

STRUCTURAL DESIGN

PARTIALLY ENCLOSED (UTILITY) BUILDING EXPOSURE B

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

29 July 2021 Revision 3 M&A Project No. 16154S/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

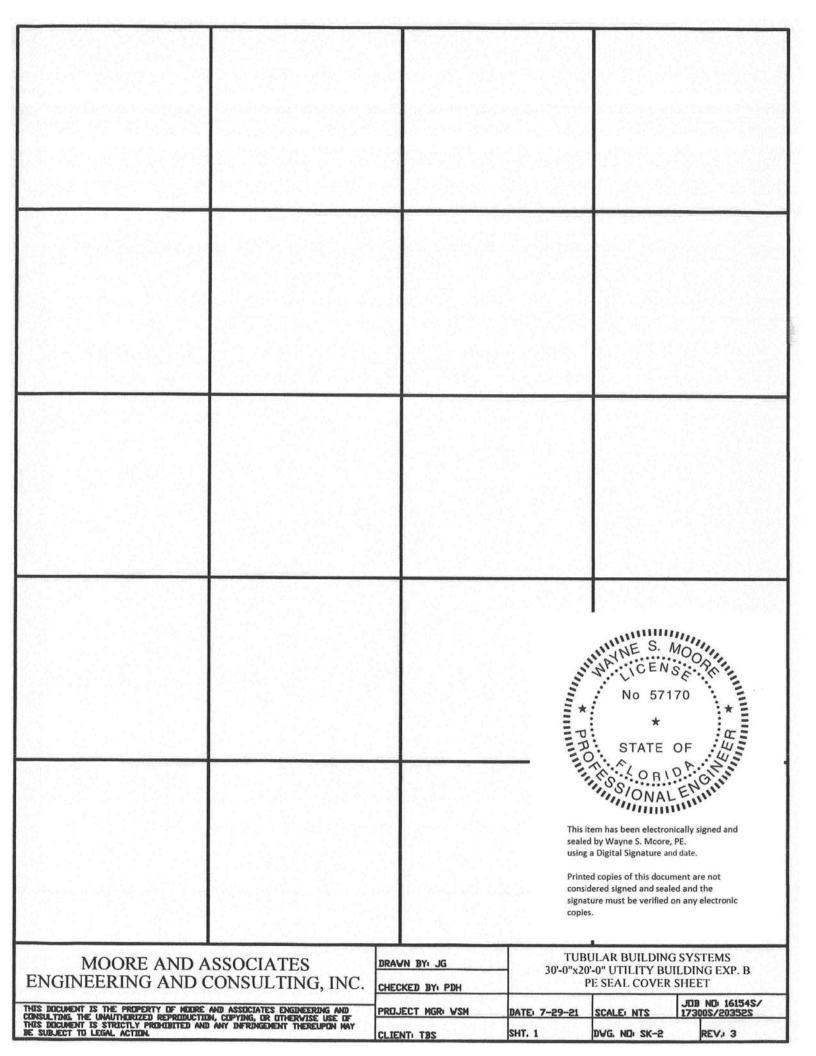
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MOORE AND ASSOCIATES	DRAWN BY: JG		TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE			
ENCINEEDING AND CONGULTING DIG	CHECKED BY: PDH		LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B			
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INSTALLATION NOTES AND SPECIFICATIONS

- 1 DESIGN IS FOR A MAXIMUM 30'-0' WIDE x 20'-0' EAVE HEIGHT PARTIALLY ENCLOSED UTILITY 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 = 15 PSF
 B) LIVE LOAD = 12 PSF
 C) SROUND SNOW LOAD = 10 PSF
- 4 LOW ULTIMATE WIND SPEED 105 TO 140 MPH KNOMINAL WIND SPEED 81 TO 108 MPH); MARKETER/POST AND END POST SPACES 50 FEET
- 5 HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 139 TO 132 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 40 FEET
- 5 END WALL COLUMNS (POSTS) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING (UNLESS NOTED OTHERWISE)
- 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 DN-CENTERS ALDNE RAFTERS DR PURLINS, AND POSTS, INTERIOR = 9° DR END = 6°. (MAX)
- II 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
- 12 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 x 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 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: SOIL SITE CLASS = D

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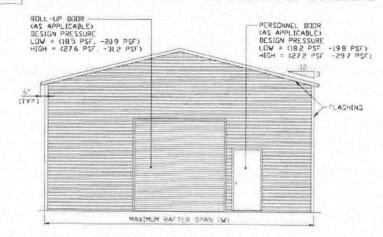
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	CHECKED BY: PDH		LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B				
	DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE					

