



## **STRUCTURAL DESIGN**

### **ENCLOSED BUILDING** **EXPOSURE B**

**MAXIMUM 40'-0" WIDE X 20'-0" EAVE HEIGHT- BOX EAVE  
FRAME**

**29 July 2021**

**Revision 6**

**M&A Project No. 16022S/16072S/16073S/17301S/20352S**

**Prepared for:**

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

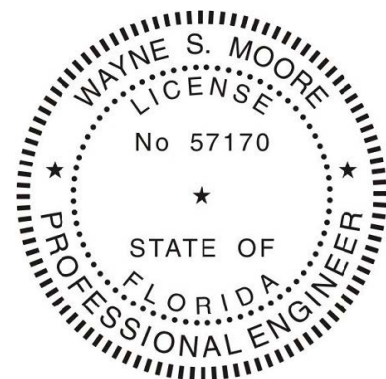
**Prepared by:**

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

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



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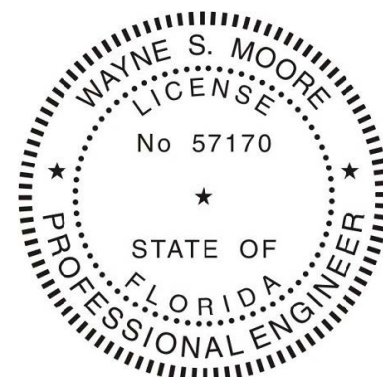


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MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 40'-0"x20'-0" ENCLOSED BUILDING EXP. B		
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	CLIENT: TBS	SHT. 1	DWG. NO: SK-3	REV: 6

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**TUBULAR BUILDING SYSTEMS**  
**40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

DATE: 7-29-21

SCALE: NTS

**JOB NO:**

16022S/17301S/20352S

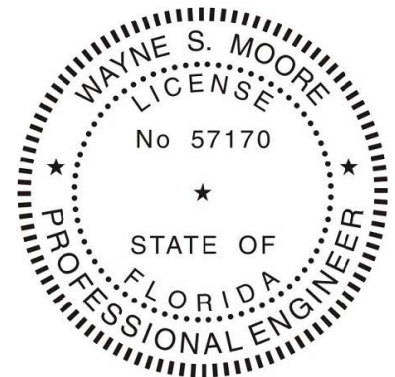
**SHT. 1**

DWG. NO: SK-3

REV. 6

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**TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

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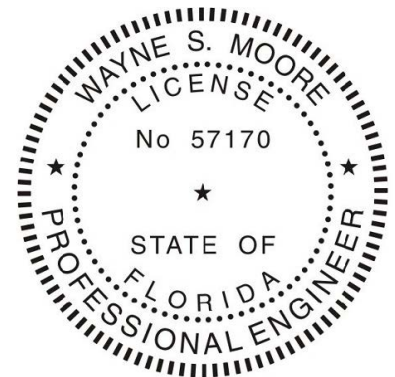
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16022S/17301S/20352S

**REV:** 6

## INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR A MAXIMUM 40'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2018 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC AND 2012 IBC.
3. DESIGN LOADS ARE AS FOLLOWS:
  - A) DEAD LOAD = 15 PSF
  - B) LIVE LOAD = 12 PSF
  - C) GROUND SNOW LOAD = 10 PSFNOTE: UNBALANCED SNOW LOAD DUE TO DRIFTING HAS NOT BEEN EVALUATED.
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 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 (UNO).
10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9" AND END = 6" (MAX).
11. FASTENERS CONSIST OF #12-14x3/4" 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.
12. ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES AND ENDS.
13. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 30" LONG AND MAY BE USED IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. SOIL NAILS MAY BE USED FOR WIND SPEEDS  $\leq$  145 MPH. 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  
RISK CATEGORY I  
 $R = 3.25$        $I_E = 10$   
 $S_{DS} = 2.039\text{ g}$        $V = C_s W$   
 $S_{DI} = 1.258\text{ g}$



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40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

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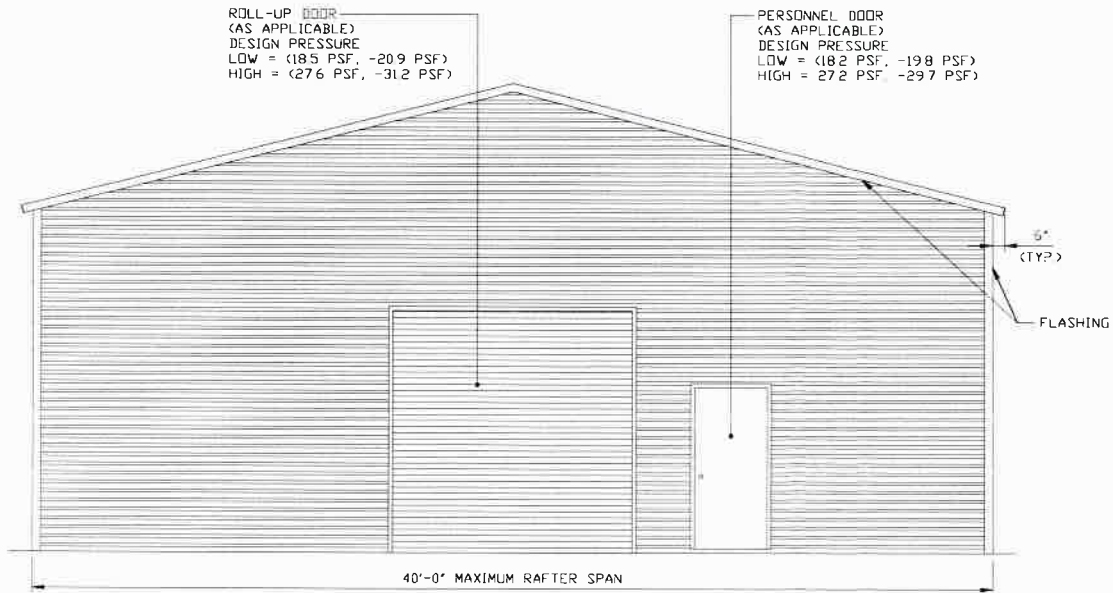
SHT. 3

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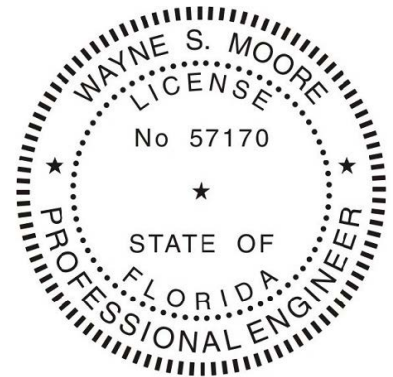
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BOX EAVE FRAME RAFTER ENCLOSED BUILDING



TYPICAL END ELEVATION-HORIZONTAL ROOF

SCALE: 1/8" = 1'-0"



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SHT. 4

SCALE: NTS

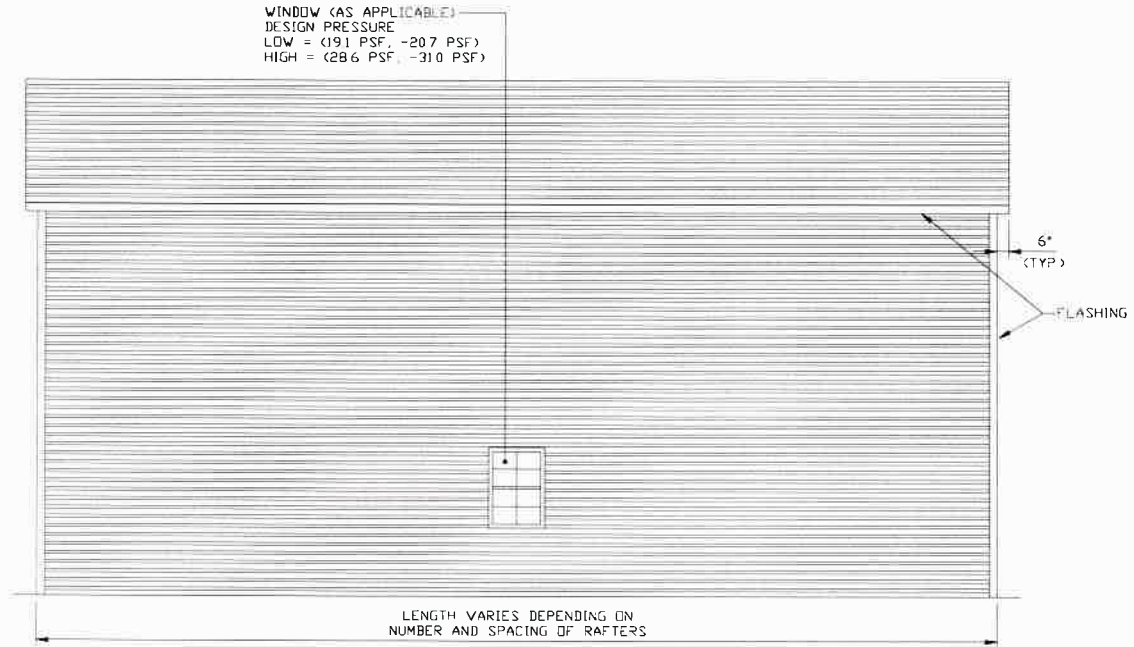
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JOB NO:  
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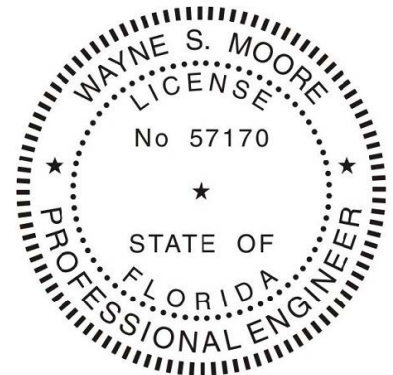
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☐ BOX EAVE FRAME RAFTER ENCLOSED BUILDING



**TYPICAL SIDE ELEVATION-HORIZONTAL ROOF**

SCALE: 1/8" = 1'-0"



