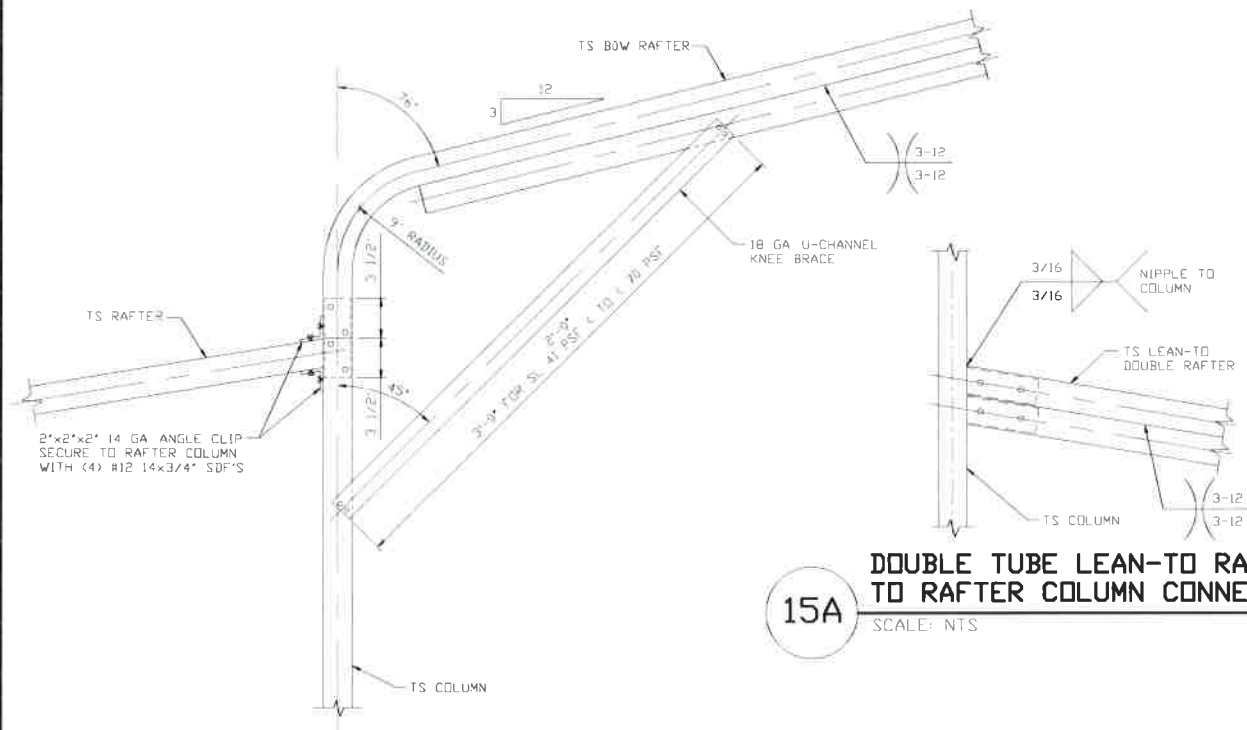


TYPICAL BOW RAFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

NOTE:

- MAX WIDTH OF SINGLE MEMBER RAFTER LEAN-TO W/SL 41 PSF < TO < 70 PSF = 9'-0"
- MAX WIDTH OF SINGLE MEMBER RAFTER LEAN-TO W/SL < 40 PSF = 11'-0"
- MAX WIDTH OF DOUBLE MEMBER RAFTER LEAN-TO W/SL 41 PSF < TO < 70 PSF = 16'-0"
- MAX WIDTH OF DOUBLE MEMBER RAFTER LEAN-TO W/SL < 40 PSF = 18'-0"



DOUBLE TUBE LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

15A

SCALE: NTS

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

15

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"X20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 15

