

#### STRUCTURAL DESIGN

# ENCLOSED BUILDING EXPOSURE B

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

8 January 2021 Revision 5 M&A Project No. 16022S/17300S/20352S

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: 2021.01.12 15:40:40 -05'00'





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MOORE AND A ENGINEERING AND C	CONSULTING, INC.	CHEC	VN BYI JG CKED BYI PDH	30'-0"x20'-0 Pl	JLAR BUILDING S " ENCLOSED BUI E SEAL COVER SH	LDING EXP. B
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MOORE AND ASSOCIATES	DRAWN BY: JG		JLAR BUILDING SE INDUSTRIAL	
ENCINEEDING AND CONCULTING INC	CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" ENCLOSED BUILDING EXP. B		
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#### INSTALLATION NOTES AND SPECIFICATIONS

- 1. DESIGN IS FOR A MAXIMUM 30'-0' WIDE x 20'-0' EAVE HEIGHT ENCLOSED STRUCTURES.
- 2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2012 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC, AND 2018 IBC.
- 3. DESIGN LOADS ARE AS FOLLOWS:
  A) DEAD LOAD = 1.5 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. END WALL COLUMNS (POSTS) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING (UNLESS NOTED DTHERWISE).
- 7. RISK CATEGORY I.
- 8. WIND EXPOSURE CATEGORY B.
- 9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS. FOR VERTICAL PANELS, 29 GAUGE METAL PANELS SHALL BE FASTENED TO 18 GAUGE HAT CHANNELS (UNLESS OTHERWISE NOTED).
- 10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9° OR END = 6°, (MAX.)
- 11. FASTENERS CONSIST OF #12-14×3/4° 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 JOINT SEALANT.
- IZ. STANDARD ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6° OF EACH COLUMN.
- 13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/WELDED NUT × 30' LONG IN SUITABLE SOIL CONDITIONS MAY BE USED FOR LOW ( ≤ 108 MPH NUMINAL) WIND SPEEDS ONLY. □PTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. COORDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
- 14. WIND FORCES GOVERN OVER SEISMIC FORCES, SEISMIC PARAMETERS ANALYZED ARE:

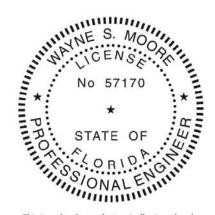
SDIL SITE CLASS = D RISK CATEGORY I

R= 3.25

I<sub>E</sub>= 1.0

S<sub>DS</sub>= 1.522 g V= C<sub>S</sub>V

g = 0.839 g



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		ILAR BUILDING					
DRAWN BY: JG	631	631 SE INDUSTRIAL CIRCLE					
	LAKE CITY, FLORIDA 32025						
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B						
 PREJECT MGR: VSM	DATE: 1-8-21	SCALE: NTS	JOB NO 16022S/ 17300S/20352S				
CLIENT: TBS	SHT, 3	DWG. ND: SK-3	REV.: 5				

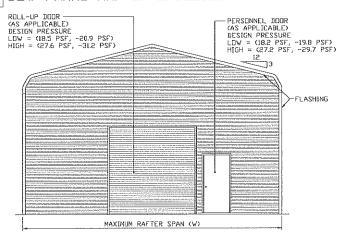
# BOX EAVE FRAME RAFTER ENCLOSED BUILDING ROLL-UP BOOR (AS APPLICABLE) DESIGN PRESSURE LOW = (185 PSF, -20.9 PSF) HIGH = (27.6 PSF, -312 PSF) 12 3 FLASHING

#### TYPICAL END ELEVATION

SCALE: NTS

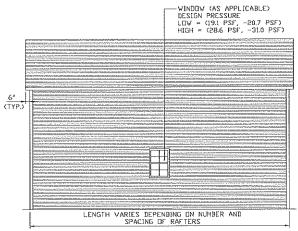
#### BOW FRAME RAFTER ENCLOSED BUILDING

(W) MAYZ RAFTER SPAN (W)



#### TYPICAL END ELEVATION

SCALE: NTS



#### TYPICAL SIDE ELEVATION

WINDDW (AS APPLICABLE)
DESIGN PRESSURE
LDW = (191, PSF, -20.7 PSF)
HIGH = (28.6 PSF, -31.0 PSF)

(TYP.)

LENGTH VARIES DEPENDING ON NUMBER AND
SPACING OF RAFTERS

#### TYPICAL SIDE ELEVATION

SCALE: NTS



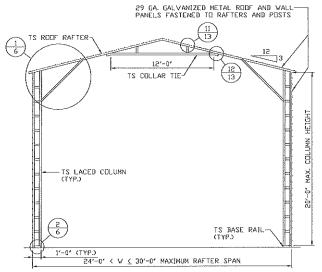
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DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE						



TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS

TS ROUF RAFTER
PANELS FASTENED TO RAFTERS AND POSTS

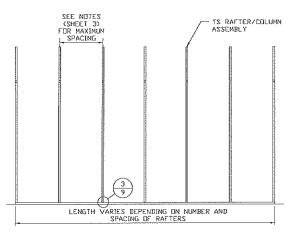
24' IB GA. U-CHANNEL
BRACE FASTENED TO
RAFTER WITH (4)
#12-14x3/4' SDF'S AT
EACH END (8 PER BRACE)

TS LACED COLUMN
(TYP.)

TS BASE RAIL
(TYP.)

