GENERAL NOTES

APPLICABLE CODES, REGULATIONS, & STANDARDS
A. THE 2018 INTERNATIONAL BUILDING CODE
B. ASCE 7-10 & SEI 7
C. ACI 318-14 CONCRETE REFERENCE MANUAL
D. AISC STEEL CONSTRUCTION MANUAL (15TH EDITION)
E. AWS D1.1 STRUCTURAL WELDING

1. THESE PLANS RELATE EXCLUSIVELY TO THE STRUCTURE, INCLUDING MAIN WIND FORCE RESISTING SYSTEM (MWFRS), COMPONENTS AND CLADDING (C&C), AND BASE TAIL ANCHORAGE. OTHER DESIGN ISSUES, INCLUDING BUT NOT LIMITED TO PROPERTY SET BACKS, ELECTRICAL, PLUMBING, INGRESS/EGRESS, FINISH FLOOR SLOPES AND ELEVATIONS, OR OTHER LOCAL ZONING REQUIREMENTS ARE THE LIABILITY OF OTHERS.

2. THESE STRUCTURES ARE ENGINEERED AS (RISK CATEGORY II) CAPABLE OF SUPPORTING DEAD LOAD OF THE STRUCTURE AND LIVE AND WIND LOADS. UPGRADES NOT SPECIFICALLY ADDRESSED HEREIN, SUCH AS WINDOWS, DOORS, OR ANOTHER COMPONENT NOT LISTED IN THE FLORIDA BUILDING CODE APPROVED PRODUCT LIST, AND NOT PROVIDED AND INSTALLED BY CARPORTS ANYWHERE, INC., WHICH CAUSE ADDITIONAL LOADS ON THE STRUCTURE SHALL BE AT THE OWNER'S RISK. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR FAILURE OR STRUCTURAL DAMAGE DUE TO THE EXTRA LOAD.

3. 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

4. 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

5. ALL STEEL TUBING SHALL BE 55 KSI GALVANIZED STEEL. ALL FASTENERS SHALL BE ZINC COATED HARDWARE.

6. 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.

7. FASTENERS CONSIST OF #12-14 x 3/4" SELF DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 30 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS. SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.

8. AVERAGE FASTENER SPACING ON-CENTER ALONG RAFTERS OR PURLINS, AND POSTS: INTERIOR = 9" OR END = 6" (MAX.)

9. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
SOIL SITE CLASS = D
RISK CATEGORY II/III
$I_p$ = 3.25 $I_e$ = 1.0
$S_{DS}$ = 0.087 g $V = C_s W$
$S_{D1}$ = 0.064 g

COMPONENT AND CLADDING LOADS FOR A BUILDING
WITH A MEAN ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (ASD) (PSF)

| ZONE | EFFECTIVE WIND AREA (sq.ft) | ULTIMATE DESIGN WIND SPEED, V (mph) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 110 | | 115 | | 120 | | 130 | | 140 | | 150 | | 160 | | 170 | |
| 1 | 10.00 | 13.00 | -11.00 | 13.00 | -13.00 | 10.00 | -14.00 | 12.50 | -15.00 | 12.20 | -19.00 | 14.00 | -22.00 | 15.90 | -25.00 | 17.90 | -28.00 |
| 1 | 20.00 | 13.00 | -11.00 | 13.00 | -12.00 | 10.00 | -13.00 | 13.00 | -16.00 | 11.10 | -18.00 | 12.80 | -21.00 | 14.50 | -24.00 | 16.40 | -27.00 |
| 1 | 50.00 | 12.50 | -11.00 | 13.00 | -12.00 | 10.00 | -13.00 | 13.00 | -15.00 | 10.00 | -18.00 | 11.10 | -20.00 | 12.70 | -23.00 | 14.30 | -26.00 |
| 1 | 100.00 | 12.00 | -10.00 | 13.00 | -11.00 | 10.00 | -12.00 | 13.00 | -15.00 | 10.00 | -17.00 | 9.90 | -20.00 | 11.20 | -22.00 | 12.60 | -25.00 |
| 2 | 10.00 | 13.00 | -20.00 | 13.00 | -22.00 | 10.00 | -24.00 | 13.50 | -29.00 | 12.20 | -33.00 | 14.00 | -38.00 | 15.90 | -44.00 | 17.90 | -49.00 |
| 2 | 20.00 | 13.00 | -19.00 | 13.00 | -20.00 | 10.00 | -22.00 | 13.00 | -26.00 | 11.10 | -31.00 | 12.80 | -35.00 | 14.50 | -40.00 | 16.40 | -45.00 |
| 2 | 50.00 | 13.00 | -16.00 | 13.00 | -18.00 | 10.00 | -20.00 | 13.00 | -23.00 | 10.00 | -27.00 | 11.10 | -31.00 | 12.70 | -35.00 | 14.30 | -40.00 |
| 2 | 100.00 | 13.00 | -15.00 | 13.00 | -16.50 | 13.00 | -18.00 | 13.00 | -21.50 | 10.00 | -24.00 | 9.90 | -28.00 | 11.20 | -32.00 | 12.60 | -36.00 |
| 3 | 10.00 | 13.00 | -30.00 | 13.00 | -33.00 | 10.00 | -36.00 | 13.50 | -43.50 | 12.20 | -49.00 | 14.00 | -57.00 | 15.90 | -65.00 | 17.90 | -73.00 |
| 3 | 20.00 | 13.00 | -28.00 | 13.00 | -31.00 | 10.00 | -34.00 | 13.00 | -40.50 | 11.10 | -46.00 | 12.80 | -53.00 | 14.50 | -60.00 | 16.40 | -68.00 |
| 3 | 50.00 | 13.00 | -25.00 | 13.00 | -28.00 | 10.00 | -31.00 | 13.00 | -36.00 | 10.00 | -42.00 | 11.10 | -48.00 | 12.70 | -55.00 | 14.30 | -62.00 |
| 3 | 100.00 | 13.00 | -24.00 | 13.00 | -26.00 | 10.00 | -28.00 | 13.00 | -33.00 | 10.00 | -39.00 | 9.90 | -44.00 | 11.20 | -51.00 | 12.60 | -57.00 |
| 4 | 10.00 | 13.10 | -14.00 | 14.30 | -15.00 | 15.50 | -16.00 | 18.20 | -19.00 | 21.20 | -22.00 | 24.30 | -26.00 | 27.70 | -30.00 | 31.20 | -33.00 |
| 4 | 20.00 | 12.50 | -13.00 | 13.60 | -14.00 | 14.80 | -15.00 | 17.40 | -19.00 | 20.20 | -22.00 | 23.20 | -25.00 | 26.40 | -28.00 | 29.70 | -32.00 |
| 4 | 50.00 | 11.70 | -12.50 | 12.80 | -14.00 | 13.90 | -15.00 | 16.30 | -17.00 | 19.00 | -20.00 | 21.70 | -23.00 | 24.70 | -27.00 | 27.90 | -30.00 |
| 4 | 100.00 | 11.10 | -12.00 | 12.10 | -13.00 | 13.20 | -14.00 | 15.50 | -17.00 | 18.00 | -19.00 | 20.60 | -22.00 | 23.50 | -25.00 | 26.50 | -29.00 |
| 4 | 500.00 | 10.00 | -10.50 | 10.90 | -11.00 | 11.60 | -12.00 | 13.50 | -15.00 | 15.80 | -17.00 | 18.10 | -20.00 | 20.60 | -22.00 | 23.20 | -25.00 |
| 5 | 10.00 | 13.10 | -17.00 | 14.30 | -19.00 | 15.50 | -20.00 | 18.20 | -24.00 | 21.20 | -28.00 | 24.30 | -32.00 | 27.70 | -37.00 | 31.20 | -41.00 |
| 5 | 20.00 | 12.50 | -15.00 | 13.60 | -17.00 | 14.80 | -19.00 | 17.40 | -22.00 | 20.20 | -26.00 | 23.20 | -30.00 | 26.40 | -34.00 | 29.70 | -39.00 |
| 5 | 50.00 | 11.70 | -14.00 | 12.80 | -16.00 | 13.90 | -17.00 | 16.30 | -20.00 | 19.00 | -23.00 | 21.70 | -27.00 | 24.70 | -31.00 | 27.90 | -35.00 |
| 5 | 100.00 | 11.10 | -13.00 | 12.10 | -14.00 | 13.20 | -15.00 | 15.50 | -19.00 | 18.00 | -22.00 | 20.60 | -25.00 | 23.50 | -28.00 | 26.50 | -32.00 |
| 5 | 500.00 | 10.00 | -10.50 | 10.90 | -11.00 | 11.60 | -12.50 | 13.60 | -15.00 | 15.80 | -17.00 | 18.10 | -20.00 | 20.60 | -22.00 | 23.20 | -25.00 |

