STRUCTURAL DESIGN

ENCLOSED BUILDING
EXPOSURE C

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

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

Prepared for:

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

Prepared by:

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

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

Digitally signed by Wayne S Moore
Date: 2021.01.25 10:50:16 -05'00'

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ENGINEERING AND CONSULTING

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STATE OF FLORIDA
PROFESSIONAL ENGINEER

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DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 30'-0"x20'-0" ENCLOSED BUILDING EXP. C PE SEAL COVER SHEET			
CHECKED BY: PDH				
PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S	
CLIENT: TBS	SHT. 1	DWG. NO: SK-3	REV.: 5	

DRAWING INDEX

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CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
CLIENT: TBS	SHT. 2	DWG. NO: SK-3	REV.: 5

INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR A MAXIMUM 30'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE (FBC) 7TH EDITION, 2012 INTERNATIONAL BUILDING CODE (IBC), 2015 IBC, AND 2018 IBC
3. DESIGN LOADS ARE AS FOLLOWS:
   A) DEAD LOAD = 1.5 PSF
   B) LIVE LOAD = 12 PSF
   C) GROUND SNOW LOAD = 10 PSF
4. LOW ULTIMATE WIND SPEED 105 TO 140 MPH (NOMINAL WIND SPEED 81 TO 108 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 5.0 FEET
5. HIGH ULTIMATE WIND SPEED 141 TO 170 MPH (NOMINAL WIND SPEED 109 TO 132 MPH): MAXIMUM RAFTER/POST AND END POST SPACING = 4.0 FEET
6. END WALL COLUMNS (POSTS) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING (UNLESS NOTED OTHERWISE)
7. RISK CATEGORY I
8. WIND EXPOSURE CATEGORY C.
9. SPECIFICATIONS APPLICABLE TO 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS. FOR VERTICAL PANELS, 29 GAUGE METAL PANELS SHALL BE FASTENED TO 18 GAUGE HAT CHANNELS (UNLESS OTHERWISE NOTED)
10. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS, INTERIOR = 9" OR END = 6", (MAX.)
11. FASTENERS CONSIST OF #12-14x3/4" 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 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
    RISK CATEGORY I
    R= 3.25 I_E= 1.0
    S_{DS}= 2.039 g $V = C_S W$
    S_{D1}= 1.258 g

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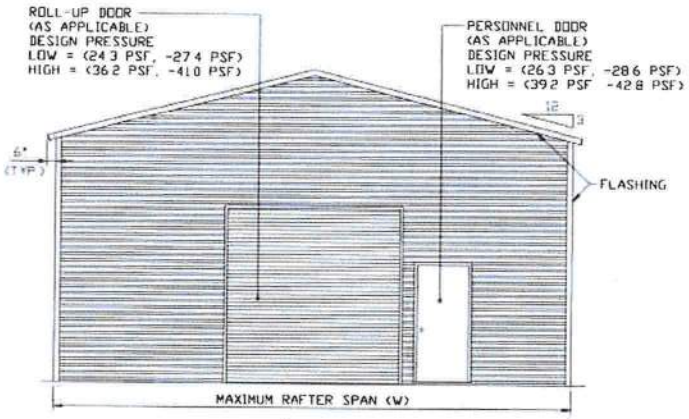
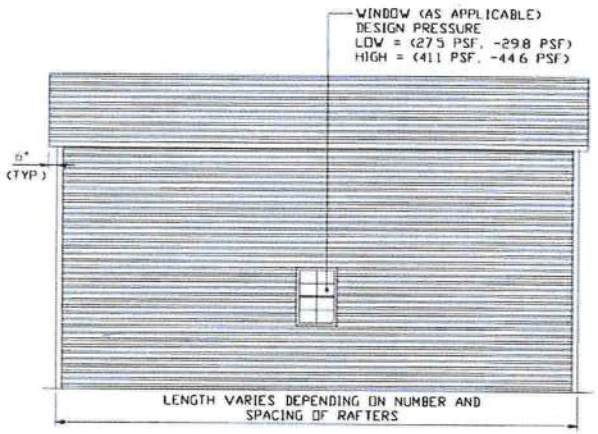
BOX EAVE FRAME RAFTER ENCLOSED BUILDING

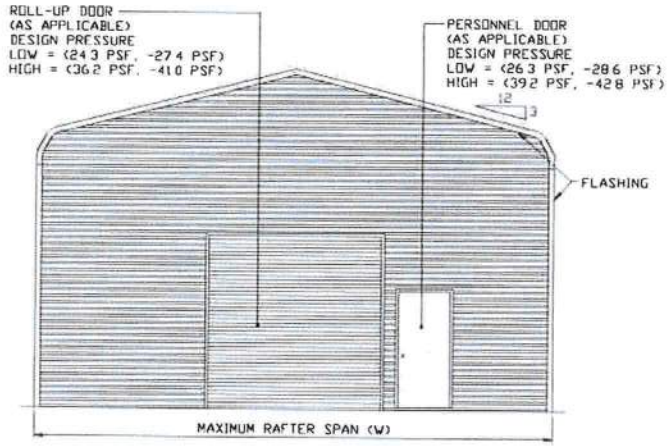


TYPICAL END ELEVATION
SCALE: NTS



TYPICAL SIDE ELEVATION
SCALE: NTS

BOW FRAME RAFTER ENCLOSED BUILDING



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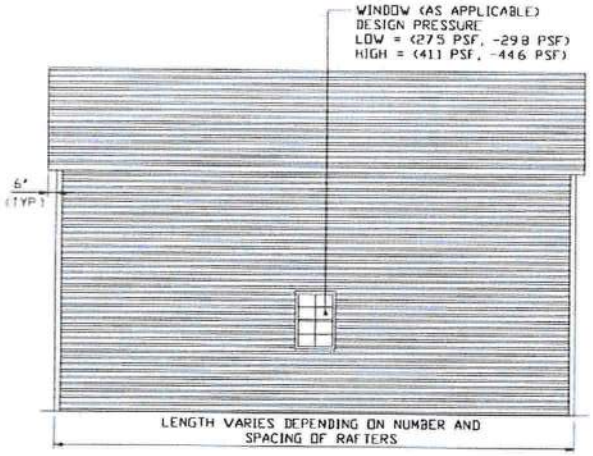

TYPICAL SIDE ELEVATION
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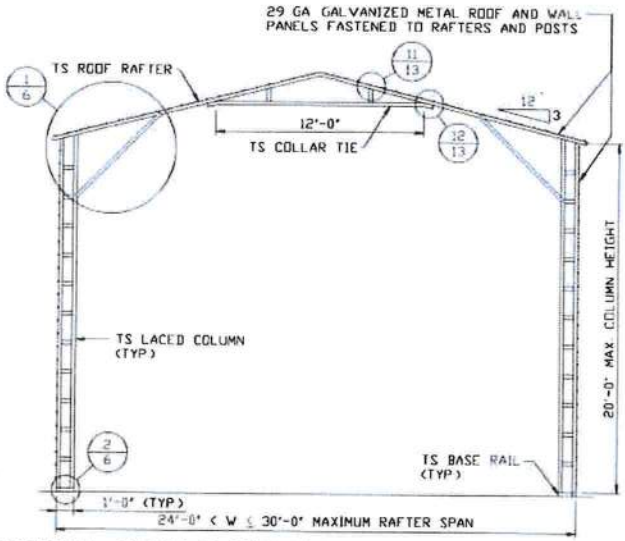
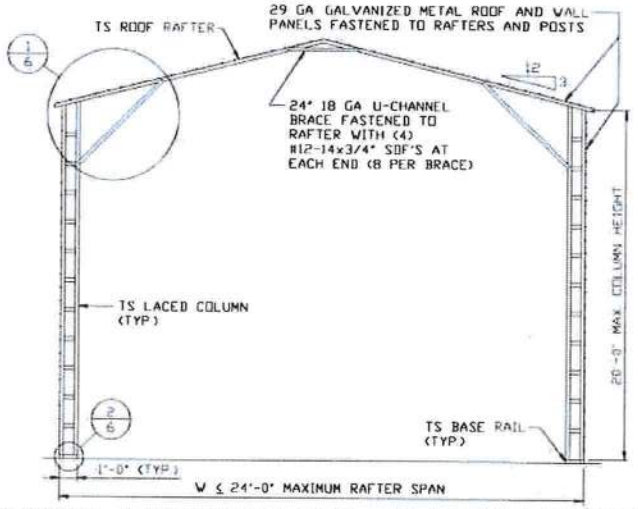


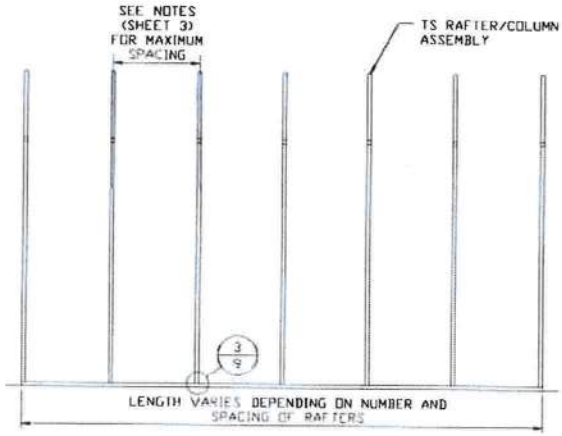
TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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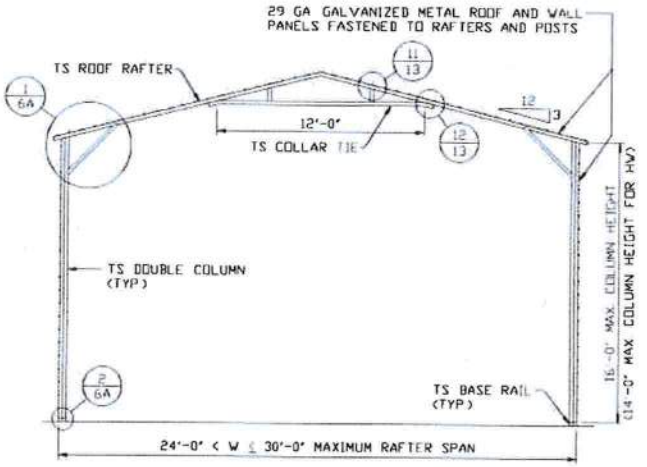

TYPICAL RAFTER/COLUMN END FRAME SECTION

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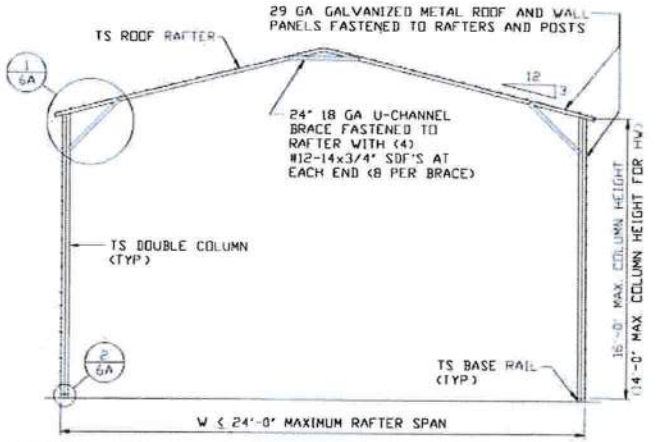

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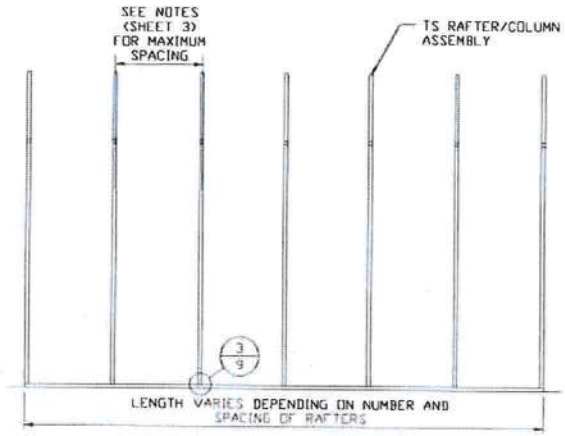

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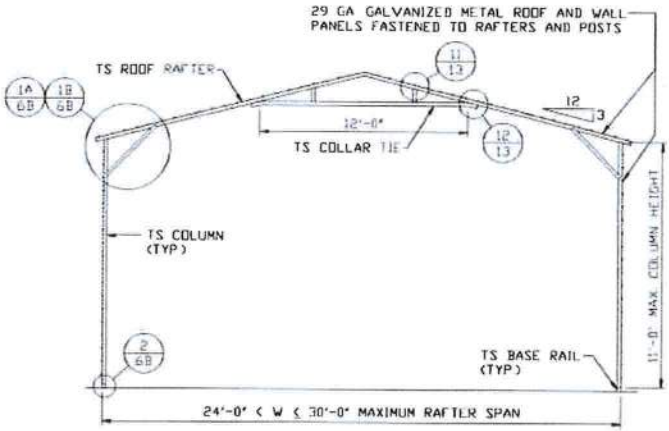

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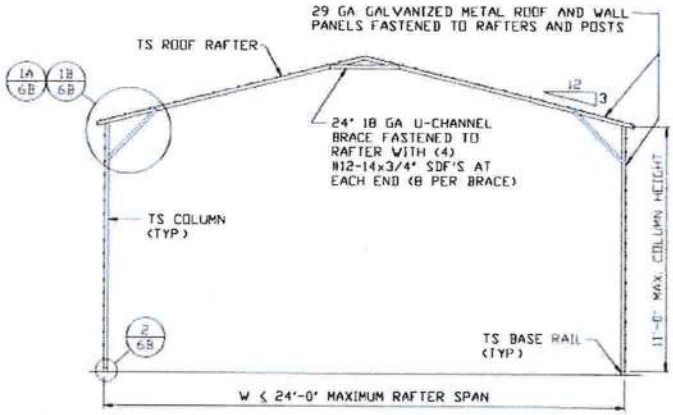