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SHT. 4A

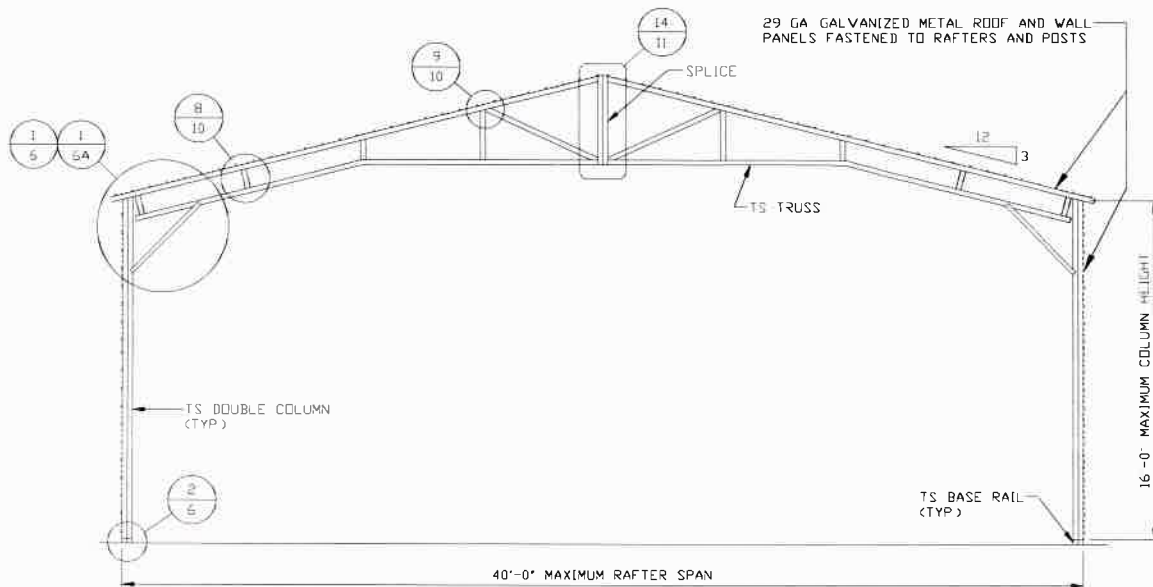
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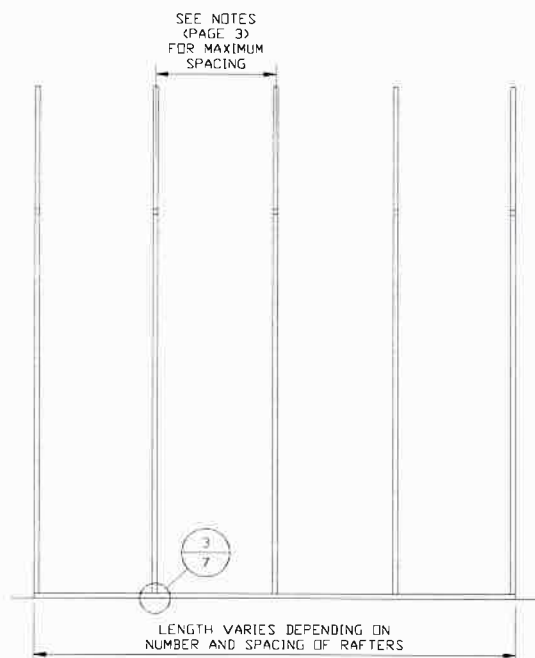
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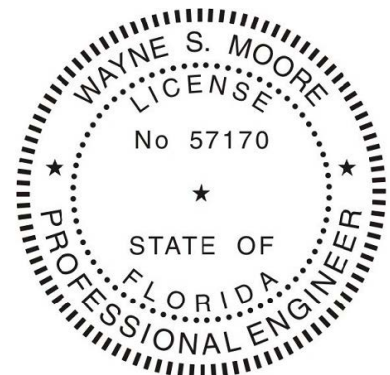
### TYPICAL RAFTER/POST FRAME SECTION

SCALE: 1/8" = 1'-0"



### TYPICAL RAFTER/POST SIDE FRAMING SECTION

SCALE: 1/8" = 1'-0"



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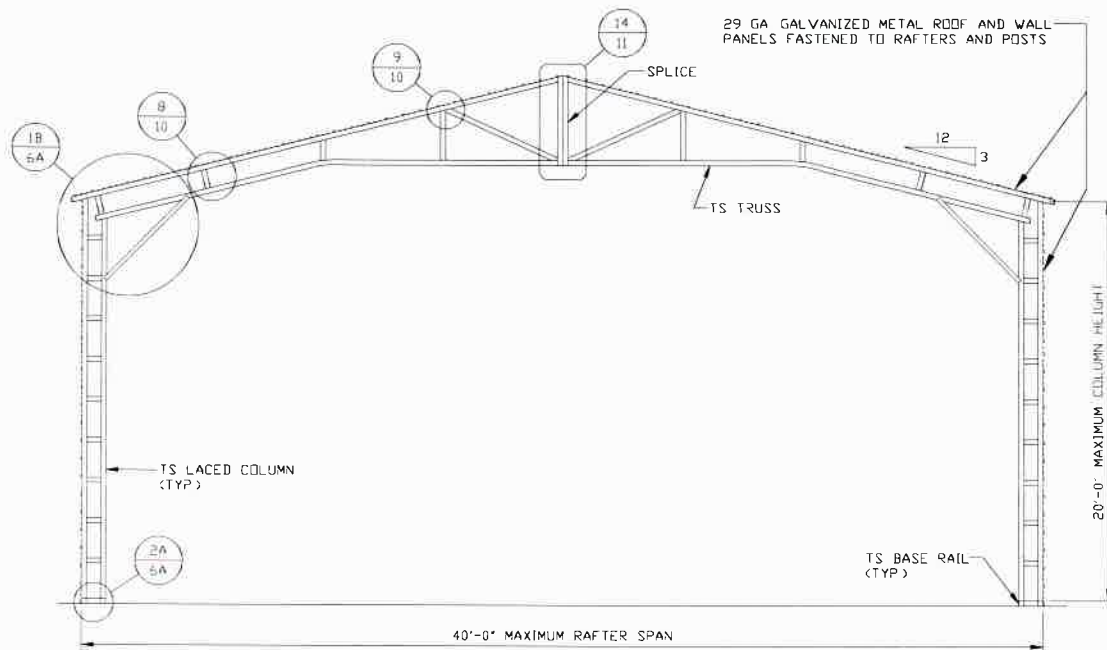
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SCALE: NTS

DWG. NO: SK-3

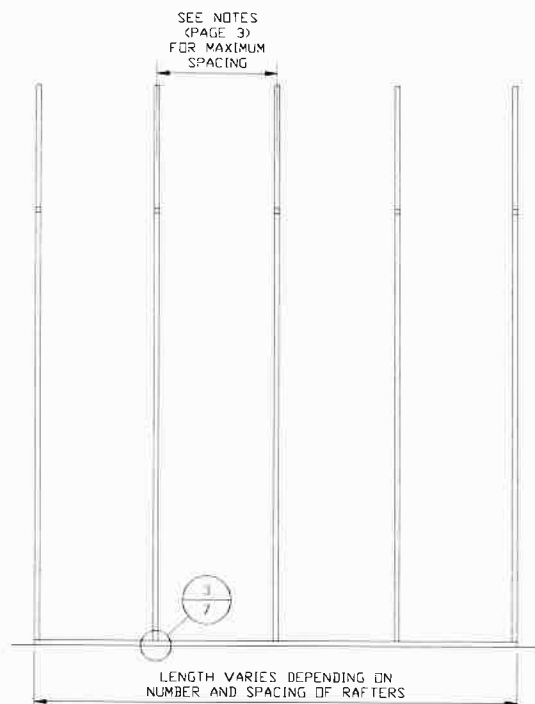
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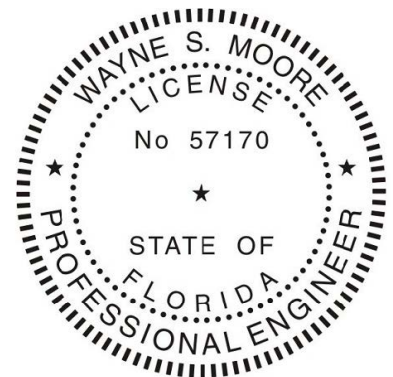
### TYPICAL RAFTER/POST FRAME SECTION

SCALE: 1/8" = 1'-0"



### TYPICAL RAFTER/POST SIDE FRAMING SECTION

SCALE: 1/8" = 1'-0"



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SHT. 5A

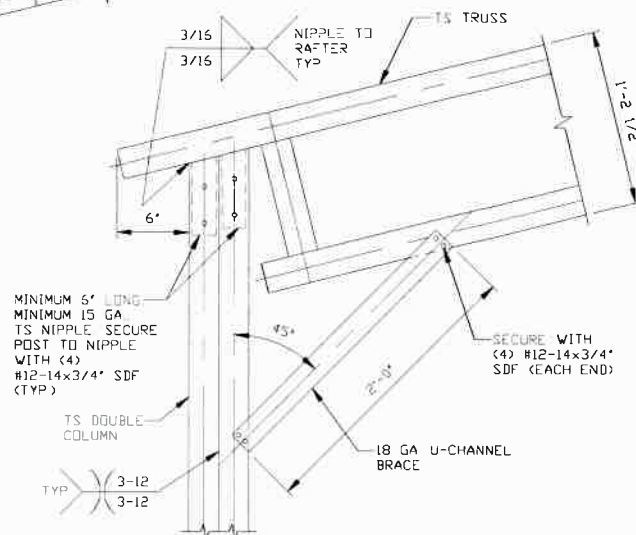
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REV: 6



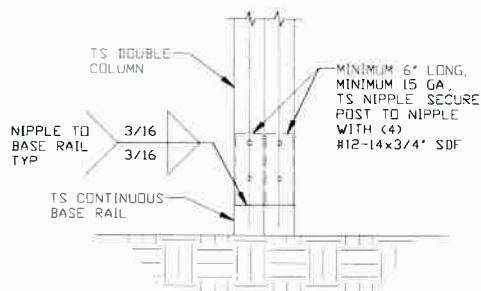


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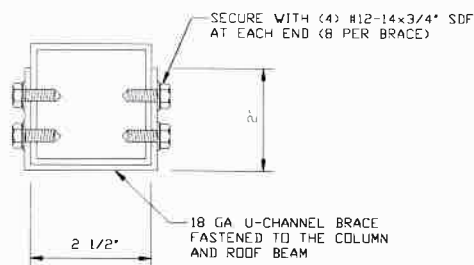
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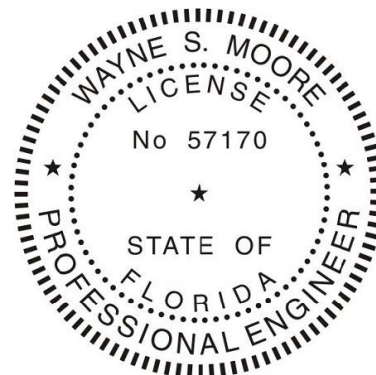


2

SCALE NTS



SCALE: NTS



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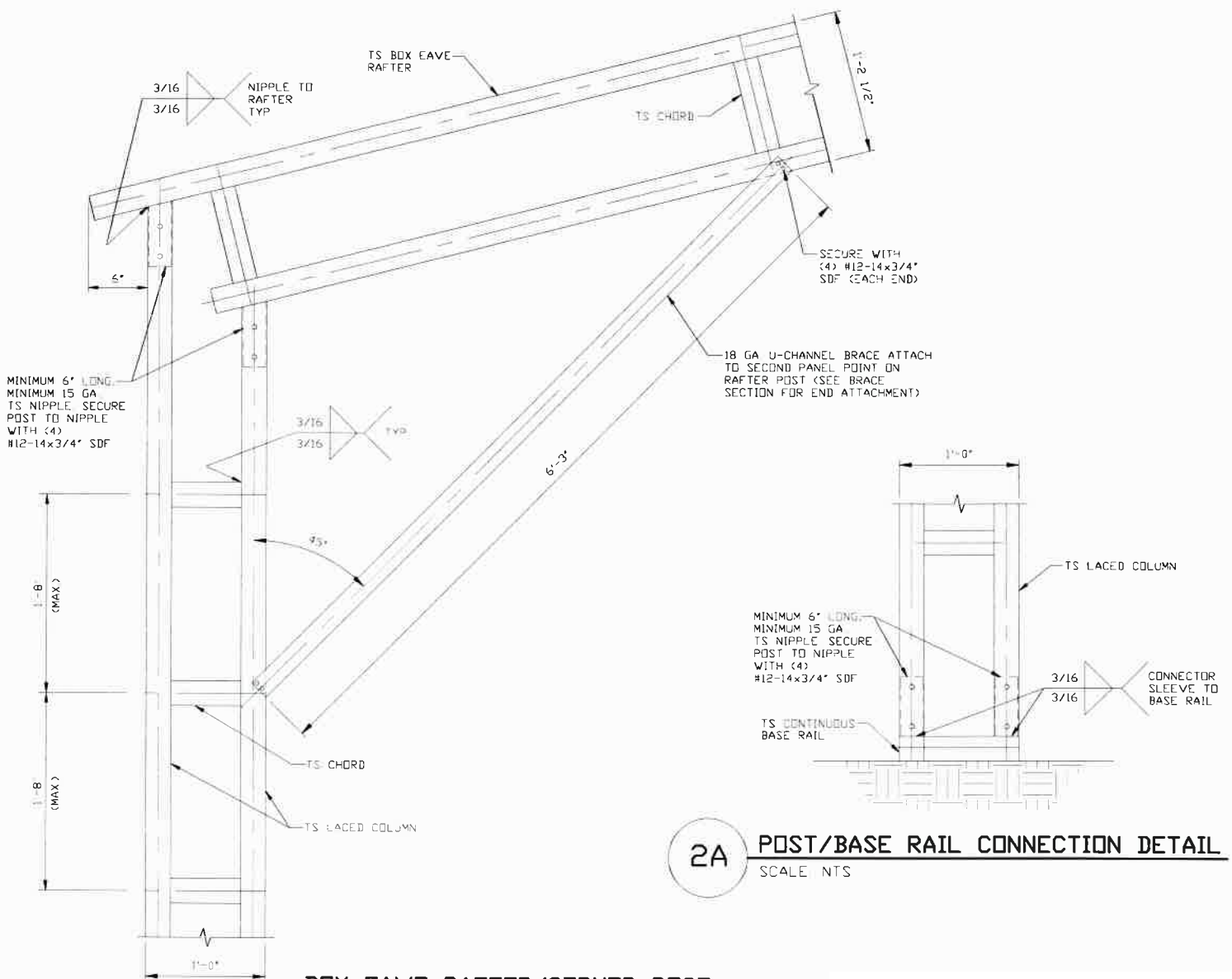
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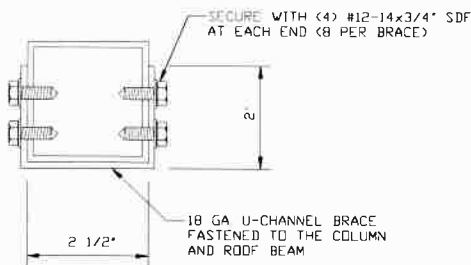
REV. 6