NOTES
1. FOR EXPOSURE CATEGORY C, MULTIPLY THE ABOVE VALUES BY 1.21 UP TO A MEAN ROOF HEIGHT OF 15 FT AND 1.29 UP TO A MEAN ROOF HEIGHT OF 20 FT.

NORTH CAROLINA PROFESSIONAL SEAL 048404 ENGINEER

Craig E. Gunderson, P.E. #048404
LICENSE # P-2010

CONCRETE NOTE

ALL OPEN AREAS OF CONCRETE OUTSIDE OF THE PROPOSED STRUCTURE SHALL BE DESIGNED TO SLOPE AWAY FROM THE STRUCTURE

| PRODUCT CATEGORY | SUB CATEGORY | MANUFACTURER | APPROVAL No. & DATE |
|---|---|---|---|
| STRUCTURAL COMPONENTS | ROOF DECK | CAPITAL METAL SUPPLY, INC. 29 GA. CAPITAL RIB ROOF PANEL | FL20147.1-R1 12/12/17 |
| STRUCTURAL COMPONENTS | STRUCTURAL WALL | CAPITAL METAL SUPPLY, INC. 29 GA. CAPITAL RIB WALL PANEL | FL20148.1-R1 12/12/17 |
| EXTERIOR DOORS | ROLL-UP | JANUS INTERNATIONAL GROUP, LLC. SERIES 3652 | FL14425.1-R4 06/15/18 |
| EXTERIOR DOORS | SWINGING | ELIXIR DOOR AND METAL COMPANY SERIES 407 | FL17996.5-R1 01/29/18 |
| EXTERIOR DOORS | SWINGING | JELD-WEN C. DESIGN PRO | FL13541.3-R10 12/17/19 |
| WINDOWS | SINGLE HUNG | PELLA CORPORATION 350 SERIES PREMIUM DOUBLE HUNG WINDOW HIGH PERFORMANCE | FL14671.1-R7 09/14/18 |
| WINDOWS | SINGLE HUNG | PELLA CORPORATION 350 SERIES PREMIUM DOUBLE HUNG WINDOW 2-WIDE OR 3-WIDE STANDARD PERFORMANCE | FL14671.7-R7 09/14/18 |

GUNDERSON ENGINEERING LLC
4181 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