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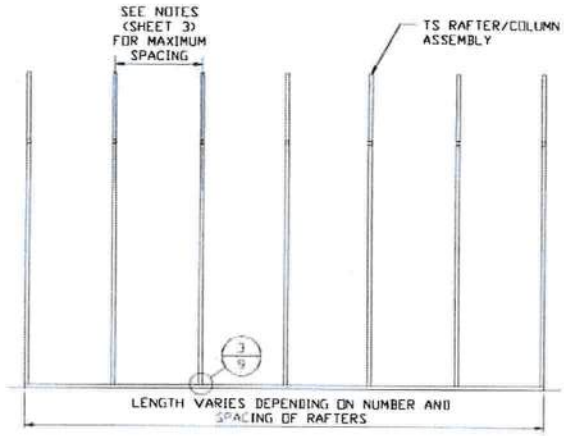

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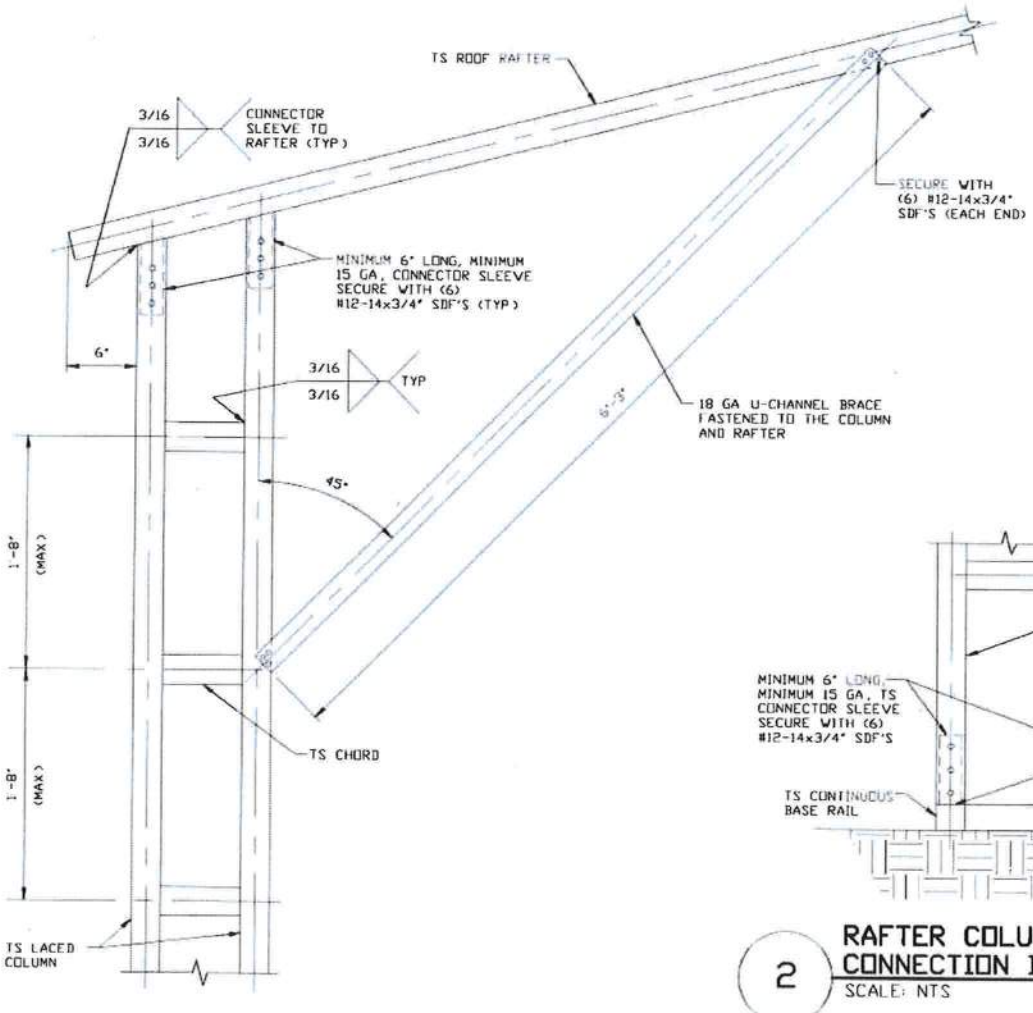
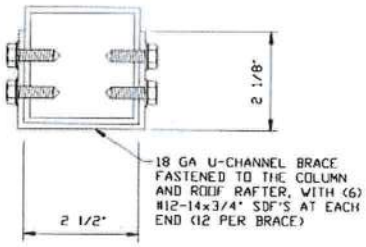


1 BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0" < TO ≤ 20'-0"

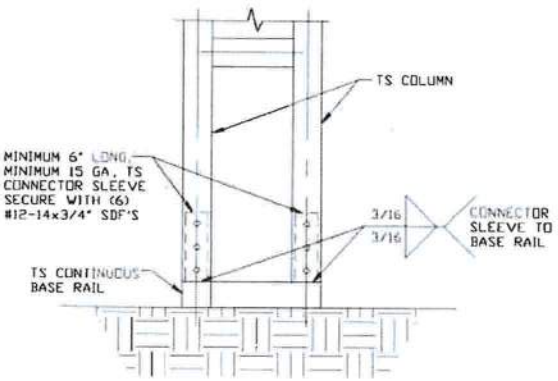
SCALE: NTS

NOTE: USE (4) TEK SCREWS AT EACH END FOR LOW WIND



BRACE SECTION

SCALE: NTS



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

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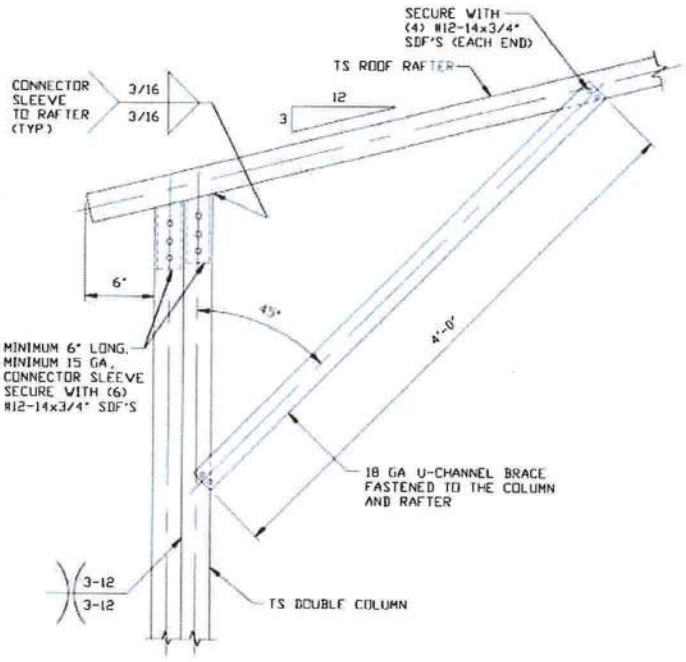
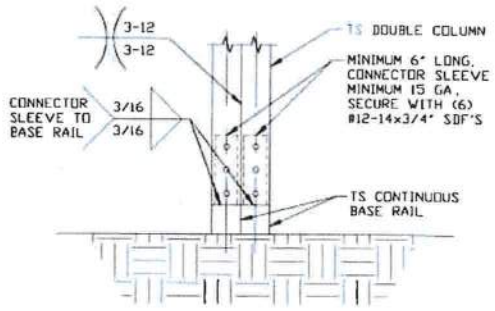


1 BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 16'-0"

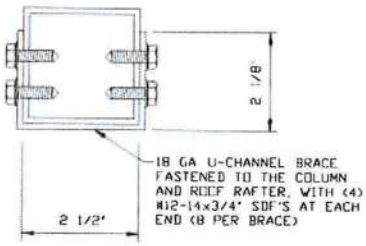
SCALE: NTS

NOTE: COLUMN HEIGHTS 11'-0" < TO ≤ 14'-0" FOR HIGH WIND



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



BRACE SECTION

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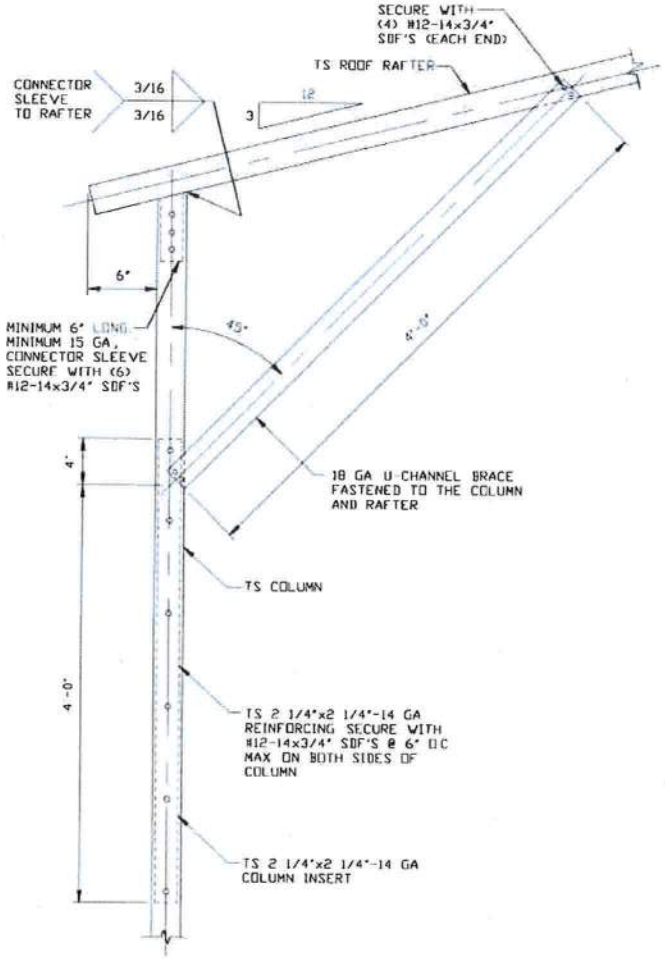
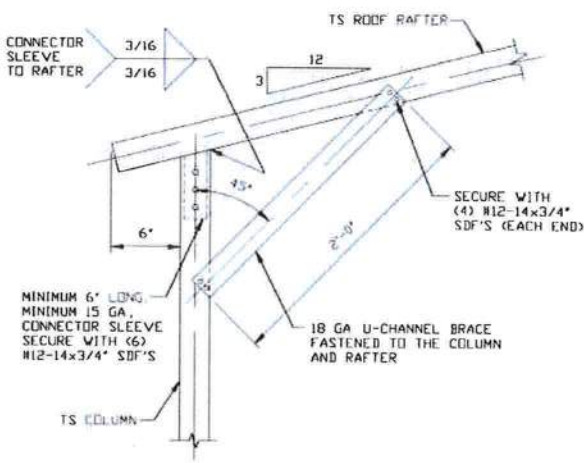


BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 11'-0"

1A

SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0"

1B

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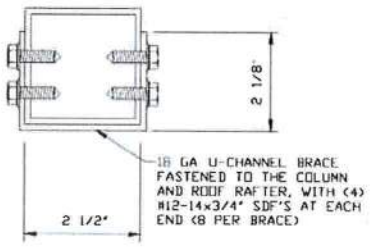

BRACE SECTION

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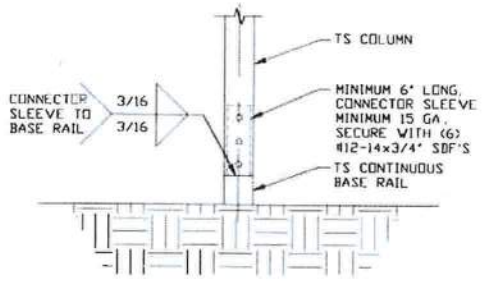

RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

2

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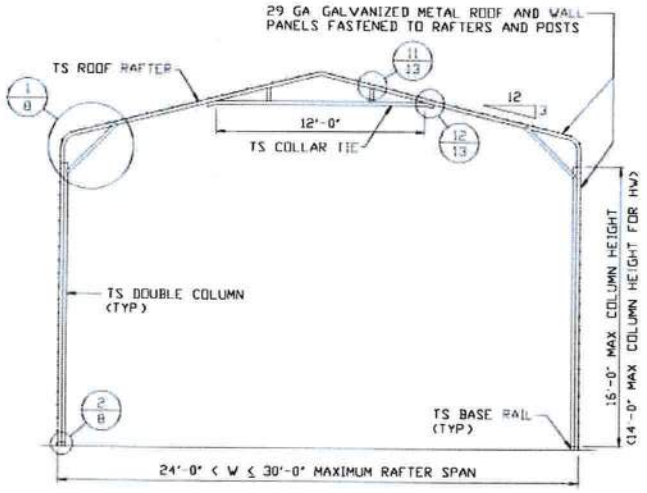