1B

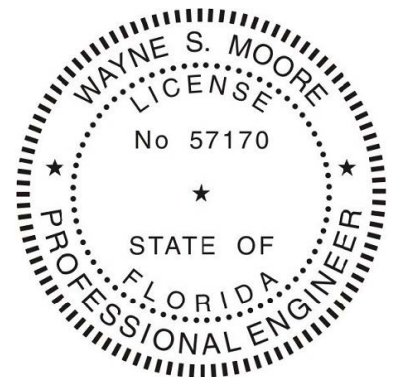
BOX EAVE RAFTER/CORNER POST  
CONNECTION DETAIL FOR  
HEIGHTS 16'-0" < TO < 20'-0"

SCALE: NTS



BRACE SECTION

SCALE: NTS



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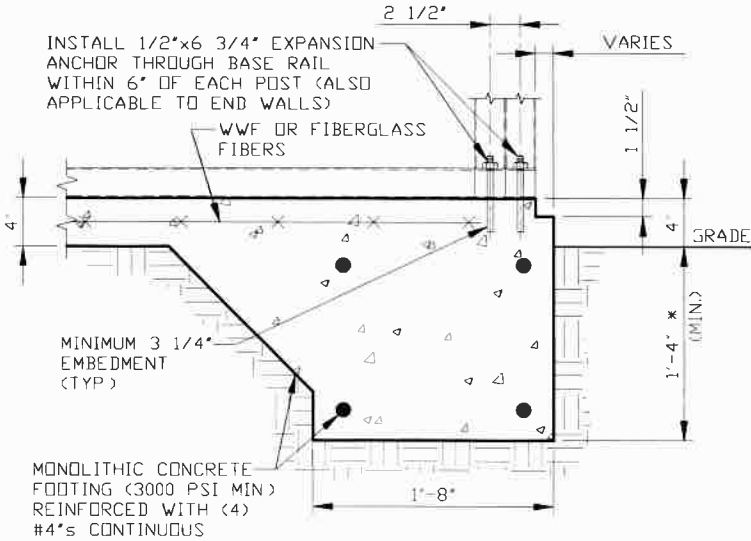
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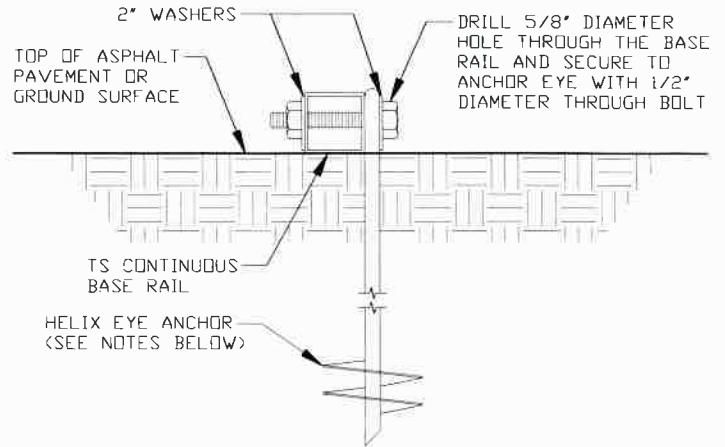
## BASE RAIL ANCHORAGE OPTIONS FOR LOW AND HIGH WIND SPEED



3

### CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

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



3A

### GROUND BASE HELIX ANCHORAGE

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

## GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED 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:

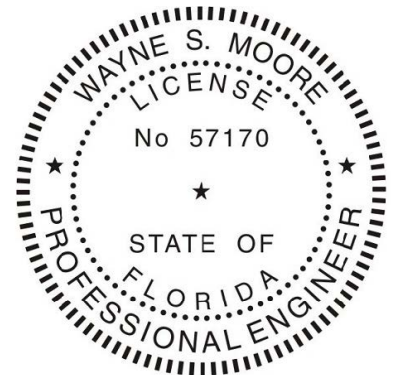
THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

### 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.

### 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 LOOSE 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 LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL USE MINIMUM (2) 8" HELICES WITH MINIMUM 50 INCH EMBEDMENT.



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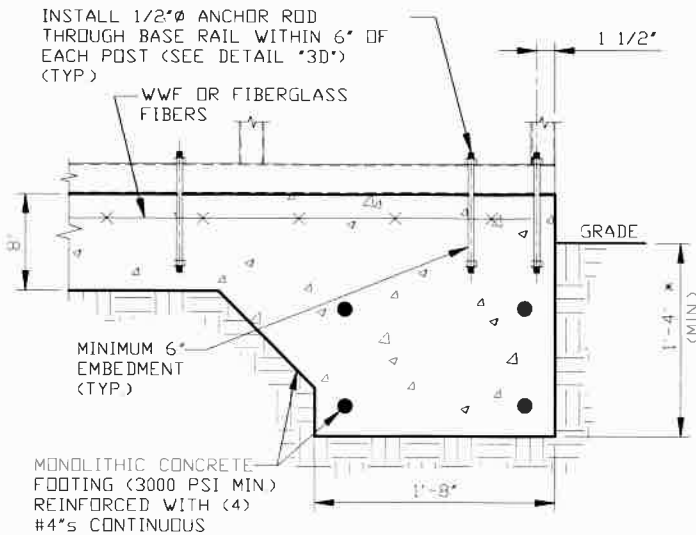
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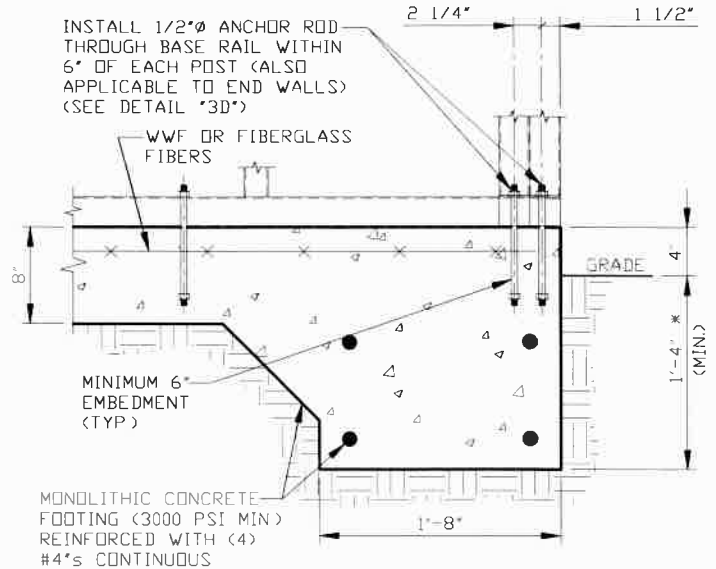
# OPTIONAL FOUNDATION ANCHORAGE FOR LOW AND HIGH WIND SPEED



3B

## CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

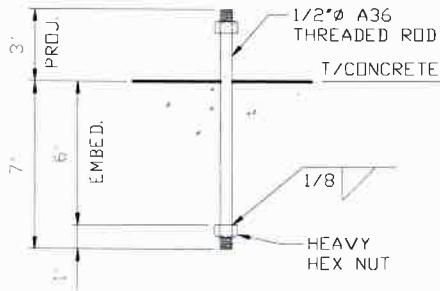
SCALE: NTS  
(MINIMUM ANCHOR EDGE DISTANCE IS 1 1/2")  
\* COORDINATE WITH LOCAL CODES/ORD.



3C

## CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

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



3D

## ANCHOR ROD THROUGH BASE RAIL DETAIL

SCALE: NTS

## GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED 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:

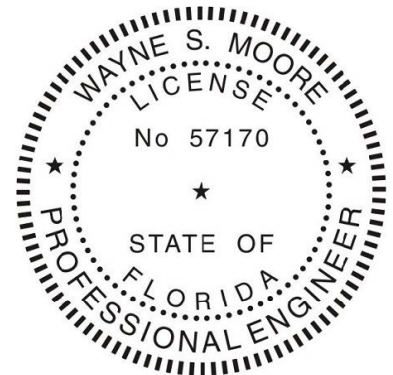
FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318:  
3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2 INCHES ELSEWHERE

### 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.



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DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TBS

TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 7A

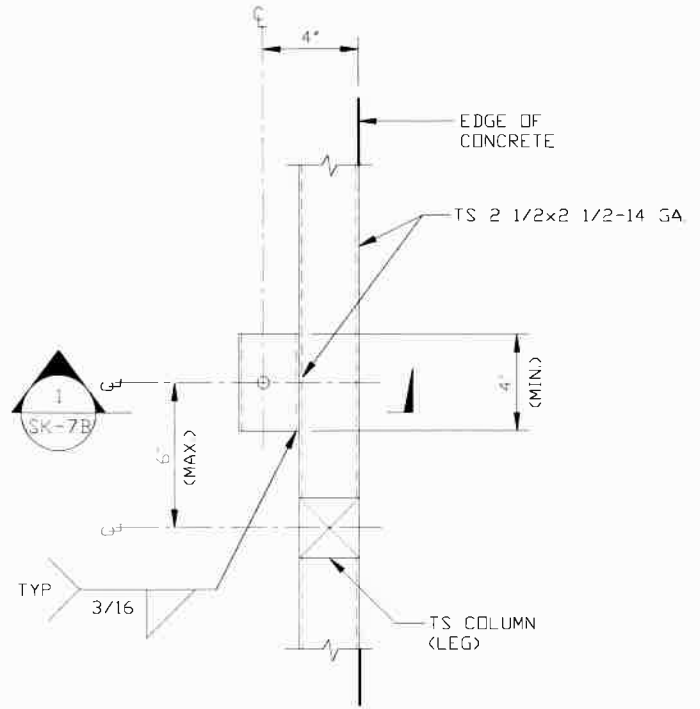
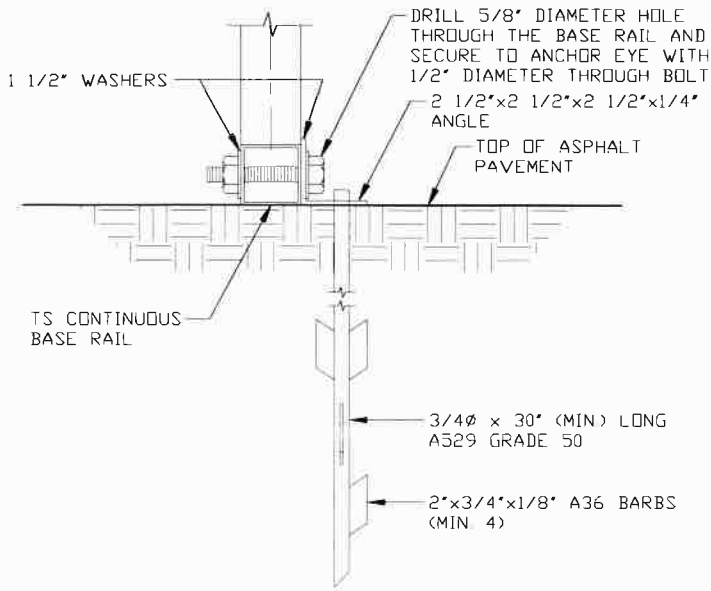
SCALE: NTS