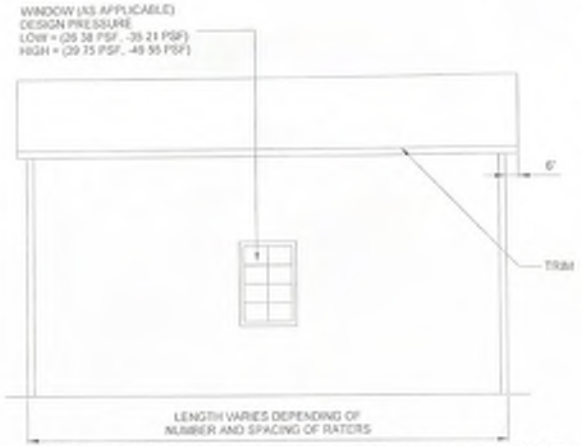
DATE: 08/10/2020

PROJECT NO. 2020625

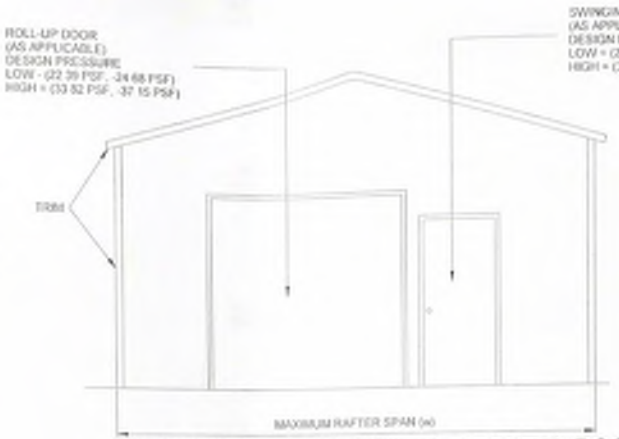
CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

DESIGN DATE: 08/10/2020
REVISION 1: DATE:
REVISION 2: DATE:
SCALE: NTS

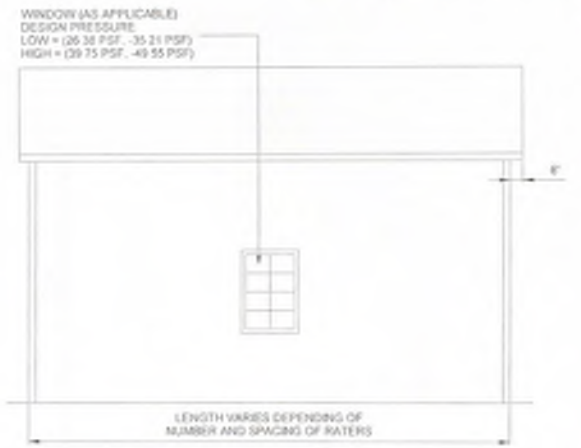



TYPICAL SIDE ELEVATION-HORIZONTAL ROOF
SCALE: NTS

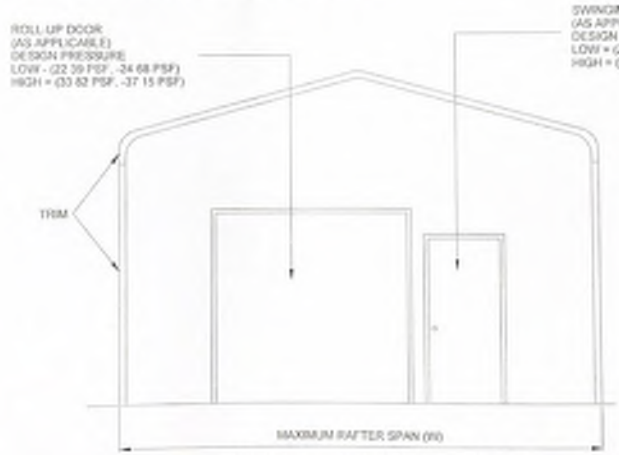



TYPICAL END ELEVATION-HORIZONTAL ROOF
SCALE: NTS

## BOX EAVE FRAME RAFTER STRUCTURE




TYPICAL SIDE ELEVATION
SCALE: NTS




TYPICAL END ELEVATION
SCALE: NTS

## BOW FRAME RAFTER STRUCTURE

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

PROJECT NO. 2020625

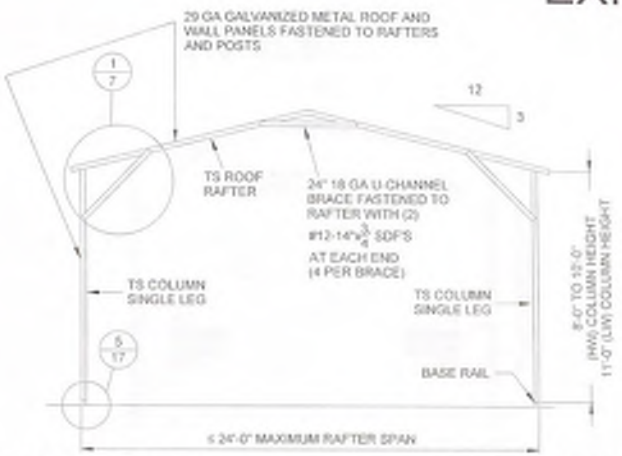
CONSTRUCTION: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | |
|---|---|
| DESIGN DATE: | 08/10/2020 |
| REVISION 1: | DATE |
| REVISION 2: | DATE |
| SCALE: | NTS |