TYPICAL RAFTER/COLUMN END FRAME SECTION

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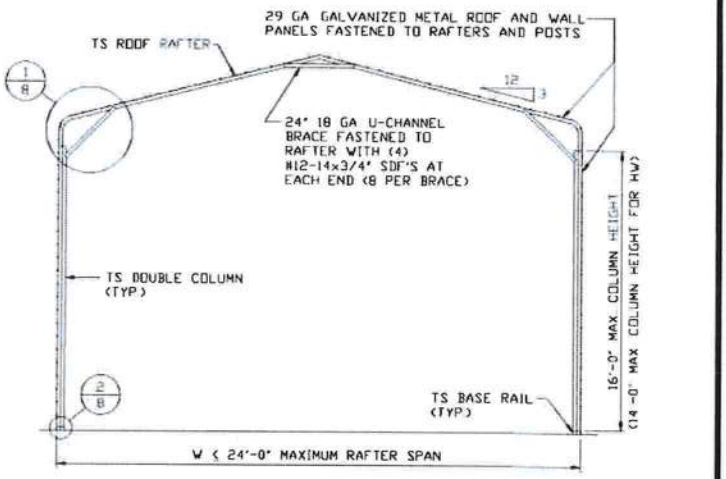

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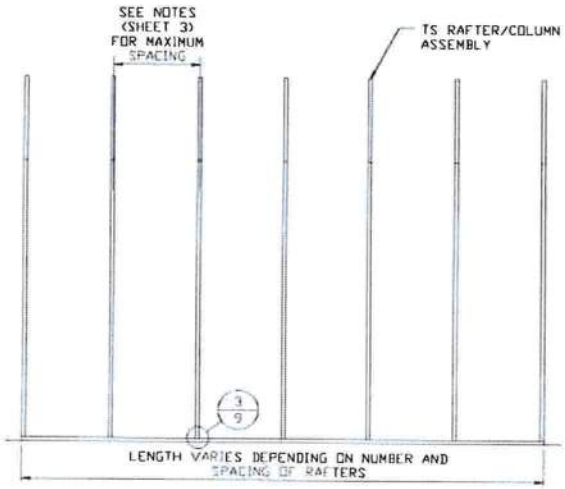

TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

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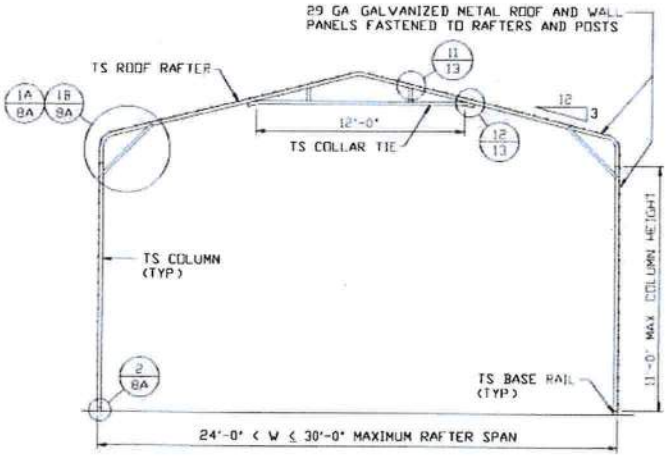

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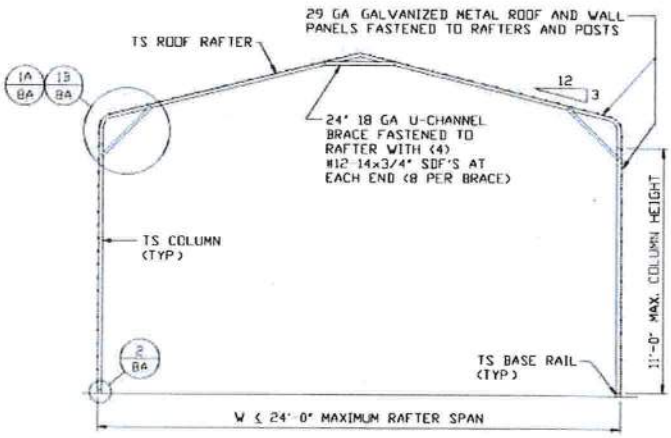
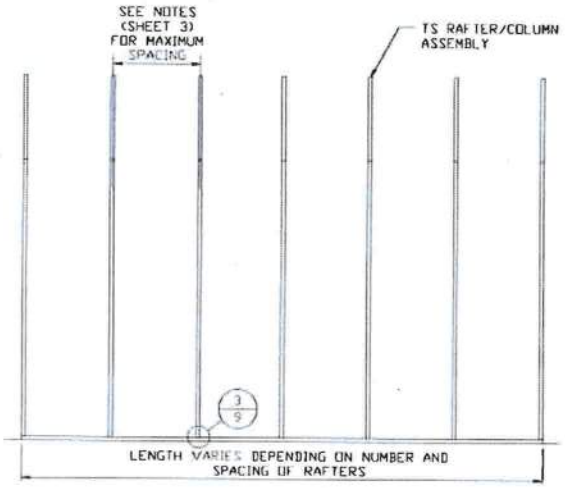


TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

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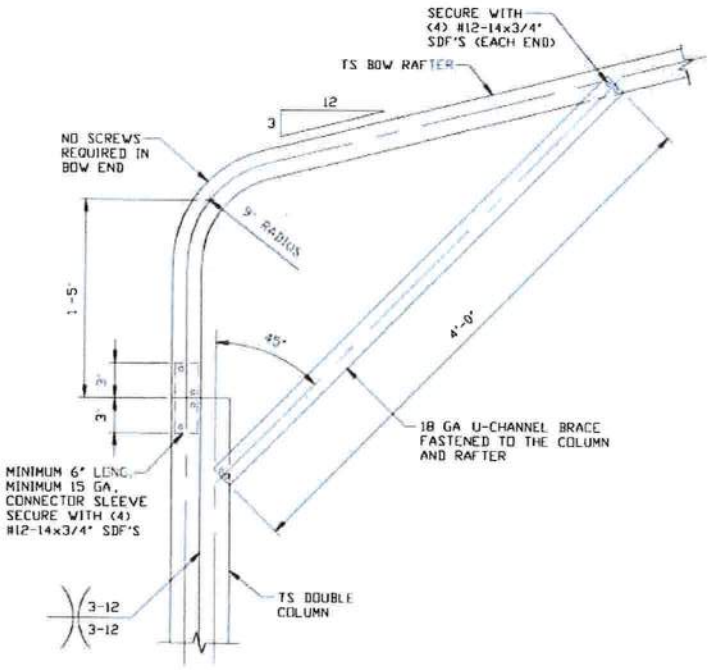
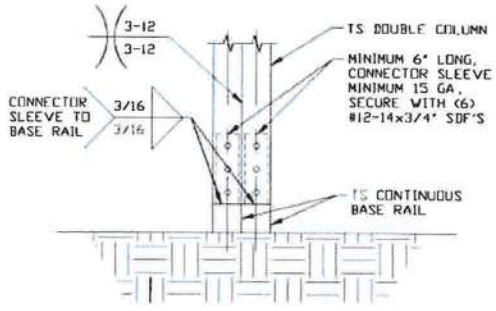
	CLIENT: TBS	SHT. 7A	DWG. NO: SK-3	REV.: 5



1 BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 16'-0"

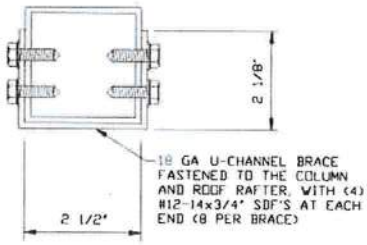
SCALE: NTS

NOTE: COLUMN HEIGHTS 11'-0" < TO ≤ 14'-0" FOR HIGH WIND



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



BRACE SECTION

SCALE: NTS

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PROFESSIONAL ENGINEER

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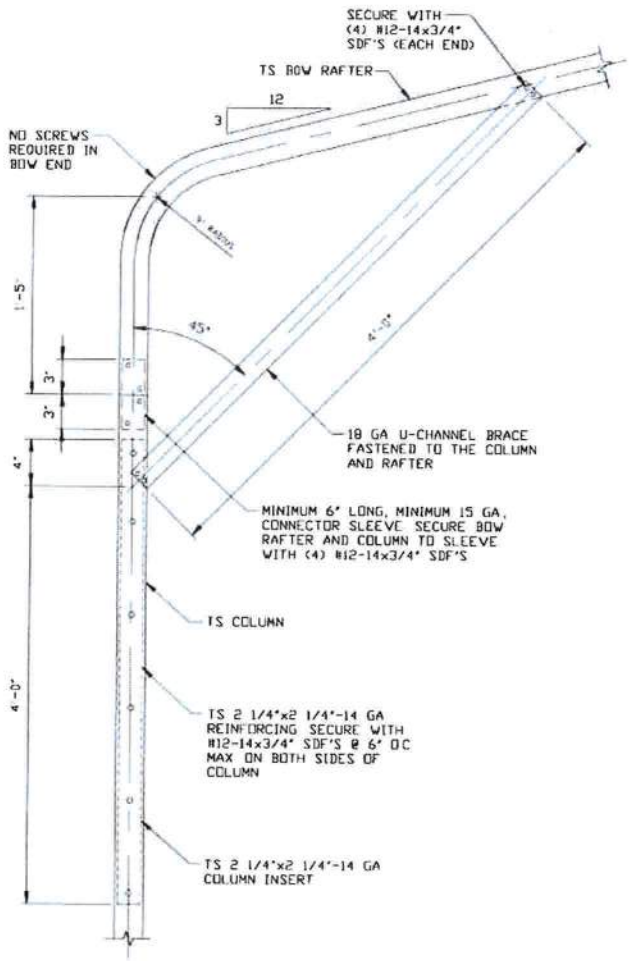
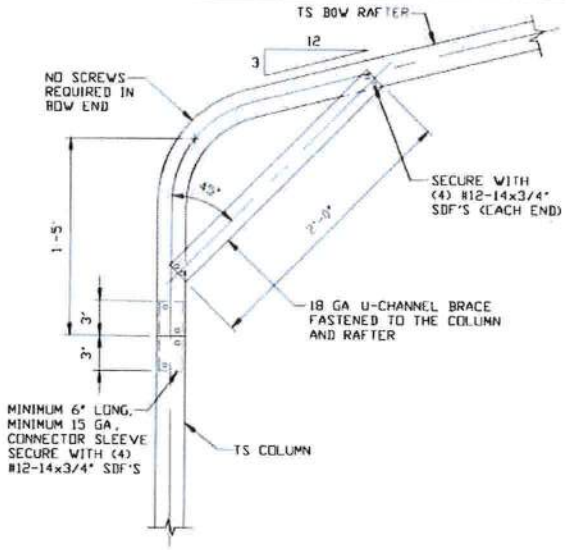
	CLIENT: TBS	SHT. 8	DWG. NO: SK-3	REV.: 5



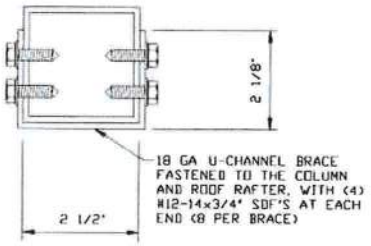
1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 11'-0"

SCALE: NTS



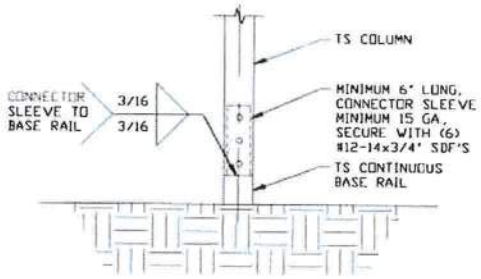
1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0"

SCALE: NTS



BRACE SECTION

SCALE: NTS



2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS

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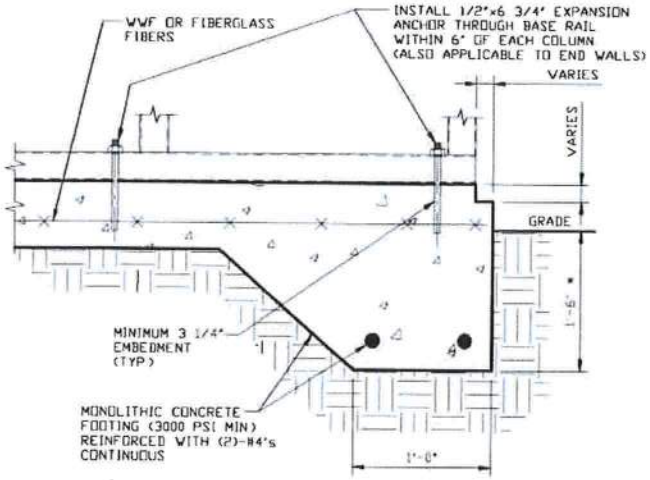
PROJECT MGR: WSN	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
CLIENT: TBS	SHT. 8A	DWG. NO: SK-3	REV.: 5

BASE RAIL ANCHORAGE OPTIONS FOR LOW AND HIGH WIND SPEED

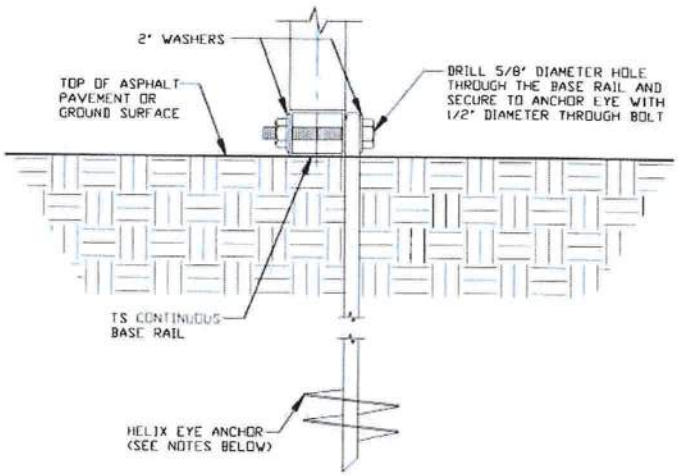


3A CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 4"