DWG. NO: SK-3

JOB NO: 16022S/17301S/20352S

REV: 6

## BASE RAIL ANCHORAGE OPTION



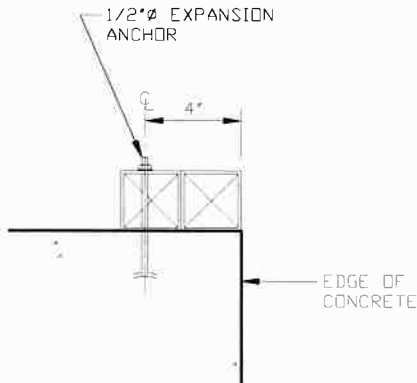
### ASPHALT BASE ANCHORAGE (HP 9 BARBED DRIVE ANCHOR)

3E

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

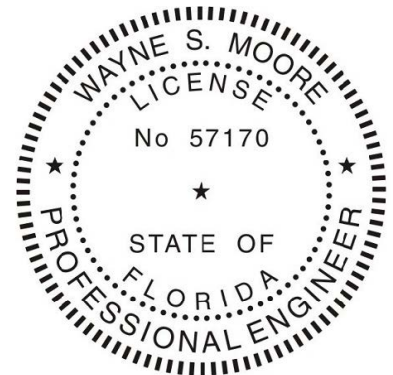
### TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

SCALE: NTS



#### SECTION

SCALE: NTS



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TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 7B

SCALE: NTS

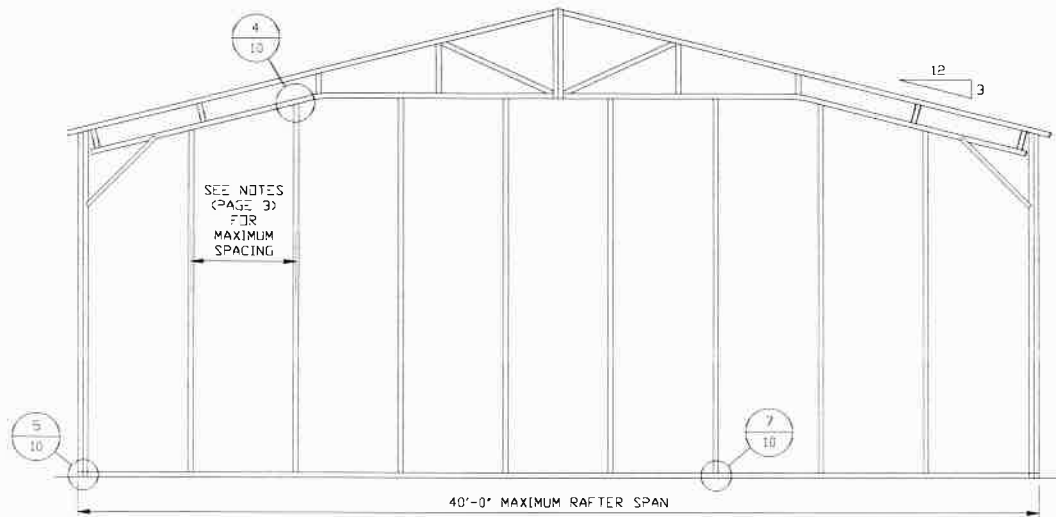
DWG. NO: SK-3

JOB NO: 16022S/17301S/20352S

REV: 6

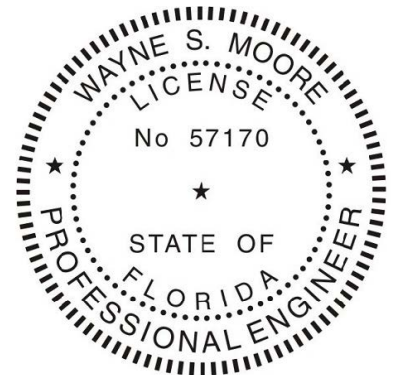
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## BOX EAVE RAFTER END WALL AND WALL OPENINGS



TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: 1/8" = 1'-0"



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**TUBULAR BUILDING SYSTEMS**  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 8

SCALE: NTS

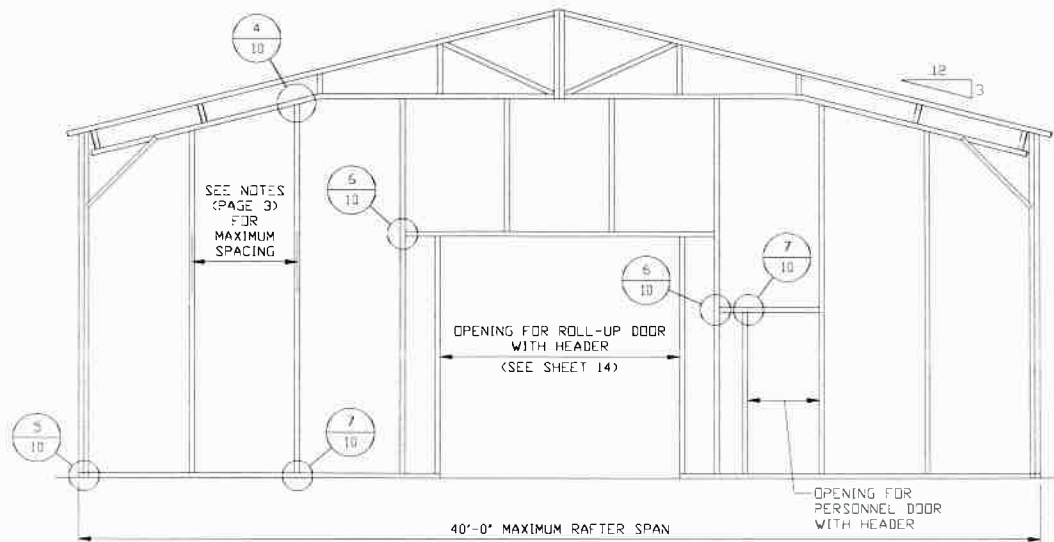
DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

REV: 6

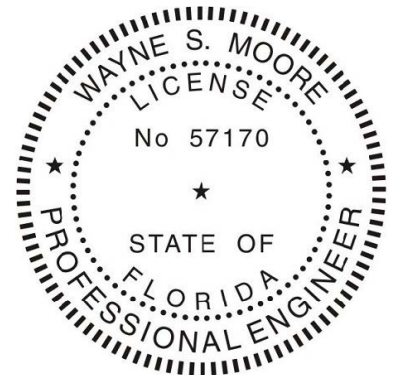


## BOX EAVE RAFTER END WALL AND WALL OPENINGS



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

SCALE 1/8" = 1'-0"



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CLIENT: TBS

**TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

DATE: 7-29-21

SHT. 8A

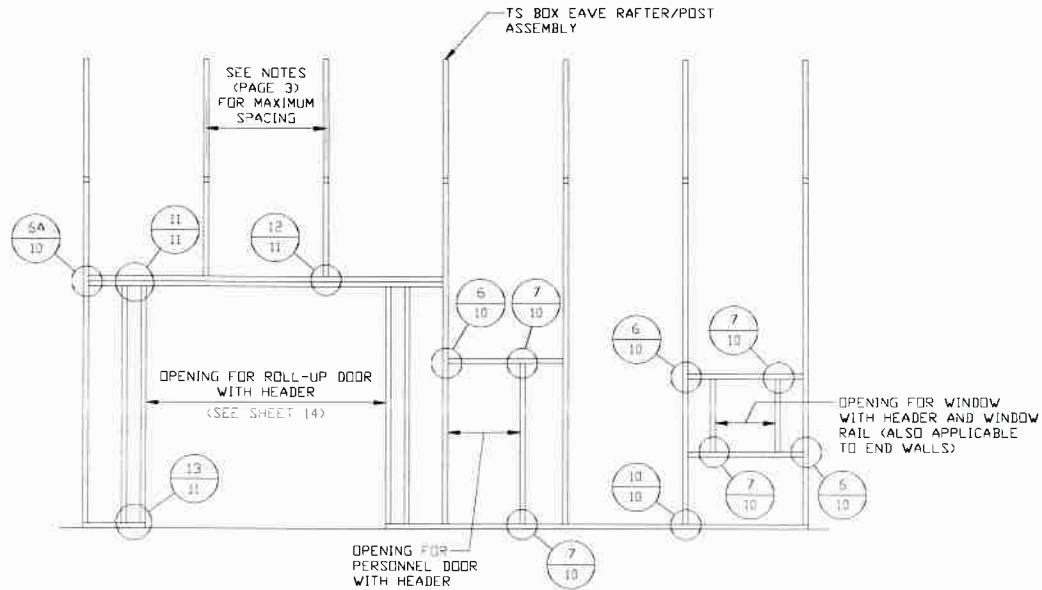
SCALE: NTS

DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

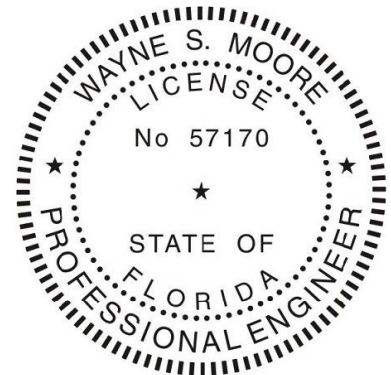
REV: 6

# BOX EAVE RAFTER SIDE WALL AND WALL OPENINGS



## TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE 1/8" = 1'-0"



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TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 9

SCALE: NTS

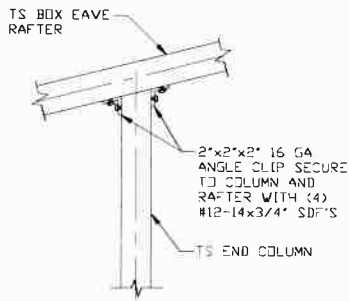
DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

REV: 6

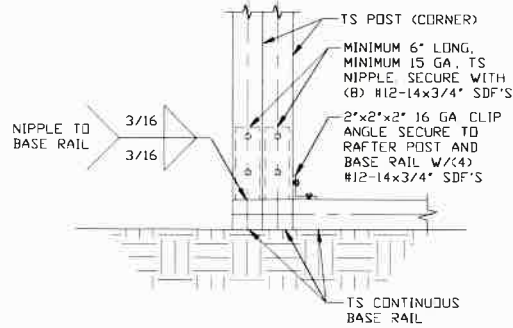
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## CONNECTION DETAILS