V ( 24'-0' MAXIMUM RAFTER SPAN

TYPICAL RAFTER/COLUMN END FRAME SECTION

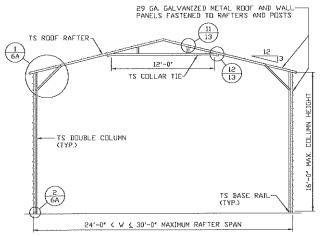


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS



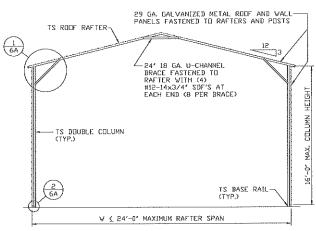
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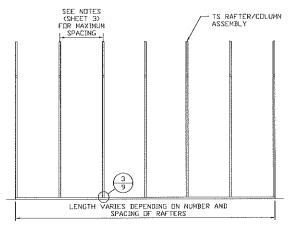


TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION



#### TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS



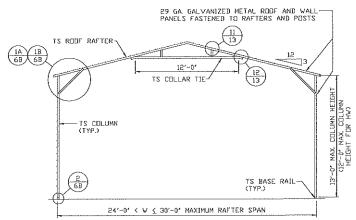
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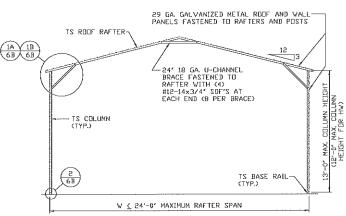
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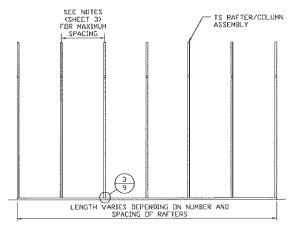
	LOBOUAK BOILDING 2321EM2					
DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE					
	LAKE CITY, FLORIDA 32025					
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B					
			JOB	ND: 160225/		
PROJECT MGR: VSM	DATE: 1-8-21	SCALE: NTS	1730	22005/200		
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TYPICAL RAFTER/COLUMN END FRAME SECTION



TYPICAL RAFTER/COLUMN END FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS



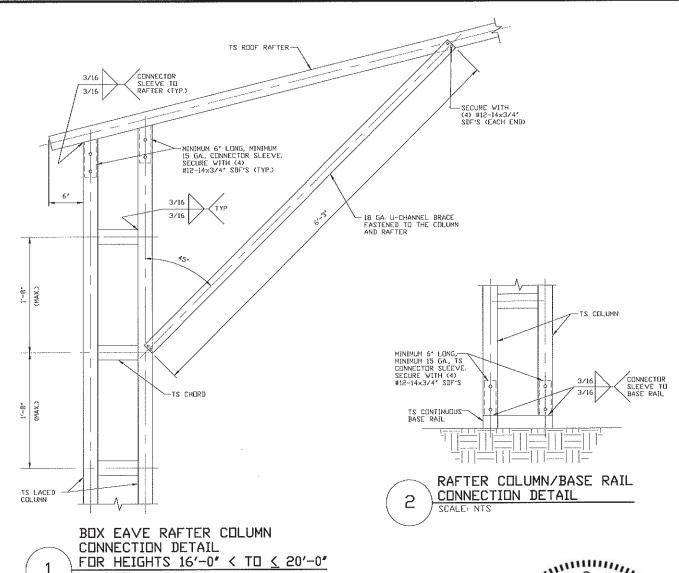
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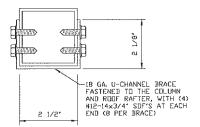
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CLIENT: TBS	SHT. 5B	DWG, NO: SK-3		REV₁ 5		



1 SCALE: NTS

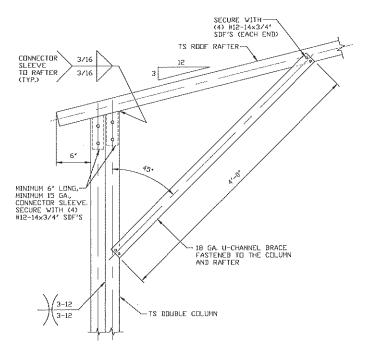


BRACE SECTION SCALE: NTS



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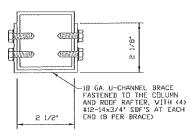
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MOODE AND AGGOODATED	DRAWN BY: JG		JLAR BUILDING : SE INDUSTRIAL	



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 13'-0" < TO ≤ 16'-0"

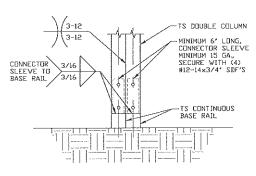
1 SCALE: NTS

NDTE: COLUMN HEIGHTS 12'-0" < TO < 16'-0" FOR HIGH WIND.