* COORDINATE WITH LOCAL CODES/ORD. REGARDING MINIMUM FROST DEPTH REQ



3B 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 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 LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER CLAYS AND SILTS, ALLUVIAL FILL USE MINIMUM (2) 8" HELICES WITH MINIMUM 60 INCH EMBEDMENT

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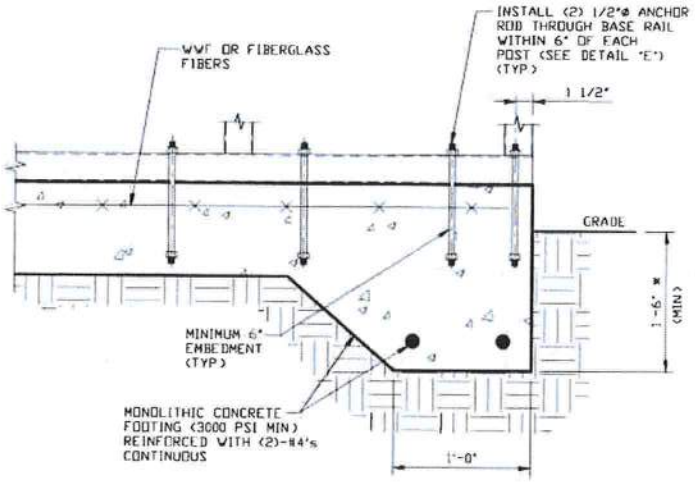
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 9	DWG. NO: SK-3	REV.: 5

OPTIONAL FOUNDATION ANCHORAGE FOR LOW AND HIGH WIND SPEED

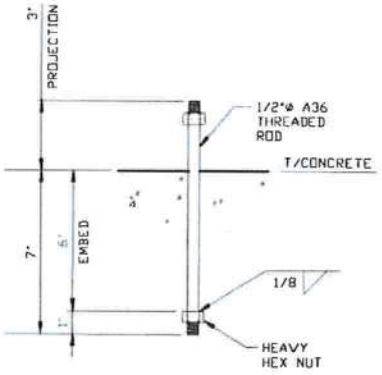


3C **CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE**

SCALE: NTS

MINIMUM ANCHOR EDGE DISTANCE IS 1 1/2"

* COORDINATE WITH LOCAL CODES/ORD REGARDING MINIMUM FROST DEPTH REQ.



3D **ANCHOR ROD THROUGH BASE RAIL DETAIL**

SCALE: NTS

GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN ON MINIMUM SOIL BEARING CAPACITY OF 1,500 PSF

CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS

COVER OVER REINFORCING STEEL:

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

REINFORCING STEEL:

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

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

1 REINFORCEMENT IS BENT COLD.
2 THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
3 REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT

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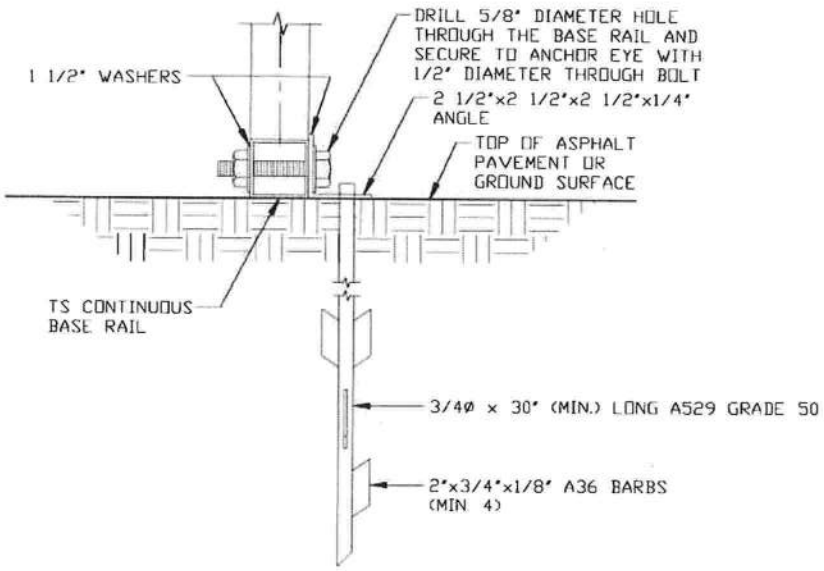
	CLIENT: TBS	SHT. 9A	DWG. NO: SK-3	REV.: 5

BASE RAIL ANCHORAGE OPTION



3E **ASPHALT BASE ANCHORAGE (HP 9 BARBED DRIVE ANCHOR)**

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

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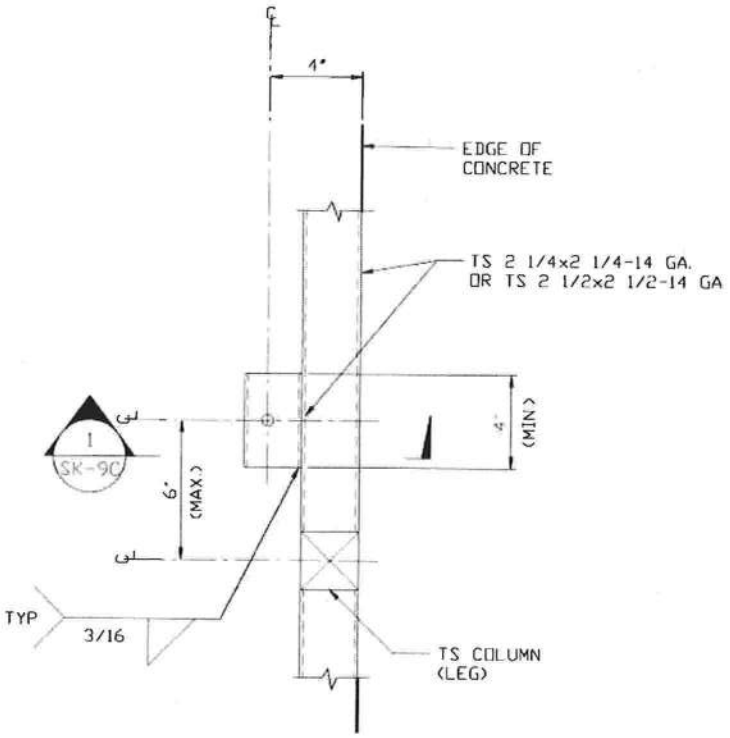
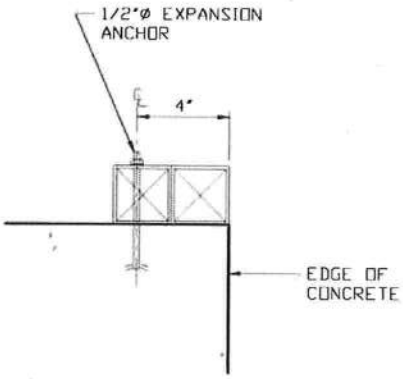
	CLIENT: TBS	SHT. 9B	DWG. NO: SK-3	REV.: 5

BASE RAIL ANCHORAGE OPTIONS



TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE

SCALE: NTS



SECTION 1 / SK-9C

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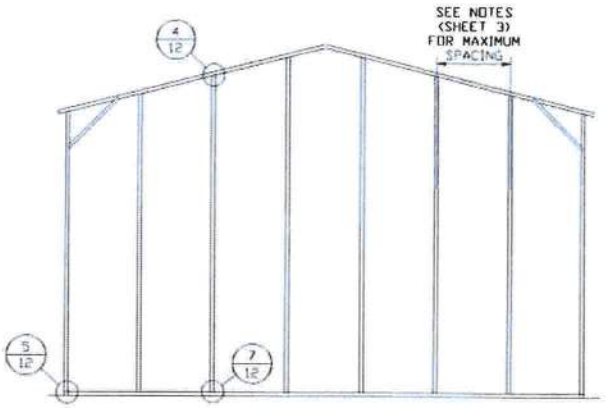
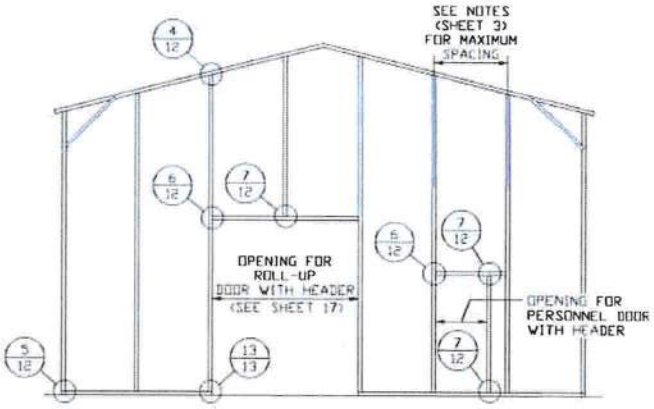
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 9C	DWG. NO: SK-3	REV: 5

BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



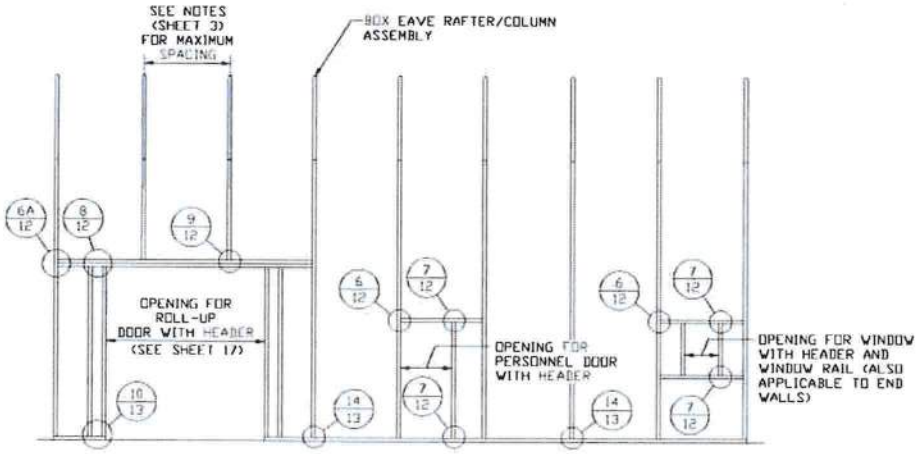
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

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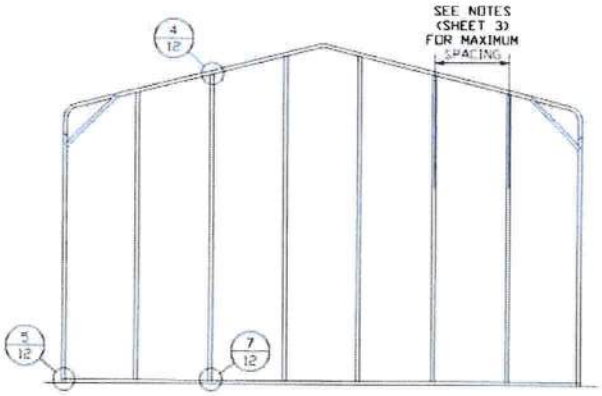
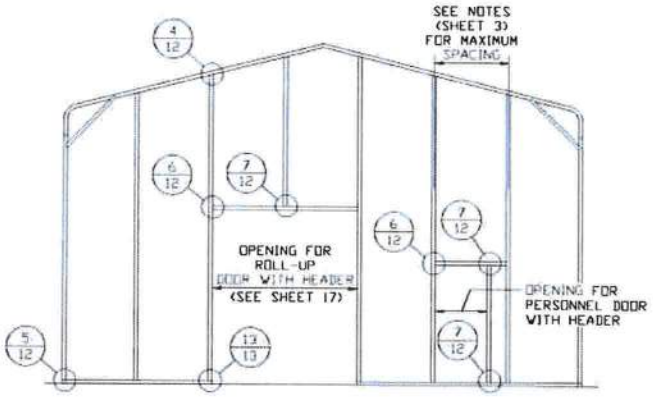
	CLIENT: TBS	SHT. 10	DWG. NO: SK-3	REV.: 5

BOW RAFTER END WALL AND SIDE WALL OPENINGS



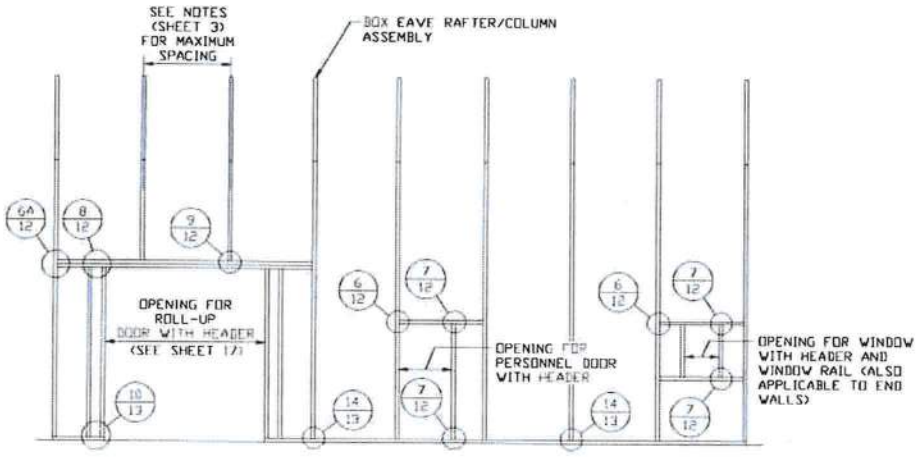
TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER END WALL OPENINGS FRAMING SECTION