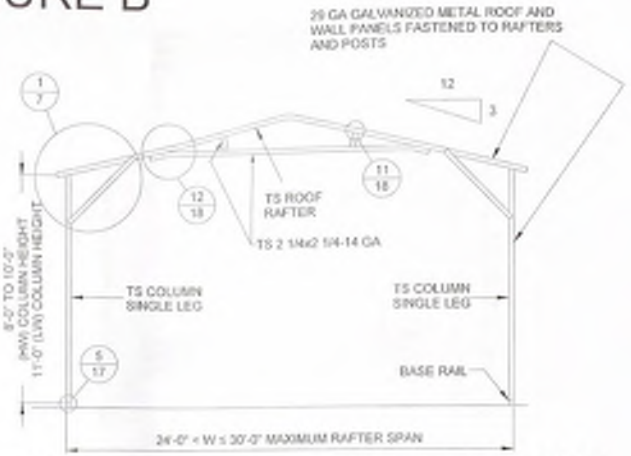
PAGE 2 OF

# EXPOSURE B



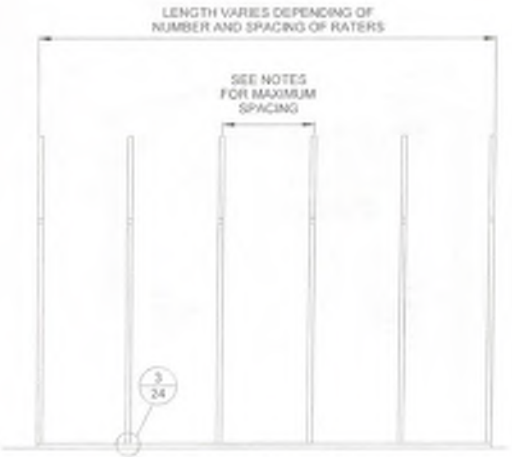

TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS




TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

PROJECT NO. 2020525

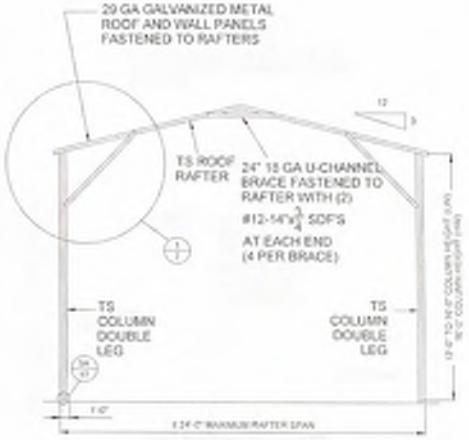
CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

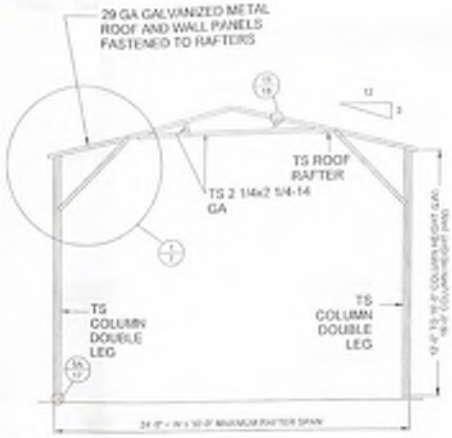
| | |
|---|---|
| DESIGN DATE | 08/10/2020 |
| REVISION 1 | DATE |
| REVISION 2 | DATE |
| SCALE | NTS |

PAGE 3 OF 16

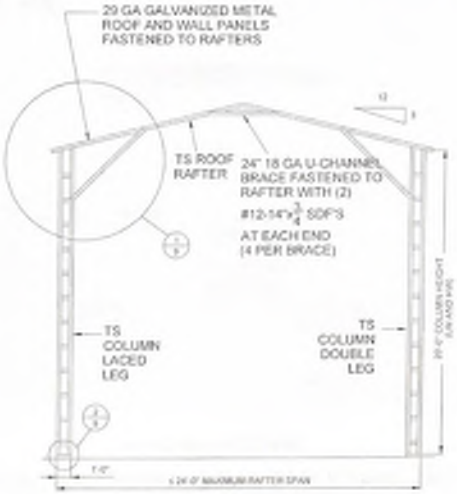
# EXPOSURE B



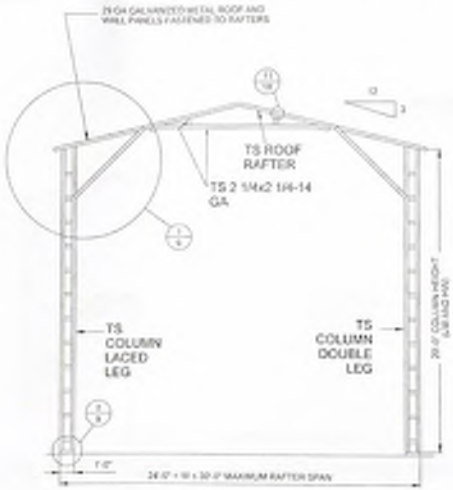

TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

PROJECT NO. 20200625

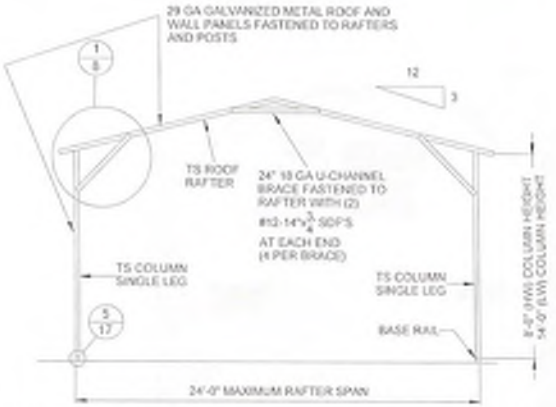
DATE 08/10/2020

CONTRACTOR: VIKING STEEL STRUCTURES

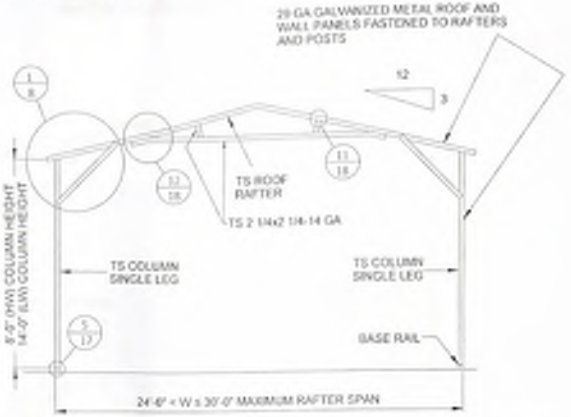
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 4 OF 24 |
| SCALE | NTS | |