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CLIENT: TBS

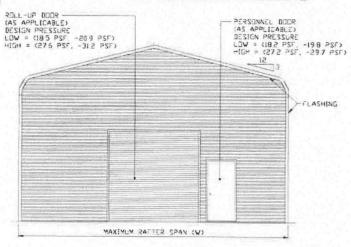
BOX EAVE FRAME RAFTER ENCLOSED BUILDING



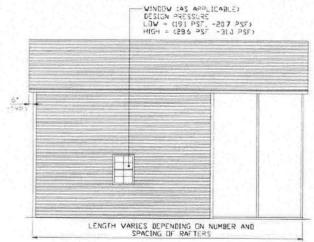
TYPICAL END ELEVATION

SCALE NTS

BOW FRAME RAFTER ENCLOSED BUILDING



TYPICAL END ELEVATION



TYPICAL SIDE ELEVATION



TYPICAL SIDE ELEVATION

SCALE NTS



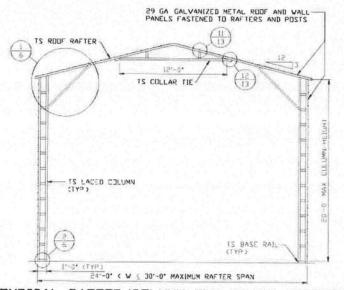
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PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JDB ND: 16154S/ 17300S/20352S	Ď.		
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TS ROOF RAFTER

PANELS FASTENED TO RAFTERS AND POSTS

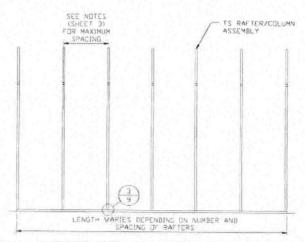
24' 18 GA U-CHANNEL
BRACE FASTENED TO
RAFTER WITH (43)
NIC-14×3/4' SDF'S AT
EACH END (8 PER BRACE)

TS LACED COLUMN

(TYP)

V (24'-0' MAXIMUM RAFTER SPAN

TYPICAL RAFTER/COLUMN END FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



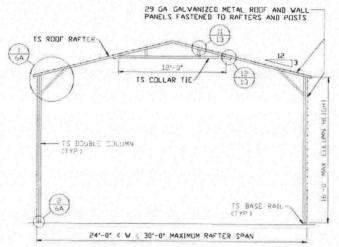
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DRAWN BY: JG	63	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE LAKE CITY, FLORIDA 32025				
CHECKED BY: PBH	30'-0"x20'-0" UTILITY BUILDING EXP. F					
PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JUB ND: 16154S/ 17300S/20352S			
CLIENT: TBS	SHT. 5	DWG. NO SK-2		REV. 3		



TS ROOF RAFTER

29 GA GALVANIZED METAL ROOF AND WALL
PANELS FASTENED TO RAFTERS AND POSTS

24' 18 GA U-CHANNEL
BRACE FASTENED TO
RAFTER WITH (1)
112-14-33/4' SBF'S AT
EACH END (8 SER BRACE)

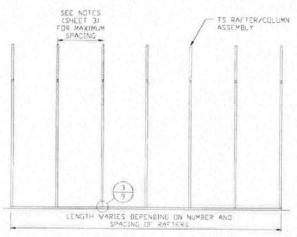
12 BASE RAIL

4 TS BASE RAIL

4 TS BASE RAIL

5 TS BASE RAIL

TYPICAL RAFTER/COLUMN END FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



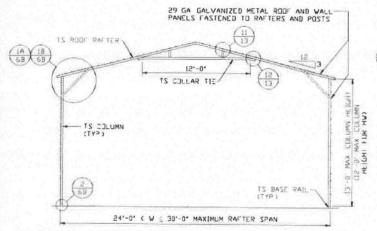
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DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE						



29 GA GALVANIZED METAL ROOF AND VALL
PANEL'S FASTENED TO RAFTERS AND POSTS

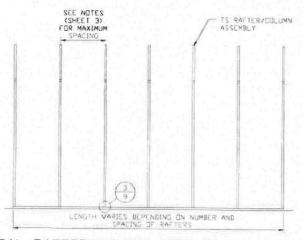
18 BASE FASTENED TO RAFTERS AND POSTS

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

15 BASE RAIL
(TYP)

V (24'-0' MAXIMUM RAFTER SPAN

TYPICAL RAFTER/COLUMN END FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



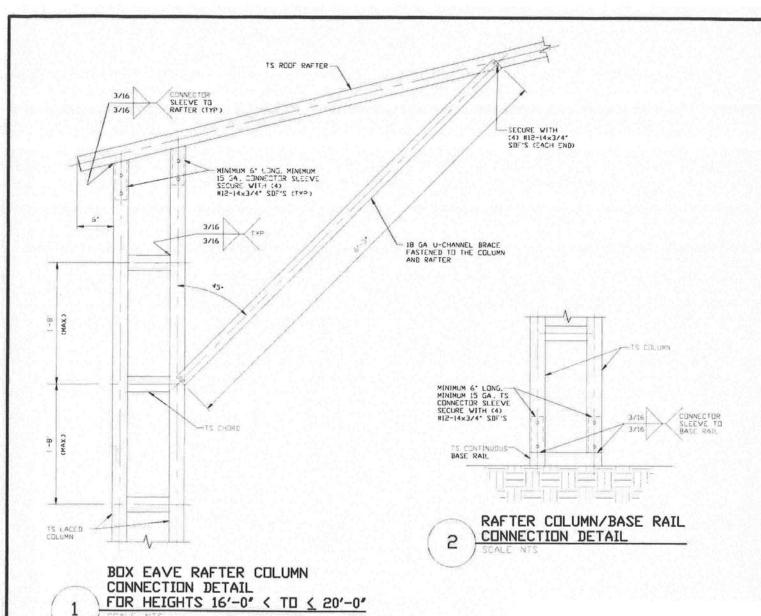
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THE GA U-CHANNEL BRACE FASTENED TO THE COLUMN AND RODE RAFTER, VITH (4) BIZ-143/47 SDF'S AT EACH END (8 PER BRACE)