#### BRACE SECTION

SCALE: NTS



RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



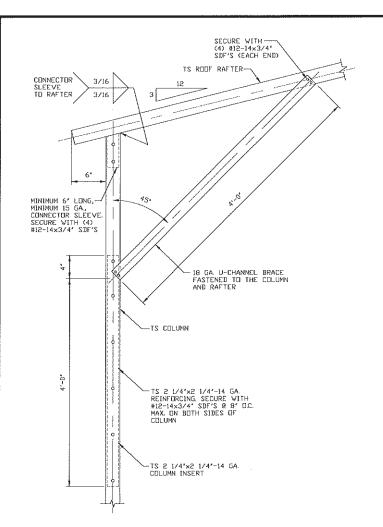
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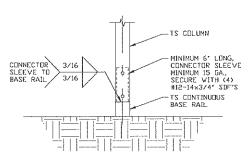
PROJECT MGR: VSM  CLIENT: TBS	DATE: 1-8-21 SHT. 6A	DWG, NO: SK-3	,	0S/20352S REV. 5	
			JUB	ND 16022S/	
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DRAWN BY: JG	631	631 SE INDUSTRIAL CIRCLE			



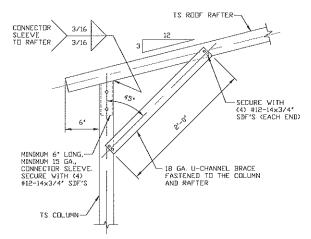
BOX EAVE RAFTER COLUMN CONNECTION DETAIL

FOR HEIGHTS 10'-0' < TO < 13'-0'

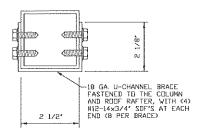
/ SCALE: NTS NOTE: MAXIMUM COLUMN HEIGHT IS 12'-0" FOR HIGH WIND.



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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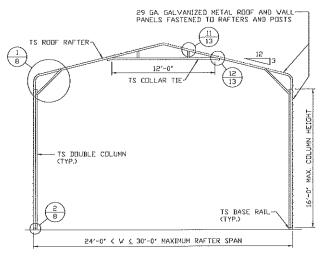
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TUBULAR BUILDING SYSTEMS
631 SE INDUSTRIAL CIRCLE
LAKE CITY, FLORIDA 32025
CHECKED BY PDH 30'-0"x20'-0" ENCLOSED BUILDING EXP. B
PROJECT MGR WSM DATE: 1-8-21 SCALE: NTS 17300S/20352S

CLIENT: TBS SHT. 6B DWG. ND: SK-3 REV. 5



# TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS

29 GA. GALVANIZED METAL ROOF AND VALL
PANELS FASTENED TO RAFTERS AND POSTS

12
3

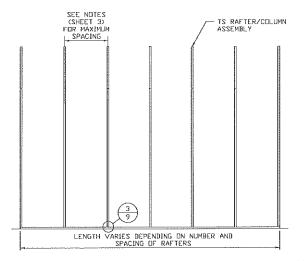
24' 18 GA. U-CHANNEL
BRACE FASTENED TO
RAFTER WITH (4)
H12-14×3/4' SDF'S AT
EACH END (8 PER BRACE)

15 DOUBLE COLUMN
(TYP.)

17 BASE RAIL
(TYP.)

V & 24'-0' MAXIMUM RAFTER SPAN

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



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS



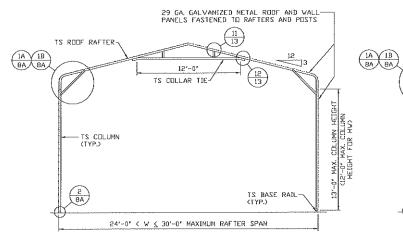
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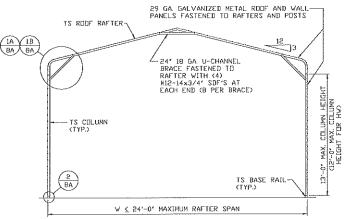
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DRAWN BY: JG	631	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE		

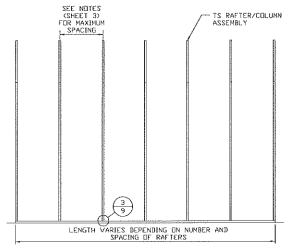




#### TYPICAL RAFTER/COLUMN END FRAME SECTION

TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



#### TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

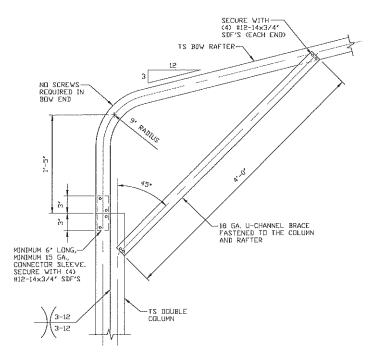


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BE SUBJECT TO LEG	IAL ACTUR		

	TUBU	JLAR BUILDING	SYSTEMS		
DRAWN BY: JG	631	SE INDUSTRIAL	CIRCLE		
	LAI	LAKE CITY, FLORIDA 32025			
CHECKED BY: PDH	30'-0"x20'-0	30'-0"x20'-0" ENCLOSED BUILDING EXP. B			
PROJECT MGR: WSM	DATE: 1-8-21	SCALEI NTS	JDB ND: 16022S/ 17300S/20352S		
CLIENT: TRS	SHT. 7A	DWG. NO: SK-3	REV.: 5		



3-12

TS DOUBLE COLUMN

MINIMUM 6' LDING,
CONNECTOR SLEEVE
MINIMUM 15 GA.,
SECURE VITH (4)
H12-14x3/4' SDF'S

TS CONTINUOUS
BASE RAIL

TS DOUBLE COLUMN

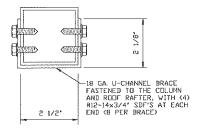
MINIMUM 6' LDING,
CONNECTOR SLEEVE
MINIMUM 15 GA.,
SECURE VITH (4)
H12-14x3/4' SDF'S

2 RAFTER COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE: NTS

BOX EAVE RAFTER COLUMN CONNECTION DETAIL

FOR HEIGHTS 13'-0" < TO < 16'-0"

SCALE: NTS NDTE: COLUMN HEIGHTS 12'-0' < TO ≤ 16'-0' FOR HIGH WIND.



