

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

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







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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" × 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 DN-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9° DR 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 NOMINAL) WIND SPEEDS ONLY. □PTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. COURDINATE WITH LOCAL CODES/ORDINANCES REGARDING MINIMUM LENGTH FOR FROST DEPTH PROTECTION.
- 14. WIND FORCES GOVERN OVER SEISMIC FORCES, SEISMIC PARAMETERS ANALYZED ARE:

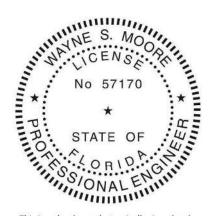
SDIL SITE CLASS = D RISK CATEGORY I

R= 3.25

I_E= 1.0

 $S_{DS} = 1.522 g V = C_S V$

 $S_{DI} = 0.839 g$



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	TUBULAR BUILDING SYSTEMS
DRAWN BYI JG	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	JOB NO 16022S/ 17300S/20352S
CLIENT: TBS	SHT, 3	DWG. ND: SK-3	REV. 5

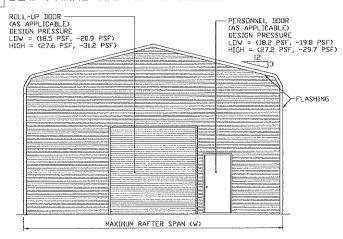
BOX EAVE FRAME RAFTER ENCLOSED BUILDING ROLL-UP DOOR (AS APPLICABLE) DESIGN PRESSURE LOW = (18.5 PSF, -20.9 PSF) HIGH = (27.6 PSF, -31.2 PSF) 12 3 (TYP.) FLASHING

TYPICAL END ELEVATION

SCALE: NTS

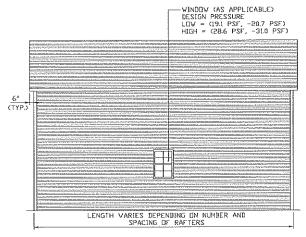
BOW FRAME RAFTER ENCLOSED BUILDING

(W) MAYZ RATTAR MUMIXAM



TYPICAL END ELEVATION

SCALE: NTS



TYPICAL SIDE ELEVATION SCALE: NTS

WINDDV (AS APPLICABLE)

DESIGN PRESSURE

LIDV = (19), PSF, -20.7 PSF)

HIGH = (28.6 PSF, -31.0 PSF)

HIGH = (28.6 PSF, -31.0 PSF)

WINDDV (AS APPLICABLE)

DESIGN PRESSURE

LEVEL TO A STATE OF THE PROPERTY O

TYPICAL SIDE ELEVATION

SCALE: NTS

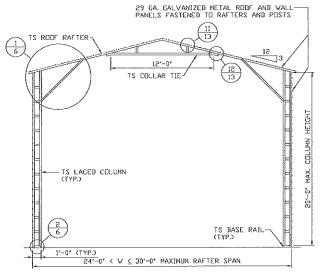


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CLIENT: TBS	SHT. 4	DWG. NO: SK-3		REV. 5			
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		JOB NO: 16022S/					
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		KE CITY, FLORID					
DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE						
		TOROTAK BOITDING 2121EM2					



TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS

TS ROUF RAFTER
PANELS FASTENED TO RAFTERS AND POSTS

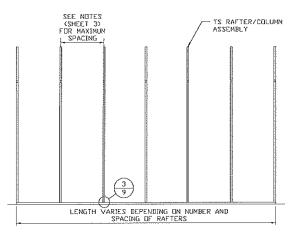
24' 18 GA. U-CHANNEL
BRACE FASTENED TO
RAFTER WITH (4)
H12-14x3/4' SDF'S AT
EACH END (8 PER BRACE)

TS LACED COLUMN
(TYP.)

TS BASE RAIL
(TYP.)

Y (24'-0' MAXIMUM RAFTER SPAN

TYPICAL RAFTER/COLUMN END FRAME SECTION

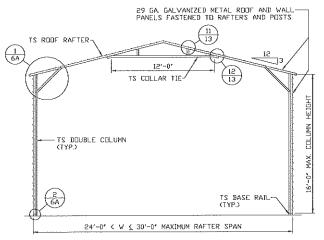


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS



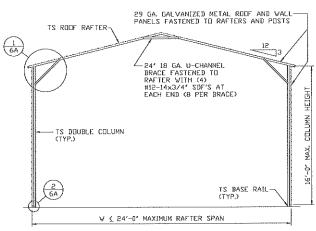
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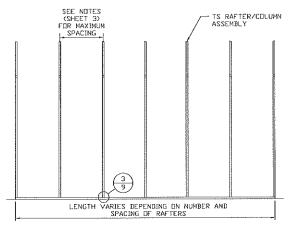


TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS



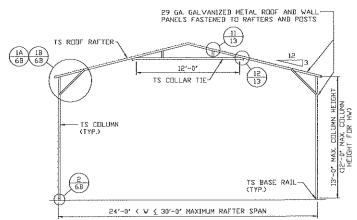
TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS



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SCALE: NTS

TYPICAL RAFTER/COLUMN END FRAME SECTION TY

29 GA. GALVANIZED METAL RODE AND WALL
PANELS FASTENED TO RAFTERS AND POSTS

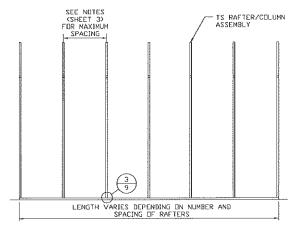
TS RODE RAFTER

24' 18 GA. U-CHANNEL
BRACE FASTENED TO
RAFTER VITH (4)
H12-14x3/4' SDP'S AT
EACH END (8 PER BRACE)

TS COLUMN
(TYP.)

V & 24'-0' MAXIMUM RAFTER SPAN

TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS

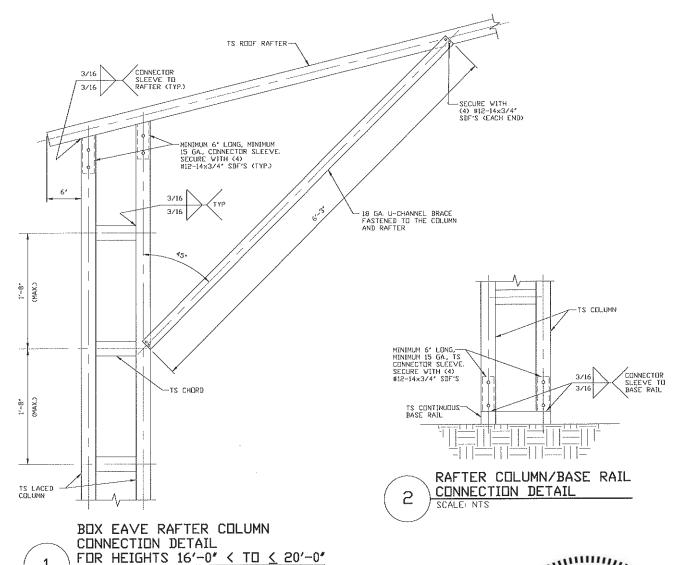


TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION SCALE: NTS



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MOORE AND ASSOCIATES	DRAWN BY: JG	631	JLAR BUILDING SE INDUSTRIAL	CIRCLE



7,8 CLE -18 GA. U-CHANNEL BRACE FASTENED TO THE COLUMN AND ROOF RAFTER, WITH (4) #12-14-87-4' SDT'S AT EACH END (8 PER BRACE)

> BRACE SECTION SCALE: NTS

2 1/2"

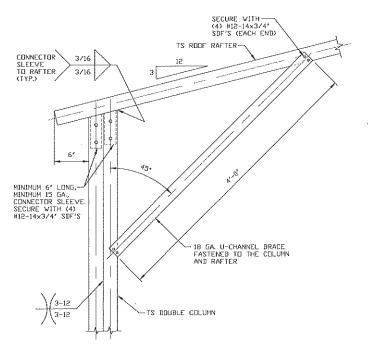
SCALE: NTS

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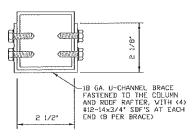
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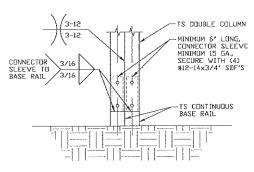
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 13'-0" < TO ≤ 16'-0"

1 SCALE: NTS

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



BRACE SECTION SCALE: NTS



RAFTER COLUMN/BASE RAIL CONNECTION DETAIL SCALE: NTS

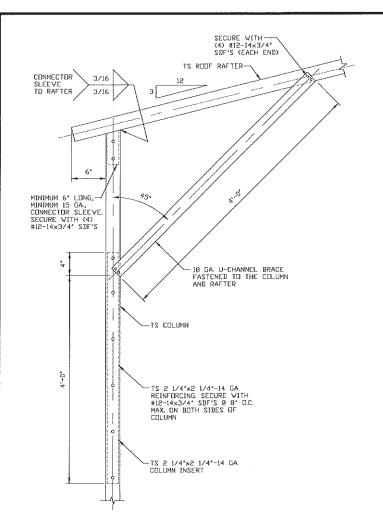


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	LAI	LAKE CITY, FLORIDA 32025				
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B					
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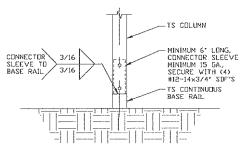
BOX EAVE RAFTER COLUMN CONNECTION DETAIL