SCALE: NTS



TYPICAL BOX EAVE RAFTER SIDE WALL OPENINGS FRAMING SECTION

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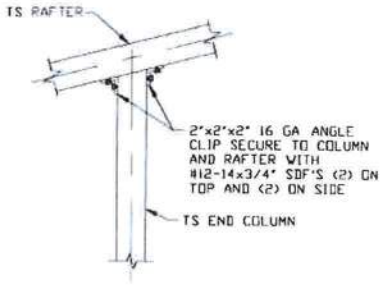
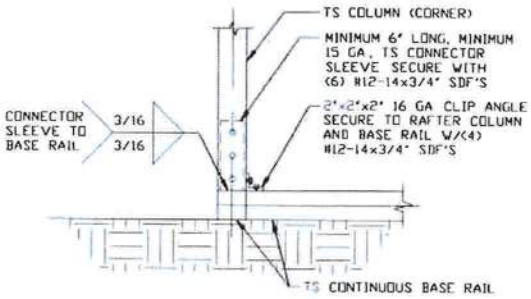
	CLIENT: TBS	SHT. 11	DWG. NO: SK-3	REV.: 5

CONNECTION DETAILS

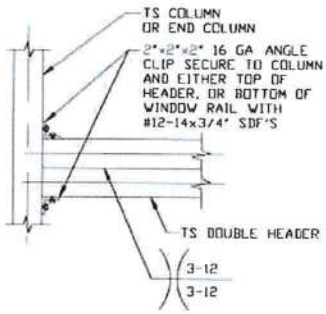


4 END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS

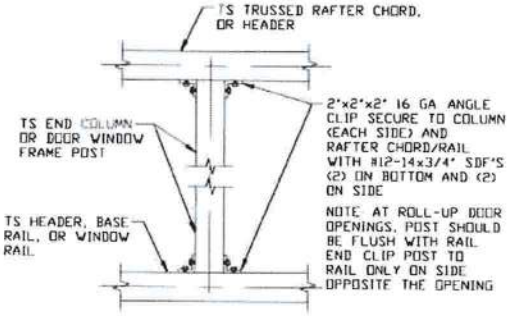


5 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS

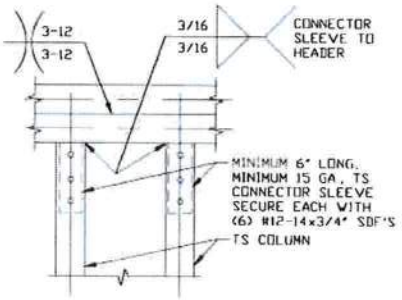
6 HEADER OR WINDOW RAIL TO COLUMN CONNECTION DETAIL
SCALE: NTS



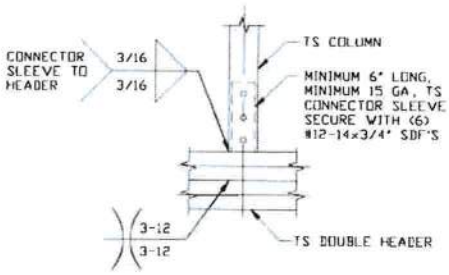
6A DOUBLE HEADER TO COLUMN CONNECTION DETAIL
SCALE: NTS



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



8 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS



9 COLUMN/DOUBLE HEADER CONNECTION DETAIL
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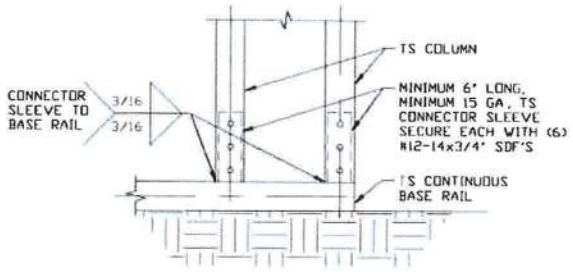
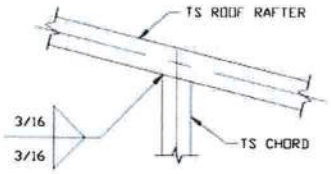
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/17300S/20352S
CLIENT: TBS	SHT. 12	DWG. NO: SK-3	REV.: 5

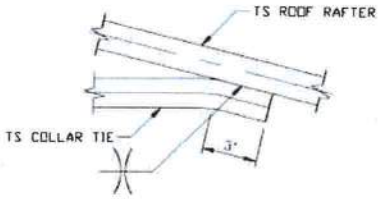
CONNECTION DETAILS



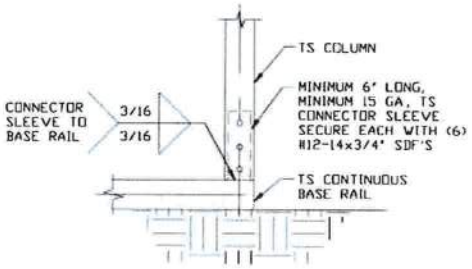
10 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



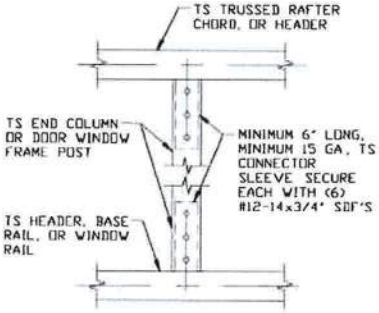
11 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS



12 COLLAR TIE CONNECTION DETAIL
SCALE: NTS



13 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



14 COLUMN TO HEADER, BASE RAIL CONNECTION DETAIL
SCALE: NTS

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ENGINEERING AND CONSULTING, INC.

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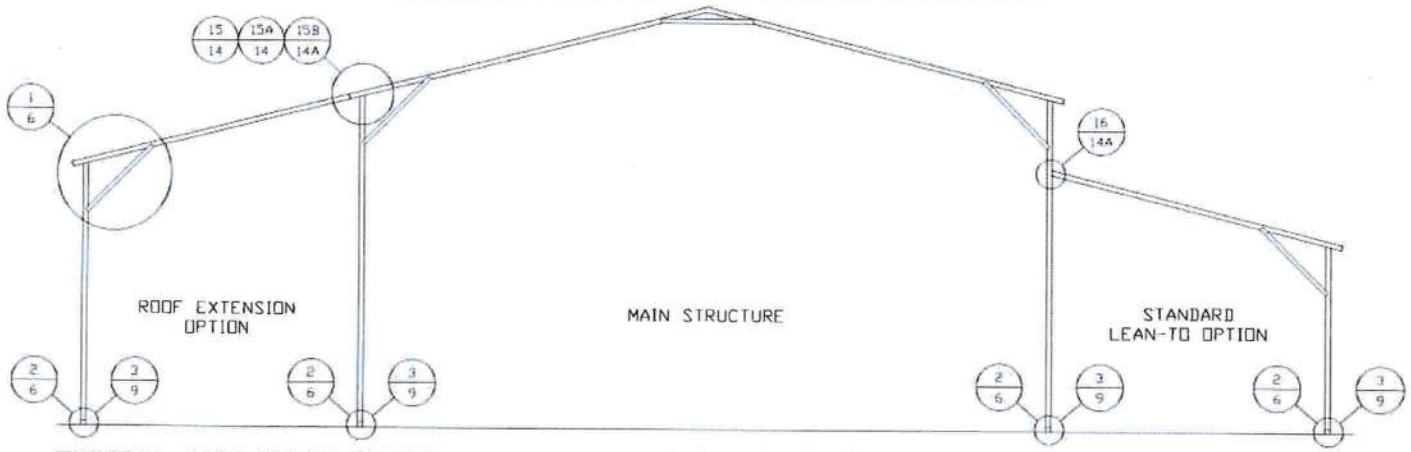
CHECKED BY: PDH			
PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
CLIENT: TBS	SHT. 13	DWG. NO: SK-3	REV.: 5

BOX EAVE RAFTER LEAN-TO OPTIONS



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

SCALE: NTS

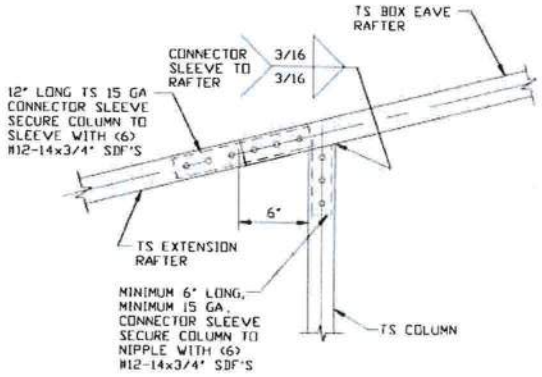
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE LACED COLUMNS FOR EAVE HEIGHTS 16'-0" (14'-0" FOR HIGH WIND) < TO ≤ 20'-0"

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 11'-0" < TO ≤ 16'-0" (14'-0" FOR HIGH WIND)

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS 8'-0" < TO ≤ 11'-0" (WITH 4'-4" INSERT)

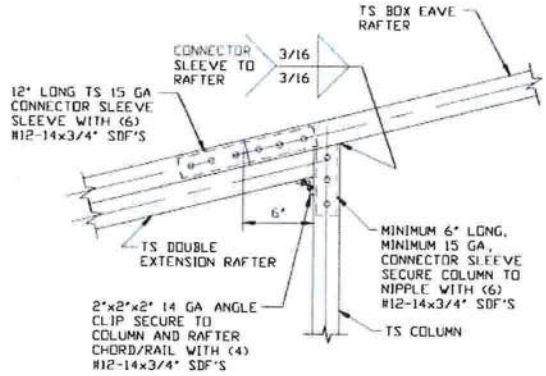
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 8'-0"

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



15 SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS ≤ 14'-0"

SCALE: NTS



15A SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 14'-0" < TO ≤ 22'-0"

SCALE: NTS

NOTE: MAX LEAN-TO SPAN IS 21'-0" FOR HIGH WIND

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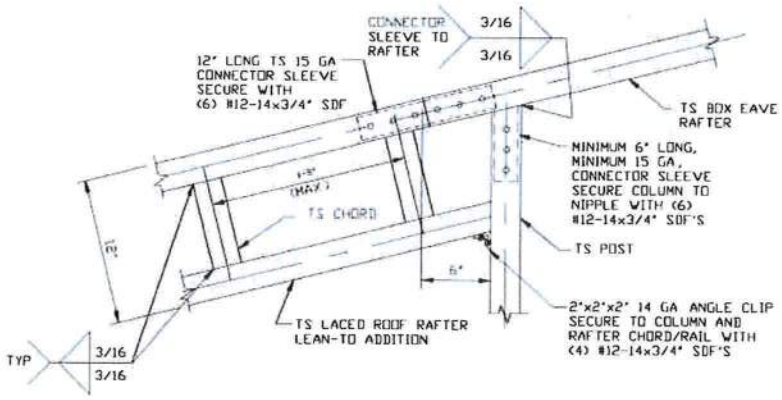
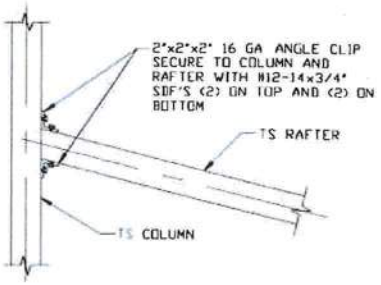
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 14	DWG. NO: SK-3	REV.: 5

BOX EAVE RAFTER LEAN-TO OPTIONS



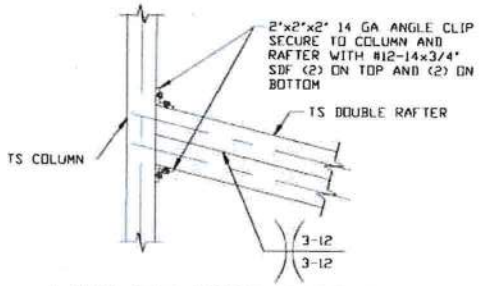
15B SIDE EXTENSION RAFTER/COLUMN DETAIL FOR RAFTER SPANS 22'-0" < TO ≤ 24'-0"

SCALE: NTS



16 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 14'-0"

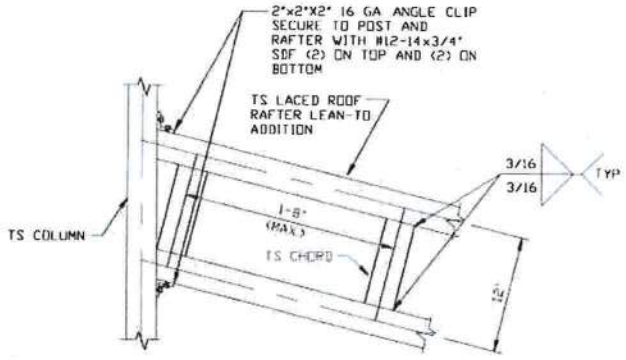
SCALE: NTS



16A LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 14'-0" < TO ≤ 22'-0"

SCALE: NTS

NOTE: MAX LEAN-TO SPAN IS 21'-0" FOR HIGH WIND



16B LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 22'-0" < TO ≤ 24'-0"

