

Outside edge of foundation / footing to Dis Basic Outside Distriction Of Binario Basic Biographics See Corner Detail Sheet 3 **BUILDING SLAB** to outside of passe Rail

# IMPORTANT - NOTES

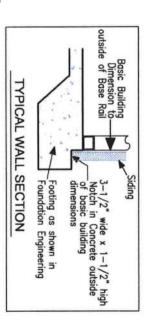
Record Measurements in these spaces provided

All basic building diagonal dimensions are to the outside corner of the frame Base Rail and DO NOT INCLUDE the 3-1/2" x 1-1/2" notch in the concrete footing

See Sheet 3 of 3 for Detail of Building corner configuration

# **TYPICAL BUILDING**

FOUNDATION MEASUREMENTS DIAGONALS



SHEET 2 of 3



### STRUCTURAL DESIGN

# PARTIALLY ENCLOSED (UTILITY) BUILDING EXPOSURE B

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

18 December 2017 Revision 1 M&A Project No. 16154S/17300S

Prepared for:

Tubular Building Systems, LLC 631 SE Industrial Circle Lake City, Florida 32025

Prepared by:

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

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

Digitally signed by Wayne S Moore Date: 2017.12.19 13:16:08 -05'00'





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### INSTALLATION NOTES AND SPECIFICATIONS

- 1. DESIGN IS FOR A MAXIMUM 30"-0" WIDE x 20"-0" EAVE HEIGHT PARTIALLY ENCLOSED STRUCTURES.
- 2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2017 FLORIDA BUILDING CODE (FBC) 6TH EDITION, 2012 INTERNATIONAL BUILDING CODE (FBC), AND 2015 IBC
- 3. DESIGN LOADS ARE AS FOLLOWS:
  A) DEAD LOAD = 15 PSF
  B) LIVE LOAD = 12 PSF
  C) GROUND SNOW LOAD = 10 PSF
- 4. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH) MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET
- 5. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH) MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET.
- 6. LOW HAZARD RISK CATEGORY I (WIND)
- 7. WIND EXPOSURE CATEGORY B
- 8. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS FOR VERTICAL PANELS, 29 GAUGE METAL PANELS SHALL BE FASTENED TO 18 GAUGE HAT CHANNELS (UNLESS OTHERWISE NOTED)
- 9. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9° DR END = 6', (MAX)
- 10. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS SPECIFICATIONS APPLICABLE DNLY FOR MEAN ROOF HEIGHT OF 20 FEET OR LESS, AND ROOF SLOPES OF 14" (312 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY WARY.
- 11. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6° DF EACH RAFTER COLUMN ALONG SIDES
- 12. GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT × 30° LONG IN SUITABLE SOIL CONDITIONS MAY BE USED FOR LOW ( < 108 MPH NOMINAL) WIND SPEEDS ONLY OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USE IN UNSUITABLE SOILS AS NOTED.
- 13 OPTIONAL BASE RAIL ANCHORAGE MAY BE USED FOR LOW AND MUST BE USED FOR HIGH VIND SPEEDS
- 14. VIND FORCES GOVERN OVER SEISMIC FORCES SEISMIC PARAMETERS ANALYZED ARE

SDIL SITE CLASS = D RISK CATEGORY INITITIE R= 3.25  $I_E$  = 10  $S_{DS}$  = 1.522  $V = C_S W$  $S_{DI}$  = 0.839



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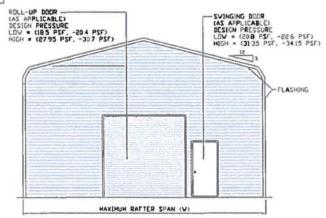
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# BOX EAVE FRAME RAFTER ENCLOSED BUILDING RDLL-UP DOOR (AS APPLICABLE) DESIGN PRESSURE LDV = (183 PSF, -20.4 PSF) HIGH = (27.95 PSF, -30.7 PSF) 6' MAXIMUM RAFTER SPAN (V)

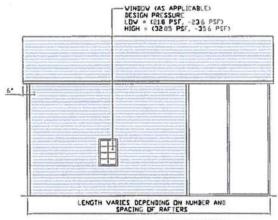
### TYPICAL END ELEVATION-HORIZONTAL ROOF