FOR HEIGHTS 10'-0" < TO ≤ 13'-0"

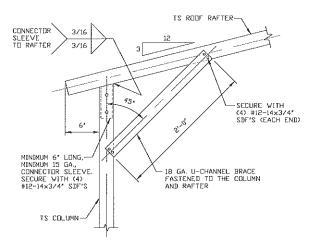
SCALE: NTS

1A

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



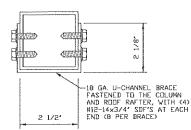
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL SCALE, NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL

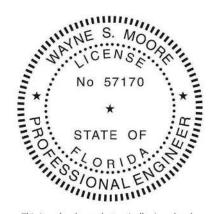
FOR HEIGHTS \(\leq 10'-0' \)

SCALE: NTS



BRACE SECTION

SCALE: NTS



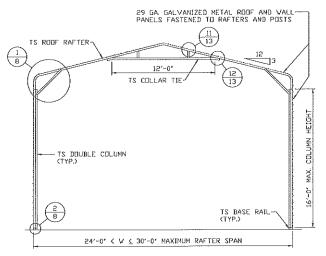
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			IDID	ND. 1700007		
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	l LAI	LAKE CITY, FLORIDA 32025				
DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE					
	TUBU	TUBULAR BUILDING SYSTEMS				



TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS

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

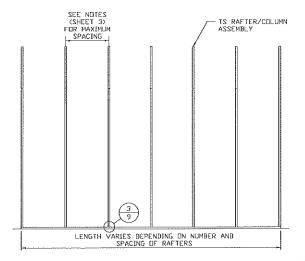
12
3
24' 18 GA. U-CHANNEL
BRACE FASTENED TO
RAFTER VITH (4)
#12-14×3/4' SDF'S AT
EACH END (8 PER BRACE)

15 DOUBLE COLUMN
(TYP.)

15 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



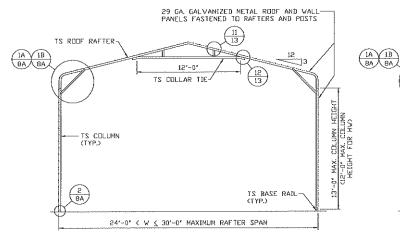
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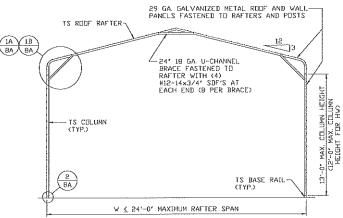
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CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" ENCLOSED BUILDING EXP. B				
DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE				

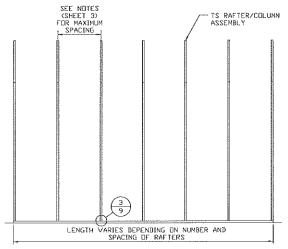




TYPICAL RAFTER/COLUMN END FRAME SECTION

TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS

SCALE: NTS



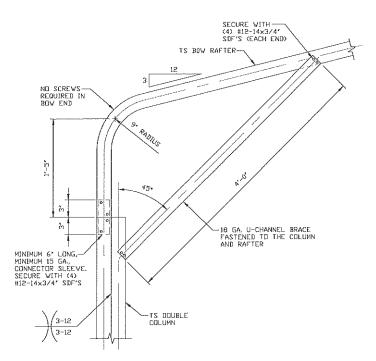
TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS



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CONNECTOR 3/16

CONNECTOR 3/16

SLEEVE MINIMUM 6' LONG, CONNECTOR SLEEVE MINIMUM 15 GA, SECURE VITH (4)

H12-14x3/4' SDF'S

BASE RAIL

TS DOUBLE COLUMN

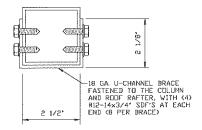
MINIMUM 6' LONG, CONNECTOR SLEEVE MINIMUM 15 GA, H12-14x3/4' SDF'S

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.



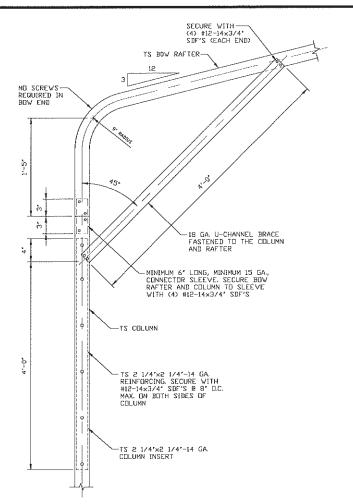
BRACE SECTION SCALE: NTS

1



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MOORE AND ASSOCIATES	DRAWN BY: JG	631	JLAR BUILDING SE INDUSTRIAL KE CITY, FLORII	CIRCLE
ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH			JILDING EXP. B
	PREJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB NO 16022S/ 17300S/20352S
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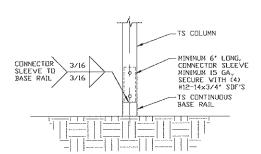