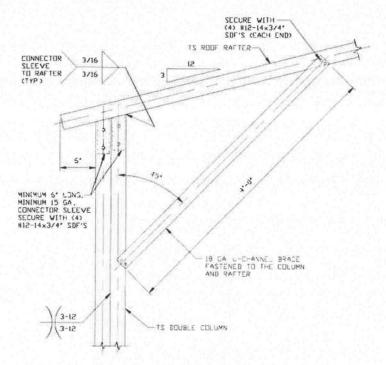
BRACE SECTION



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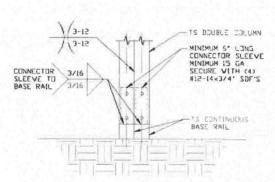
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	PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JDB ND: 16154S/ 17300S/20352S
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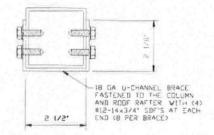


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 13'-0" < TO ≤ 16'-0"

SCALE NTS
NOTE: COLUMN HEIGHTS 12'-0' < TO < 16'-0" FOR HIGH WIND



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE NTS



BRACE SECTION

1



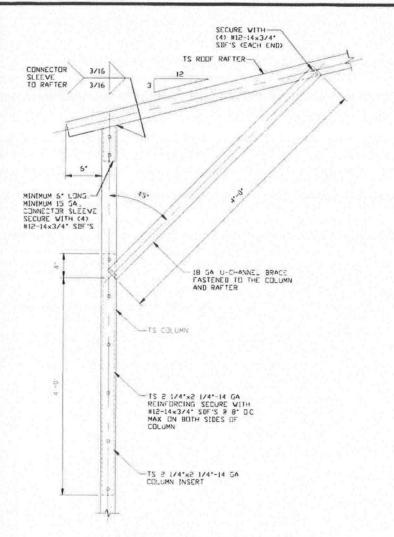
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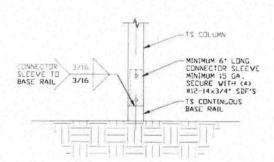
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PREJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS		B ND: 16154S/ 300S/20352S		
CLIENT: TBS	SHT. 6A	DAC NO 2K-5		REV. 3		



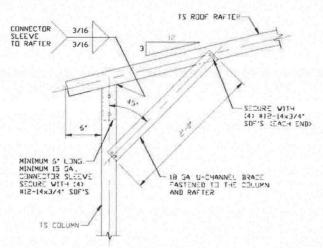
BOX EAVE RAFTER COLUMN CONNECTION DETAIL

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

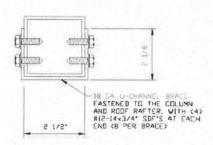
SCALE NTS NOTE MAXIMUM COLUMN HEIGHT IS 12'-0' FOR HIGH WIND



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS \(\leq \) 10'-0"



BRACE SECTION

1B

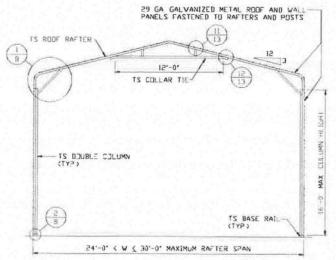


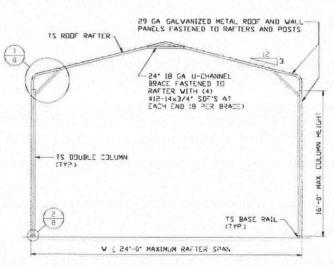
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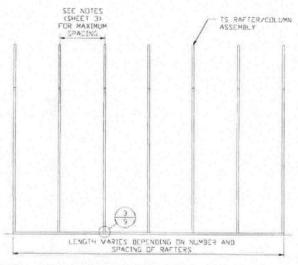
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TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



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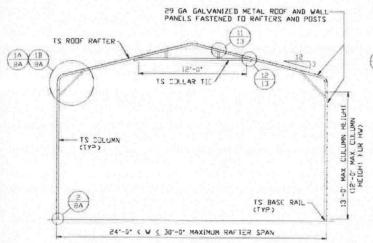
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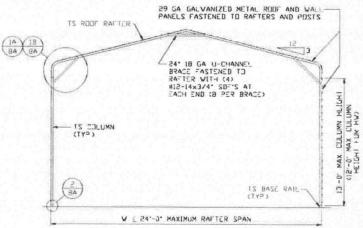
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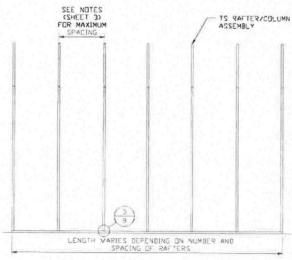
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TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