OF

### BOW FRAME RAFTER ENCLOSED BUILDING



# TYPICAL END ELEVATION SCALE NTS



TYPICAL SIDE ELEVATION



VINDOW (AS APPLICABLE)
DESIGN PRESSURE
LOV \* (218 PSF, -236 PSF)
HIGH \* (32.85 PSF, -356 PSF)

DIA REBENUN NO DNIONES DE SERVE HTOMAS

TYPICAL SIDE ELEVATION-HORIZONTAL ROOF

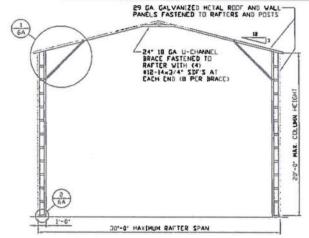
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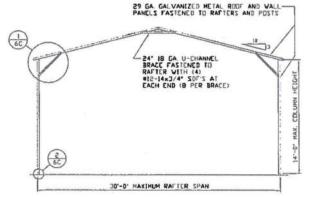
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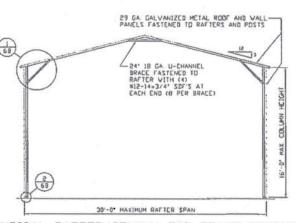
### TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS

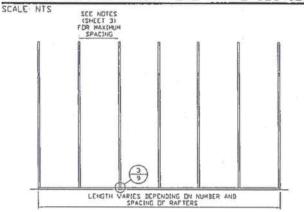


### TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



### TYPICAL RAFTER/COLUMN END FRAME SECTION



## TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



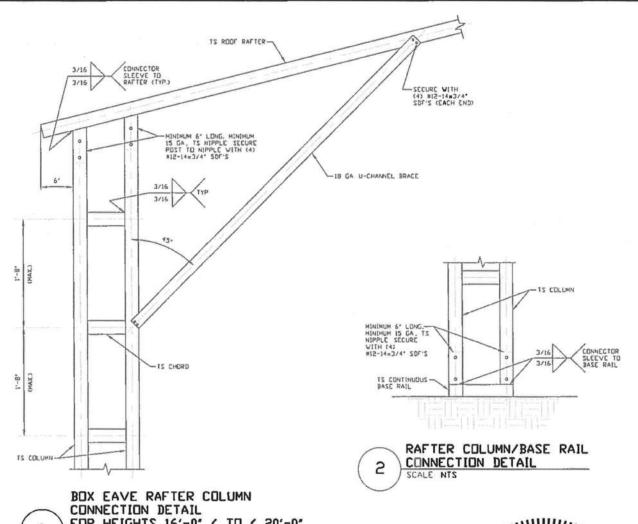
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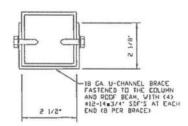
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CONNECTION DETAIL
FOR HEIGHTS 16'-0" < TO & 20'-0" 1

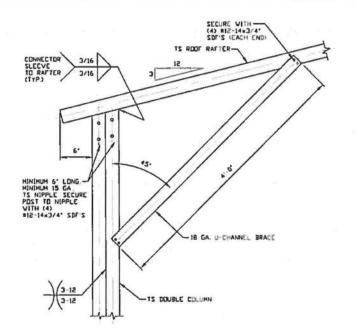


BRACE SECTION SCALE NTS

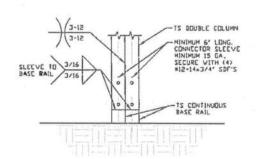


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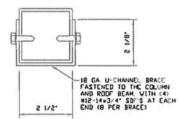


BOX EAVE RAFTER COLUMN
CONNECTION DETAIL
FOR HEIGHTS 14'-0' < TO \( \) 16'-0'

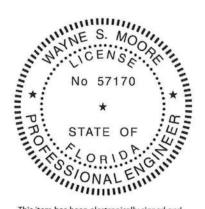


RAFTER COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE: NTS

2

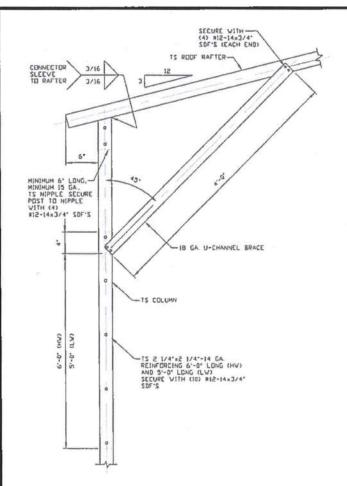


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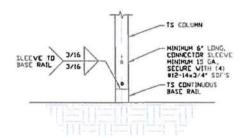


