

## STRUCTURAL DESIGN FULLY OPEN (CARPORT) BUILDING

## MAXIMUM 30'- 0" WIDE X 16'- 0" HEIGHT-BOX EAVE FRAME AND BOW FRAME

17 June 2022 Revision 0 M&A Project No. 22057S

Prepared for:

USA Metal Structures, LLP 1495 East Pine St. Mt. Airy, NC 27030

Prepared by:

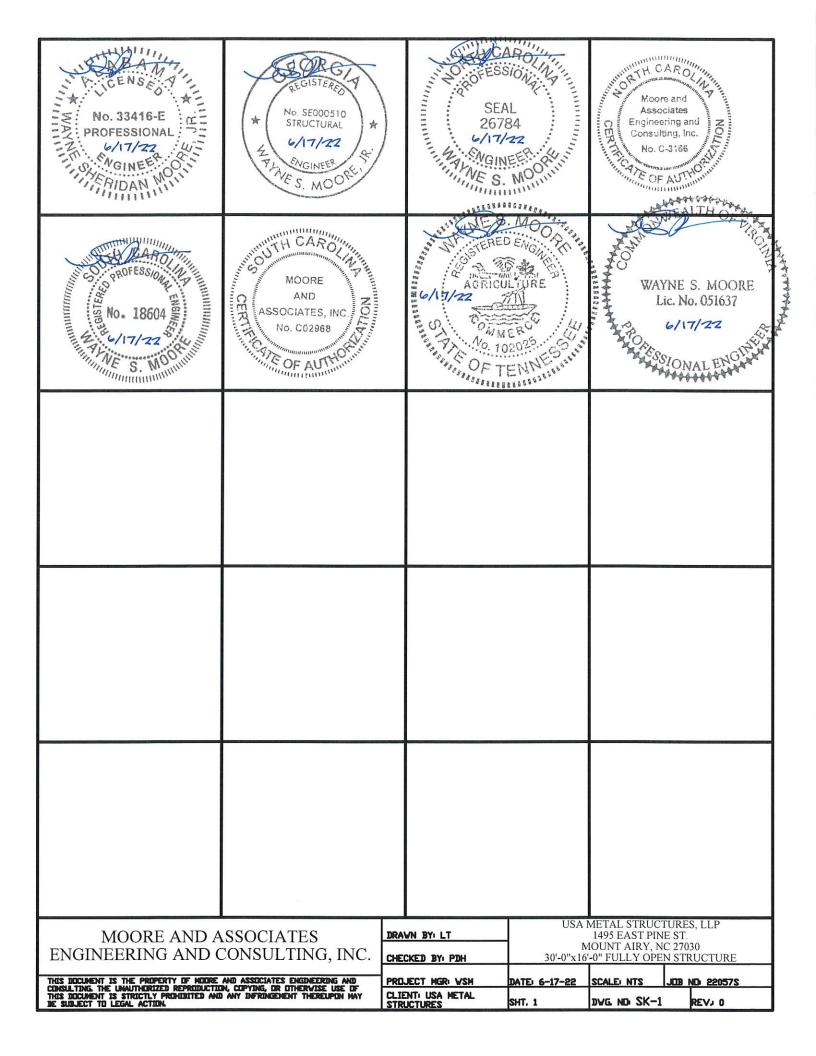
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|                 | USA METAL STRUCTURES, LLP          |
|-----------------|------------------------------------|
| DRAWN BY: LT    | 1495 EAST PINE ST.                 |
|                 | MOUNT AIRY, NC 27030               |
| CHECKED BY: PDH | 30'-0"x16'-0" FULLY OPEN STRUCTURE |
|                 |                                    |

| PREJECT MGR: VSM   | DATE) 6-17-22 | SCALE: NTS   | JOB ND 22057S |
|--------------------|---------------|--------------|---------------|
| CLIENTI IISA METAI |               | DVG. NO SK-1 | REV. 0        |

#### INSTALLATION NOTES AND SPECIFICATIONS

- 1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 16'-0" EAVE HEIGHT OPEN CARPORT STRUCTURES,
- 2. DESIGN WAS DONE IN ACCORDANCE WITH ALL THE 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