SCALE: NTS

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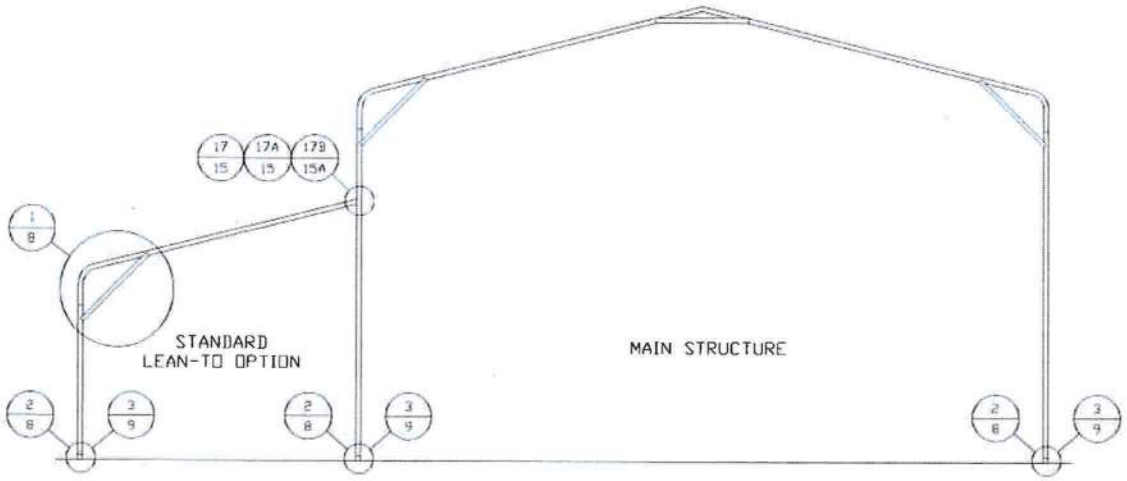
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 14A	DWG. NO: SK-3	REV.: 5

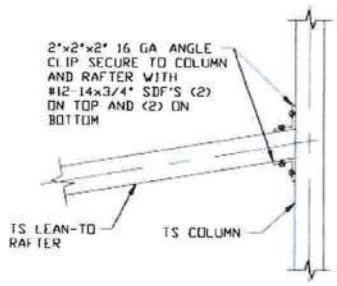
BOW RAFTER LEAN-TO OPTIONS



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

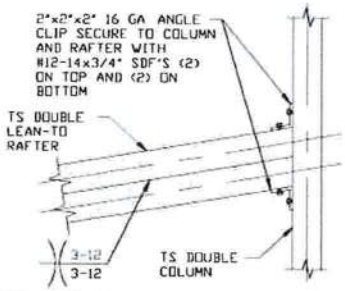
SCALE: NTS

MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE DOUBLE COLUMNS FOR EAVE HEIGHTS 11'-0" (11'-0" < TO ≤ 16'-0" (≤ 14'-0" FOR HIGH WIND)
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS 8'-0" < TO ≤ 11'-0" (WITH 4'-4" INSERT)
MAIN BUILDING COLUMNS WITH LEAN-TO OR ROOF EXTENSION ATTACHED ARE REQUIRED TO BE SINGLE COLUMNS FOR EAVE HEIGHTS ≤ 8'-0".
KNEE BRACES MUST BE 4'-0" (5'-0" FOR HIGH WIND) WHEN LEAN-TO'S ARE ADDED.



17 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS ≤ 14'-0"

SCALE: NTS



17A LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 14'-0" < TO ≤ 22'-0"

SCALE: NTS
NOTE: MAX LEAN-TO SPAN IS 21'-0" FOR HIGH WIND

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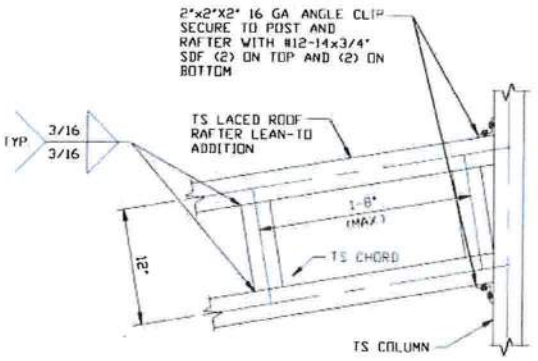
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 15	DWG. NO: SK-3	REV.: 5

BOW RAFTER LEAN-TO OPTIONS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS 22'-0" < TO ≤ 24'-0"

17B

SCALE: NTS

WAYNE S. MOORE LICENSE No 57170 STATE OF FLORIDA PROFESSIONAL ENGINEER

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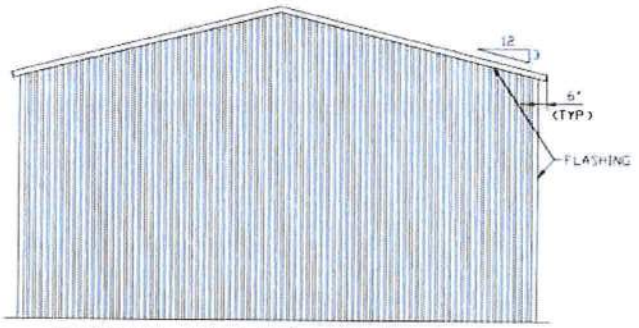
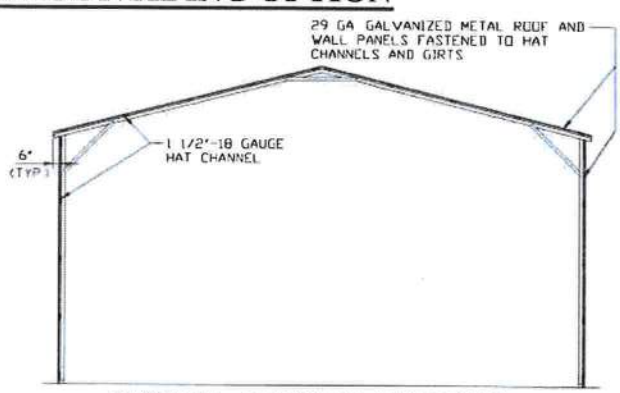
	CLIENT: TBS	SHT. 15A	DWG. NO: SK-3	REV.: 5

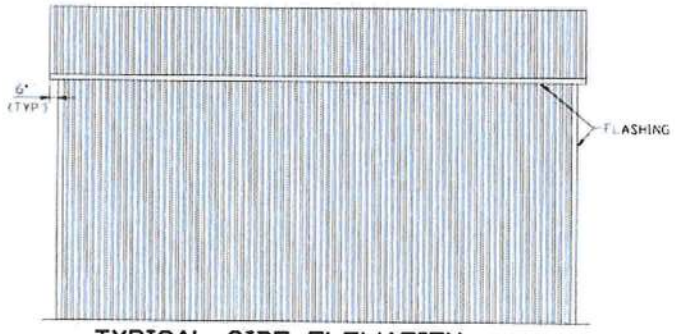
BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



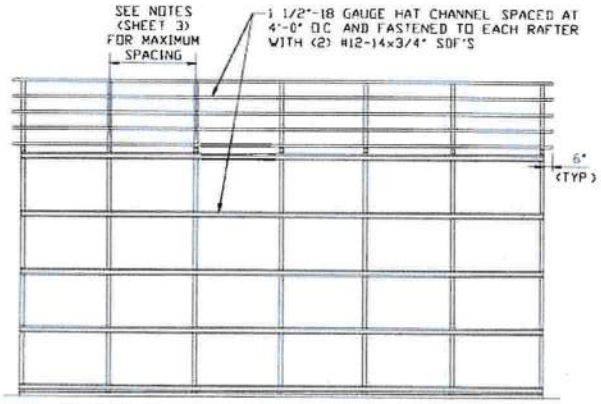
TYPICAL END ELEVATION
VERTICAL ROOF/SIDING OPTION
SCALE: NTS



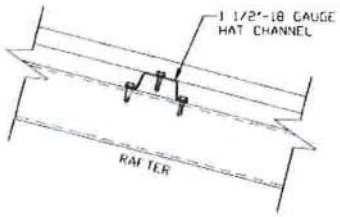
TYPICAL SECTION VERTICAL
ROOF/SIDING OPTION
SCALE: NTS



TYPICAL SIDE ELEVATION
VERTICAL ROOF/SIDING OPTION
SCALE: NTS



TYPICAL FRAMING SECTION
VERTICAL ROOF/SIDING OPTION
SCALE: NTS
NOTE: TS WALL GIRTS CAN BE USED AS AN OPTION IN PLACE OF HAT CHANNELS. TS GIRTS MUST BE SPACD AT 4'-0" (MAX) OC



ROOF PANEL ATTACHMENT
(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS

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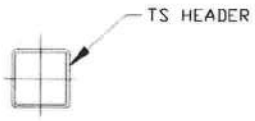
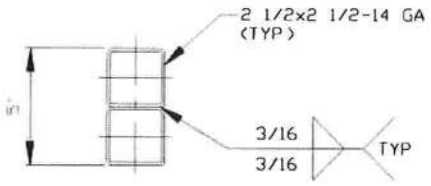
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 16	DWG. NO: SK-3	REV.: 5

SIDE WALL HEADER OPTIONS



HEADER DETAIL FOR DOOR OPENINGS ≤ 10'-0"

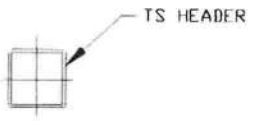
SCALE: NTS



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

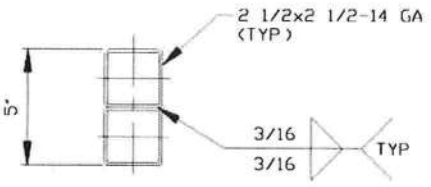
SCALE: NTS

END WALL HEADER OPTIONS



HEADER DETAIL FOR DOOR OPENINGS ≤ 12'-0"

SCALE: NTS



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

SCALE: NTS

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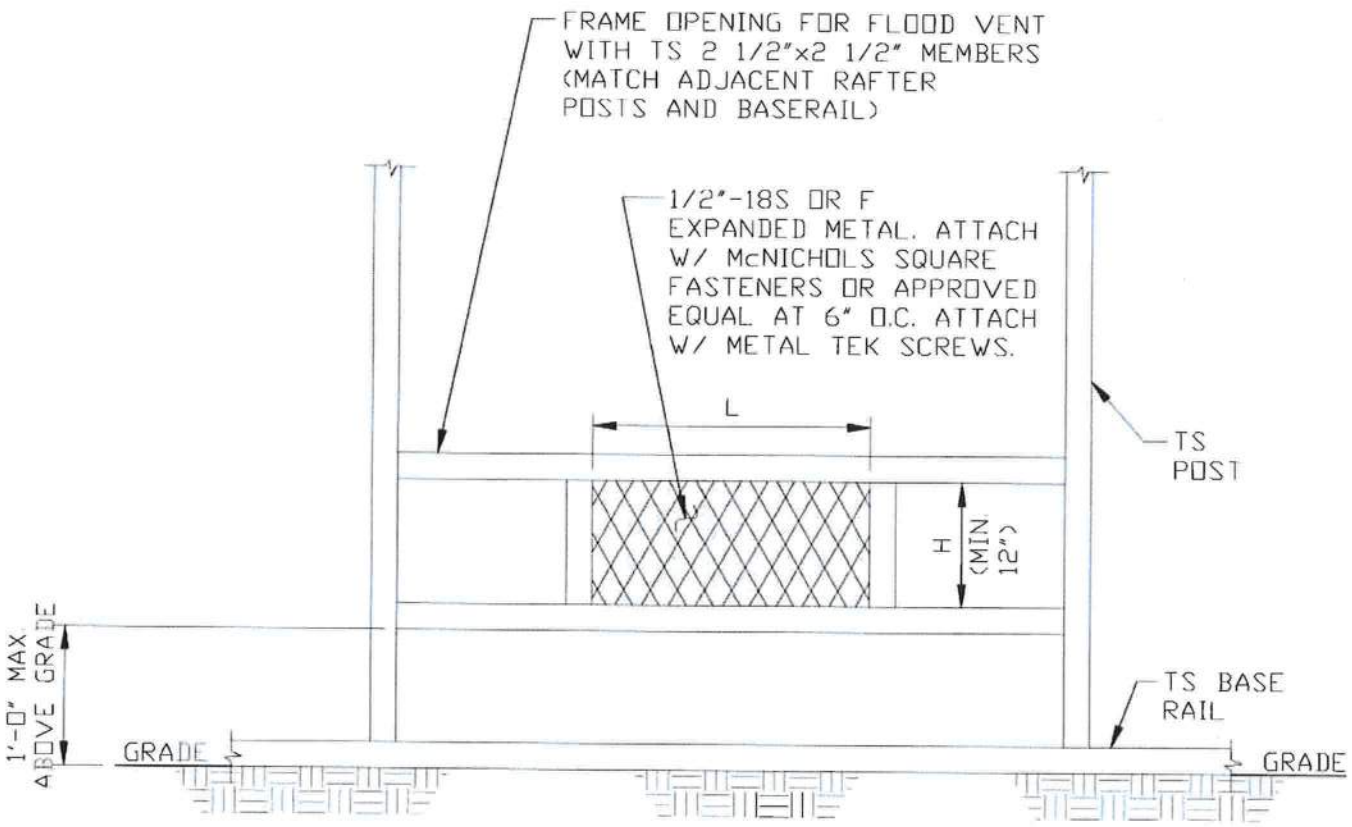
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 17	DWG. NO: SK-3	REV.: 5

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 1.3 FACTOR WHEN CALCULATING TOTAL OPEN AREA WHEN USING 1/2"-18GA S OR F EXPANDED METAL.
4. TOTAL OPEN AREA OF VENT = LxH(MIN. 12").
5. FLOOD VENT DETAIL COMPLIES WITH FEMA/NFIP.
6. PREFABRICATED FLOOD VENTS MEETING THE REQUIREMENTS OF FEMA/NFIP MAY BE USED.