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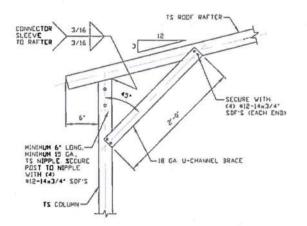
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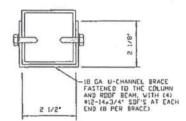
BOX EAVE RAFTER COLUMN
CONNECTION DETAIL
FOR HEIGHTS 10'-0" < TO < 14'-0"
SCALE NTS



2 RAFTER COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE NTS



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



BRACE SECTION



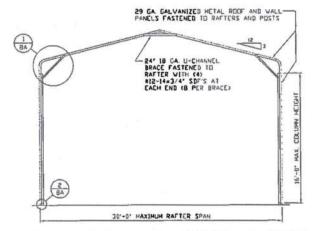
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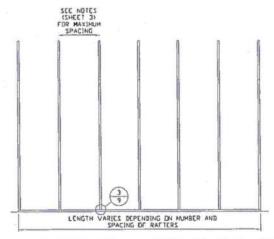
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TYPICAL RAFTER/COLUMN END FRAME SECTION

TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS

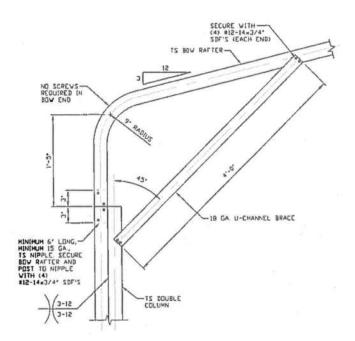


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

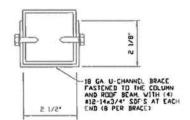


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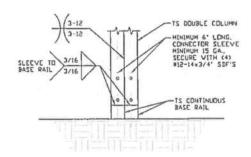
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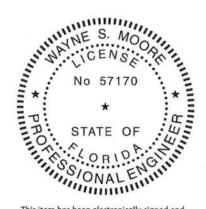
BOX EAVE RAFTER COLUMN
CONNECTION DETAIL
FOR HEIGHTS 14'-0" < TO \( \) 16'-0"



BRACE SECTION

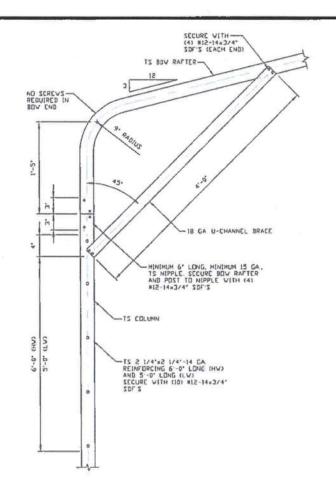


2 RAFTER COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE: NTS



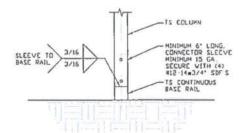
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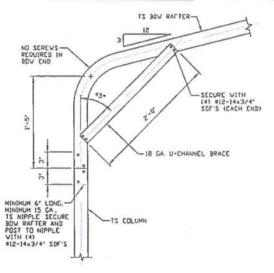


BOX EAVE RAFTER COLUMN
CONNECTION DETAIL

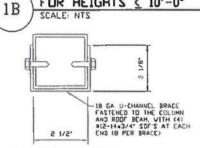
FOR HEIGHTS 10'-0" < TO < 14'-0"



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE NYS



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



BRACE SECTION



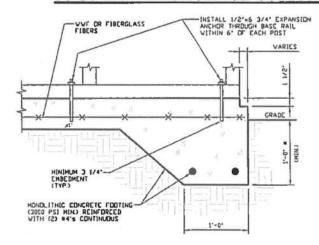
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### BASE RAIL ANCHORAGE OPTIONS FOR LOW AND HIGH WIND SPEED





### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS (MINIMUM ANCHOR EDGE DISTANCE IS 4") . COORDINATE WITH LOCAL CODES/ORD.