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 13'-0"

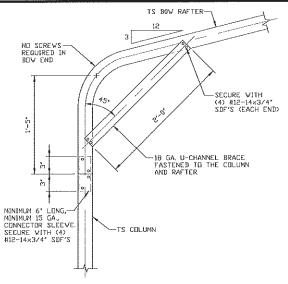
SCALE: NTS

1A

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



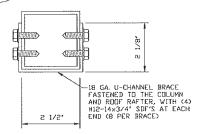
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



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

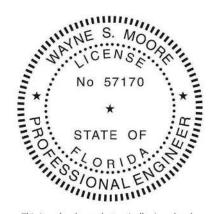
SCALE: NTS

1B



BRACE SECTION

SCALE: NTS



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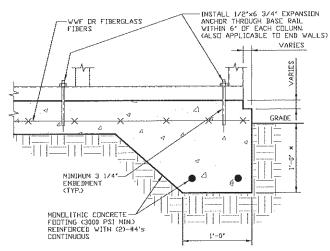
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	LAKE CITY, FLORIDA 32025				
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B				
			JDB	ND: 16022S/	
PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	1730	005/203525	
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BASE RAIL ANCHORAGE OPTIONS 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:

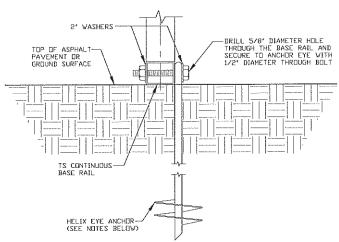
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 DR FIBERGLASS FIBER REINFORCEMENT.

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.



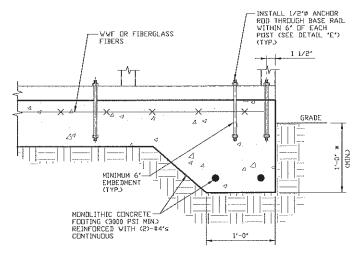
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CHECKED BY: PDH		KE CITY, FLORIC " ENCLOSED BU			
DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE				

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" * CDORDINATE 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!

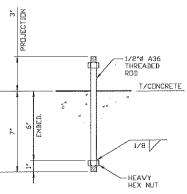
FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318: 3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2 INCHES ELSEWHERE.

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.



ANCHUR ROD THROUGH BASE RAIL DETAIL

3D



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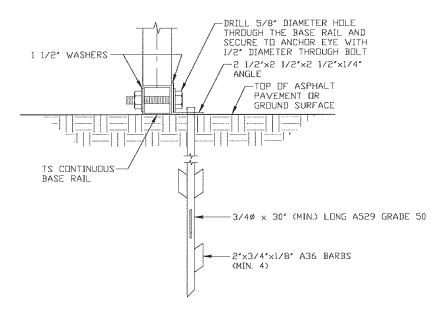
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BASE RAIL ANCHORAGE OPTION



ASPHALT BASE ANCHORAGE (HP 9 BARBED DRIVE ANCHOR)

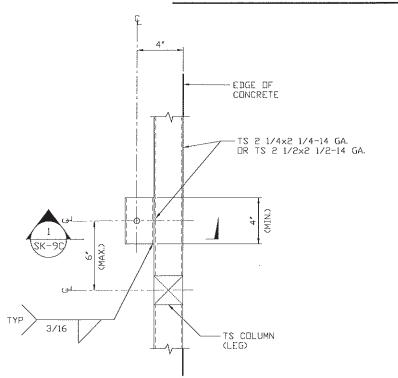
SCALE: NTS
(CAN BE USED FOR ASPHALT)
* COORDINATE WITH LOCAL CODES/ORD.
REGARDING MINIMUM FROST DEPTH REQ.

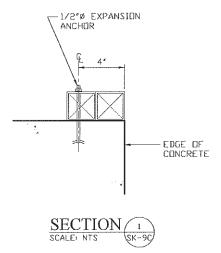


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MOORE AND ASSOCIATES	DRAWN BY: JG		JLAR BUILDING SE INDUSTRIAL	- "