PEALE NIZ



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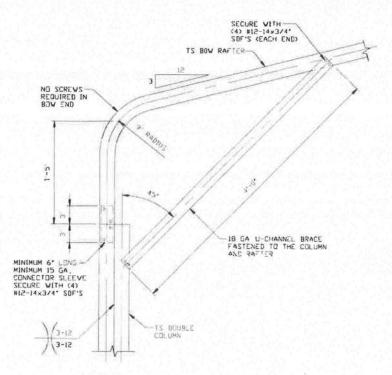
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DRAWN BY: JG CHECKED BY: PDH	L/	631 SE INDUSTRIAL CIRCLE LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B			
		ULAR BUILDIN			

CLIENT: TBS SHT. 7A DVG. ND: SK-2

REV.: 3



CONNECTOR 3/16

SLEEVE TO BASE RAIL 3/16

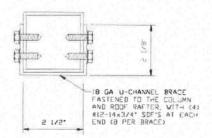
STORY OF THE ST

RAFTER COLUMN/BASE RAIL

CONNECTION DETAIL

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

SCALE NTS
NOTE COLUMN HEIGHTS 12'-0" < TO < 16'-0" FOR HIGH WIND



BRACE SECTION

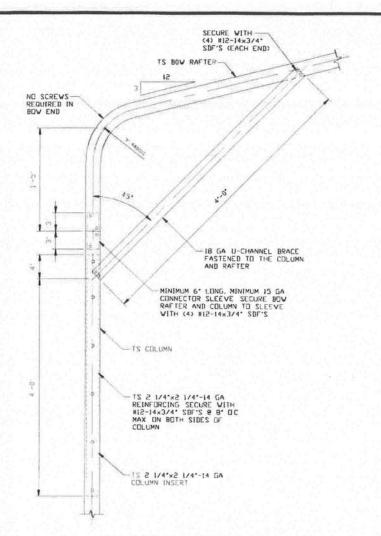
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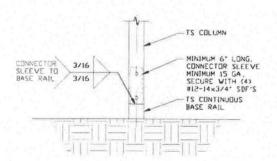
TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B MOORE AND ASSOCIATES DRAWN BYI JG ENGINEERING AND CONSULTING, INC. CHECKED BY PDH JOB NO 16154S/ THIS DOCUMENT IS THE PROPERTY OF MODRE AND ASSOCIATES ENGINEERING AND CONSULTING. THE UMAUTHORIZED REPRODUCTION, COPYING, OR OTHERWISE USE OF THIS DOCUMENT IS STRICTLY PROHIBITED AND ANY INFRINGEMENT THEREUPON MAY BE SUBJECT TO LEGAL ACTION. PROJECT MGRI WSM DATE: 7-29-21 SCALE: NTS 17300\$/20352\$ SHT. 8 REV. 3 CLIENT: TBS DWG. NO: SK-2



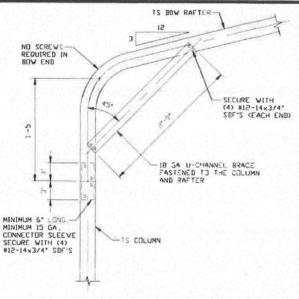
BOX EAVE RAFTER COLUMN CONNECTION DETAIL

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

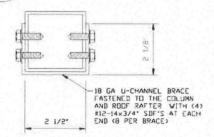
SCALE NTS
NOTE MAXIMUM COLUMN HEIGHT IS 12'-0' FOR HIGH WIND



2 RAFTER COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE: NTS



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



BRACE SECTION

1B



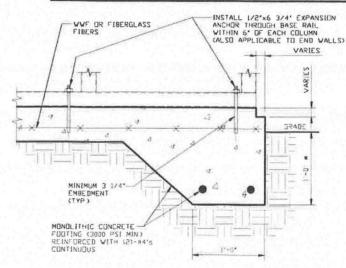
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BASE RAIL ANCHORAGE OPTIONS FOR LOW AND HIGH WIND SPEED





CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

MINIMUM ANCHOR EDGE DISTANCE IS 4. * COORDINATE WITH LOCAL CODES/ORD REGARDING MINIMUM FROST DEPTH REQ



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 ACT-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

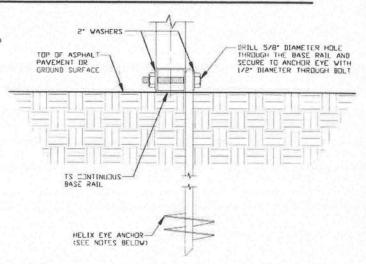
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM AGIS GRADE 50 THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT

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.
 REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT
- BE FIELD BENT

HELIX ANCHOR NOTES:

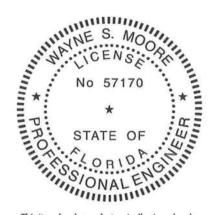
- 1 FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES CALICHE PRELOADED SILTS AND CLAYS USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH EMBEDMENT
- 2 FOR CORAL USE MINIMUM (2) 4' HELICES WITH MINIMUM 30 INCH
- 3 FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS VERY STIFF SILTS. AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT
- 4 FOR LODGE 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 LUSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL USE MINIMUM (2) 8* HELICES WITH MINIMUM 60 INCH EMBEDMENT.