### GENERAL NOTES

### CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH DF 3,000 PSI AT 28 DAYS

### COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318:

3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND I 1/2 INCHES ELSEWHERE.

### REINFORCING STEEL:

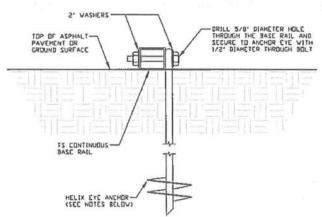
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM AGIS GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT

### REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

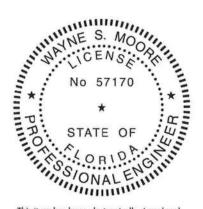
- I REINFORCEMENT IS BENT COLD
  2 THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS
  3 REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT

### HELIX ANCHOR NOTES:

- FOR VERY DENSE AND/OR CEMENTED SANDS, CHARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT
- 2 FOR CORAL USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH EMBEDMENT
- 3 FOR MEDIUM DENSE CDARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS, AND CLAYS USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH EMBEDMENT.
- 4 FOR LODSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL USE MINIMUM (2) 6" HELICES WITH MINIMUM 50 INCH 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 INCH EMBEDMENT.



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



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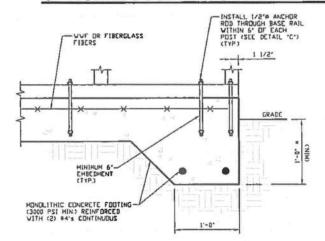
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CHECKED BY: PDH					
PROJECT HGR: VSH	DATE: 12-18-17	SCALE: NTS		ND- 45/17300S	
CLIENT: TBS	SHT. 9A	DVG. NO SK-2		REV. 1	

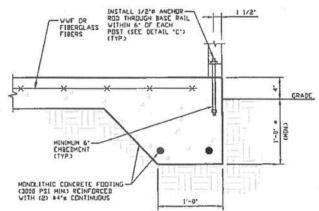
### OPTIONAL FOUNDATION ANCHORAGE FOR LOW & HIGH WIND SPEED





### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

(HINIMUM ANCHOR EDGE DISTANCE IS 1 1/2")
\* COORDINATE WITH LOCAL CODES/ORD.



**3B** 

SCALE: NTS (MINIMUM ANCHOR EDGE DISTANCE IS 1 1/2") COORDINATE WITH LOCAL CODES/ORD.

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

### **GENERAL NOTES**

### CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS

COVER OVER REINFORCING STEEL:

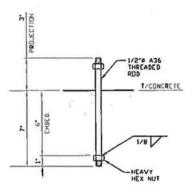
FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318
3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2 INCHES ELSEWHERE

### REINFORCING STEEL:

THE TURNDOWN REINFORCING STEEL SHALL BE ASTM AGIS 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:

- REINFORCEMENT IS BENT COLD.
  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.



3C

ANCHOR ROD THROUGH BASE

RAIL DETAIL SCALE: NTS



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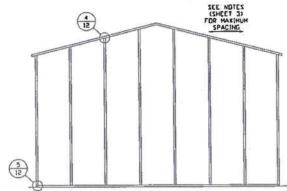
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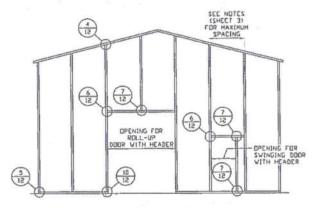
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PROJECT MGR: VSM	DATE: 12-18-17	7 SCALE: NTS 161545/173065			
CLIENT: TBS	SHT. 9B	DAC NO 2K-5		REV. 1	

### BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS

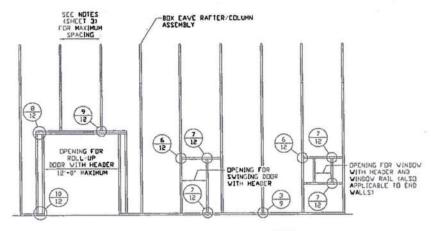


### TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



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



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

SCALE NTS



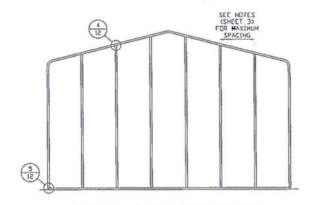
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	PROJECT MGR: VSM	DATE: 12-18-17	SCALE: NTS	JOS NO 161545/173005	