COLLATERAL = 0 PSF

- B) ROOF LIVE LOAD = 12 PSF
- C) FLOOR LIVE LOAD = 100 PSF (4" CONCRETE SLAB)
- D) GROUND SNOW LOAD = 35 PSF

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

- 4. 3-SECOND GUST ULTIMATE WIND SPEED ( $V_{ULT}$ ) = 140 MPH (NOMINAL WIND SPEED = 108 MPH).
- 5. MAXIMUM RAFTER/POST SPACING = 5.0 FEET
- 6. END WALL COLUMNS (POSTS) ARE EQUIVALENT TO SIDE WALL POSTS IN SIZE AND SPACING (UNLESS NOTED OTHERWISE).
- 7. RISK CATEGORY I (NOT FOR HUMAN HABITATION).
- 8. WIND EXPOSURE CATEGORY B.
- 9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2'x2 1/2'-14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE), TS 2 1/4"×2 1/4"-12 GAUGE MAY BE USED AS AN OPTION.
- 10. 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"-14 GAUGE FOR 2 1/4"x2 1/4"-12 GAUGE FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
- 11. 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.
- 12. AVERAGE PANEL FASTENER SPACING ON-CENTERS = 10" D.C. (MAX.)
- 13. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS.

  SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14" (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY. ROOF SLOPES LESS THAN 3:12 REQUIRE USE OF LAP JOINT SEALANT,
- 14. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6' OF EACH RAFTER COLUMN ALONG SIDES.
- 15. STANDARD GROUND ANCHORS (SDIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36' LONG AND MAY BE USED IN SUITABLE SDILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SDILS AND MUST BE USED IN UNSUITABLE SDILS AS NOTED.
- 16. CONTRACTOR TO PROVIDE ADEQUATE BRACING FOR STRUCTURE SO THAT IT WILL BE STABLE DURING ALL STAGES OF CONSTRUCTION. THE STRUCTURE AND FOUNDATIONS ARE DESIGNED FOR A COMPLETED CONDITION ONLY AND, THEREFORE, REQUIRE ADDITIONAL SUPPORT TO MAINTAIN STABILITY BEFORE COMPLETION.
- 17. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE: SDIL SITE CLASS = D

RISK CATEGORY I

R = 3.25

 $I_E = 1.0$  $\nabla = c_s V$  $S_{DS} = 2.625 g$ 

 $S_{01} = 2.13 \text{ g}$ 

18. THIS MASTER DESIGN IS A GENERIC MASTER DESIGN PRIMARILY INTENDED FOR PLANT FABRICATION AND ERECTION AKIN TO SHOP DRAWDIGS. THE MASTER DESIGN IS NOT PROMARILY INTENDED FOR CONSTRUCTION PERMIT, WHEN APPLYING FOR BUILDING PERMIT, THE CERTIFIED BUILDING DEFICIAL 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 MALYSIS/DESIGN PARAMETERS OF THE MASTER DESIGN REQUIRES THE DEVELOPMENT OF A SITE-SPECIFIC DESIGN.

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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 (ADDPTS THE IBC 2018 WITH AMENDMENTS)

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

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

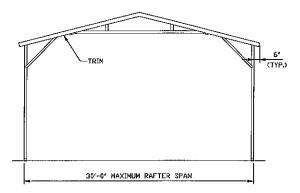
BUILDING CODE 2012 OF TENNESSEE (ADOPTS THE IBC 2012 WITH AMENDMENTS)
BUILDING CODE 2018 OF NASHVILLE AND DAVIDSON COUNTY (ADOPTS THE IBC 2018 WITH AMENDMENTS)

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

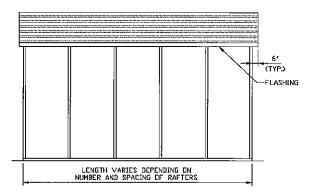
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## BOX EAVE FRAME RAFTER STRUCTURE