3B

GROUND BASE HELIX ANCHORAGE

SCALE (CAN BE USED FOR ASPHALT) * COORDINATE WITH LOCAL CODES/ORD REGARDING MINIMUM FROST DEPTH RED



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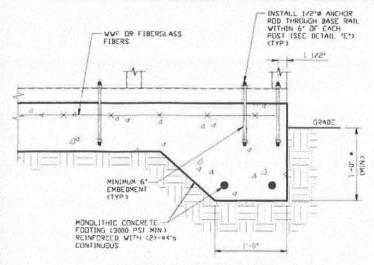
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DRAWN BY: JG CHECKED BY: PDH	63 L/	I SE INDUSTRIA KE CITY, FLOR	LAR BUILDING SYSTEMS SE INDUSTRIAL CIRCLE E CITY, FLORIDA 32025 D" UTILITY BUILDING EXP. I			
PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS		ND: 16154S/ 00S/20352S		
CLIENT, TRE	P THZ	DWG NO SK-P		PFV: 3		

OPTIONAL FOUNDATION ANCHORAGE FOR LOW AND HIGH WIND SPEED



3C

CONCRETE MONOLITHIC SLAB ANCHORAGE BASE RAIL

SCALE NTS MINIMUM ANCHOR EDGE DISTANCE IS 1 1/2. * 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

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

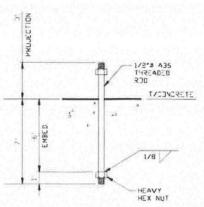
REINFORCING STEEL

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:

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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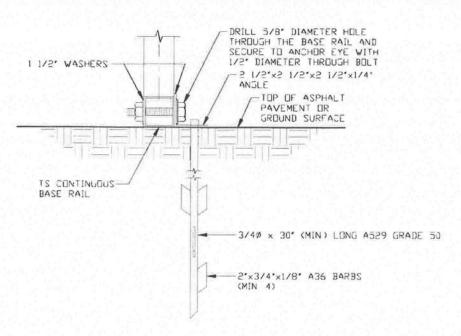
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CHECKED BY: PDH						
PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JUB NO: 16154S/ 17300S/20352S			
CLIENT: TBS	SHT. 9A	DVG. ND: SK-2		REV. 3		

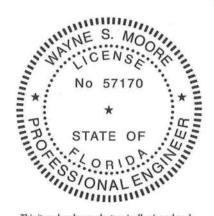
BASE RAIL ANCHORAGE OPTION



ASPHALT BASE ANCHORAGE (HP 9 BARBED DRIVE ANCHOR)

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

3E

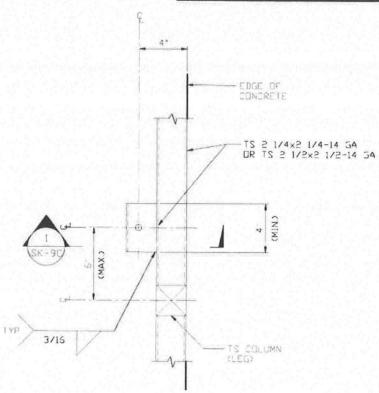


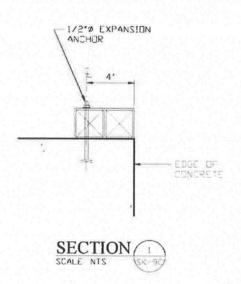
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BASE RAIL ANCHORAGE OPTIONS





TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE



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DWG. ND: SK-2

REV. 3

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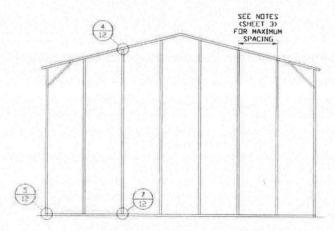
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CHECKED BY: PBH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B				
DRAWN BY: JG	631 SE INDUSTRIAL CIRCLE				

SHT. 9C

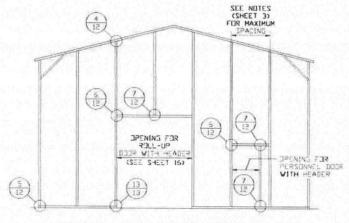
CLIENT: TBS

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



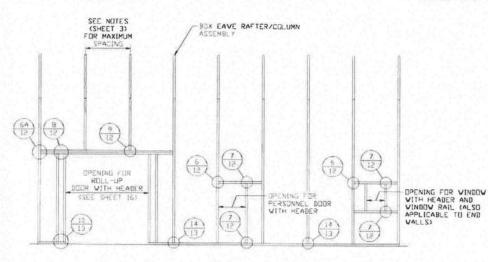
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

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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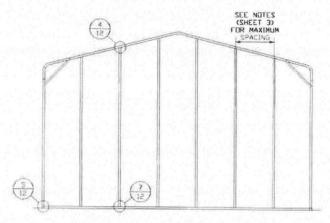
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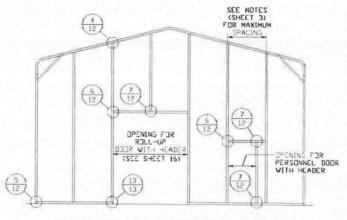
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CLIENT: TBS	SHT. 10	DAC NO 2K-5		REV. 3			
PROJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS		ND: 16154S/ 100S/20352S			
CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B						
DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE						