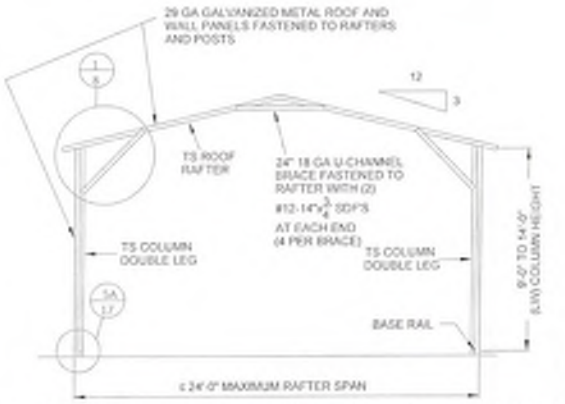
# EXPOSURE C



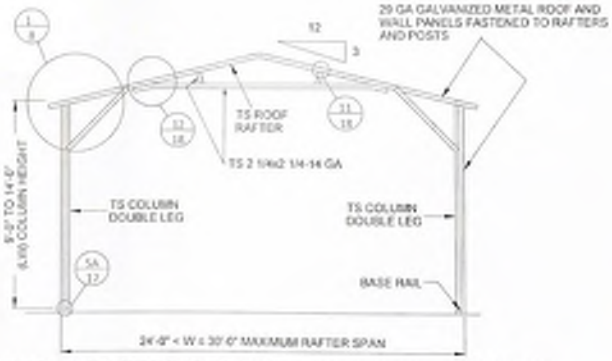

TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

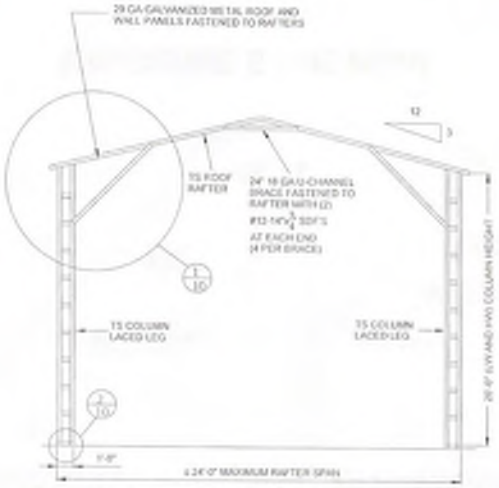
PROJECT NO. 20200625

CONTRACTOR: VIKING STEEL STRUCTURES

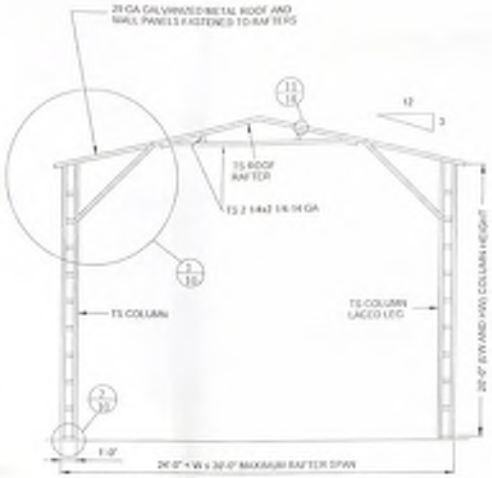
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 5 OF 14 |
| SCALE | NTS | |

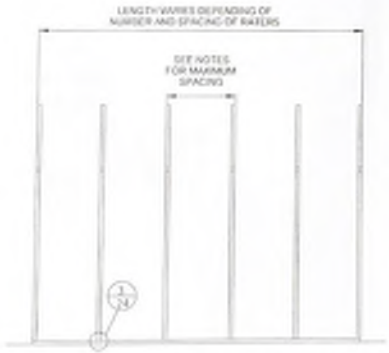
# EXPOSURE C




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION
SCALE: NTS




TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

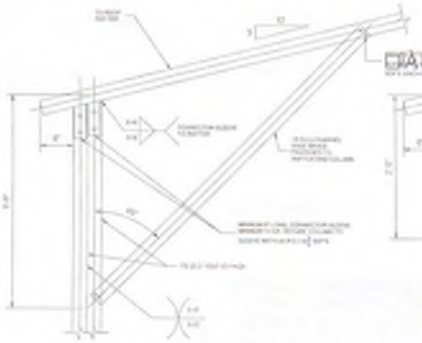
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

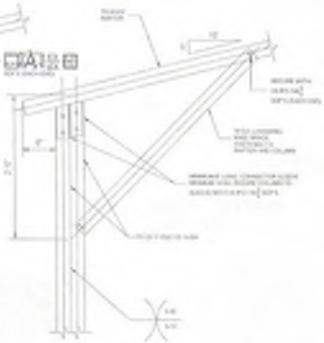
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 6 OF 16 |
| SCALE | NTS | |

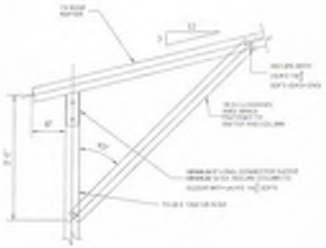
## EXPOSURE B (140 MPH)



1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤16'-0"
SCALE: NTS



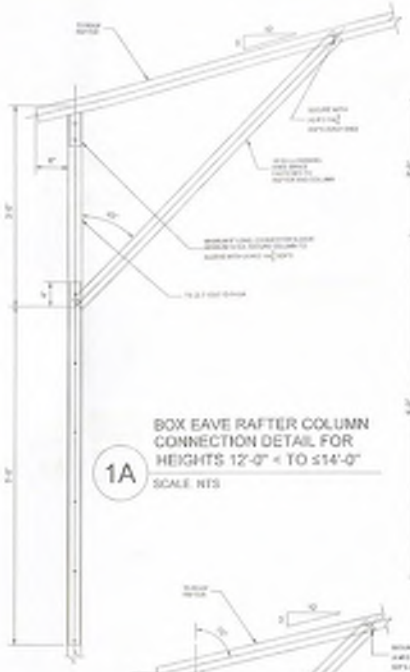
1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤12'-0"
SCALE: NTS