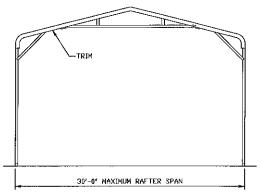


TYPICAL END ELEVATION SCALE: NTS

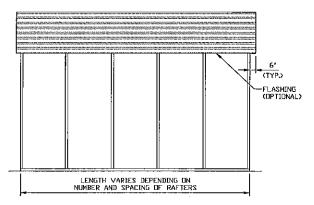


TYPICAL SIDE ELEVATION SCALE: NTS

### BOW EAVE FRAME RAFTER STRUCTURE

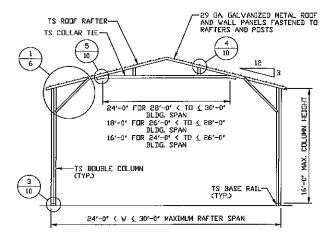


TYPICAL END ELEVATION SCALE: NTS



TYPICAL SIDE ELEVATION SCALE: NTS

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## TYPICAL RAFTER/COLUMN FRAME SECTION

TS ROUF RAFTER

TS COLLAR TIE

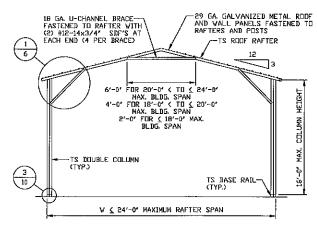
TS CO

# TYPICAL RAFTER/COLUMN FRAME SECTION

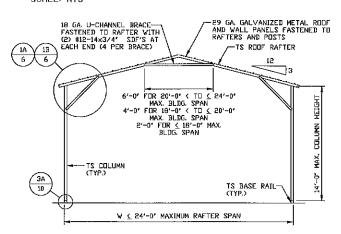
SEE NOTES
(SHEET )
FOR MAXIMUM
SPACING

LENGTH VARIES DEPENDING DN
NUMBER AND SPACING OF RAFTERS

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

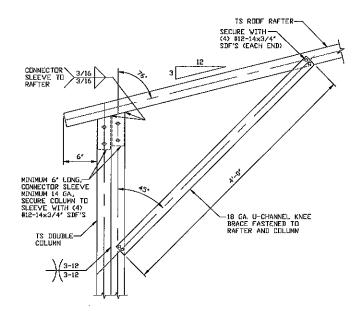


## TYPICAL RAFTER/COLUMN FRAME SECTION

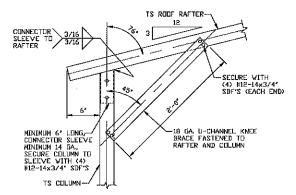


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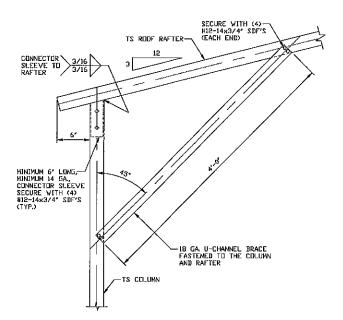
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < TO < 16'-0"



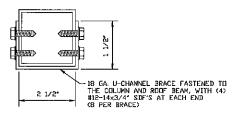
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0"

SCALE: NTS NOTE: FOR 3'-0" KNEE BRACE FOR 28'-0" < TO < 30'-0" BLDG. SPAN.

**1B** 



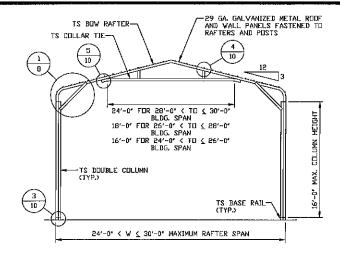
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO < 14'-0"



## BRACE SECTION SCALE: NTS

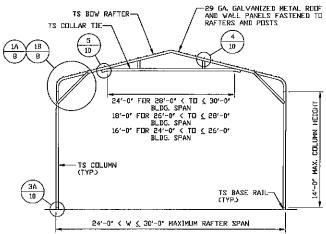
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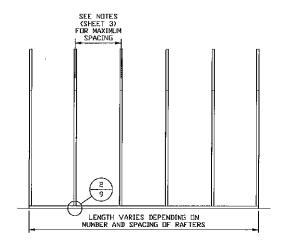
#### TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS