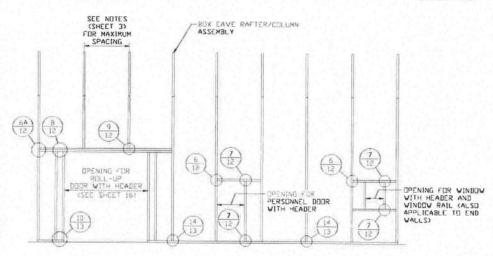
BOW RAFTER END WALL AND SIDE WALL OPENINGS



TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE NTS



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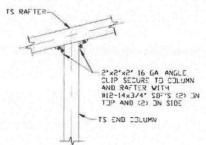
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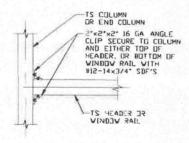
DRAWN BY: JG CHECKED BY: PDH	- 63 L/	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B					
PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JDB ND: 16154S/ 17300S/20352S				
CLIENT: TRS	SHT. 11	DVG. NO: SK-2		REVJ 3			

CONNECTION DETAILS



CONNECTOR SLEEVE TO BASE RAIL 3/16 SCEUKE TO REFER COLUMN AND BASE RAIL W/CA) H12-14x3/4* SDF'S H12-14x3/4* SDF'S SCEUKE TO RAFFER COLUMN AND BASE RAIL W/CA) H12-14x3/4* SDF'S

TS COLUMN (CORNER)

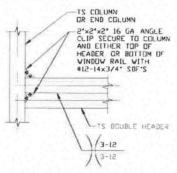


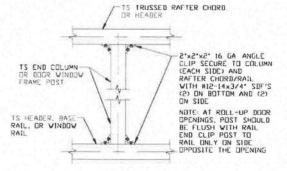
4 END COLUMN/RAFTER CONNECTION DETAIL

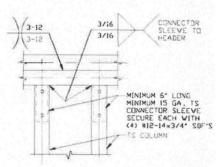
5 END COLUMN/BASE RAIL CONNECTION DETAIL

HEADER OR WINDOW RAIL TO COLUMN CONNECTION DETAIL

6

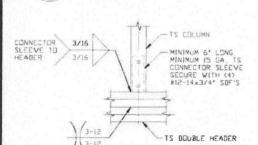






DOUBLE HEADER TO COLUMN CONNECTION DETAIL

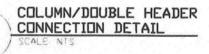
COLUMN TO HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL



6A

9

8 DOUBLE HEADER/COLUMN
CONNECTION DETAIL
SCALE NTS





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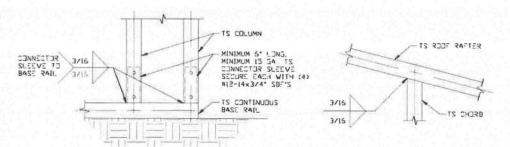
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PROJECT MGR: WSM	CT MGR: VSM DATE: 7-29-21			JDB ND: 16154S/ 17300S/20352S	
CLIENT: TBS	SHT. 12	DVG. NO SK-2		REV. 3	

CONNECTION DETAILS



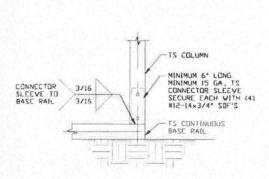
14

TS ROOF PAPIER

10 COLUMN/BASE RAIL CONNECTION DETAIL

11 RAFTER TO CHORD CONNECTION DETAIL

12 COLLAR TIE CONNECTION DETAIL



COLUMN/BASE RAIL CONNECTION DETAIL SCALE NTS

13

TS TRUSSED RAFTER
CHORD, DR HEADER

TS END COLUMN
OR DODR WINDOW
FRAME POST

TS HEADER BASE
RAIL DR WINDOW
RAIL

BASE RAIL
CONNECTION DETAIL
SCALE: NTS

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CHECKED BY: PDH		AKE CITY, FLOR 0'-0" UTILITY BI			,	
PREJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS		ND: 16154S/ 00S/20352S		
CLIENT: TBS	SHT. 13	DWG. NO: SK-2		REV. 3		

BOX EAVE RAFTER LEAN-TO OPTIONS 6 ROOF EXTENSION MAIN STRUCTURE STANDARD OPTION LEAN-TO OPTION

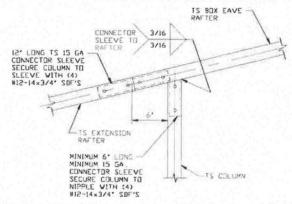
TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN) SCALE: NTS

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR

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

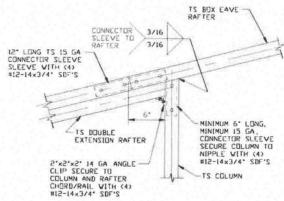
EAVE HEIGHTS ≤ 10'-0"

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"

15



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



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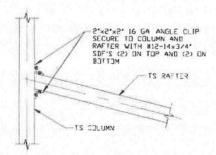
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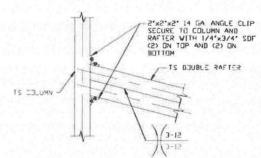
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CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B						
PROJECT MGR: WSM	DJECT MGR: WSM DATE: 7-29-21			JOB ND 16154S/ 17300S/20352S			
CLIENT: TBS	SHT. 14	BAC NO 2K-5		REV. 3			

