



#### STRUCTURAL DESIGN

# OPEN STRUCTURE WITH ENCLOSED LEAN-TO BUILDING OPTION EXPOSURE B

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

24 February 2021 Revision 2 M&A Project No. 16159S/18027S/20352S

#### Prepared for:

Tubular Building Systems, LLC P.O. Box 2254 Lake City, Florida 32025

#### Prepared by:

Moore and Associates Engineering and Consult 1009 East Avenue North Augusta, SC 29841

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

Wayne Digitally signed by Wayne S Moore Date: 2021.10.21 08:27:38 -04'00'

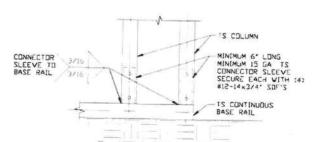


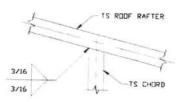


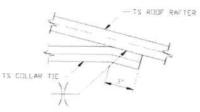


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#### **CONNECTION DETAILS**





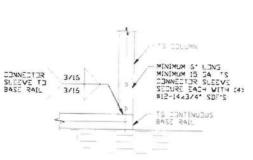


10 COLUMN/BASE RAIL
CONNECTION DETAIL

11 RAFTER TO CHORD CONNECTION DETAIL

SETAPS DESCUST 21
SEDAEH SC DSCHO

MINIMUM 5' LUNS, MINIMUM 15 34, 15 CUNNECTURE SLEEVE SECURE SLEEVE SECURE SLEEVE SECURE MINIMUM 6' LUNS, 12 COLLAR TIE CONNECTION DETAIL



COLUMN TO HEADER,
BASE RAIL
CONNECTION DETAIL

- MMUJEC DME 21 VEDNIV SEED SE TZES EMASS

13 COLUMN/BASE RAIL CONNECTION DETAIL



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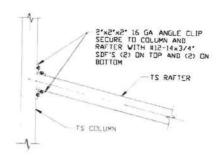
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	PROJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS	J01	8 ND 16022S/ 00S/20352S	
CHECKED BY: PDH		LAKE CITY, FLORIDA 32025 30'-0"x20'-0" ENCLOSED BUILDING EXP. B				
	DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE				

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

16A



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS \( \leq \) 15'-0"

16

TS COLUMN

2 \*\*2 \*\*2 \*\* 14 GA ANGLE CLIP
SECURE TO COLUMN AND SID
RAFTER VITH 1/4 \*\*3/4 \*\* SDF
(2) ON TOP AND (2) ON
BOTTOM

TS DOUBLE RAFTER

(3-12

LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 15'-0" < TO \( 24'-0" \)

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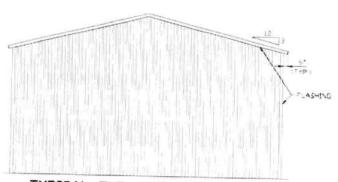
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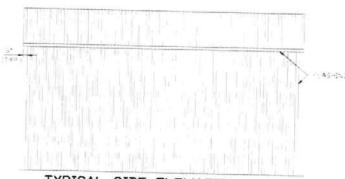
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PROJECT MGR: VSM	DATE: 7-29-21	SCALE: NTS	JUB ND: 160225/ 173005/203525	
CLIENT: TBS	SHT. 14A	DVG. ND: SK-3	REV. 6	

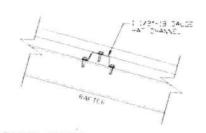
## BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



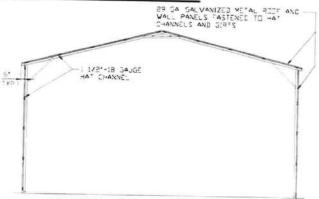
TYPICAL END ELEVATION
VERTICAL ROOF/SIDING OPTION



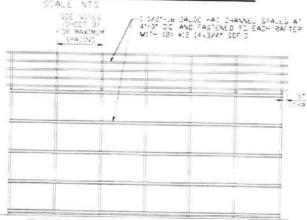
TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING OPTION



ROOF PANEL ATTACHMENT
(ALTERNATE FER VERTICAL ROOF PANELS)