BASE RAIL ANCHORAGE OPTIONS





TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

SCALE: NTS



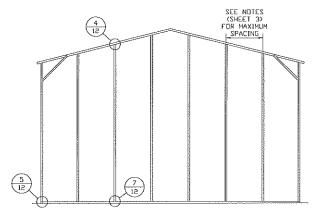
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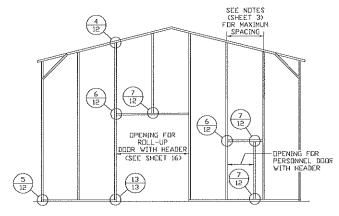
 	TUBULAR BUILDING SYSTEMS				
DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE				
	LAKE CITY, FLORIDA 32025				
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B				
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CLIENT: TRO	SHT. 9C	DWG, NO: SK-3	REV. 5		

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



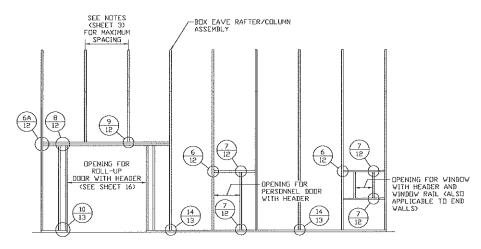
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

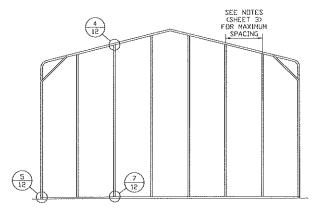
SCALE: NTS



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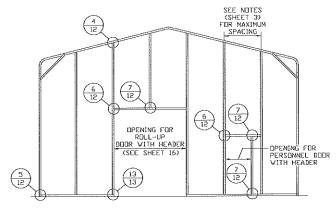
MOORE AND ASSOCIATES	DRAWN BY: JG	631	JLAR BUILDING SE INDUSTRIAL	CIRCLE
ENGINEERING AND CONSULTING, INC.	CHECKED BY: PDH		KE CITY, FLORID)" ENCLOSED BU	
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BOW RAFTER END WALL AND SIDE WALL OPENINGS



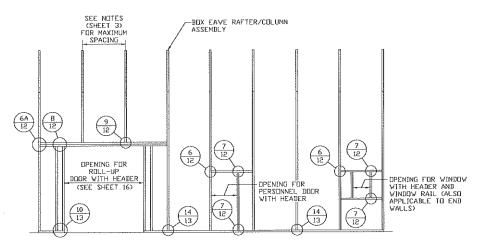
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

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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DWG. NO SK-3

REV. 5

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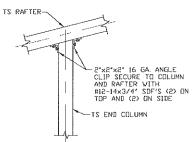
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DRAWN BY: JG	631	ILAR BUILDING SE INDUSTRIAL	CIRC	CLE	

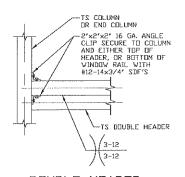
SHT. 11

CLIENT: TBS

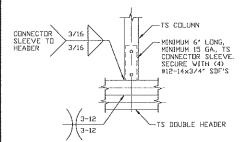
CONNECTION DETAILS



END COLUMN/RAFTER CONNECTION DETAIL SCALE NTS

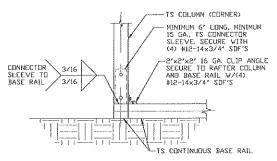


DOUBLE HEADER TO COLUMN CONNECTION DETAIL SCALE: NTS



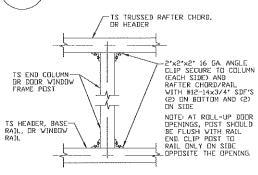
9

COLUMN/DOUBLE HEADER
CONNECTION DETAIL
SCALE: NTS

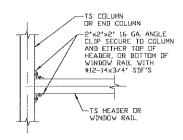


5 END COLUMN/BASE RAIL CONNECTION DETAIL

SCALE NTS

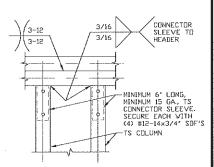


COLUMN TO HEADER,
BASE RAIL, DR
WINDOW RAIL
CONNECTION DETAIL
SCALE: NTS



HEADER OR WINDOW
RAIL TO COLUMN
CONNECTION DETAIL
SCALE: NTS

6



8 DOUBLE HEADER/COLUMN
CONNECTION DETAIL
SCALE: NTS



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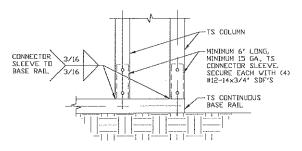
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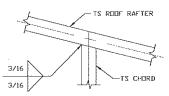
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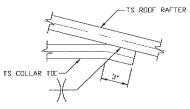
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 PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB NO 16 17300S/203				
CLIENT: TBS	SHT, 12	DWG, NO: SK-3	REV. 5	i			