#### BRACE SECTION

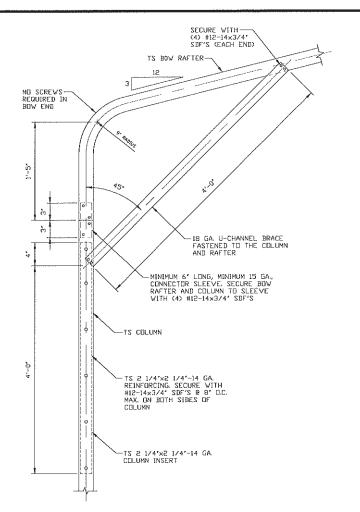
SCALE: NTS

1



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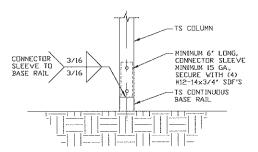


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO <u><</u> 13'-0"

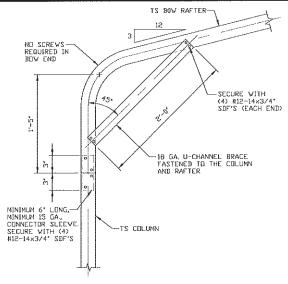
SCALE: NTS

**1A** 

NOTE: MAXIMUM COLUMN HEIGHT IS 12'-0" FOR HIGH WIND.



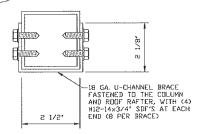
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



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

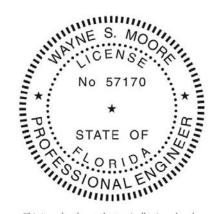
SCALE: NTS

1B



#### BRACE SECTION

SCALE: NTS



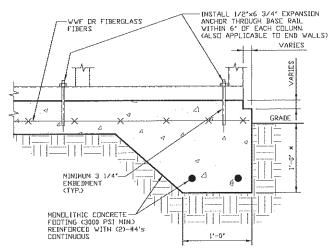
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PDALOI DV. IC		631 SE INDUSTRIAL CIRCLE			
DRAWN BY: JG					
	LAKE CITY, FLORIDA 32025				
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B				
PROJECT MGR: VSM	DATE: 1-8-21	SCALE: NTS		ND: 16022S/ 00S/20352S	
THEORET THEM WELL	2,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
CLIENT: TBS	SHT, BA	DWG. NO: SK-3		REV.: 5	

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





#### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHURAGE

SCALE: NTS MINIMUM ANCHOR EDGE DISTANCE IS 4" \* COORDINATE WITH LOCAL CODES/ORD, REGARDING MINIMUM FROST DEPTH REQ.

#### GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN 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 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:

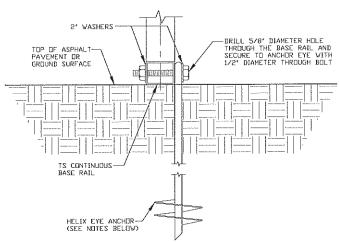
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 DR FIBERGLASS FIBER REINFORCEMENT.

#### 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 INCH EMBEDMENT.
- 2. FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT.
- 3. FOR MEDIUM DENSE COARSE 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

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



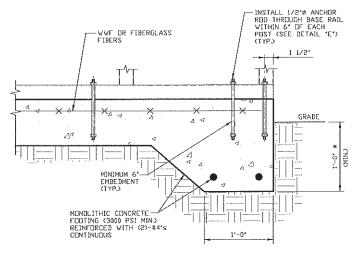
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			JOB NO 16022S/		
PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	17300S/20352S		
CLIENT: TBS	SHT. 9	DWG. NO: SK-3	REV. 5		

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





#### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 1 1/2" \* COORDINATE WITH LOCAL CODES/DRD. REGARDING MINIMUM FROST DEPTH REQ.

#### **GENERAL NOTES**

NOTE: CONCRETE MONOLITHIC SLAB DESIGN 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

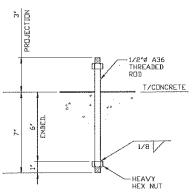
3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2 INCHES ELSEWHERE.

#### REINFORCING STEEL:

THE TURNDOWN REINFORCING STEEL SHALL BE ASTM 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.



ANCHOR ROD THROUGH BASE RAIL DETAIL 3D

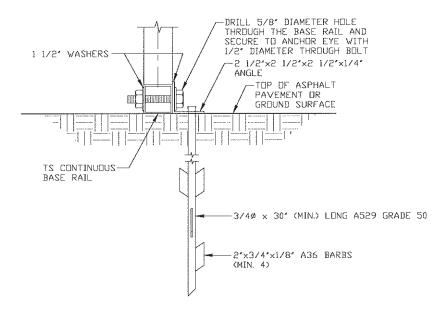


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#### BASE RAIL ANCHORAGE OPTION



ASPHALT BASE ANCHORAGE (HP 9 BARBED DRIVE ANCHOR)

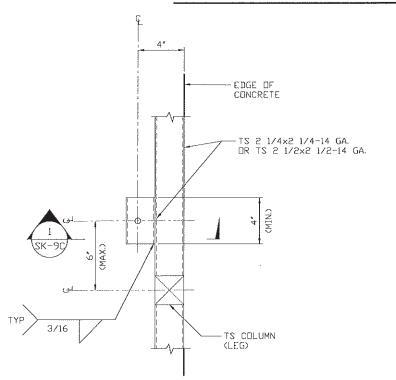
SCALE: NTS
(CAN BE USED FOR ASPHALT)
\* COORDINATE WITH LOCAL CODES/ORD.
REGARDING MINIMUM FROST DEPTH REQ.