JOB NO 161545/173005 CONSECTING THE IMMUTICATIZED REPRODUCTION, COPYING, OR STRUCTUSE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION. SHT. 10 DAC NO 2K-S REV. 1 CLIENT: TBS

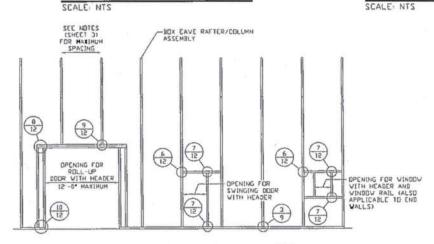
### BOW RAFTER END WALL AND SIDE WALL OPENINGS



### TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SEE NOTES (SHEET 3) FOR MAXIMUM SPACING 12 (12) (15) DPENING FOR ROLL-UP DOOR VITH HEADER DPENING FOR SWINGING DOOR WITH HEADER (3)

> TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

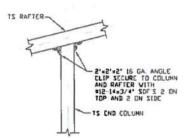
SCALE: NTS



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	CLIENT: TBS	SHT. 11	DAC NO 2K-5	REV. 1	

### **BOW AND BOX EAVE RAFTER WALL OPENING DETAILS**



TS EDLUMN (CORNER) MINIMUM 6' LENG, MINIMUM 15 GA, TS NIPPLE SECURE VITH (4) #12-14x3/4' SDF'S 2'x2'x2' 16 GA. CLIP ANGLE SECURE TO RAFTER COLUMN AND BASE RAIL W/(4) 012-14x3/4" SDF'S RAIL 3/16 TS CONTINUOUS BASE RAIL

TS COLUMN OR END COLUMN -2"x2"x2" 16 GA ANGLE CLIP SECURE TO COLUMN AND EITHER TOP OF HEADER, OR BOITOM OF VINDOV RAIL VITH #12-14x3/4" SDF'S TS HEADER DR

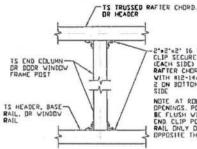
END COLUMN/RAFTER CONNECTION DETAIL

SCALE NTS

END COLUMN/BASE RAIL CONNECTION DETAIL 5 SCALE: NTS

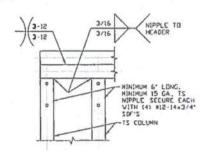
HEADER OR WINDOW RAIL TO COLUMN CONNECTION DETAIL SCALE NTS

6



-2'x2'x2' 16 GA. ANCLC CLIP SECURE TO COLUMN (CACH SIDE) AND RAFFER CHORD/RAIL CLIP SECURE TO COLUMN SIDE ON BOTTOM AND 2 DN SIDE

NOTE AT ROLL-UP DOOR OPENINGS, POST SHOULD BE FLUSH WITH RAIL END CLIP POST TO RAIL DRLY ON SIDE OPPOSITE THE OPENING.

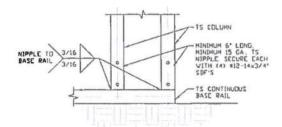


TS COLUMN HEADER TO 3/16 MINIMUM 6' LONG, HINIMUM 15 GA. TS NIPPLE, SECURE VITH (4) #12-14-3/4' SDF'S TS DOUBLE HEADER

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

DOUBLE HEADER/COLUMN CONNECTION DETAIL 8

COLUMN/DOUBLE HEADER CONNECTION DETAIL 9



COLUMN/BASE RAIL CONNECTION DETAIL 10



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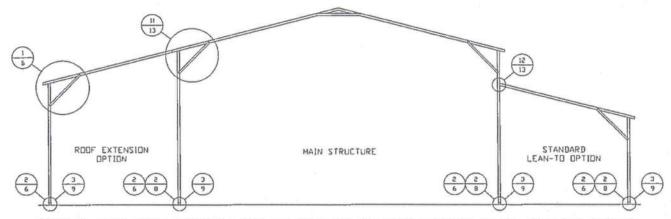
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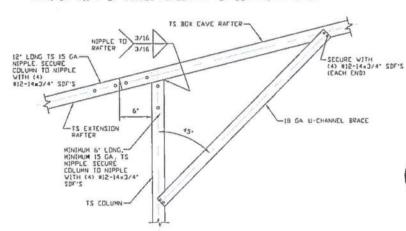
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CLIENT, TRE	SHT. 12	DVG. NG: SK-2	REV. 1	