TYPICAL SECTION VERTICAL ROOF/SIDING OPTION



TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

NOTE IS WALL GIRLS CAN BE USED AS AN ERTISM IN PLACE THAN SHANKELS IS STORED WILL BE SPACE AT A THE PLACE



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PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS	JOB NO: 17300S/2		
CLIENT: TBS	SHT. 16	DVG. NO SK-3	REV.	6	

## 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 POST MAX 1'-(I'-TS BASE RAIL GRADE -4 TYPICAL FLOOD VENT DETAIL

- J MINIMUM VENT SPACE REQUIRED = 1 SQ INCH OF DPEN VENT AREA PER SQ FOOT OF BUILDING AREA
- 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 REQLIREMENTS OF FEMA/NIFIP MAY BE USED



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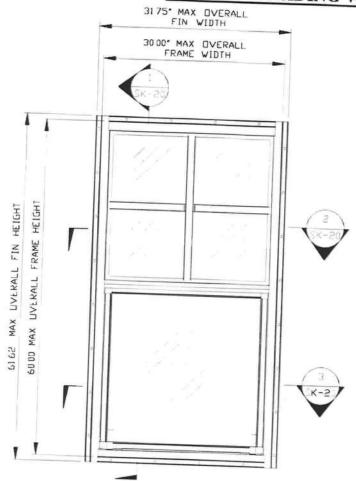
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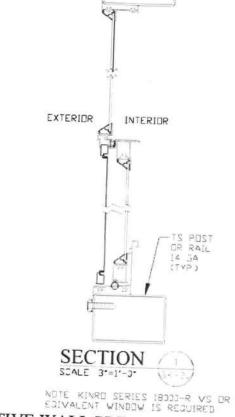
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CHE	ECKED BY: PDH	LAKE CITY, FLORIDA : 30'-0"x20'-0" ENCLOSED BUILI			2025	
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## VERTICAL SLIDING WINDOW DETAIL #12×3/4" SELF DRILLING

FASTENERS

(TYP)

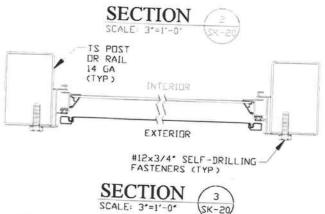




**ELEVATION VIEW** 

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





3



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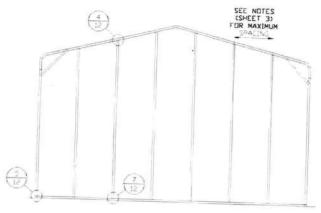
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PROJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS JUB ND: 16: 17300S/203		ND 160225/	
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## BOW RAFTER END WALL AND SIDE WALL OPENINGS

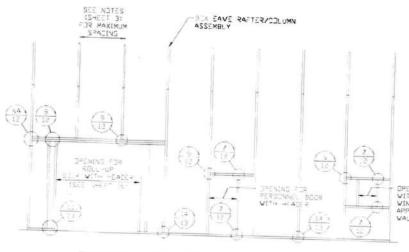


TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

22TON 332 (S T33H2) FUR MAXIMM (4) 12) ( fg ) DPENING FOR ROLL-UP PERSONNEL BOOK (1)

TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



DPENING FOR WINDOW WITH HEADER AND WINDOW RAIL (ALSO APPLICABLE TO END WALLS)

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

SCALE NTS



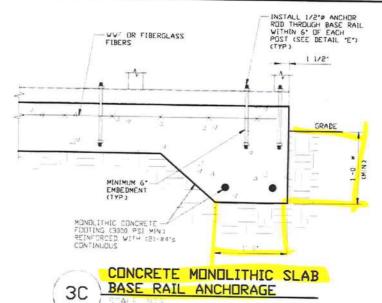
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## OPTIONAL FOUNDATION ANCHORAGE FOR LOW AND HIGH WIND SPEED



### \* COORDINATE WITH LOCAL CODES/ORD RESARDING MINIMUM FROST DEPTH RED GENERAL NOTES

NOTE CONCRETE MONOLITHIC SLAB DESIGN ON MINIMUM SOIL BEARING CAPACITY OF 1.500 PSF

MINIMUM ANCHOR EDGE DISTANCE IS 1 1/2

CONCRETE SHALL HAVE 4 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 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