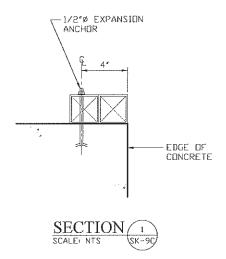


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#### BASE RAIL ANCHORAGE OPTIONS





TYPICAL ANCHUR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

SCALE: NTS



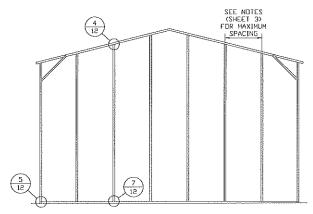
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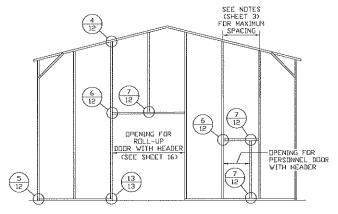
	TUBL	JLAR BUILDING	SYSTEMS	
DRAWN BY: JG	631	SE INDUSTRIAL	CIRCLE	
	LAKE CITY, FLORIDA 32025			
CHECKED BY: PDH	30'-0"x20'-0	" ENCLOSED BU	JILDING EXP. B	
			JDB ND: 16022S/	
PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	17300S/20352S	
CLIENT: TBS	SHT. 9C	DMC NO SK-3	REV.i 5	

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



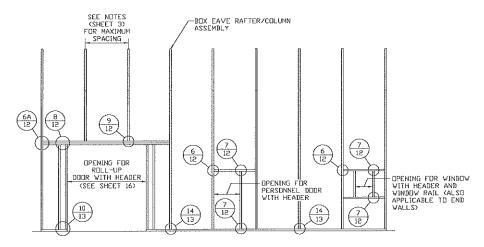
# TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



## TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



# TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

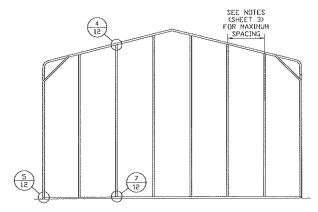
SCALE: NTS



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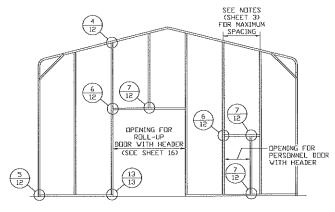
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#### BOW RAFTER END WALL AND SIDE WALL OPENINGS



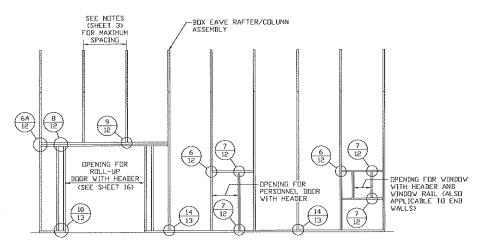
# TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS



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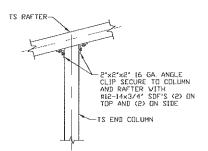
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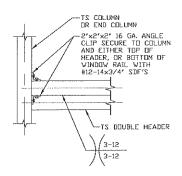
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				ND: 160225/
PROJECT MGR: VSM	DATE: 1-8-21	SCALE: NTS	<u> 173(</u>	008/203528
CLIENT: TBS	SHT. 11	DWG. NO: SK-3		REV₄ 5

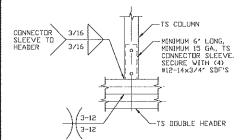
#### **CONNECTION DETAILS**



#### END COLUMN/RAFTER CONNECTION DETAIL 4 SCALE: NTS

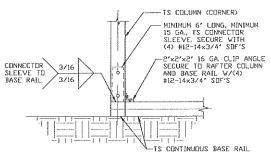


#### DOUBLE HEADER TO COLUMN CONNECTION DETAIL 6A SCALE: NTS

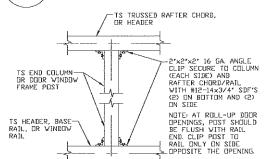


COLUMN/DOUBLE HEADER CONNECTION DETAIL SCALE: NTS

9



END COLUMN/BASE RAIL CONNECTION DETAIL 5 SCALE: NTS



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

-TS COLUMN
DR END COLUMN
-2'x2'x2' 15 GA. ANGLE
CLIP SECURE TO COLUMN
AND EITHER TOP OF
HEABER, OR BOTTOM DF
WINDOW RAIL WITH
#12-14x3/4' SDF'S TS HEADER OR WINDOW RAIL

HEADER OR WINDOW RAIL TO COLUMN CONNECTION DETAIL SCALE: NTS

6

CONNECTOR SLEEVE TO HEADER 3/16 / 3–12 3/16 3~12 -MINIMUM 6' LONG, MINIMUM 15 GA., TS CONNECTOR SLEEVE. SECURE EACH WITH (4) #12-14x3/4' SDF'S TS COLUMN