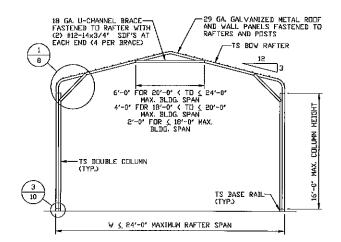
## TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NT



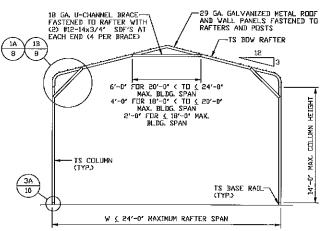
### TYPICAL RAFTER/COLUMN FRAMING SIDE SECTION

SCALE: NTS



## TYPICAL RAFTER/COLUMN FRAME SECTION

SCALE: NTS

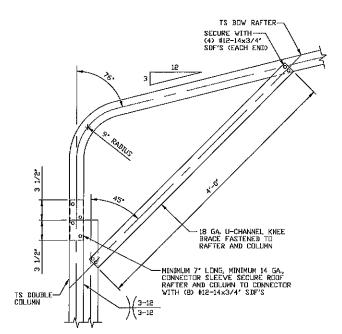


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| MOUNT AIRY, NC 27030<br>30'-0"x16'-0" FULLY OPEN STRUCTU |  | L  |  |  |  |  |
| I BY: LT 1495 EAST PINE ST.                              |  |    |  |  |  |  |
| USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST.          | DRAWN BY: LT                           |    |  |  |  |  |

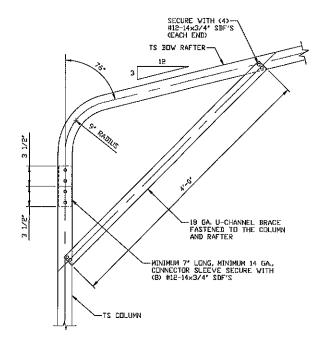


BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < T□ ≤ 16'-0" SCALE: NTS

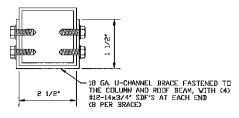
TS BOW RAFTER-2º RADIU SECURE WITH (4) #12-14x3/4' SDF'S (EACH END) -18 GA. U-CHANNEL KNEE BRACE FASTENED TO RAFTER AND COLUMN -MINIMUM 7' LONG, CONNECTOR SLEEVE MINIMUM 14 GA., SECURE COLUMN TO SLEEVE WITH (8) #12-14x3/4' SDF'S TS COLUMN

> BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0"

NOTE: FOR 3'-0' KNEE BRACE FOR 28'-0' < TO ≤ 30'-0' BLDG. SPAN.



BOW EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < T□ ≤ 14'-0" 1Α



#### BRACE SECTION SCALE: NTS

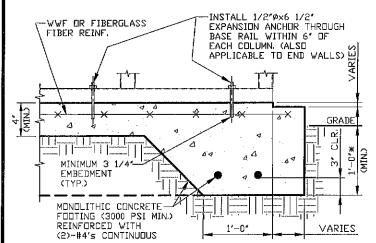
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## BASE RAIL ANCHORAGE OPTIONS



2

#### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHURAGE

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 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:

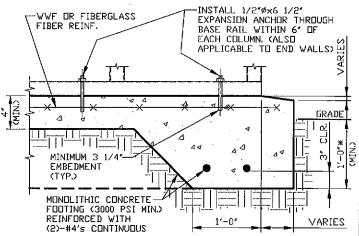
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

#### 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.

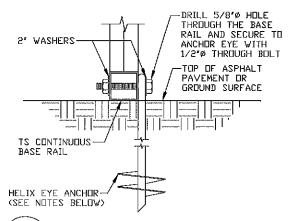
#### HELIX ANCHOR NOTES

- 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 LODSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL, USE MINIMUM (2) 6' HELICES WITH MINIMUM 50" EMBEDMENT.
- 5. FOR VERY LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8' HELICES WITH MINIMUM 60' EMBEDMENT.