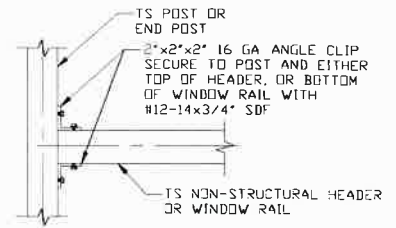
4

**END POST/RAFTER  
CONNECTION DETAIL**  
SCALE: NTS



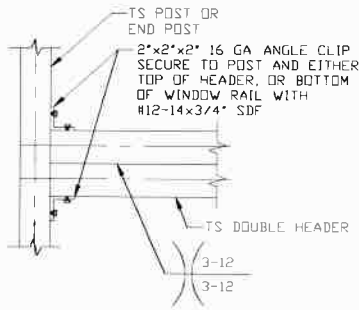
5

**END POST/BASE RAIL  
CONNECTION DETAIL**  
SCALE: NTS



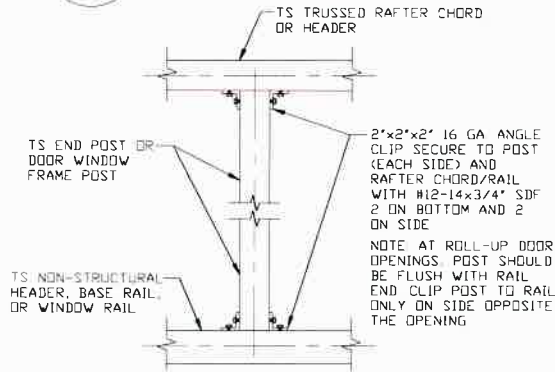
6

**HEADER OR WINDOW  
RAIL TO POST  
CONNECTION DETAIL**  
SCALE: NTS



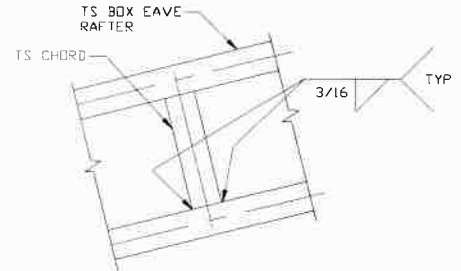
6A

**DOUBLE HEADER  
TO COLUMN  
CONNECTION DETAIL**  
SCALE: NTS



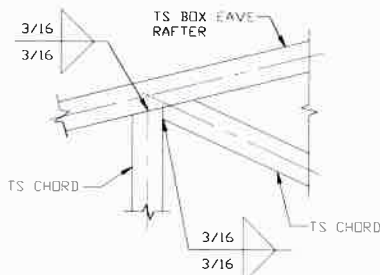
7

**POST TO HEADER, BASE  
RAIL OR WINDOW RAIL  
CONNECTION DETAIL**  
SCALE: NTS



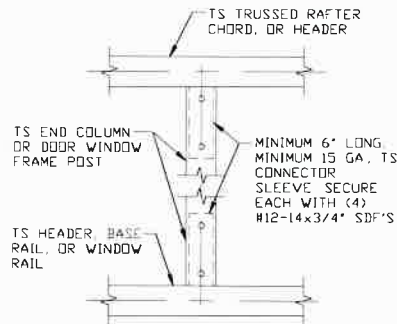
8

**CHORD/RAFTER  
CONNECTION DETAIL**  
SCALE: NTS



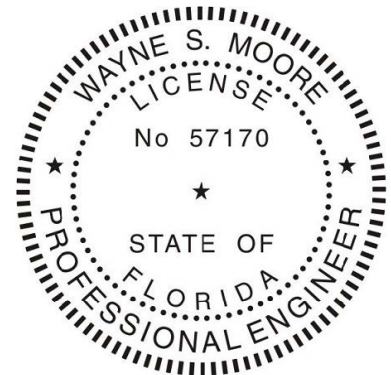
9

**TRUSS POST AND  
CORD TO RAFTER  
CONNECTION DETAIL**  
SCALE: NTS



10

**COLUMN TO HEADER/  
BASE RAIL  
CONNECTION DETAIL**  
SCALE: NTS



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CLIENT: TBS

**TUBULAR BUILDING SYSTEMS**  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 10

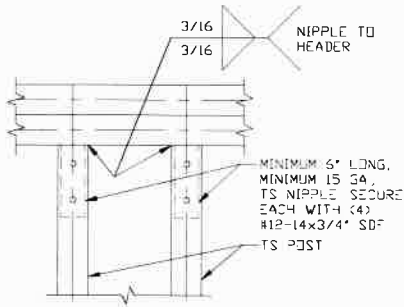
SCALE: NTS

DWG. NO: SK-3

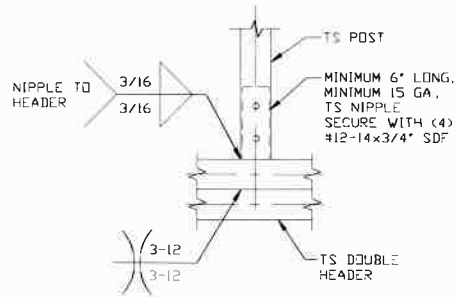
JOB NO:  
16022S/17301S/20352S

REV: 6

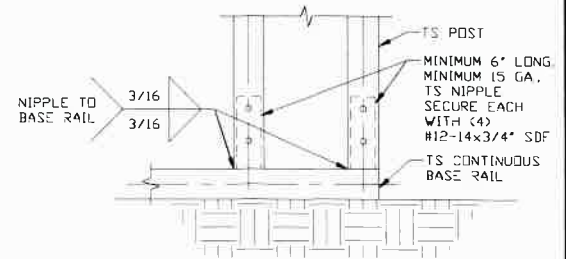
## CONNECTION DETAILS



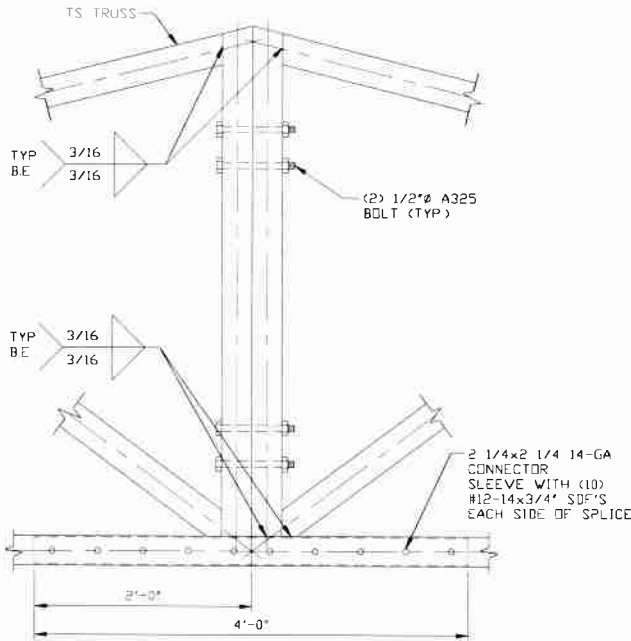
**11** **DOUBLE HEADER/POST CONNECTION DETAIL**  
SCALE: NTS



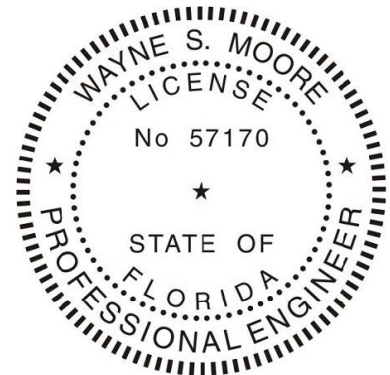
**12** **POST/DOUBLE HEADER CONNECTION DETAIL**  
SCALE: NTS



**13** **POST/BASE RAIL CONNECTION DETAIL**  
SCALE: NTS



**14** **SPLICE CONNECTION DETAIL**  
SCALE: NTS



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TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 11

SCALE: NTS

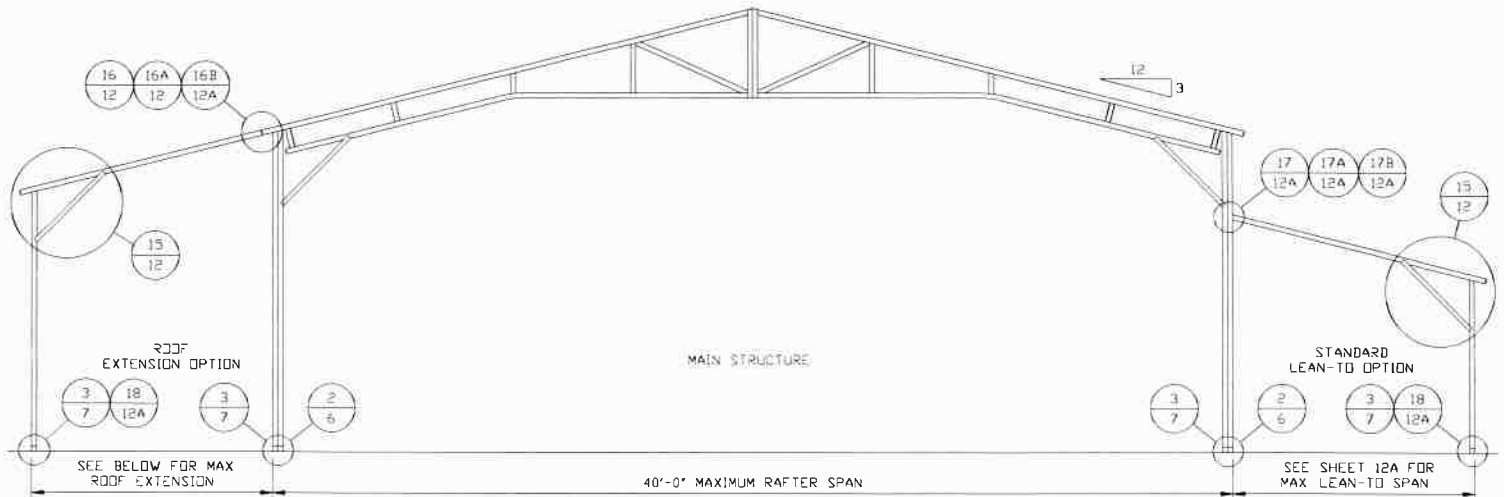
DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

REV: 6



## BOX EAVE RAFTER LEAN-TO OPTIONS



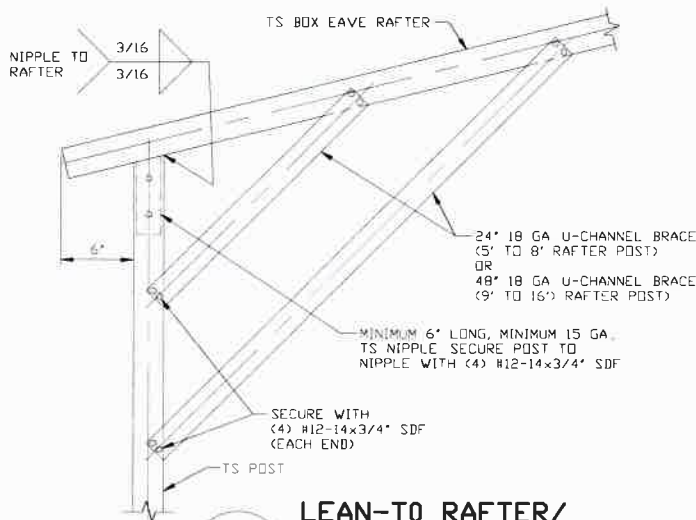
### TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)

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 11'-0" < TO < 16'-0"