DOUBLE HEADER/COLUMN CONNECTION DETAIL 8 SCALE: NTS



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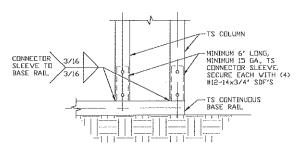
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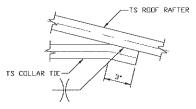
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	PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB NO: 160225/ 173005/203525		
	CLIENT: TBS	SHT, 12	DWG, NO: SK-3	REV. 5		

#### **CONNECTION DETAILS**



TS ROOF RAFTER TS CHURD 3/16

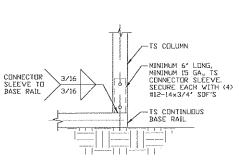


COLUMN/BASE RAIL 10

RAFTER TO CHORD CONNECTION DETAIL 11 SCALE: NTS

COLLAR TIE CONNECTION DETAIL 12 SCALE: NTS

CONNECTION DETAIL SCALE: NTS



TS TRUSSED RAFTER CHORD, OR HEADER TS END COLUMN-OR DOOR WINDOW FRAME POST MINIMUM 6' LONG, MINIMUM 15 GA., TS CONNECTOR SLEEVE, SECURE EACH WITH (4) #12-14×3/4' SDF'S TS HEADER, BASE RAIL, OR WINDOW RAIL COLUMN TO HEADER,

COLUMN/BASE RAIL CONNECTION DETAIL 13 SCALE: NTS

14

BASE RAIL CONNECTION DETAIL

SCALE: NTS

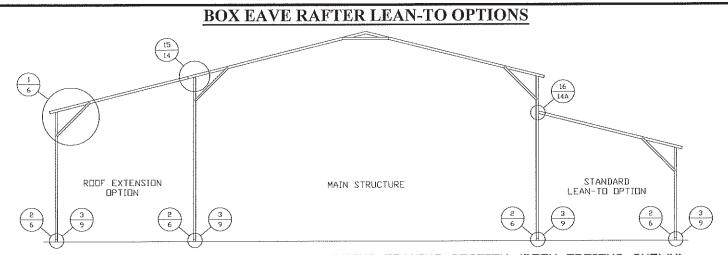
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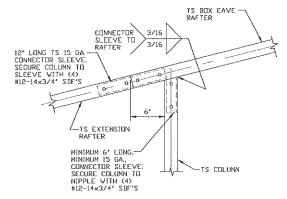


#### BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN) TYPICAL

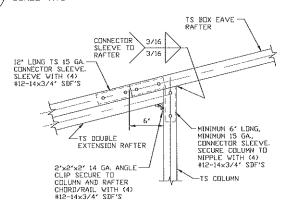
SCALE: NTS MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR MAIN BUILDING COLUMNS WITH LEAN-TO DR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 16'-0' < TO < 20'-0'.

MAIN BUILDING COLUMNS WITH LEAN-TO DR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 13'-0' (12'-0' FOR HIGH WIND) < TO < 16'-0'.

MAIN BUILDING COLUMNS WITH LEAN-TO DR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS 10'-0' < TO < 13'-0' (12'-0' FOR HIGH WIND) < WITH LEAN-TO DR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS 10'-0' < TO < 13'-0' (12'-0' FOR HIGH WIND) < WITH A'-4' INSERT). MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS < 10'-0'.
KNEE BRACES MUST BE 4'-0' (5'-0' FOR HIGH WIND) WHEN LEAN-TO'S ARE ADDED.



SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS < 15'-0" SCALE: NTS



SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 15'-0" < TO < 24'-0" SCALE: NTS

15A



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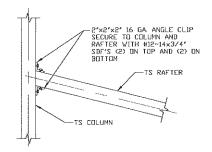
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TUBULAR BUILDING SYSTEMS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	631 LA	SE INDUSTRIAL KE CITY, FLORII 0" ENCLOSED BU	CIRCLE DA 32025
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BE SUBJECT TO LEGAL ACTION	CLIENT: TBS	SHT. 14	DWG, NO: SK-3	REV.⊧

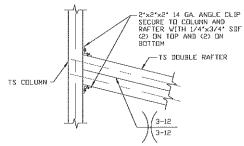
ENCLOSED BUILDING EXP. B JOB NO 16022S/ CALE: NTS 17300\$/20352\$ SHT. 14 DWG. NO: SK-3 REV. 5 CLIENT: TBS

#### BOX EAVE RAFTER LEAN-TO OPTIONS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 15'-0" 16

SCALE: NTS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 15'-0" < T□ ≤ 24'-0"

SCALE: NTS

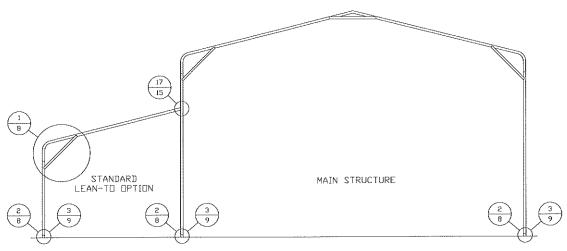
16A



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<u> </u>	CHECKED BY: PDH PREJECT MGR: WSM	30'-0"x20'-0		
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#### **BOW RAFTER LEAN-TO OPTIONS**



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

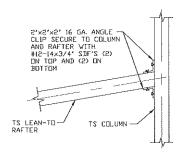
SCALE: NTS

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 13'-0' (12'-0' FOR HIGH WIND) < TO ≤ 16'-0'.