#### CONCRETE MONOLITHIC SLAB ANCHORAGE BASE RAIL

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



**5B** 

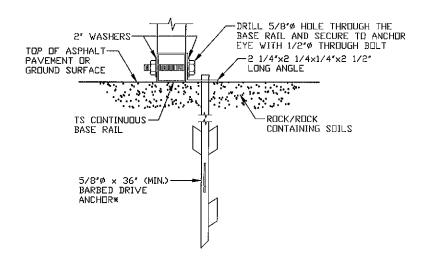
## GROUND BASE HELIX ANCHORAGE

SCALE: NTS (CAN BE USED FOR ASPHALT)

\* COORDINATE WITH LOCAL CODES/ORD. REGARDING MIN. FROST DEPTH (LENGTH).

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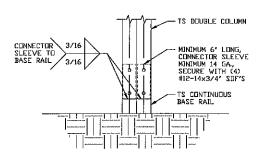
## **BASE RAIL ANCHORAGE OPTIONS**



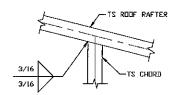
BARBED DRIVE ANCHURAGE
SCALE NTS
\* COURDINATE WITH LUCAL CODES/ORD.
REGARDING MINIMUM FRUST DEPTH REQ.

| THIS DICLIENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPIN MAY<br>BE SUBJECT TO LEGAL ACTION.  | CLIENT: USA METAL<br>STRUCTURES | SHT. 9A   | DWG. NO: SK-1            | REV. 0        |  |
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| ENGINEERING AND CONSULTING, INC.  | CHECKED BY: PDH                 |   | IC 27030<br>IN STRUCTURE |               |  |
| MOORE AND ASSOCIATES  | DRAWN BY: LT                    | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST.<br>MOUNT AIRY, NC 27030 |                          |               |  |

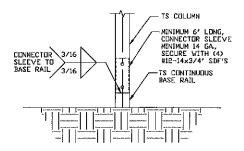
## **CONNECTION DETAILS**



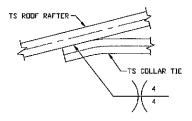
RAFTER COLUMN/
BASE RAIL
CONNECTION DETAIL
SCALE: NTS



4 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



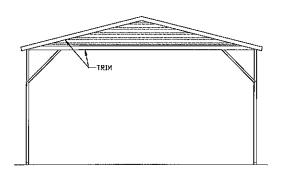
RAFTER COLUMN/ BASE RAIL CONNECTION DETAIL SCALE, NTS



5 COLLAR TIE CONNECTION DETAIL
SCALE NTS

| MOORE AND ASSOCIATES  |                                 |              | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST.<br>MOUNT AIRY, NC 27030 |               |  |  |  |
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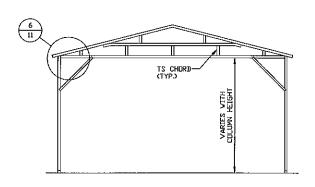
## **BOX EAVE RAFTER GABLE END OPTION**



## TYPICAL BOX EAVE RAFTER GABLE END ELEVATION

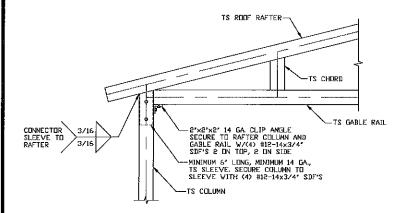
SCALE: NTS

6



### TYPICAL BOX EAVE RAFTER GABLE END FRAMING SECTION

SCALE: NTS

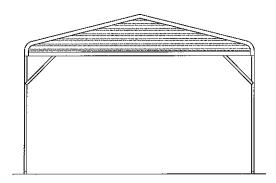


BOX EAVE RAFTER GABLE RAIL TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS NOTE: KNEE BRACE NOT SHOWN FOR CLARITY.