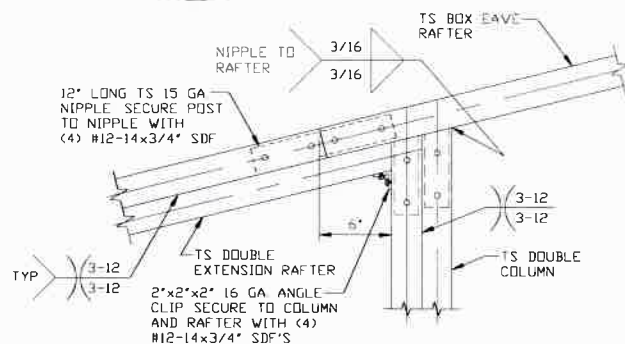
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS < 10'-0"



15

### LEAN-TO RAFTER/ CORNER POST DETAIL

SCALE: NTS



16A

### SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 12'-0" < L ≤ 16'-0"

SCALE: NTS

16

### SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS ≤ 12'-0"

SCALE: NTS



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TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 12

SCALE: NTS

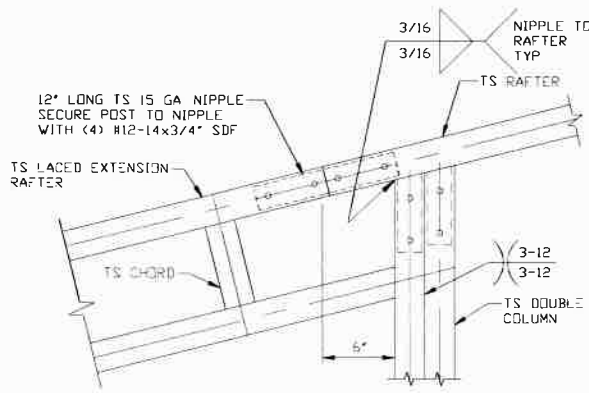
DWG. NO: SK-3

JOB NO:

16022S/17301S/20352S

REV: 6

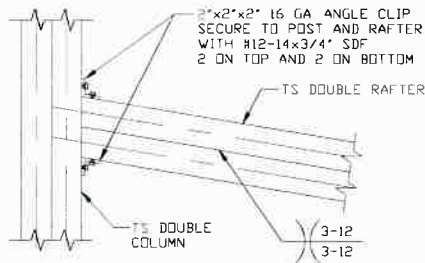
## BOX EAVE RAFTER LEAN-TO OPTIONS



16B

**SIDE EXTENSION RAFTER/COLUMN DETAIL  
FOR RAFTER SPANS 16'-0" < L ≤ 24'-0"**

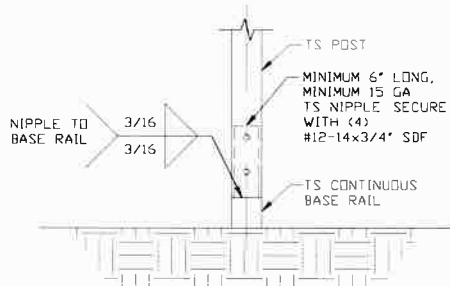
SCALE: NTS



17A

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL FOR  
RAFTER SPANS 12'-0" < L ≤ 16'-0"**

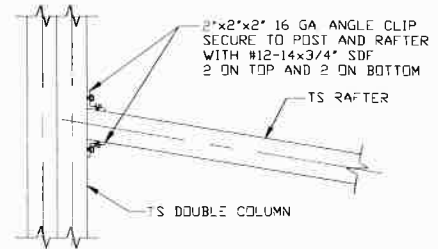
SCALE: NTS



18

**LEAN-TO POST  
CONNECTION DETAIL**

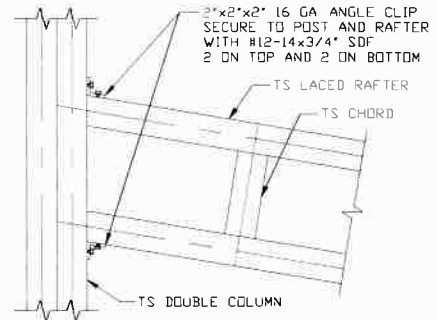
SCALE: NTS



17

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL  
FOR RAFTER SPANS 12'-0"**

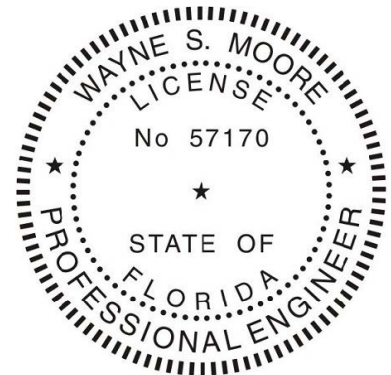
SCALE: NTS



17B

**LEAN-TO RAFTER TO RAFTER  
COLUMN CONNECTION DETAIL FOR  
RAFTER SPANS 16'-0" < L ≤ 24'-0"**

SCALE: NTS



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CHECKED BY: PDH

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CLIENT: TBS

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40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

DATE: 7-29-21

SHT. 12A

SCALE: NTS

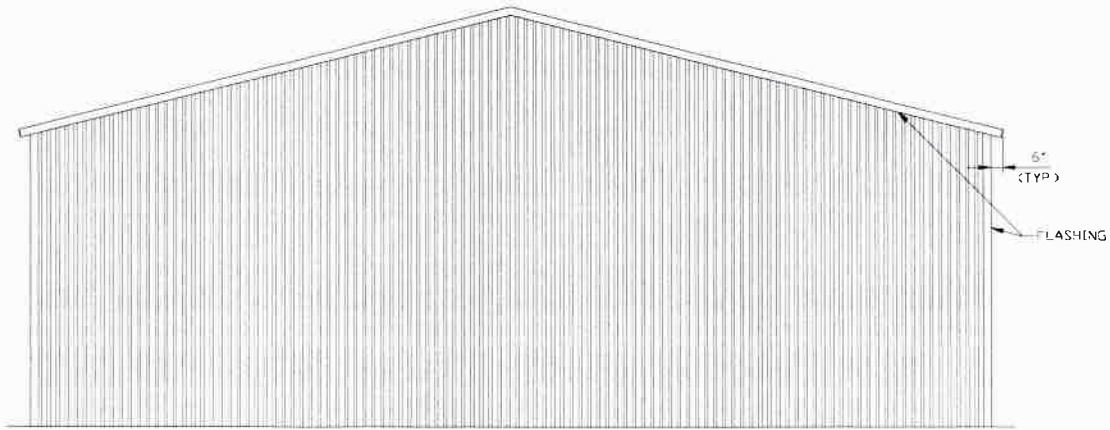
DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

REV: 6

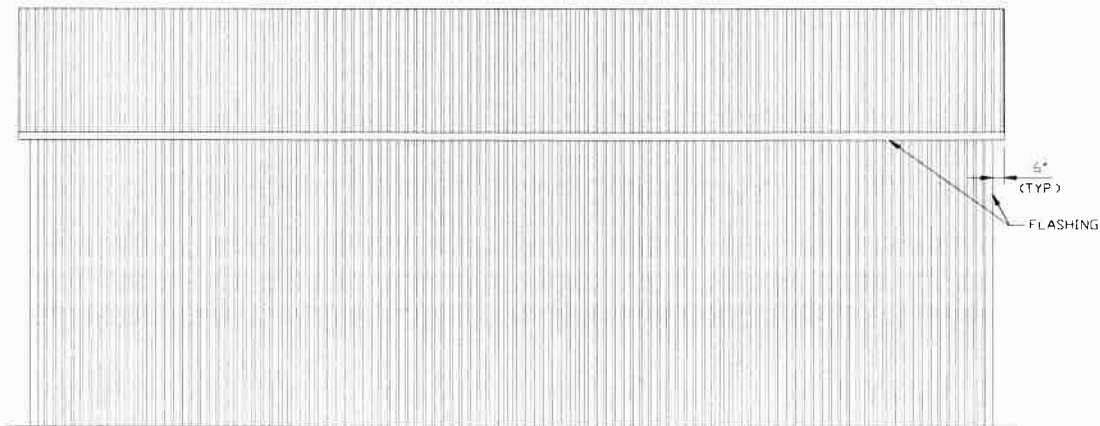


## BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



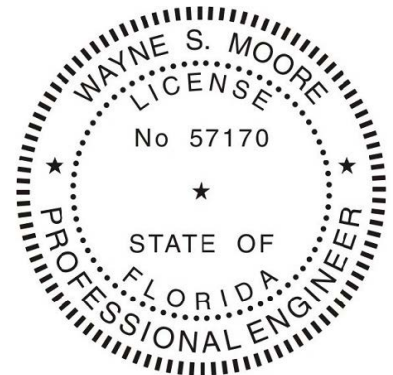
TYPICAL END ELEVATION VERTICAL ROOF/SIDING

SCALE: 1/8" = 1'-0"



TYPICAL SIDE ELEVATION VERTICAL ROOF/SIDING

SCALE: 1/8" = 1'-0"



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**TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

**DATE: 7-29-21**

**SHT. 13**

**SCALE: NTS**

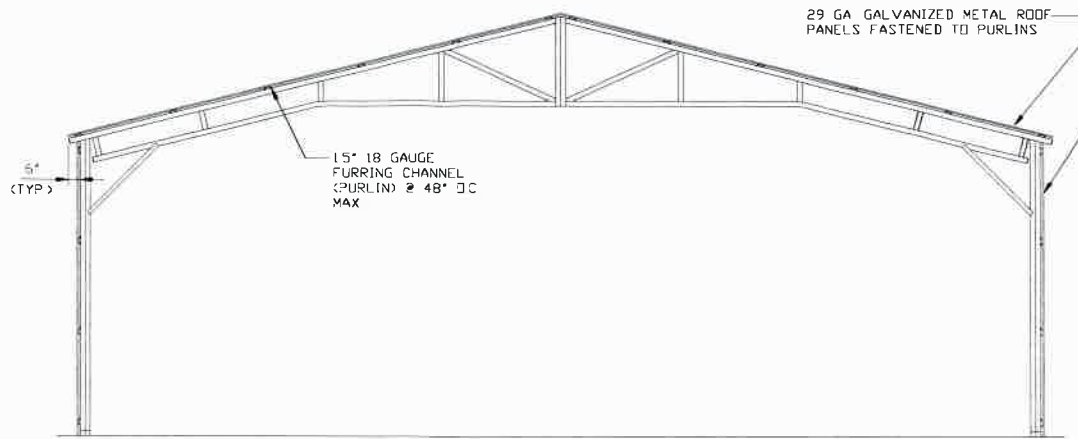
**DWG. NO: SK-3**

**JOB NO:  
16022S/17301S/20352S**

**REV: 6**

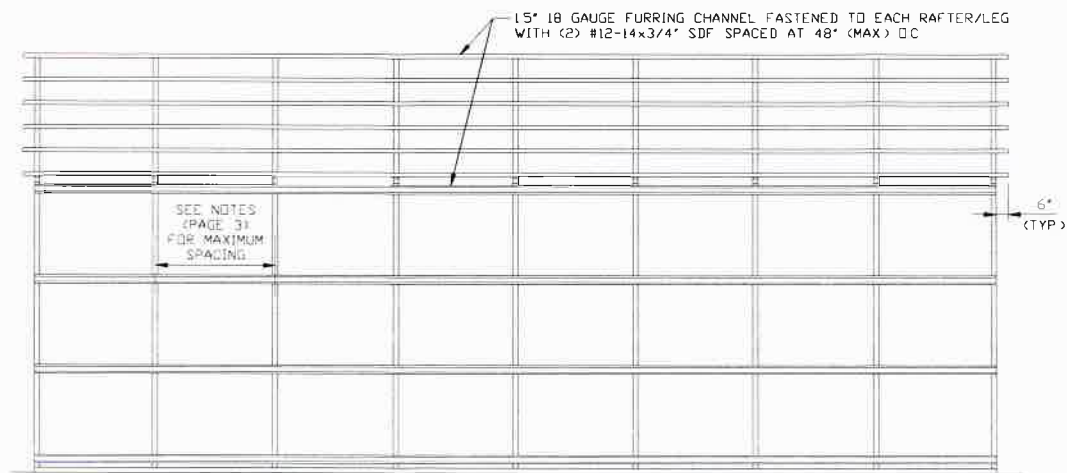
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## BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



### TYPICAL SECTION VERTICAL ROOF/SIDING OPTION

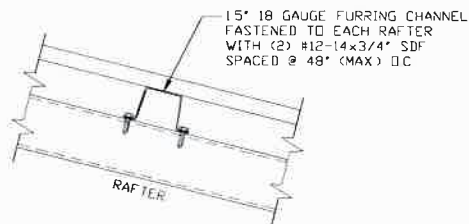
SCALE: 1/8" = 1'-0"



### TYPICAL FRAMING SECTION VERTICAL ROOF/SIDING OPTION

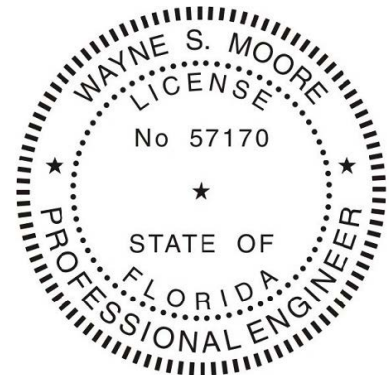
SCALE: 1/8" = 1'-0"

NOTE: TS 2 1/2"x2 1/2"-14 GA. WALL GIRTS CAN BE USED  
AS AN OPTION IN PLACE OF HAT CHANNELS. TS  
GIRTS MUST BE SPACED AT 4'-0" (MAX) OC.



### PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)



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TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 13A

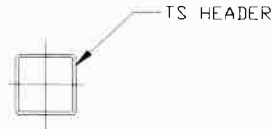
SCALE: NTS

DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

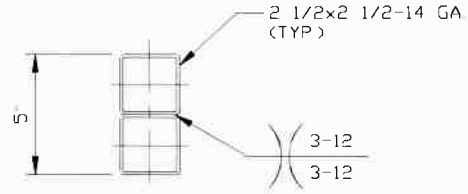
REV: 6

## SIDE WALL OPTIONAL HEADER



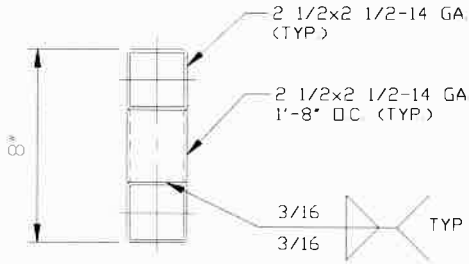
### HEADER DETAIL FOR OPENINGS LENGTH $\leq 8'-0"$

SCALE: NTS



### HEADER DETAIL FOR OPENINGS 8'-0" < LENGTH $\leq 10'-0"$

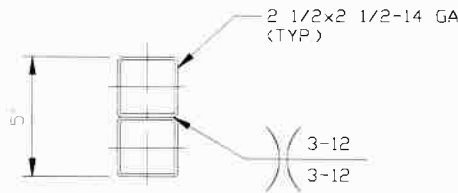
SCALE: NTS



### HEADER DETAIL FOR OPENINGS 10'-0" < LENGTH $\leq 15'-0"$

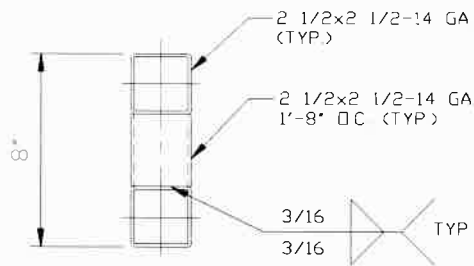
SCALE: NTS

## END WALL OPTIONAL HEADER



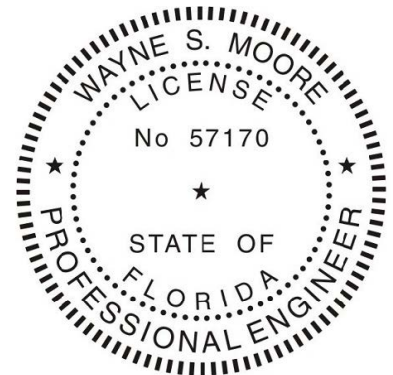
### HEADER DETAIL FOR OPENINGS LENGTH $\leq 10'-0"$

SCALE: NTS



### HEADER DETAIL FOR OPENINGS 10'-0" < LENGTH $\leq 15'-0"$

SCALE: NTS



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DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: TBS

**TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

DATE: 7-29-21

SHT. 14

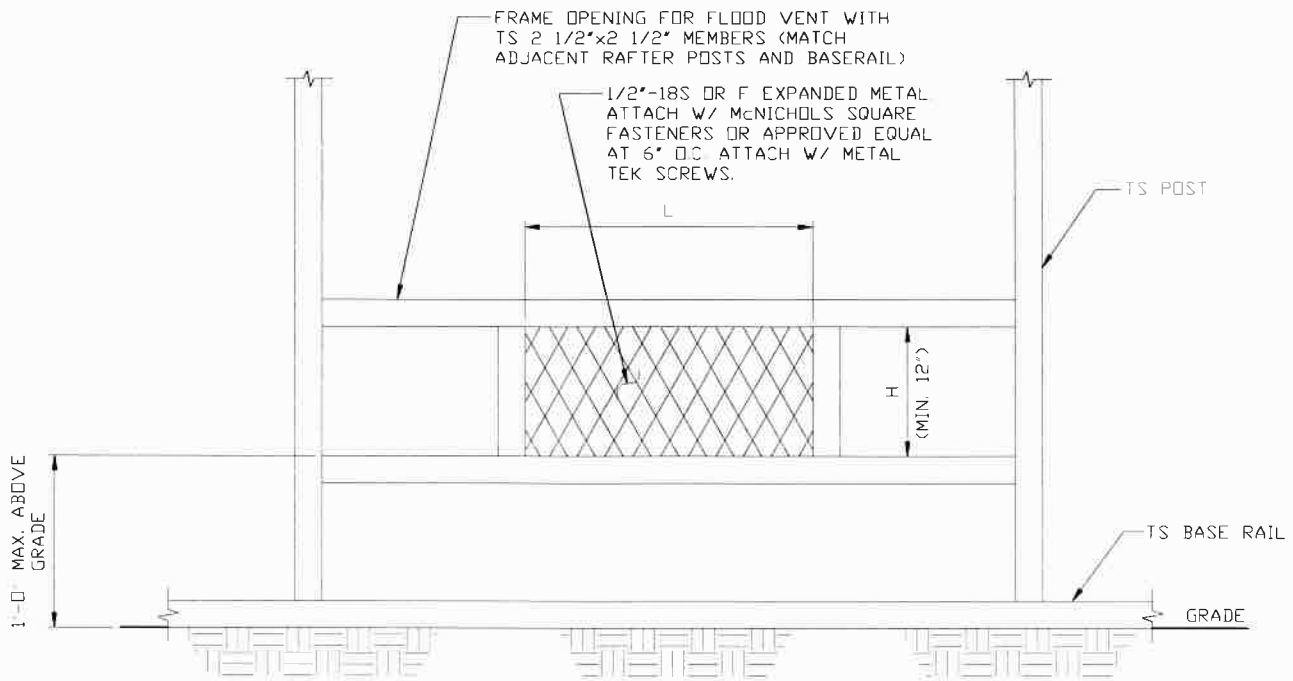
SCALE: NTS

DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

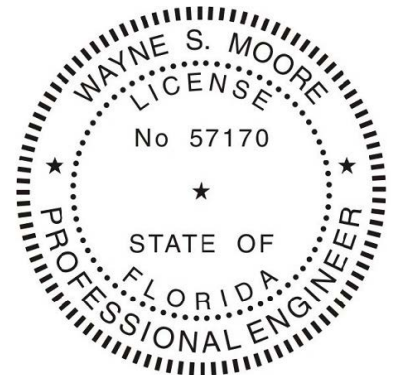
REV: 6

## 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 =  $L \times H (\text{MIN. } 12")$ .
5. FLOOD VENT DETAIL COMPLIES WITH FEMA/NFIP.
6. PREFABRICATED FLOOD VENTS MEETING THE REQUIREMENTS OF FEMA/NFIP MAY BE USED.



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TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 15

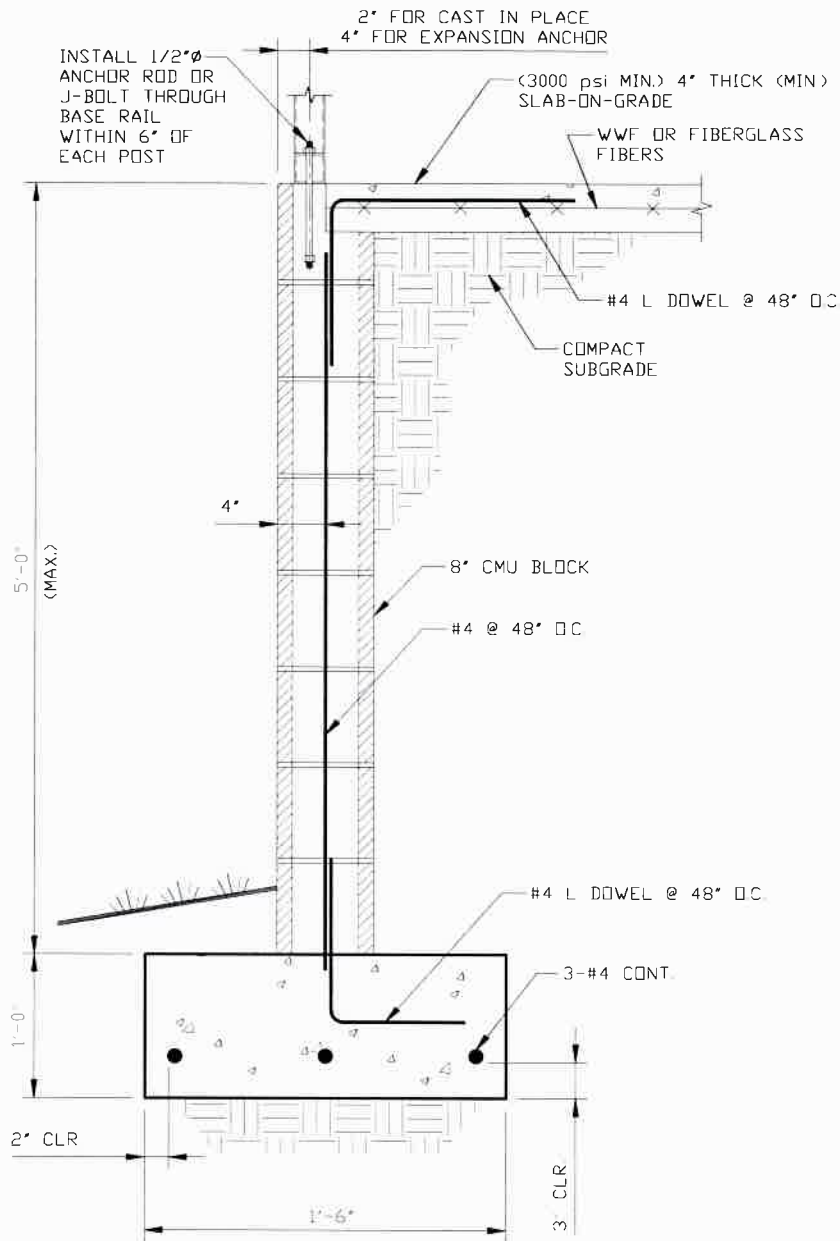
SCALE: NTS

DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

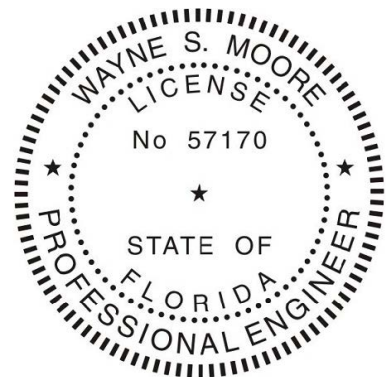
REV: 6

# STAND-ALONE STEM WALL DETAIL



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

SCALE: NTS



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**TUBULAR BUILDING SYSTEMS  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