BOX EAVE RAFTER LEAN-TO OPTIONS



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



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 15'-0" < TO ≤ 24'-0"

16A) SCALE NI

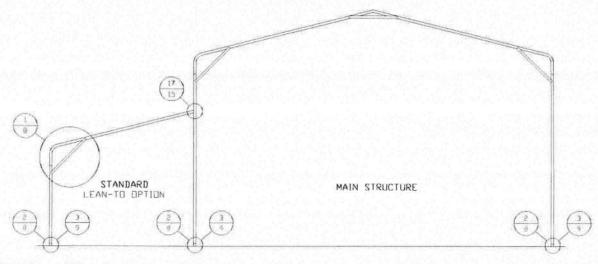


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BOW RAFTER LEAN-TO OPTIONS



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

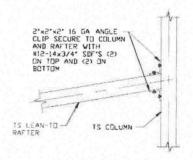
17

17A

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 \$\(\) 15'-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 FOR RAFTER SPANS

≤ 15'-0"

2"x2"x2" 16 GA ANGLE — CLIP SECURE TO COLUMN AND RAFTER WITH B12-14x3/4" SDF'S (2) ON TOP AND (2) ON BOTTOM TS DOUBLE LEAN-TO RAFTER TS DOUBLE

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 15'-0" < TO ≤ 24'-0"

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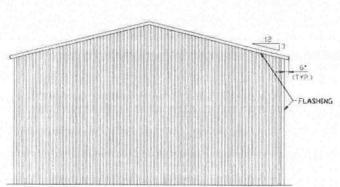
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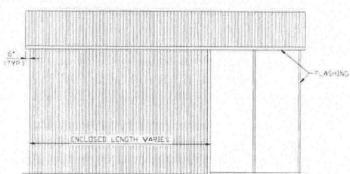
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CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B						
PREIJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JUB NO 16154S/ 17300S/20352S				
CLIENT: TBS	SHT. 15	DVG. NO: SK-2	REV. 3				

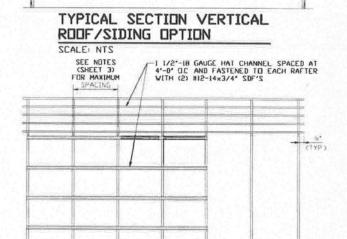
BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



TYPICAL END ELEVATION VERTICAL ROOF/SIDING OPTION



TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING OPTION

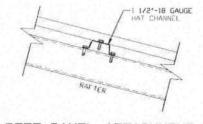


I 1/2'-IB GAUGE

29 GA GALVANIZED METAL RODF AND WALL PANELS FASTENED TO HAT CHANNELS AND GIRTS

TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

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



ROOF PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS) SCALE: NTS



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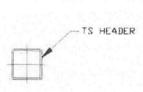
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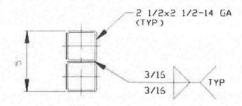
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PROJECT MGR: VSM				B ND 16154S/
CLIENT: TRS	SHT. 16	DVG. ND: SK-2		REV. 3

SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR DOOR OPENINGS ≤ 10'-0"

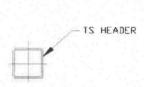
SCALE NTS



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

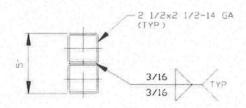
SCALE NTS

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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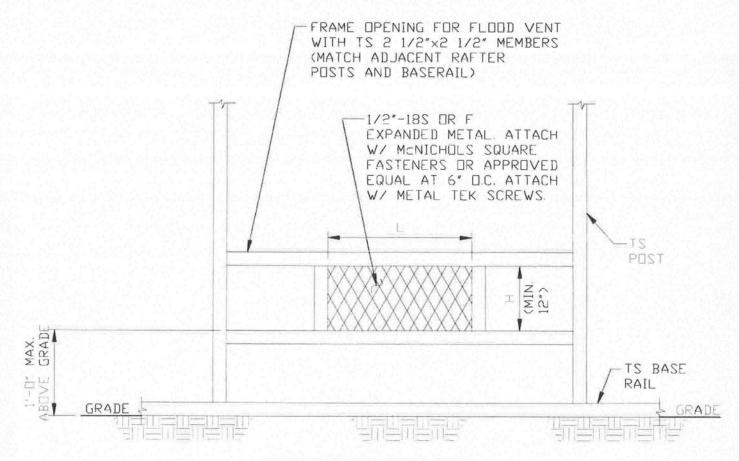
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PROJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS		IB ND: 16154S/ 300S/20352S	
CLIENTI TBS	SHT. 17	DWG. NO: SK-2		REV. 3	

FLOOD VENT DETAIL



TYPICAL FLOOD VENT DETAIL SCALE NTS

- 1 MINIMUM VENT SPACE REQUIRED = 1 SQ INCH OF OPEN VENT AREA PER SQ. FOOT OF BUILDING AREA
- 2 THERE SHALL BE A MINIMUM OF TWO OPENINGS ON DIFFERENT SIDES FOR EACH ENCLOSED BUILDING
- 3 APPLY 13 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