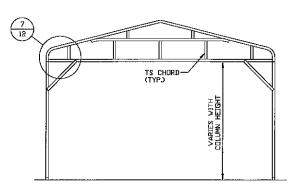
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| MOORE AND ASSOCIATES  | DRAWN BY: LT                    | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST. |                        |               |

## **BOW EAVE RAFTER GABLE END OPTION**



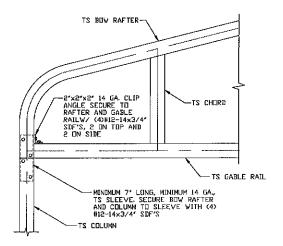
## TYPICAL BUW EAVE RAFTER GABLE END ELEVATION

SCALE: NTS



## TYPICAL BOW EAVE RAFTER GABLE END FRAMING SECTION

SCALE: NTS



BOW EAVE RAFTER GABLE RAIL TO RAFTER/COLUMN CONNECTION DETAIL

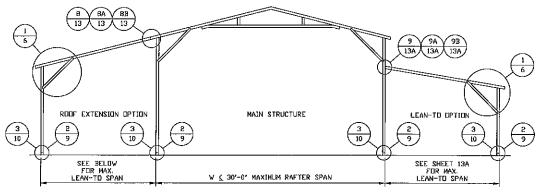
SCALE: NTS NOTE: KNEE BRACE NOT SHOWN FOR CLARITY.

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| DRAWN BY: LT                    |                           | 1495 EAST PINE ST.                 |        |           |  |  |  |
|                                 | ] N                       | 10UNT AIRY, N                      | C 2703 | 30        |  |  |  |
| CHECKED BY: PDH                 | 30'-0"x16                 | 30'-0"x16'-0" FULLY OPEN STRUCTURE |        |           |  |  |  |
|                                 |                           |                                    |        |           |  |  |  |
| PROJECT MGR: WSM                | DATE: 6-17-22             | SCALE: NTS                         | 4 EOL  | ID 22057S |  |  |  |
| CLIENT: USA METAL<br>STRUCTURES | SHT. 12                   | DWG. NO SK-1                       |        | REV. 0    |  |  |  |

## BOX EAVE RAFTER LEAN-TO OPTIONS



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

MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION AND LEAN-TO IS 12'-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 20'-0'.

MAXIMUM WIDTH OF LACED MEMBER ROOF EXTENSION AND LEAN-TO IS 20'-0'.

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

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

TS ROOF RAFTER MAIN BUILDING CONNECTOR SLEEVE TO RAFTER 3/16 12' LUNG CONNECTUR SLEEVE 14 GA-SECURE RAFTER 10 CONNECTUR SLEEVE FIELD BOLT WITH (8) SDF'S

MINIMUM 6' LONG, MINIMUM 14 GA., CONNECTOR SLEEVE SECURE WITH (4) #12-14x3/4' SDF'S TS EXTENSION RAFTER TS COLUMN

SIDE EXTENSION RAFTER/ COLUMN DETAIL FOR RAFTER SPANS < 12'-0" 8

SCALEL NTS

CONNECTOR SLEEVE TO RAFTER 3/16 3/16 12' LONG CONNECTOR SLEEVE 14 GA. SECURE RAFTER TE CONNECTOR SLEEVE WITH (8) #12-14x3/4" SDF'S TYP 3/16 ·-8' -MINIMUM 6' LONG, MINIMUM 14 GA., CONNECTOR SLEEVE. SECURE POST TO NIPPLE WITH (4) #12-14x3/4" SDF'S TS LACED EXTENSION-RAFTER 2'x2'x2' 16 GA. ANGLE CLIP— SECURE TO COLLUM AND RAFTER WITH #12-14x3/4' SDF'S (2) EN TOP AND (2) EN SIDE

> SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 16'-0" < T□ <u>≤</u> 20'-0"

SCALE: NTS

**8B** 

TS RODF RAFTER MAIN BUILDING 12' LONG CONNECTOR SLEEVE 14 GA: SECURE RAFTER TO CONNECTOR SLEEVE FIELD BOLT WITH (8) #12-14x3/4' SDF'S CONNECTOR SLEEVE TO RAFTER 3/16 MINIMUM 6' LONG, MINIMUM 14 GA., CONNECTOR SLEEVE SECURE WITH (4) #12-14x3/4' SDF'S 3-15 2'x2'x2' 16 GA, ANGLE— CLIP SECURE TO COLUMN AND RAFTER WITH #12-14x3/4' SDF'S (2) TS COLUMN

> SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 12'-0" < T□ < 16'-0"

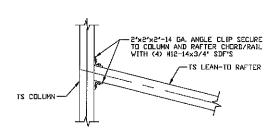
88

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| MOOKE AND ASSOCIATES             |
| ENGINEERING AND CONSULTING, INC. |
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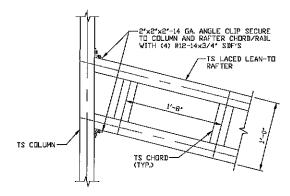
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|   | DRAWN BY: LT                    | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST.            |               |           |  |  |  |  |

## **BOX EAVE RAFTER LEAN-TO OPTIONS**



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



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 16'-0" < TO ≤ 20'-0"

SCALE: NTS

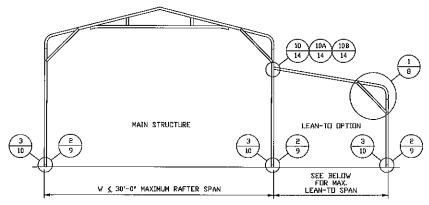
9B

| // 10 | RE'M2"-14 GA. ANGLE CLIP SECURE COLUMN AND RAFTER CHORD/RAIL TH (4) #12-14x3/4" SDF'S  TS DOUBLE LEAN-TD RAFTER |
|-------|---|
|       | 3-12  |

PA SCALE NTS

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| MOODE AND AGGOGIATEG  | 5541 (A) 514 1 T             | USA I | METAL STRUCT   |                |

## **BOW EAVE RAFTER LEAN-TO OPTION**



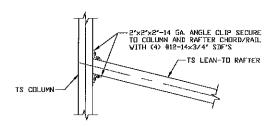
### TYPICAL BOW EAVE RAFTER LEAN-TO OPTION FRAMING SECTION

MAXIMUM WIDTH OF SINGLE MEMBER ROOF EXTENSION AND LEAN-TO IS 12'-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 20'-0'.

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

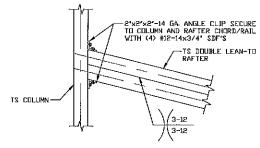
MAIN BUILDING COLUMNS WITH LEAN-TO DR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS

FOR EAVE HEIGHTS < 12'-0".

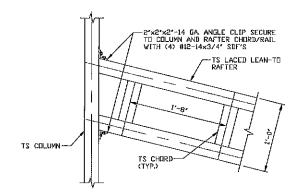


LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 12'-0"

10 SCALE: NTS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 12'-0" < T□ ≤ 16'-0" 10A SCALE: NTS



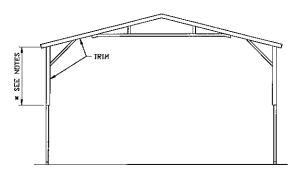
LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 16'-0" < T□ < 20'-0"

SCALE: NTS

10B

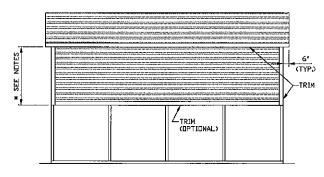
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| MOORE AND ASSOCIATES  | DRAWN BY: LT                    | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST. |                                 |                |  |

## **BOX EAVE RAFTER EXTRA SIDE PANEL OPTION**



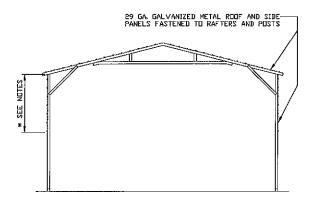
# TYPICAL END ELEVATION EXTRA SIDE PANELS