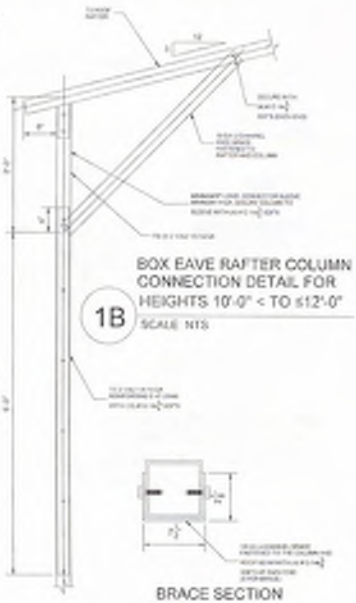
1C BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤11'-0"
SCALE: NTS

BRACE SECTION
SCALE: NTS

## EXPOSURE B (170 MPH)



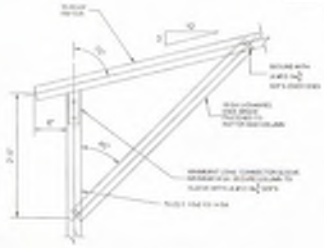
1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤14'-0"
SCALE: NTS



1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤12'-0"
SCALE: NTS



BRACE SECTION
SCALE: NTS



1C BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤10'-0"
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 08/10/2020

PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE: 08/10/2020 | | |
| REVISION 1 | DATE | PAGE 7 OF 24 |
| REVISION 2 | DATE | |
| SCALE | NTS | |

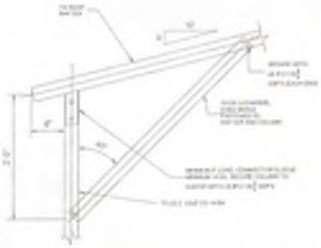
## EXPOSURE C (140 MPH)

BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤12'-0"

1 SCALE: NTS

BRACE SECTION

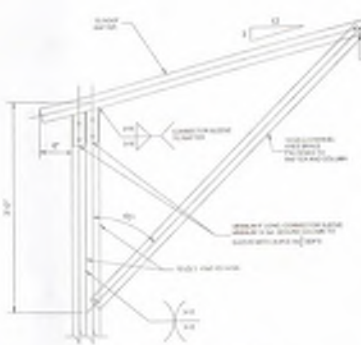
SCALE: NTS



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

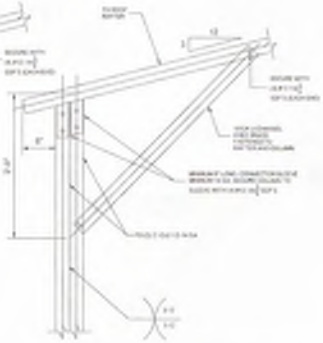
1B SCALE: NTS

## EXPOSURE C (170 MPH)



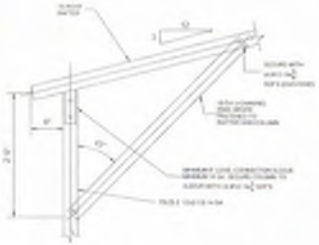
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 12'-0" < TO ≤14'-0"

1A SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤12'-0"

1B SCALE: NTS



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

1C SCALE: NTS

BRACE SECTION

SCALE: NTS

DATE: 08/10/2020

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

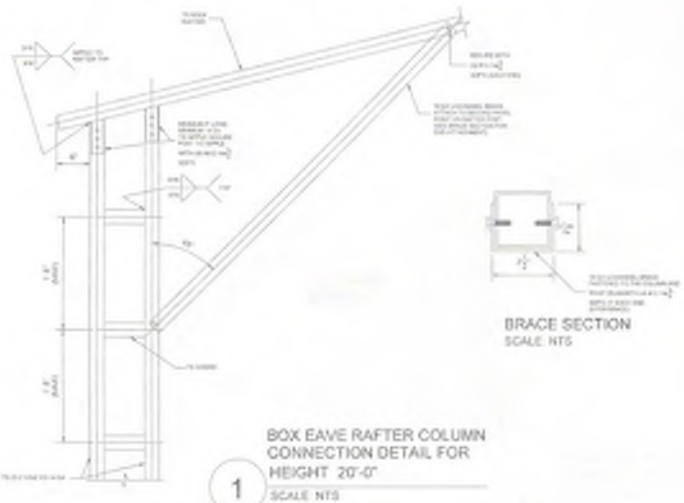
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

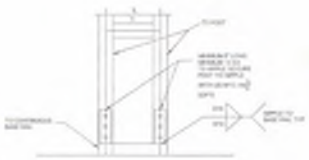
| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 8 OF 14 |
| SCALE: | NTS | |