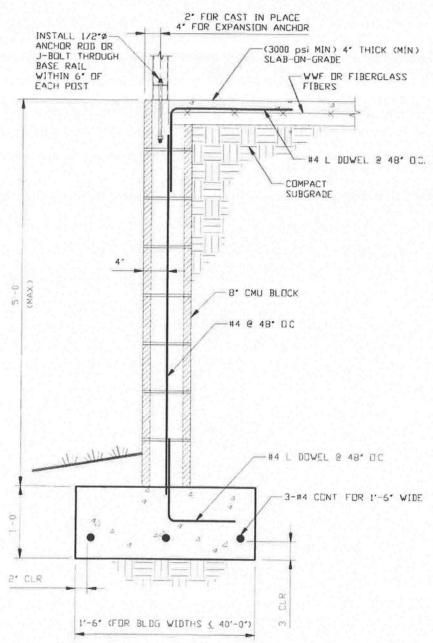


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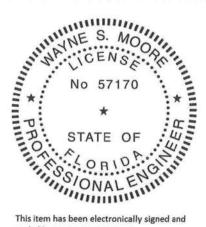
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MOORE AND ASSOCIATES	DRAWN BY: JG	63	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE			

STAND -ALONE STEM WALL DETAIL



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

SCALE: NTS



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DVG. ND: SK-2

REV. 3

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PROJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS	17300S/20352S
Color and the second se			

SHT. 19

CLIENT: TBS

OPTIONAL CONCRETE STRIP FOOTING AND BASE RAIL 30'-0' MAXIMUM RAIL

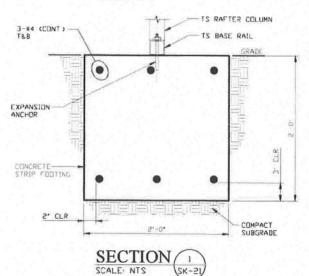
- INCHER COLUMN

 TS. BASE RAIL

 TS. RAFTER COLUMN

 (TYP)
- I STRIP FOOTING DESIGN BASED ON MINIMUM SOIL BEARING CAPACITY OF 1,500 PSF
- 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

CONCRETE STRIP FOOTING PLAN



* COORDINATE WITH LOCAL CODES/ORD

CONCRETE STRIP FOOTING

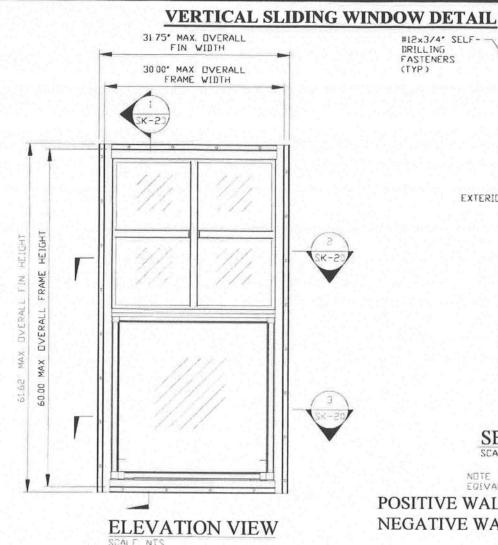
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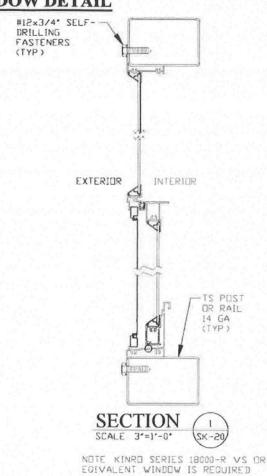
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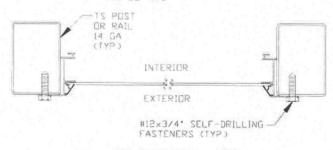
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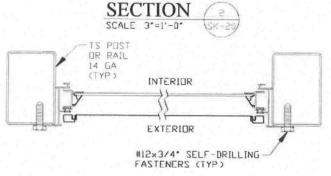
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CHECKED BY: PDH	LAKE CITY, FLORIDA 32025 30'-0"x20'-0" UTILITY BUILDING EXP. B				
PROJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS		ND: 16154S/ 00S/20352S	
CLIENT: TBS	SHT. 21	DVG. ND: SK-2		REV. 3	

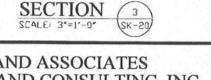




POSITIVE WALL PRESSURE: +40.0 PSF NEGATIVE WALL PRESSURE: -40.0 PSF







3

No 57

PROTITIONS

ST

A

THE S. MC

NO 57

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CLIENT: TBS	SHT. 20	DWG. ND: SK-2		REV. 3



Florida Product Approval Codes

Roll-Up Doors:

6Wide Janus International Corporation Model 750: 21450.11

EXP 12/31/2022

Roof Deck:

Capital Metal Supply Inc. Ag Panel: 20147.2

EXP 03/04/2025

Wall Panel:

Capital Metal Supply Inc. Ag Panel: 20148.2

EXP 03/04/2025

If you have any questions on concern, please contact Donald Little at 386-961-0006 or at tubularbuildingsystems@gmail.com.