SCALE: NTS



# TYPICAL SIDE ELEVATION EXTRA SIDE PANELS

SCALE: NTS



# TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS

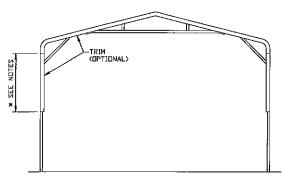
SCALE: NTS

#### NOTES

- \* FULL PANEL FOR EAVE HEIGHT 14'-0" < TO ≤ 16'-0"
- \* NO PANELING FOR EAVE HEIGHT 10'-0" < TO < 14'-0"
- \* 3'-0" MAX. FOR EAVE HEIGHT ≤ 10'-0"

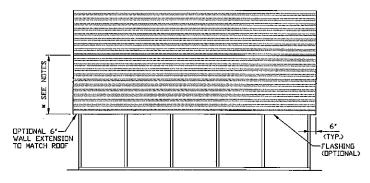
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| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.  | CHECKED BY: PDH                 | MOUNT AIRY, NC 27030<br>30'-0"x16'-0" FULLY OPEN STRUCTURI |   |       |           |
|  | DRAWN BY: LT                    | USA  | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST. |       |           |

## **BOW EAVE RAFTER EXTRA SIDE PANEL OPTION**



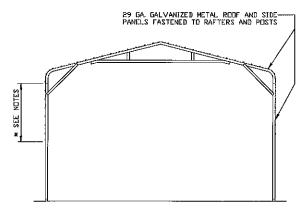
# TYPICAL END ELEVATION EXTRA SIDE PANELS

SCALE: NTS



# TYPICAL SIDE ELEVATION EXTRA SIDE PANELS

SCALE: NTS



# TYPICAL RAFTER/COLUMN FRAME SECTION - EXTRA SIDE PANELS

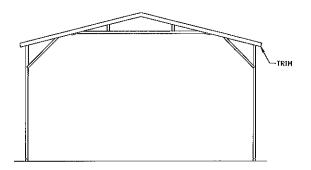
SCALE: NTS

#### NOTES

- \* FULL PANEL FOR EAVE HEIGHT 14'-0" < TO \( \) 16'-0"
- \* NO PANELING FOR EAVE HEIGHT 10'-0" < TO  $\leq$  14'-0"
- \* 3'-0" MAX. FOR EAVE HEIGHT < 10'-0"

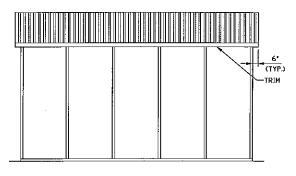
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| ENGINEERING AND CONSULTING, INC.   | CHECKED BY: PDH                 |               | 1OUNT AIRY, N<br>'-0" FULLY OPE                 |     |           |  |
| MOORE AND ASSOCIATES   | DRAWN BY: LT                    | USA :         | USA METAL STRUCTURES, LLP<br>1495 EAST PINE ST. |     |           |  |

## **BOX EAVE RAFTER VERTICAL ROOF OPTION**



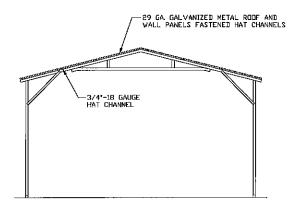
TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



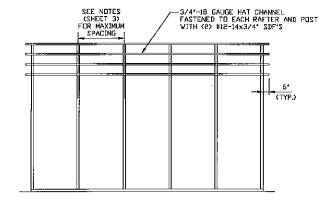
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING

SCALE: NTS



TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

|        | 3/4"-18 GAUGE<br>HAT CHANNEL |
|--------|------------------------------|
|        |                              |
| RAFIER |                              |

ROOF PANEL ATTACHMENT

| (ALTERI<br>SCALE) |     | FOR | VERTICAL | ROOF | PANELS |
|-------------------|-----|-----|----------|------|--------|
| SUMPE             | N13 |     |          |      |        |

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|--|------------------|--|-------------|-----------------|
| MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.  | CHECKED BY: PDH  | 1495 EAST PINE ST.<br>MOUNT AIRY, NC 27030<br>30'-0"x16'-0" FULLY OPEN STRUCTURE |             |                 |
| MOODE AND ACCOUNTED  | DRAWN BY: LT     | USA  | METAL STRUC |                 |