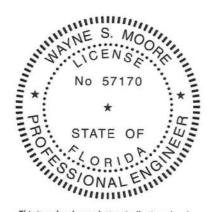
REINFORCEMENT IS BENT COLD

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

PROJECTION 1/2°# A36 THREADED ROD TZCONCRETE

ANCHOR ROD THROUGH BASE RAIL DETAIL



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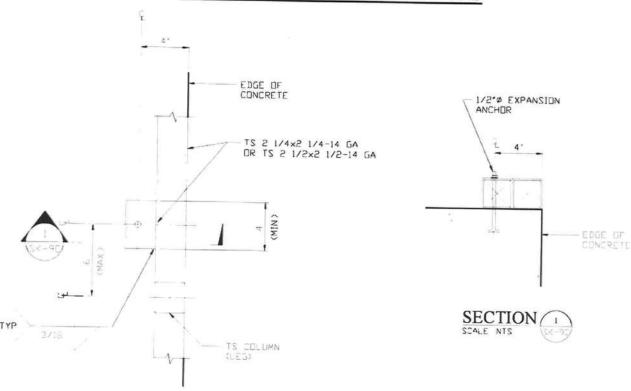
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## **BASE RAIL ANCHORAGE OPTIONS**



TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

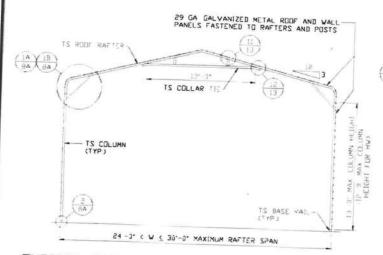


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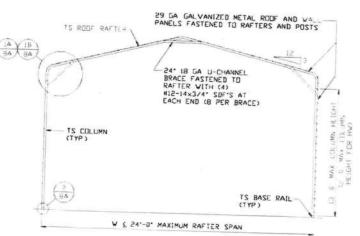
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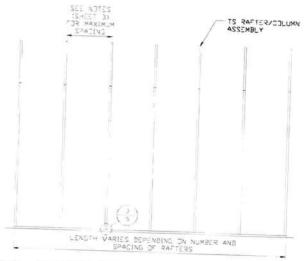
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## TYPICAL RAFTER/COLUMN END FRAME SECTION



## TYPICAL RAFTER/COLUMN END FRAME SECTION



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

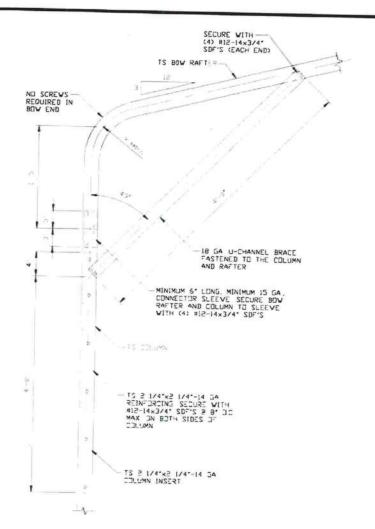


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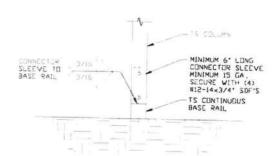
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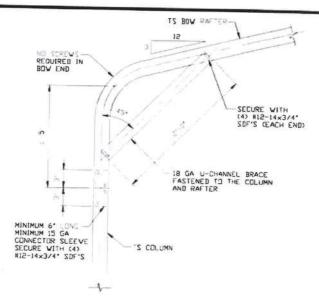