CONNECTION DETAILS





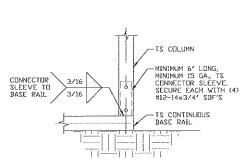


10 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS

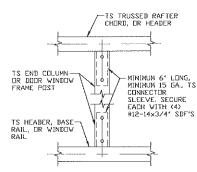
RAFTER TO CHORD CONNECTION DETAIL

SCALE: NTS

12 COLLAR TIE CONNECTION DETAIL







COLUMN TO HEADER, BASE RAIL CONNECTION DETAIL

14 SCALE: NTS



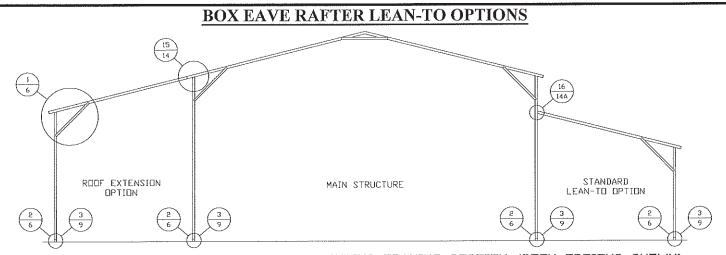
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CHECKED BY: PDH	30'-0"x20'-0	" ENCLOSED BU	ILDING EXP. B						
 PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB NO 16022S/ 17300S/20352S						
CLIENT: TRS	SHT. 13	DWG. NO: SK-3	REV.: 5						



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

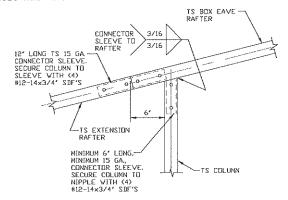
SCALE: NTS
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR
EAVE HEIGHTS 16'-0' < TO < 20'-0'.

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'.

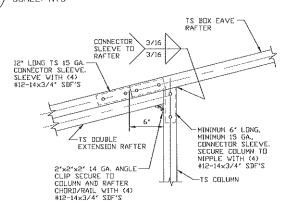
KNEE BRACES MUST BE 4'-0' (5'-0' FOR HIGH WIND) WHEN LEAN-TO'S ARE ADDED.



SIDE EXTENSION RAFTER/COLUMN DETAIL

FOR RAFTER SPANS

SCALE: NTS



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

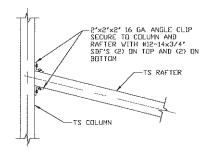
15A



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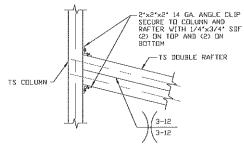
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BOX EAVE RAFTER LEAN-TO OPTIONS



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

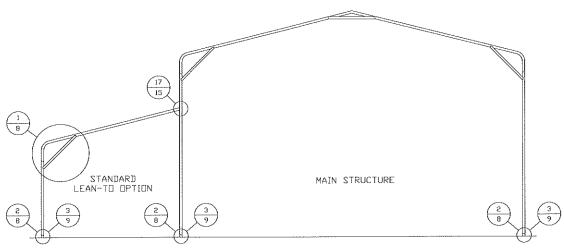
16A



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, , , , , , , , , , , , , , , , , , ,	CHECKED BY: PDH	30'-0"x20'-0		JUB NO 16022S/
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BOW RAFTER LEAN-TO OPTIONS



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

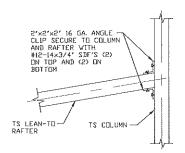
SCALE: NTS

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'.

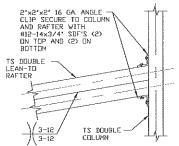
KNEE BRACES MUST BE 4'-0' (5'-0' FOR HIGH WIND) WHEN LEAN-TO'S ARE ADDED.



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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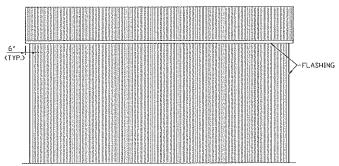
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			JLAR BUILDING					
	DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE						
] LAI	KE CITY, FLORIE	OA 32025				
•	CHECKED BY: PDH	30'-0"x20'-0	" ENCLOSED BU	ILDING EXP. B				
				JOB NO: 16022\$/				
	PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	17300S/20352S				
	CLIENT: TBS	SHT. 15	DWG. NO: SK-3	REV. 5				

-FLASHING

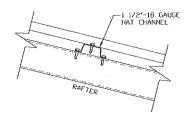
TYPICAL END ELEVATION VERTICAL ROOF/SIDING OPTION

SCALE: NTS



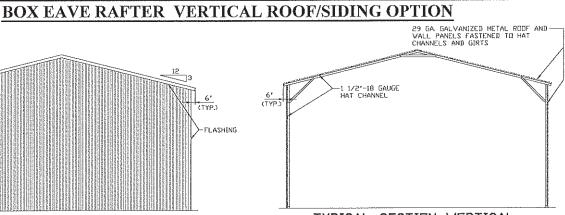
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING OPTION

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 -1 1/2'-18 GAUGE HAT CHANNEL SPACED AT 4'-0' D.C. AND FASTENED TO EACH RAFTER WITH (2) #12-14x3/4' SDF'S

TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

SCALE: NTS

NOTE: TS WALL GIRTS CAN BE USED AS AN OPTION IN PLACE OF HAT CHANNELS. TS GIRTS MUST BE SPACD AT 4'-0' (MAX.) D.C.