DATE: 7-29-21

SHT. 16

SCALE: NTS

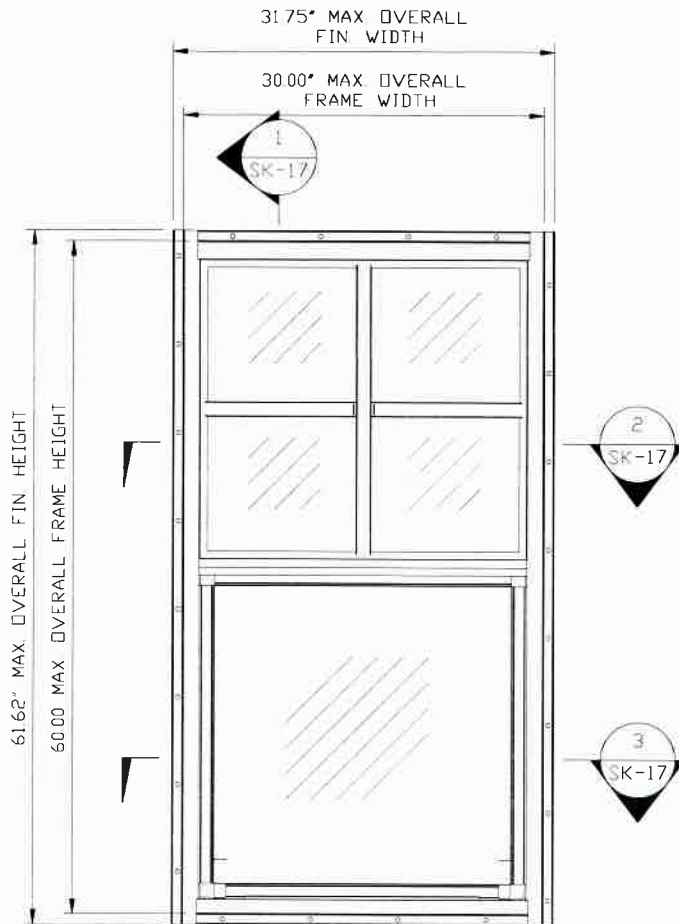
DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

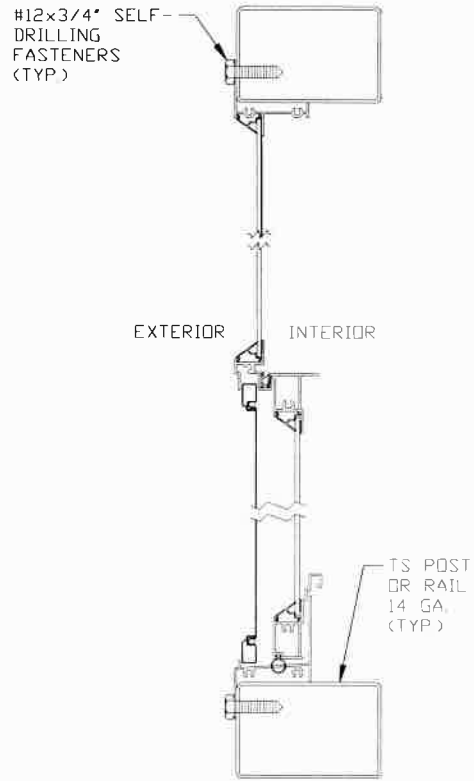
REV: 6



# VERTICAL SLIDING WINDOW DETAIL



**ELEVATION VIEW**  
SCALE: NTS

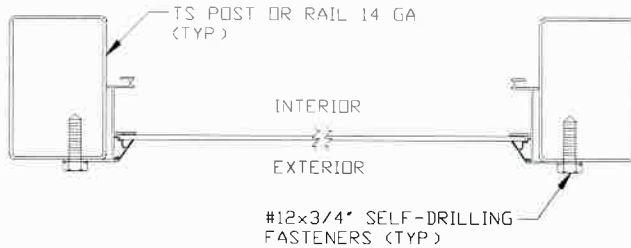


## SECTION

SCALE: 3\"/>

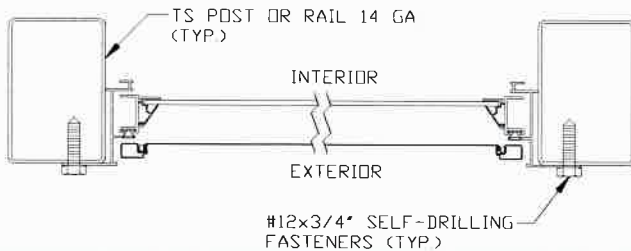
NOTE: KINRO SERIES 18000-R VS OR EQUIVALENT WINDOW IS REQUIRED

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



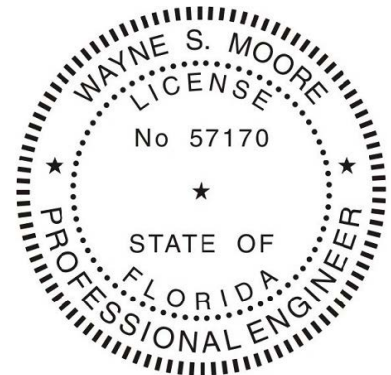
## SECTION

SCALE: 3\"/>



## SECTION

SCALE: 3\"/>



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**TUBULAR BUILDING SYSTEMS**  
**40'-0"x20'-0" ENCLOSED BUILDING EXP. B**

DATE: 7-29-21

SHT. 17

SCALE: NTS

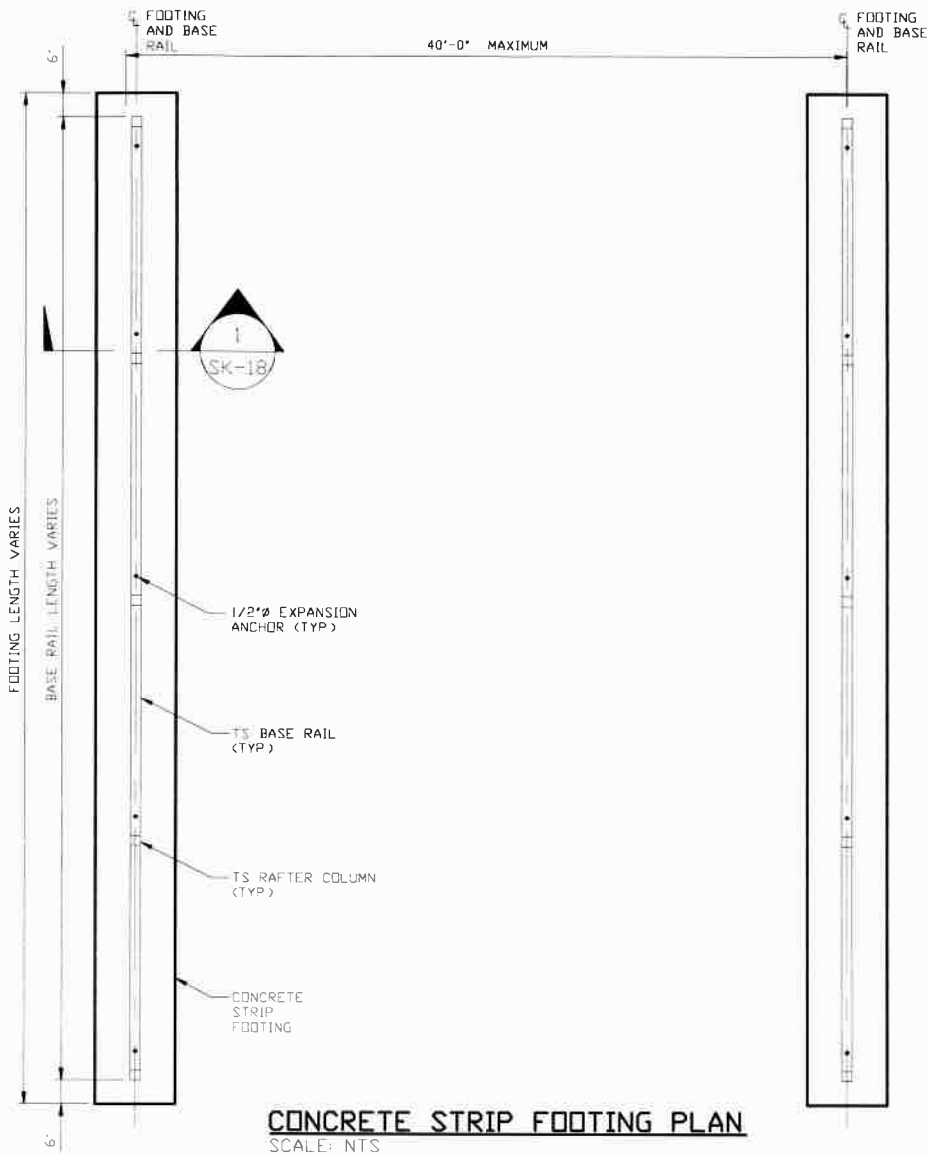
DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

REV: 6

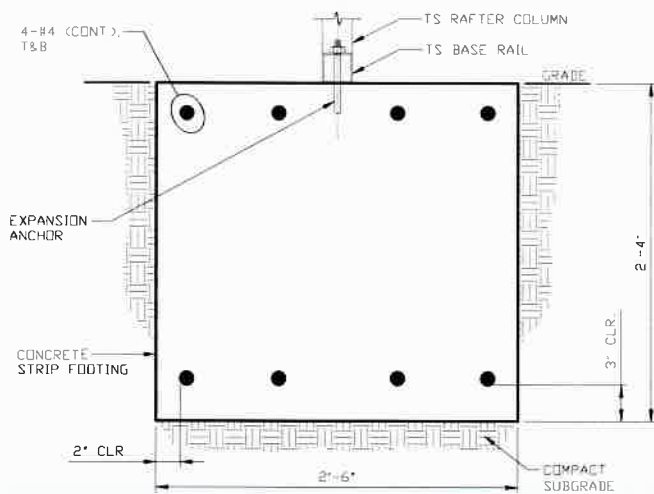


# OPTIONAL CONCRETE STRIP FOOTING



**CONCRETE STRIP FOOTING PLAN**

SCALE: NTS



**SECTION 1**

SCALE: NTS

✱ COORDINATE WITH LOCAL CODES/ORD.

## GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED 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:

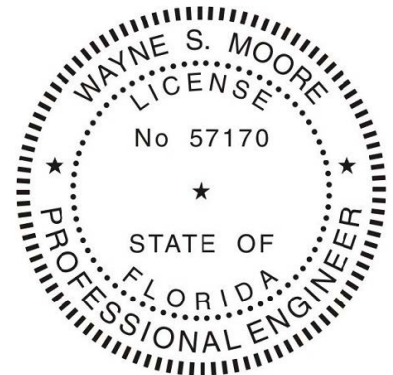
3 INCHES IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE EARTH OR WEATHER, AND 1 1/2 INCHES ELSEWHERE

### 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.



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**TUBULAR BUILDING SYSTEMS**  
40'-0"x20'-0" ENCLOSED BUILDING EXP. B

DATE: 7-29-21

SHT. 18

SCALE: NTS

DWG. NO: SK-3

JOB NO:  
16022S/17301S/20352S

REV: 6