NOTE MAXIMUM COLUMN HEIGHT IS 12'-0" FOR HIGH WIND

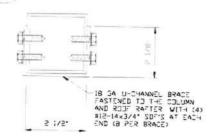


1A

RAFTER COLUMN/BASE RAIL
CONNECTION DETAIL
SCALE: NTS

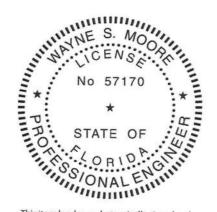


#### BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS < 10'-0"



#### BRACE SECTION

1B



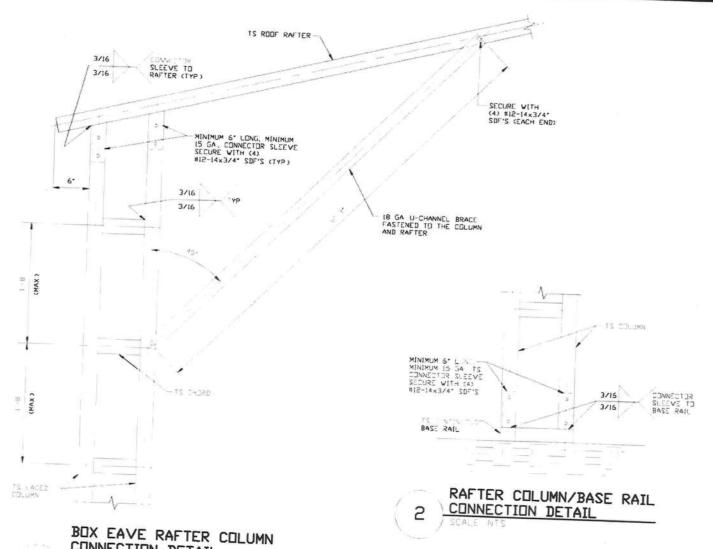
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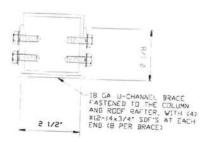
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BOX EAVE RAFTER COLUMN
CONNECTION DETAIL
FOR HEIGHTS 16'-0" < TO < 20'-0"



BRACE SECTION

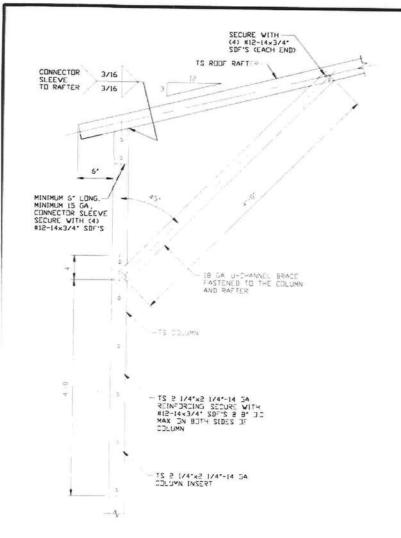


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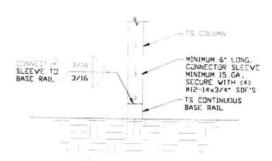
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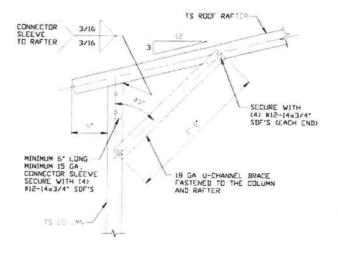
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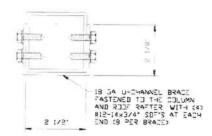
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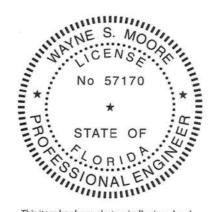
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL



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



#### BRACE SECTION



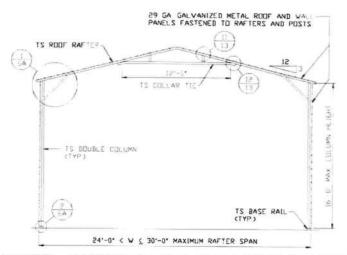
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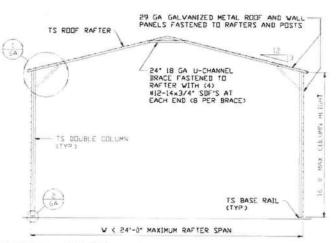
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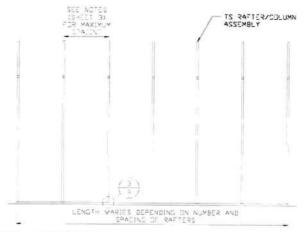
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## TYPICAL RAFTER/COLUMN END FRAME SECTION SCALE NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION



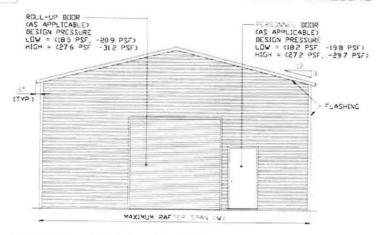
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CHECKED BY: PDH		KE CITY, FLOR 0" ENCLOSED I				
PREJECT MGR: WSM	DATE: 7-29-21	SCALE: NTS		ND: 16022\$/ 00\$/20352\$		
CLIENT: TBS	SHT. 5A	DVG. ND: SK-3		REV. 6		

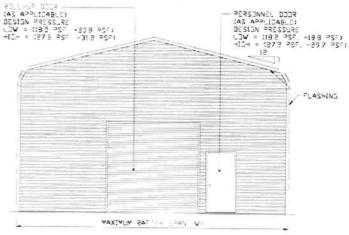
#### BOX EAVE FRAME RAFTER ENCLOSED BUILDING



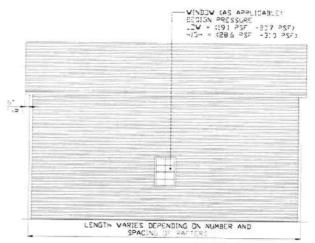
#### TYPICAL END ELEVATION

SCALE ATS

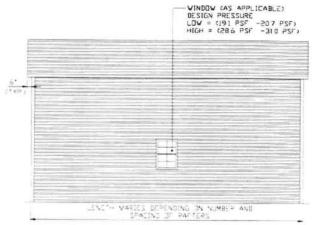
#### BOW FRAME RAFTER ENCLOSED BUILDING



#### TYPICAL END ELEVATION



TYPICAL SIDE ELEVATION



#### TYPICAL SIDE ELEVATION

SCALE NT



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CHECKED	BY: PDH		0" ENCLOSED				
PROJECT	MGR: WSM	DATE: 7-29-21	SCALE: NTS		ND: 16022S/ 00S/20352S		
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SHEEL SI	BOW RAFTER LEAN-TO OPTIONS  VERTICAL ROOF/SIDING OPTION  OPTIONAL DOOR HEADER  FLOOD VENT DETAIL  STAND-ALONE STEM WALL DETAIL  VERTICAL SLIDING WINDOW DETAIL  STRIP FOOTING OPTION



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0/20/20 24 22/	LAKE CITY, FLORIDA 32025				
DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE				

JOB NO 16022S/ 17300S/20352S PROJECT MGR: WSM DATE: 7-29-21 SCALE: NTS CLIENT: TBS REV. 6

SHT, 2 DWG. ND: SK-3



#### STRUCTURAL DESIGN

## ENCLOSED BUILDING EXPOSURE B

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

29 July 2021 Revision 6 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

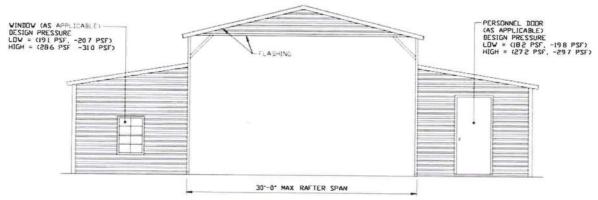
Wayne Digitally signed by Wayne S Moore Date: 2021.10.21 08:30:02 -04'00'