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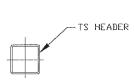
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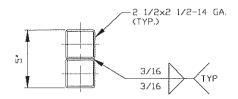
	TUBU	JLAR BUILDING	SYSTEMS						
DRAWN BY: JG	631	631 SE INDUSTRIAL CIRCLE							
	LAI	LAKE CITY, FLORIDA 32025							
CHECKED BY: PDH	30'-0"x20'-0" ENCLOSED BUILDING EXP. B								
 PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB NO 16022S/ 17300S/20352S						
CLIENT: TBS	SHT. 16	DWG. NO: SK-3	REV.: 5						

SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR DOOR OPENINGS ≤ 10'-0"

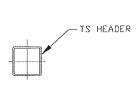
SCALE: NTS



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

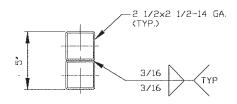
SCALE: NTS

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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RF 2	UBJECT T	שו עב	.GAL.	ACTION							

	TUBULAR BUILDING SYSTEMS			
DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE			
	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/ 203/20352S
FRUSECT MORE WSM	DAIE: 1-8-51	SCHEL MIS	1/31	03/203023
CLIENT: TBS	SHT. 17	DWG. NO: SK-3		REV.i 5

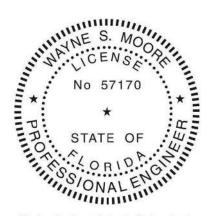
FLOOD VENT DETAIL FRAME OPENING FOR FLOOD VENT WITH TS 2 1/2"x2 1/2" MEMBERS (MATCH ADJACENT RAFTER POSTS AND BASERAIL) 1/2"-18S OR F EXPANDED METAL, ATTACH W/ McNICHOLS SQUARE FASTENERS OR APPROVED EQUAL AT 6" D.C. ATTACH W/ METAL TEK SCREWS. TS POST MIN. I MAX. GRADE TS BASE RAIL 1'-0 BOVE GRADE GRADE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

TYPICAL FLOOD VENT DETAIL

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

SCALE: NTS

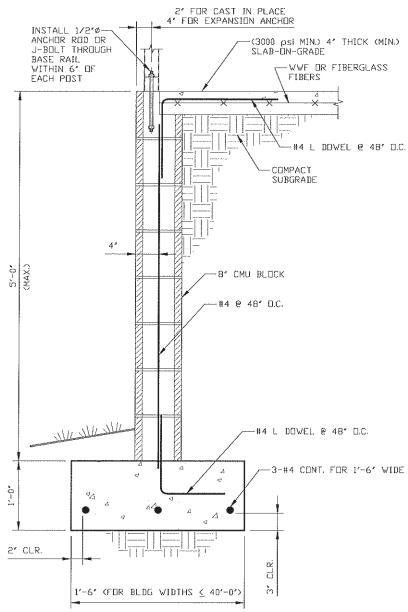
- 2. THERE SHALL BE A MINIMUM OF TWO OPENINGS ON DIFFERENT SIDES FOR EACH ENCLOSED BUILDING.
- 3. APPLY 1.3 FACTOR WHEN CALCULATING TOTAL OPEN AREA WHEN USING $1/2^{\prime}{\rm -18GA}$ S OR F EXPANDED METAL.
- 4. TOTAL OPEN AREA OF VENT = LxH(MIN. 12").
- 5. FLOOD VENT DETAIL COMPLIES WITH FEMA/NFIP.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



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MOORE AND ASSOCIATES	DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE			
ENGINEEDING AND CONGULTING INC	CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" ENCLOSED BUILDING EXP. B			
THIS DOCUMENT IS THE PROPERTY OF MODRE AND ASSOCIATES ENGINEERING AND	PROJECT MGR: WSM	DATE: 1-8-21		JOB NO: 16022\$/ 17300\$/20352\$	
CONSULTING. THE UNAUTHORIZED REPRODUCTION, COPYING, OR OTHERVISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION.	CLIENT: TBS	SHT. 18	DWG, NO: SK-3	REV.: 5	