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	CHECKED BY: PDH			
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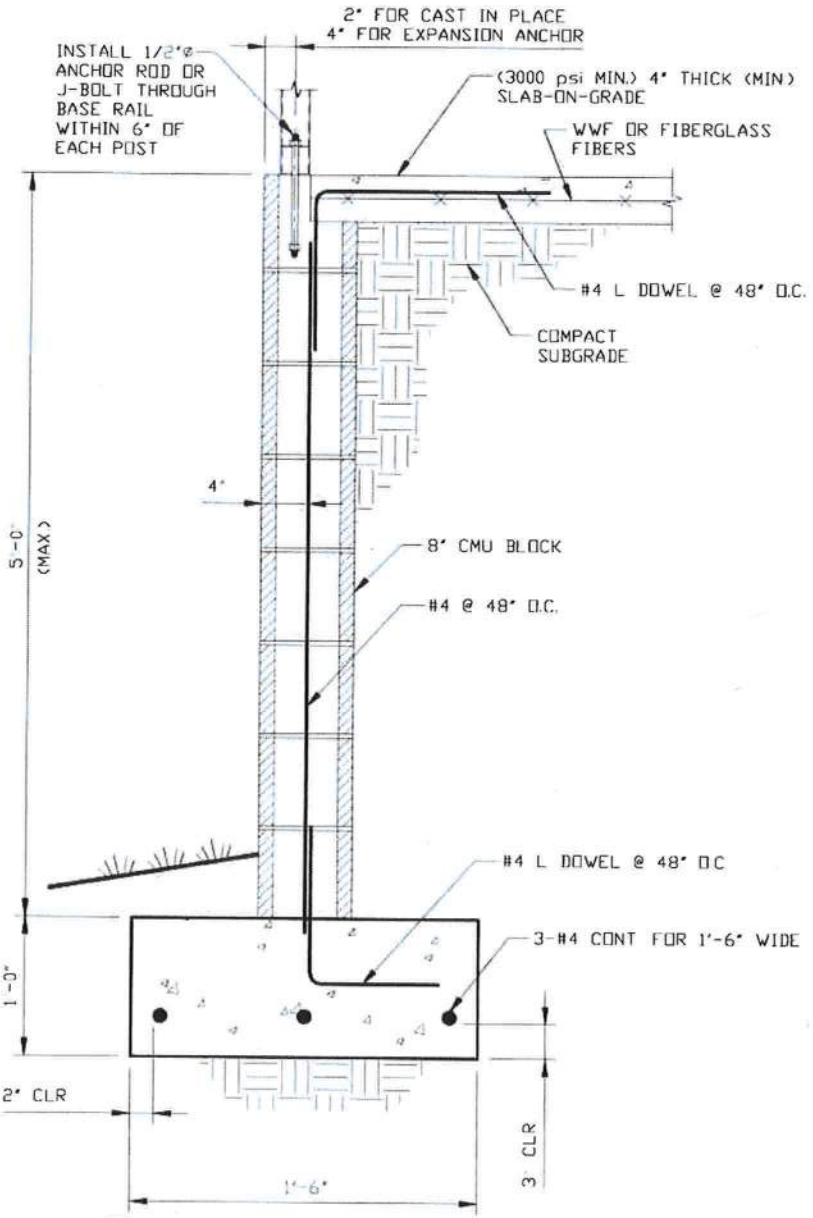
	CLIENT: TBS	SHT. 18	DWG. NO: SK-3	REV.: 5

STAND -ALONE STEM WALL DETAIL



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

SCALE: NTS

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LICENSE
No 57170
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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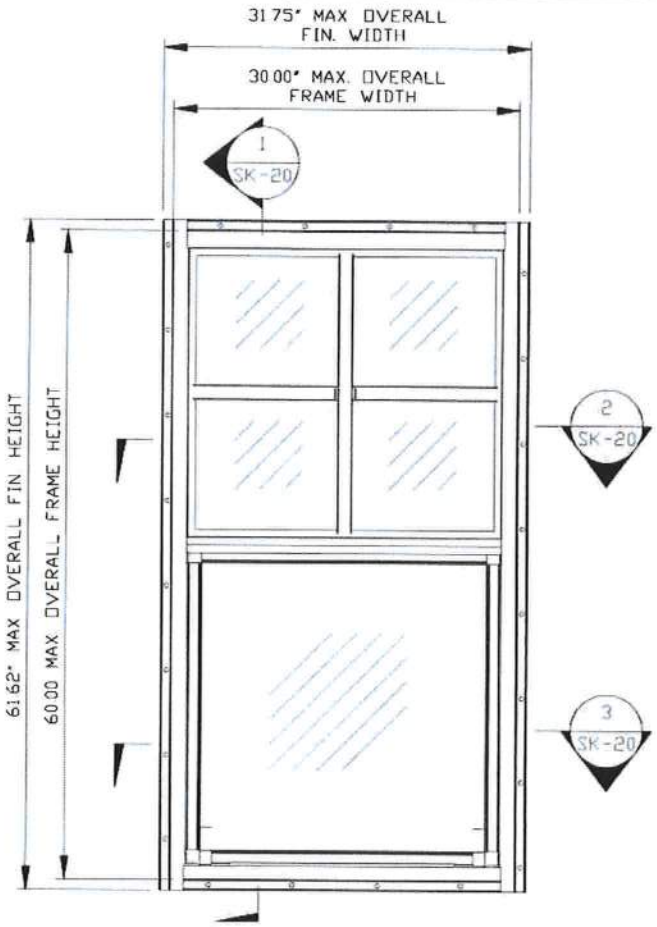
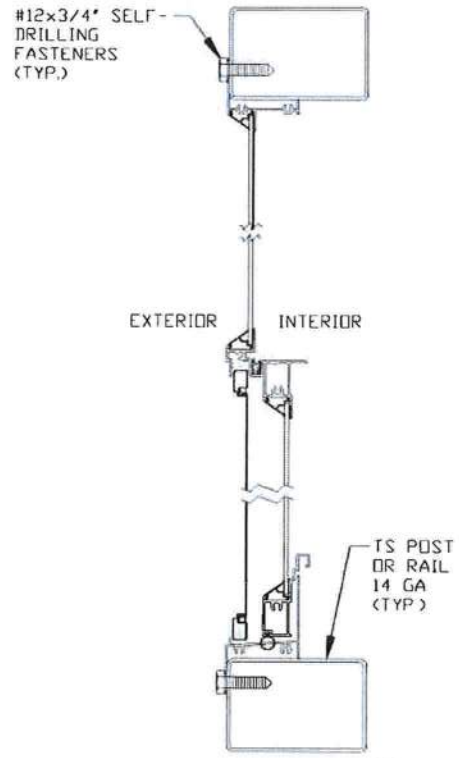
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 19	DWG. NO: SK-3	REV.: 5

VERTICAL SLIDING WINDOW DETAIL



ELEVATION VIEW

SCALE: NTS



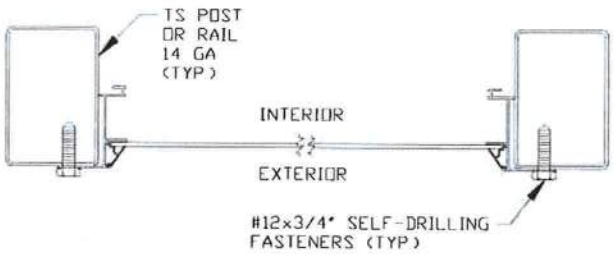
SECTION 1 / SK-20

SCALE: 3"=1'-0"

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

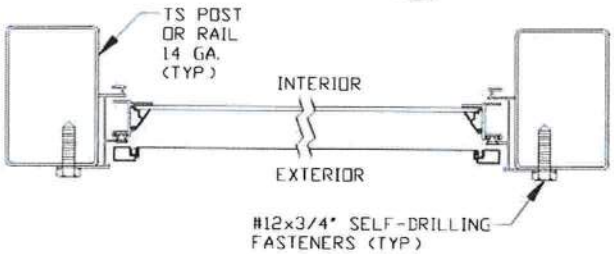
POSITIVE WALL PRESSURE: +40.0 PSF

NEGATIVE WALL PRESSURE: -40.0 PSF



SECTION 2 / SK-20

SCALE: 3"=1'-0"



SECTION 3 / SK-20

SCALE: 3"=1'-0"

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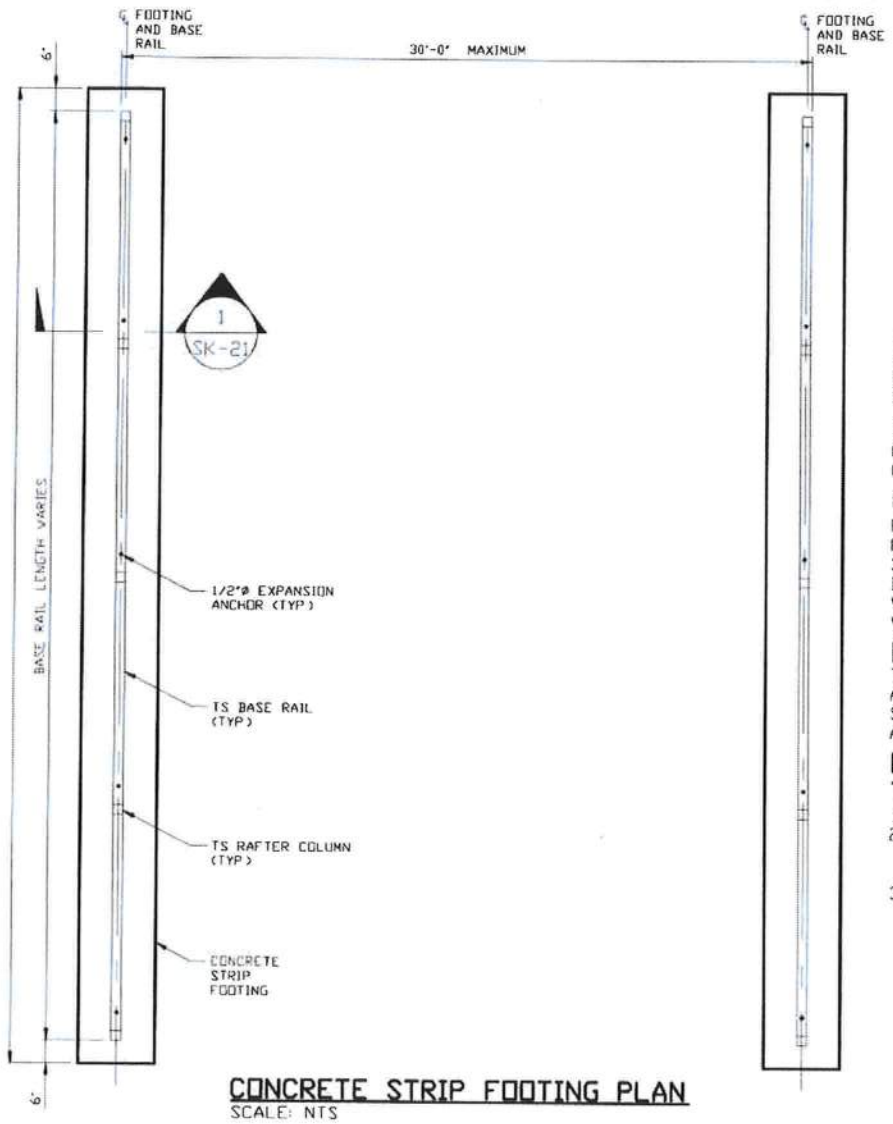
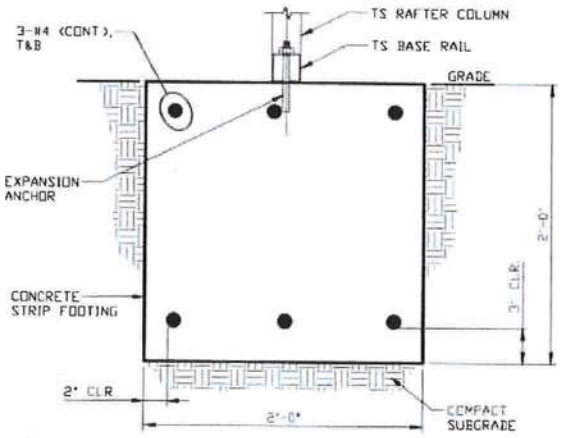
CHECKED BY: PDH				
PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S	
CLIENT: TBS	SHT. 20	DWG. NO: SK-3	REV.: 5	

OPTIONAL CONCRETE STRIP FOOTING



CONCRETE STRIP FOOTING PLAN
SCALE: NTS



SECTION 1/SK-21
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

This item has been electronically signed and sealed by Wayne S. Moore, PE. using a Digital Signature and date.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