## EXPOSURE B (140 MPH)



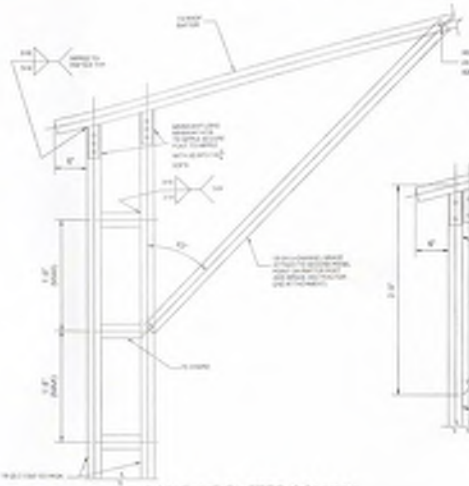
BRACE SECTION
SCALE: NTS

1 BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 20'-0"
SCALE: NTS

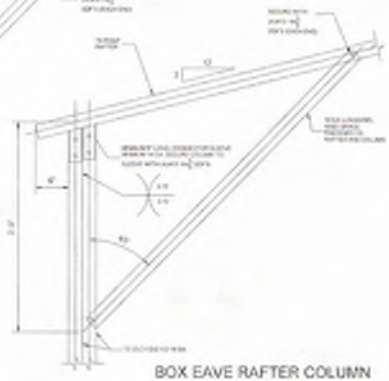


2 POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS

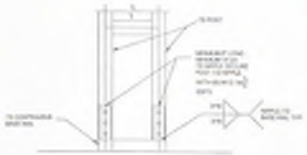
## EXPOSURE B (170 MPH)



1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 20'-0"
SCALE: NTS



1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 16'-0"
SCALE: NTS



2 POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS

BRACE SECTION
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

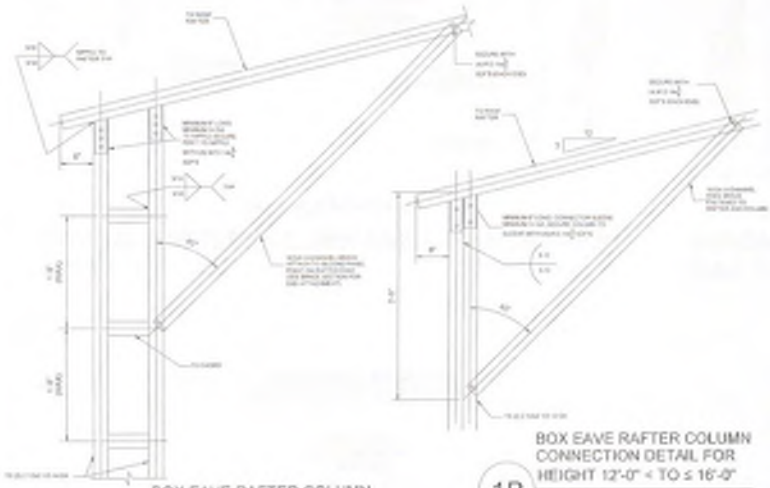
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 9 OF 14 |
| SCALE | NTS | |

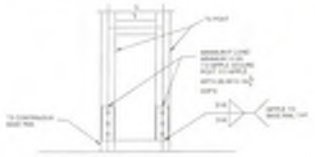
## EXPOSURE C (140 MPH)



1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 20'-0"
SCALE: NTS

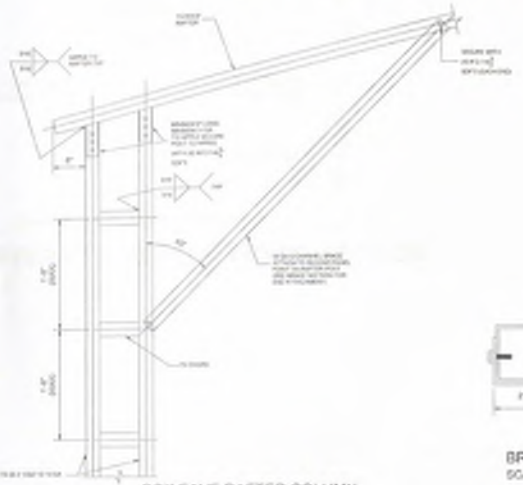
1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 12'-0" < TO ≤ 16'-0"
SCALE: NTS

BRACE SECTION
SCALE: NTS



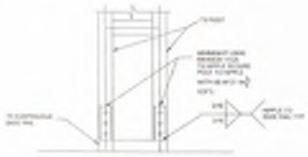
2 POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS

## EXPOSURE C (170 MPH)



1 BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < TO ≤ 20'-0"
SCALE: NTS

BRACE SECTION
SCALE: NTS



2 POST/BASE RAIL CONNECTION DETAIL
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

PROJECT NO. 2020625

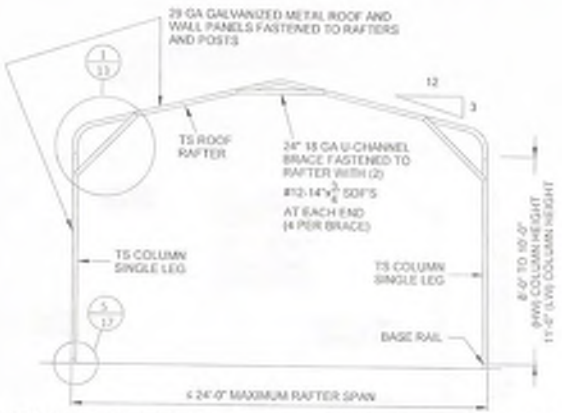
CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | |
|---|---|
| DESIGN DATE | 08/10/2020 |
| REVISION 1 | DATE |
| REVISION 2 | DATE |
| SCALE | NTS |