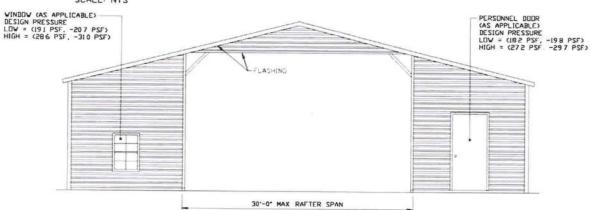


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## **BOX EAVE RAFTER VERTICAL ROOF LEAN-TO OPTION**



### TYPICAL END ELEVATION VERTICAL ROOF-STANDARD LEAN-TO



### TYPICAL END ELEVATION VERTICAL ROOF-ROOF EXTENSION LEAN-TO

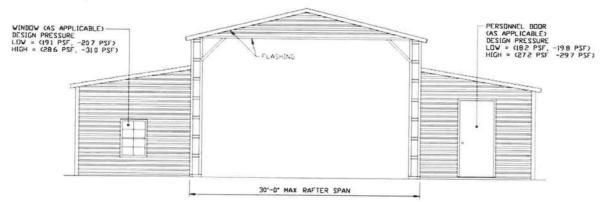
NOTE: SEE MASTER DESIGN FOR MAXIMUM 30'-0' WIDE x 13'-0' EAVE HEIGHT -BOX EAVE FRAME AND BOW FRAME OPEN BUILDING-EXPOSURE B (RISK CATEGORY 1) FOR STRUCTURAL PLAN. ELEVATION, SECTION AND DETAIL INFORMATION



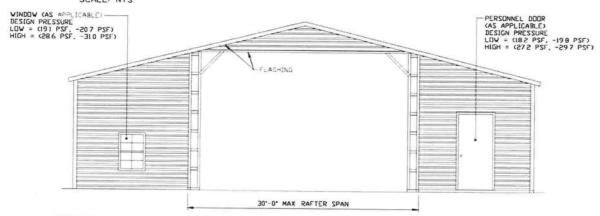
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## **BOX EAVE RAFTER VERTICAL ROOF LEAN-TO OPTION**



## TYPICAL END ELEVATION VERTICAL ROOF-STANDARD LEAN-TO SCALE: NTS



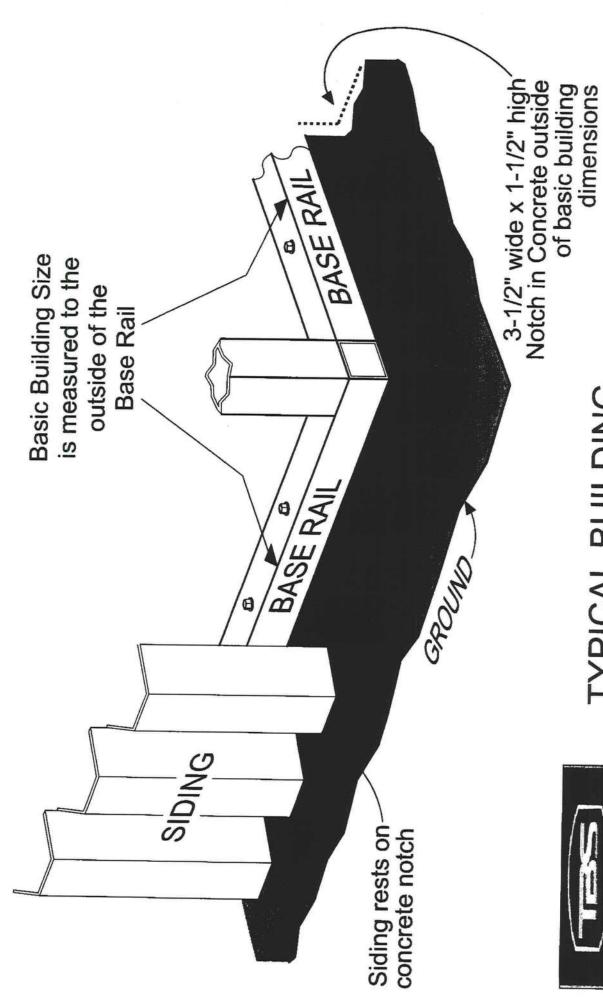
### TYPICAL END ELEVATION VERTICAL ROOF-ROOF EXTENSION LEAN-TO

NOTE SEE MASTER DESIGN FOR MAXIMUM 30'-0' WIDE × 20'-0' EAVE HEIGHT -BOX EAVE FRAME AND BOW FRAME OPEN BUILDING-EXPOSURE B (RISK CATEGORY 1) FOR STRUCTURAL PLAN, ELEVATION, SECTION AND DETAIL INFORMATION



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TYPICAL BUILDING

CORNER DETAIL

FUBULAR BUILDING