STAND -ALONE STEM WALL DETAIL



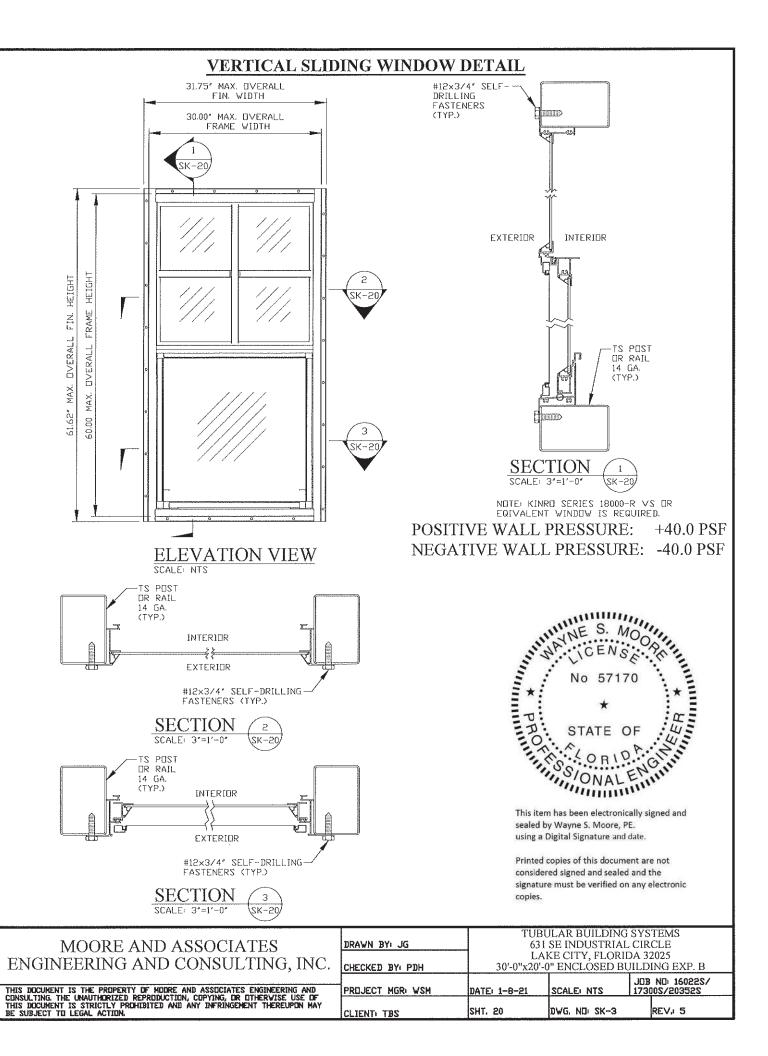
STAND-ALONE CONCRETE MASONRY UNIT (CMU) FOUNDATION STEM WALL DETAIL

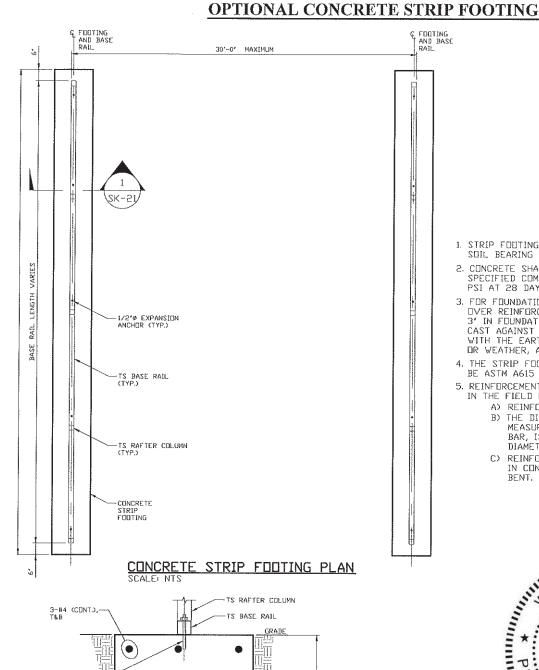
SCALE: NTS



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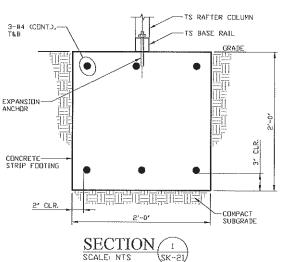
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG CHECKED BY: PDH	631 LA	JLAR BUILDING SE INDUSTRIAI KE CITY, FLORII D" ENCLOSED BI	J CIRCLE DA 32025 UILDING EXP. B
THIS DOCUMENT IS THE PROPERTY OF MODRE AND ASSOCIATES ENGINEERING AND	PROJECT MGR: WSM	DATE: 1-8-21	SCALE: NTS	JOB ND: 16022S/ 17300S/20352S
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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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DRAWN BYI JG	1 UBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE			
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