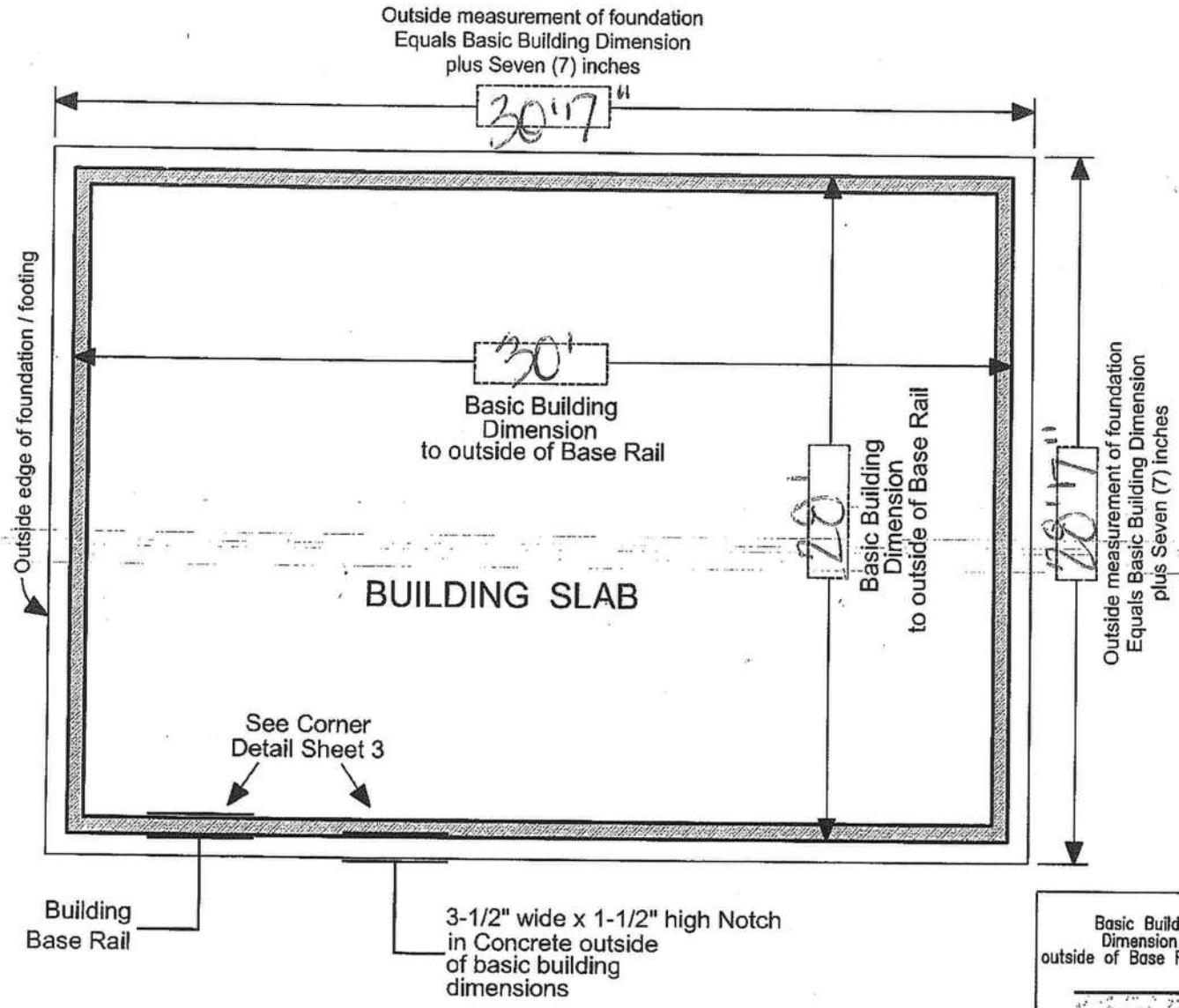
MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	TUBULAR BUILDING SYSTEMS 631 SE INDUSTRIAL CIRCLE LAKE CITY, FLORIDA 32025 30'-0"x20'-0" ENCLOSED BUILDING EXP. C		
	CHECKED BY: PDH			
	PROJECT MGR: WSM	DATE: 1-25-21	SCALE: NTS	JOB NO: 16022S/ 17300S/20352S
	CLIENT: TBS	SHT. 21	DWG. NO: SK-3	REV.: 5

TUBULAR BUILDING SYSTEMS

Florida Product Approval Codes

Roll-Up Doors:		
10Wide	Janus International Corporation Model 750: 21450.10	12/31/21
Walk-In Door:		
	Elixir Door & Metal Company blank (no window): 17996.5	8/26/25
Window:		
	Kinro 993.7	10/19/21
Roof Deck:		
	Capital Metal Supply Inc. Ag Panel: 20147.2	3/4/25
Wall Panel:		
	Capital Metal Supply Inc. Ag Panel: 20148.2	3/4/25

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

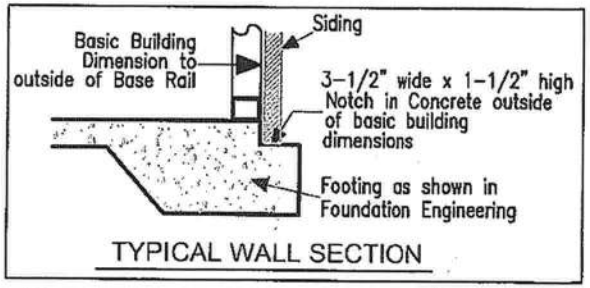


IMPORTANT - NOTES

Record Measurements in these spaces provided

All basic building dimensions are to the outside of the frame Base Rail and DO NOT INCLUDE the 3-1/2" x 1-1/2" notch in the concrete footing

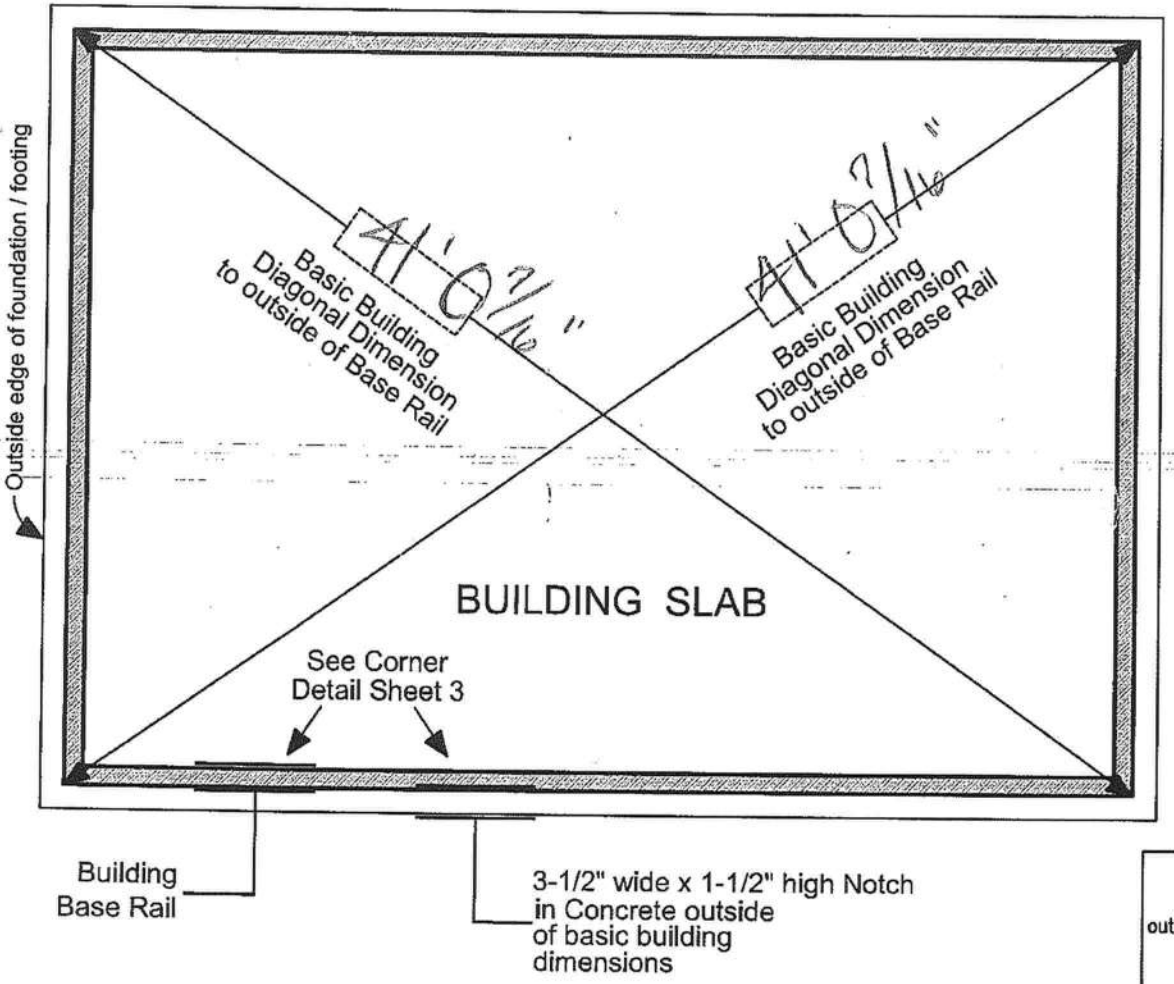
See Sheet 3 of 3 for Detail of Building corner configuration



TYPICAL WALL SECTION

TUBULAR BUILDING SYSTEMS

TYPICAL BUILDING
FOUNDATION MEASUREMENTS

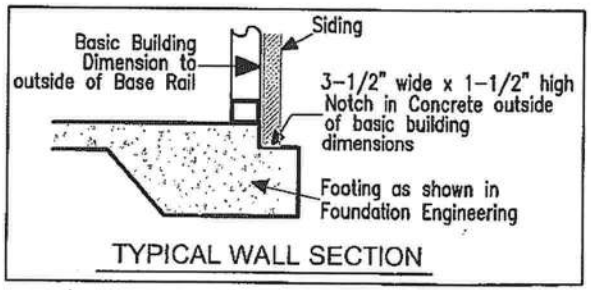


IMPORTANT - NOTES

Record Measurements in these spaces provided

All basic building diagonal dimensions are to the outside corner of the frame Base Rail and DO NOT INCLUDE the 3–1/2" x 1–1/2" notch in the concrete footing

See Sheet 3 of 3 for Detail of Building corner configuration

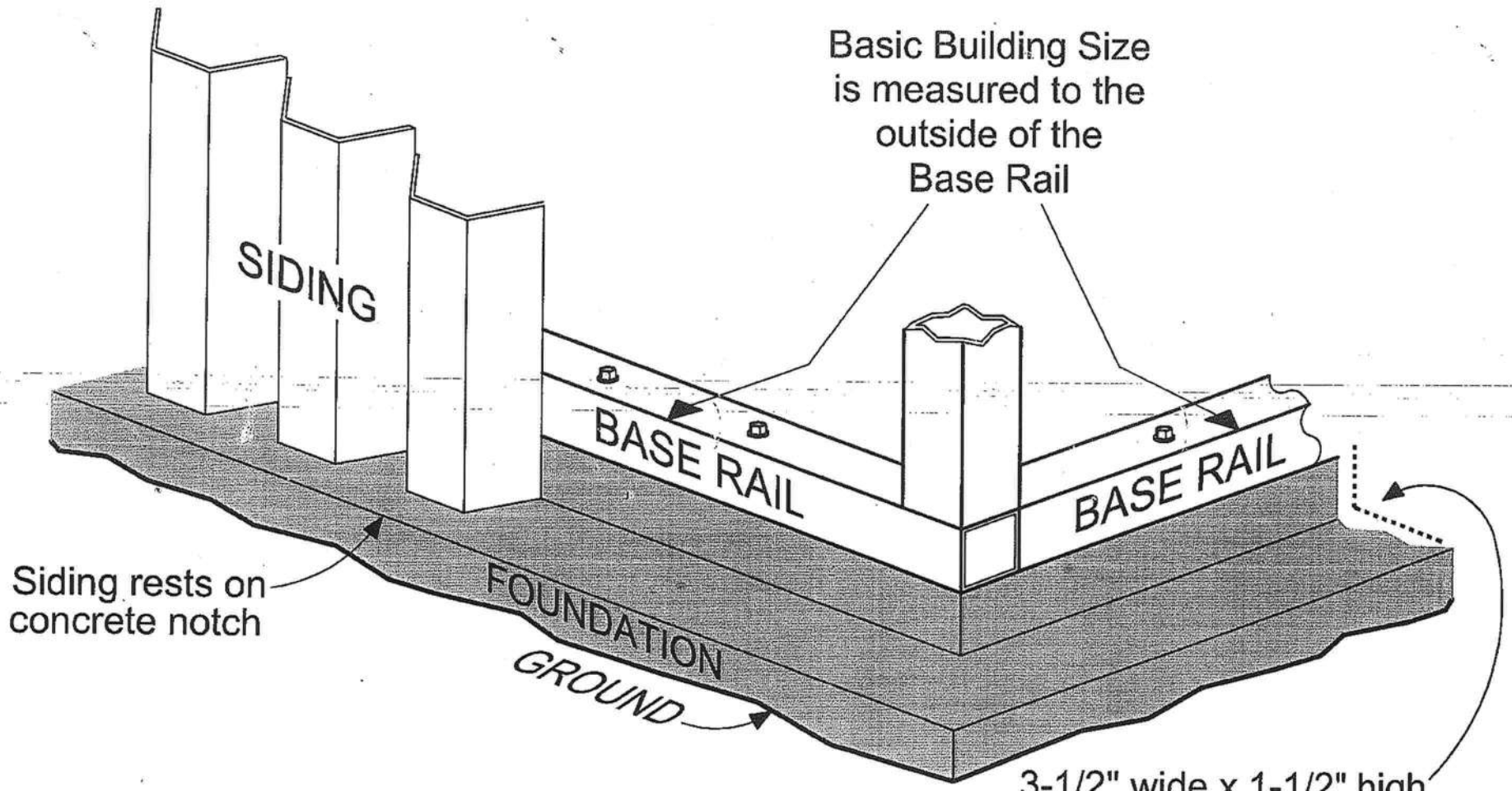


TYPICAL WALL SECTION

TBS TUBULAR BUILDING SYSTEMS

TYPICAL BUILDING

FOUNDATION MEASUREMENTS DIAGONALS



TBS
TUBULAR BUILDING SYSTEMS

TYPICAL BUILDING

CORNER DETAIL