SCALE: NTS

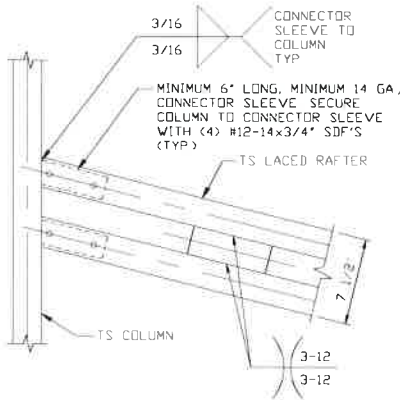
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JOB NO: 19164S

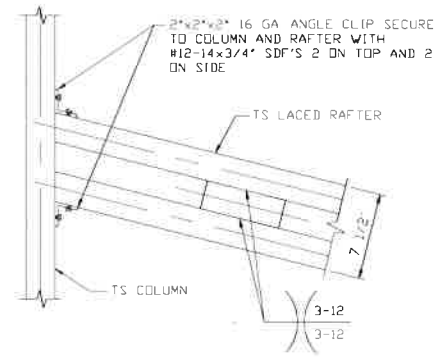
REV: 0

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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

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
 330 N. MERIDIAN RD.
 YOUNGSTOWN, OH 44509
 30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 15A

SCALE: NTS

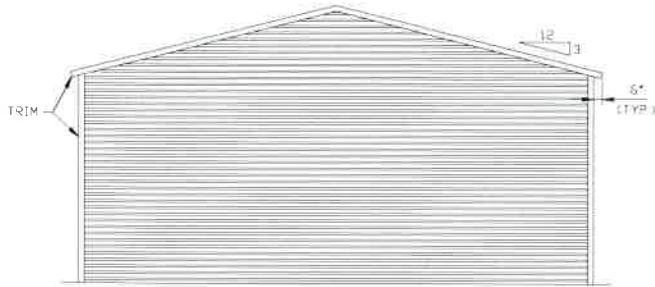
DWG. NO: SK-3

JOB NO: 19164S

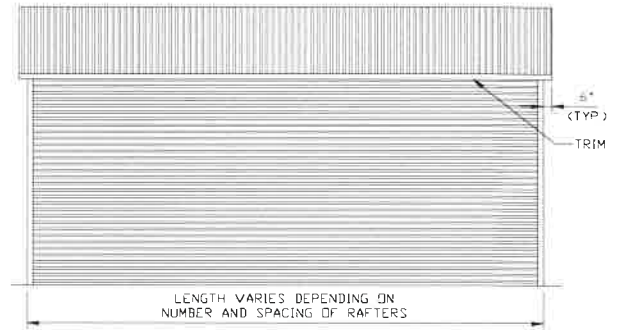
REV: 0

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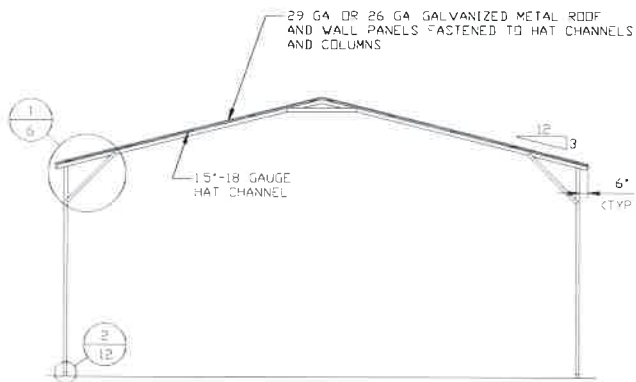
BOX EAVE RAFTER VERTICAL ROOF OPTION



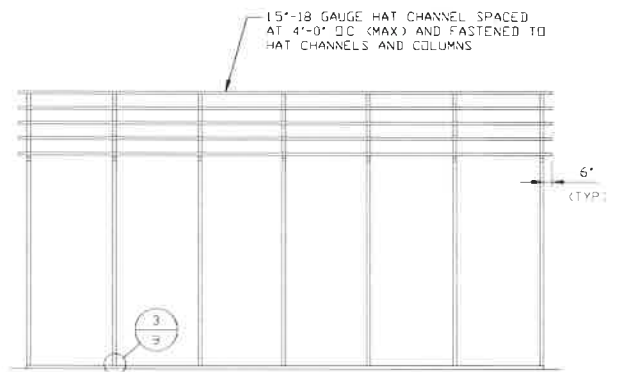
TYPICAL END ELEVATION-VERTICAL ROOF
SCALE: NTS