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS 10'-0' < TO ≤ 13'-0' (12'-0' FOR HIGH WIND) (WITH 4'-4' INSERT).

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 10'-0'.

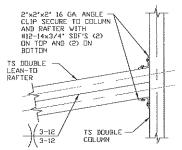
KNEE BRACES MUST BE 4'-0' (5'-0' FOR HIGH WIND) WHEN LEAN-TO'S ARE ADDED.



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FUR RAFTER SPANS < 15'-0"

SCALE: NTS

17



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 15'-0" < T□ < 24'-0"

17A

SCALE: NTS



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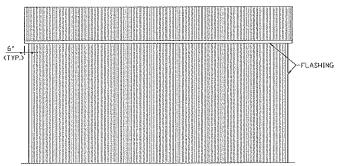
		TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE					
	DRAWN BY: JG						
ı			Œ CITY, FLORIE				
	CHECKED BY: PDH	30'-0"x20'-0	" ENCLOSED BU	ILDING EXP. B			
				JOB NO: 16022S/			
	PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	17300S/20352S			
	CLIENT: TBS	SHT. 15	DVG. ND: SK-3	5 ناREV			

# FLASHING

BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION

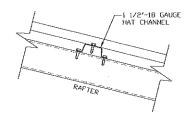
TYPICAL END ELEVATION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



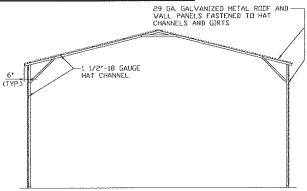
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



ROOF PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS) SCALE: NTS



### TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

SEE NOTES

(SHEET 3)
FOR MAXIMUM
SPACING

WITH (2) #12-14x3/4' SDF'S

(TYP)

## TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

OF HAT CHANNELS. TS GIRTS MUST BE SPACD AT 4'-0' (MAX.) D.C.



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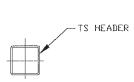
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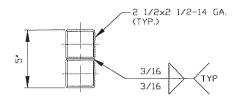
		ILAR BUILDING				
DRAWN BY: JG	631	SE INDUSTRIAL	CIRCLE			
	LAKE CITY, FLORIDA 32025					
CHECKED BY: PDH	30'-0"x20'-0	" ENCLOSED BU	ILDING EXP. B			
 PREIJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB NO 16022S/ 17300S/20352S			
CLIENT: TBS	SHT. 16	DWG. NO: SK-3	REV.₁ 5			

#### SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR DOOR OPENINGS ≤ 10'-0"

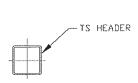
SCALE: NTS



HEADER DETAIL FOR DOOR OPENINGS 10'-0" < LENGTH ≤ 15'-0"

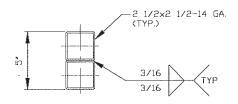
SCALE: NTS

#### END WALL HEADER OPTIONS



HEADER DETAIL FOR DOOR OPENINGS ≤ 12'-0"

SCALE: NTS



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

SCALE: NTS



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	TUBULAR BUILDING SYSTEMS					
DRAWN BY: JG	631	SE INDUSTRIAL	CIRCLE			
	LAKE CITY, FLORIDA 32025					
CHECKED BY: PDH	30'-0"x20'-0	" ENCLOSED BU	ILDING EXP. B			
			JOB NO 16022S/			
PROJECT MGR: VSM	DATE: 1-8-21	SCALE: NTS	173005/203525			
 CLIENT: TBS	SHT. 17	DVG. NO: SK-3	REV.i 5			

#### FLOOD VENT DETAIL FRAME OPENING FOR FLOOD VENT WITH TS 2 1/2"x2 1/2" MEMBERS (MATCH ADJACENT RAFTER POSTS AND BASERAIL) 1/2"-18S OR F EXPANDED METAL. ATTACH W/ McNICHOLS SQUARE FASTENERS OR APPROVED EQUAL AT 6" D.C. ATTACH W/ METAL TEK SCREWS. TS POST MIN. I MAX. GRADE TS BASE RAIL 1'-0" GRADE GRADE ⋖

TYPICAL FLOOD VENT DETAIL

1. MINIMUM VENT SPACE REQUIRED = 1 SQ. INCH OF OPEN VENT AREA PER SQ. FOOT OF BUILDING AREA.

SCALE: NTS

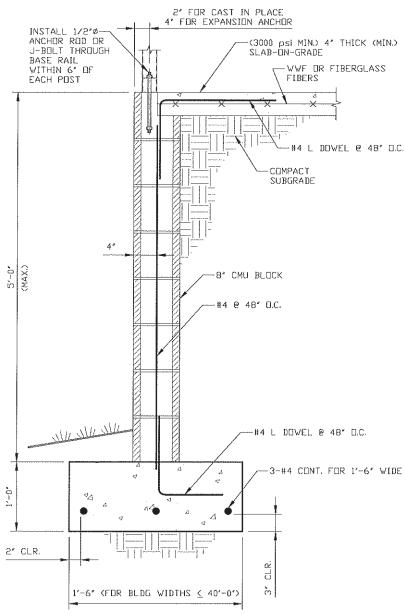
- 2. THERE SHALL BE A MINIMUM OF TWO OPENINGS ON DIFFERENT SIDES FOR EACH ENCLOSED BUILDING.
- 3. APPLY 1.3 FACTOR WHEN CALCULATING TOTAL OPEN AREA WHEN USING 1/2"-18GA S OR F EXPANDED METAL.
- 4. TOTAL OPEN AREA OF VENT = LxH(MIN. 12").
- 5. FLOOD VENT DETAIL COMPLIES WITH FEMA/NFIP.
- 6. PREFABRICATED FLOOD VENTS MEETING THE REQUIREMENTS OF FEMA/NIFIP MAY BE USED.