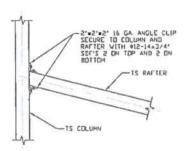
### **BOX EAVE RAFTER LEAN-TO OPTIONS**



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

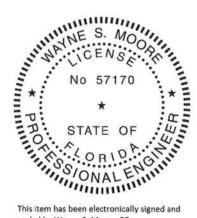
SCALE: NTS MAXIMUM WIDTH OF SINGLE MEMBER RAFTER LEAN-TO IS 16'-0'





12 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

11 SIDE EXTENSION RAFTER/COLUMN DETAIL



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DAC NO 2K-S

REV. 1

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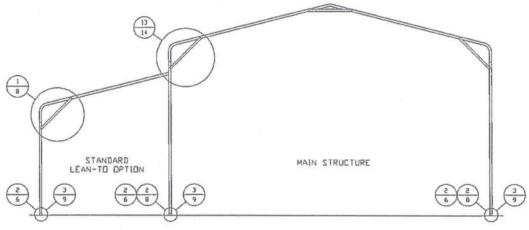
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PREJECT MGR: VSM	DATE: 12-18-17	SCALE: NTS	JOB NO: 161545/173005		

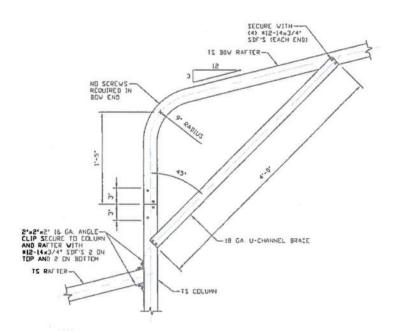
SHT. 13

CLIENT: TBS

### **BOW RAFTER LEAN-TO OPTIONS**



# TYPICAL BOW RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN) SCALE: NTS MAXIMUM VIDTH OF SINGLE MEMBER RAFTER LEAN-TO IS 16'-0"



SIDE EXTENSION RAFTER/COLUMN DETAIL 13



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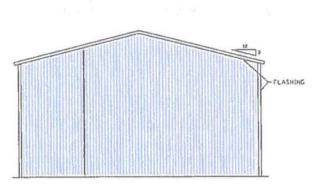
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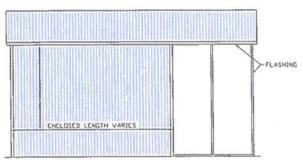
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PROJECT HGR	HZV	DATE: 12-18-17	SCALE: NTS		ND: 345/17300S
CLIENT: TBS		SHT. 14	DAC NO 2K-S		REV. I

### BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



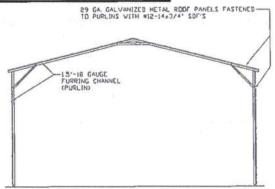
TYPICAL END ELEVATION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



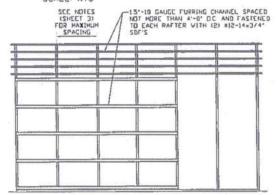
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



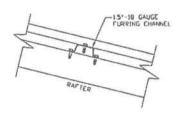
# TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



# TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

SCALE NTS



### ROOF PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE NTS



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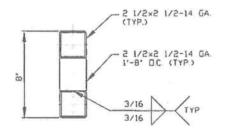
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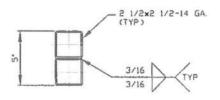
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PROJECT HGR: VSH	DATE: 12-18-17	SCALE: NTS		ND: 545/17300S
CLIENT: TBS	SHT. 15	DAC NO 2K-5	71	REVJ 1

### OPTIONAL DOOR HEADER



HEADER DETAIL FOR DOOR OPENINGS 12'-0' < LENGTH ≤ 15'-0"

SCALE: NTS



HEADER DETAIL FOR DOOR OPENINGS LENGTH & 12'-0"

SCALE NTS



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	PROJECT NGR: VSH	DATE: 12-18-17	SCALE: NTS		NO: 545/17300S
	CLIENT: TBS	SHT. 16	DAC WO 2K-S		REV. I