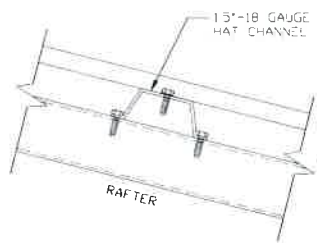
TYPICAL SIDE ELEVATION-VERTICAL ROOF OPTION
SCALE: NTS



TYPICAL SECTION-VERTICAL ROOF
SCALE: NTS



TYPICAL FRAMING SECTION-VERTICAL ROOF OPTION
SCALE: NTS



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

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 16

SCALE: NTS

DWG. NO SK-3

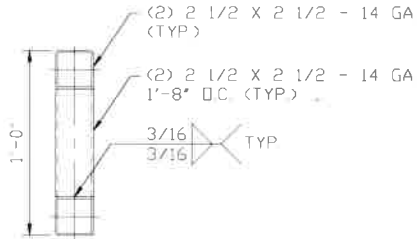
JOB NO: 19164S

REV: 0

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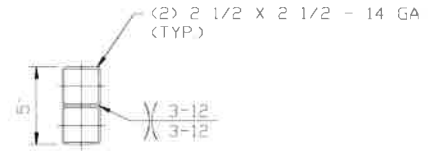
OPTIONAL HEADER

41 PSF < TD ≤ 70 PSF



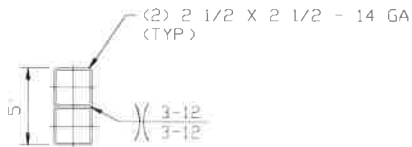
HEADER DETAIL FOR SIDE WALL DOOR OPENINGS 8'-0' < LENGTH ≤ 16'-0'

SCALE: NTS



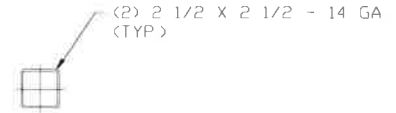
HEADER DETAIL FOR END WALL DOOR OPENINGS 14'-0' < LENGTH ≤ 20'-0'

SCALE: NTS



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

SCALE: NTS



HEADER DETAIL FOR END WALL DOOR OPENINGS < 14'-0'

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TOL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 17

SCALE: NTS

DWG. NO: SK-3

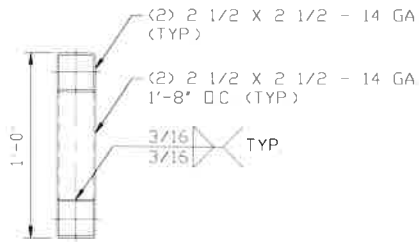
JOB NO: 19164S

REV: 0

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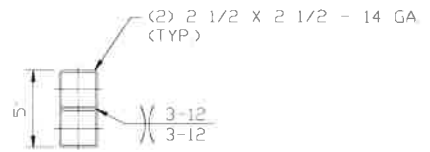
OPTIONAL HEADER

≤ 40 PSF



**HEADER DETAIL FOR SIDE WALL DOOR
OPENINGS 11'-0" < LENGTH < 18'-0"**

SCALE: NTS



**HEADER DETAIL FOR SIDE WALL DOOR
OPENINGS < 11'-0"**

SCALE: NTS

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

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TDL

TOL BUILDINGS, INC.
330 N. MERIDIAN RD.
YOUNGSTOWN, OH 44509
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 8-20-19

SHT. 18

SCALE: NTS

DWG. NO: SK-3

JOB NO: 19164S

REV: 0

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