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#### STAND -ALONE STEM WALL DETAIL



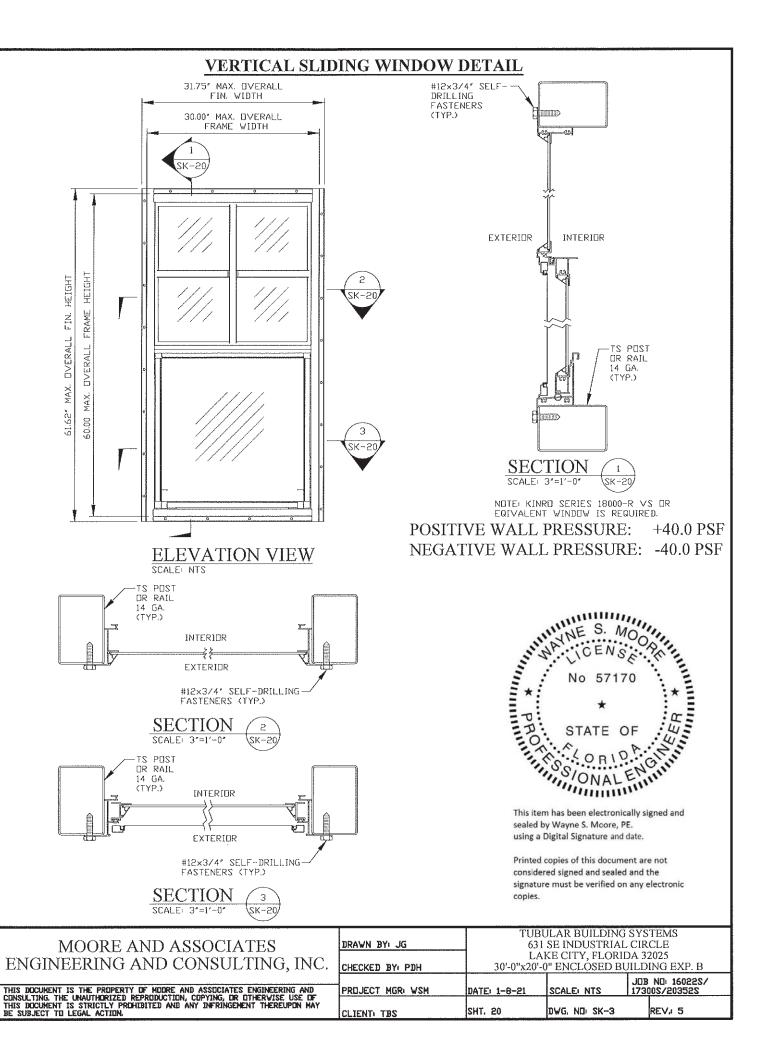
STAND-ALONE CONCRETE MASONRY UNIT (CMU) FOUNDATION STEM WALL DETAIL

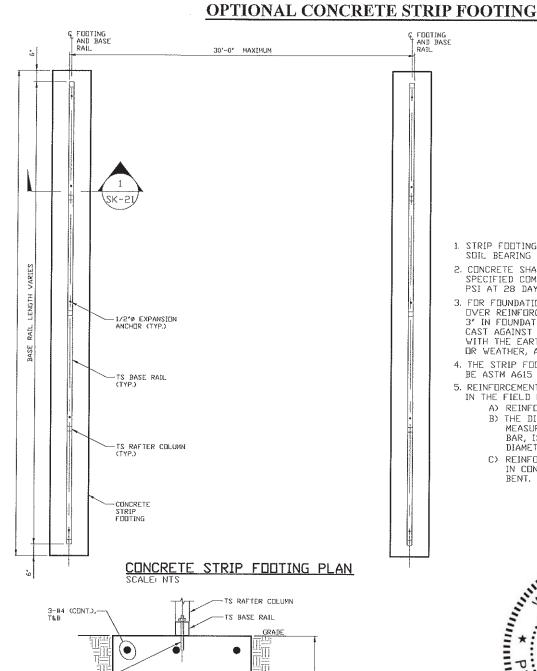
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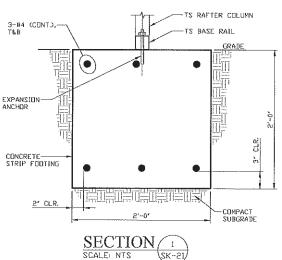
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	631 LA	JLAR BUILDING SE INDUSTRIAL KE CITY, FLORII J" ENCLOSED BL	CIRCLE DA 32025
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- 2. CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
- 3. 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.
- 4. THE STRIP FOOTING REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
- 5. REINFORCEMENT MAY BE BENT IN THE SHOP OR IN THE FIELD PROVIDED:
  - A) REINFORCEMENT IS BENT COLD.
  - B) THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
  - C) REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT.



\* COORDINATE WITH LOCAL CODES/ORD.

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CHECKED BY PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" ENCLOSED BUILDING EXP. B				
PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS		ND: 160225/ 005/203525	
CLIENT: TBS	SHT. 21	DWG, NO: SK-3		REV.: 5	