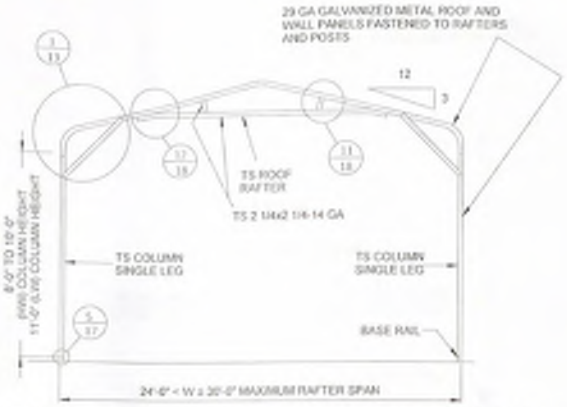
PAGE 10 OF 12

# EXPOSURE B



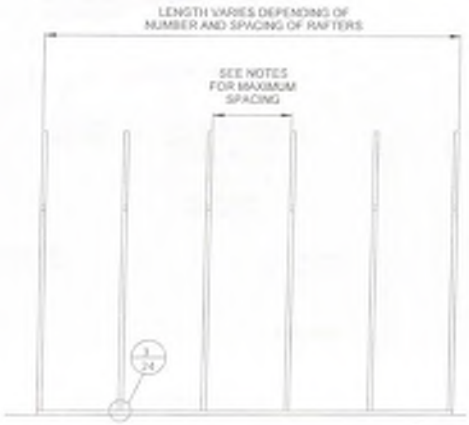

TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS




TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION

SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

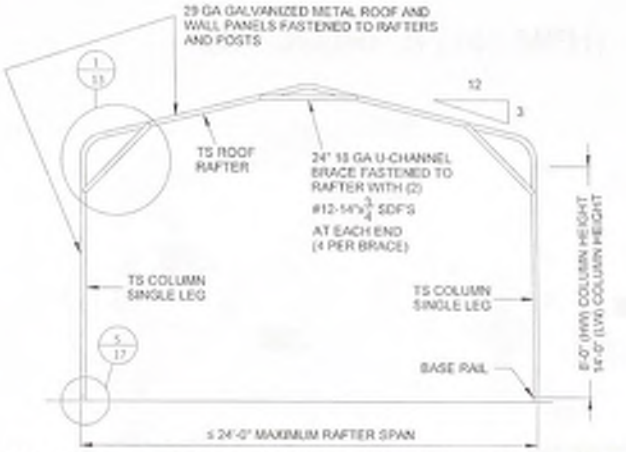
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

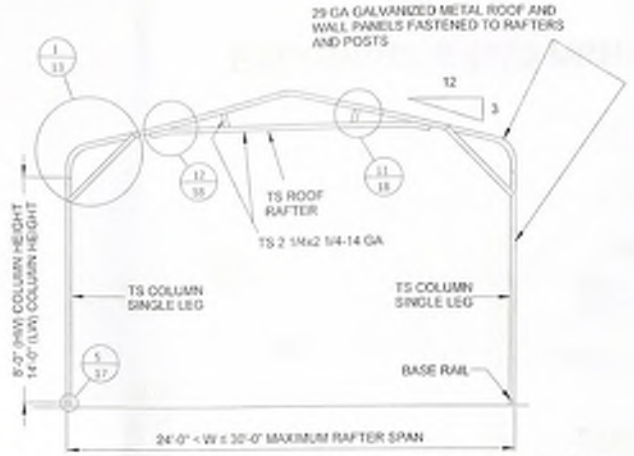
| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 11 OF 14 |
| SCALE | NTS | |

# EXPOSURE C



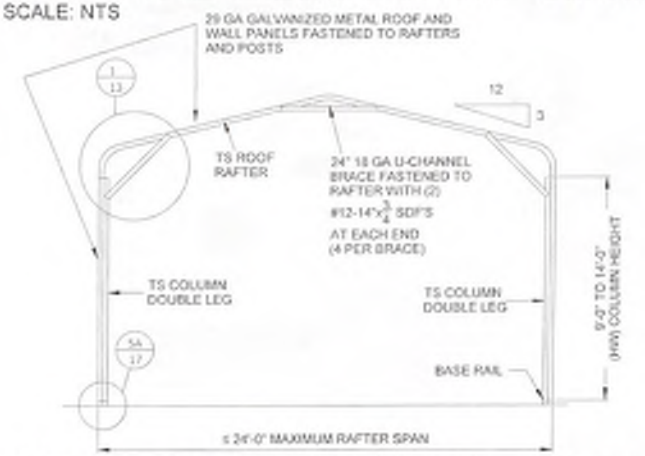

TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS



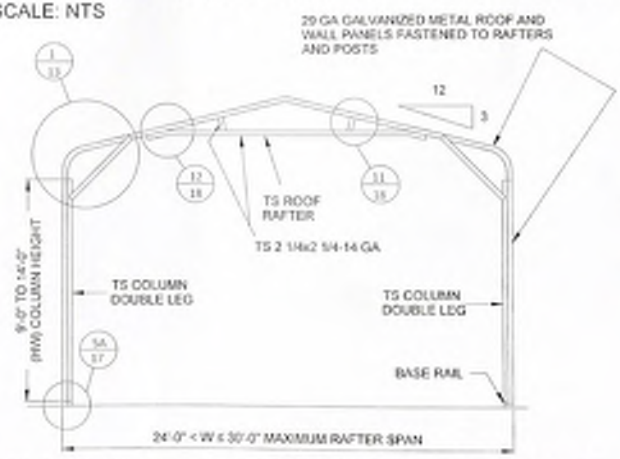

TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS




TYPICAL RAFTER/COLUMN END FRAME SECTION

SCALE: NTS


GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com


GUNDERSON ENGINEERING

DATE 08/10/2020

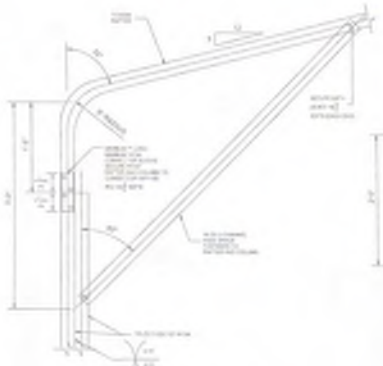
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

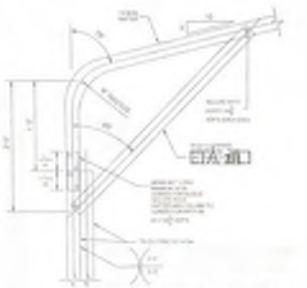
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 12 OF 14 |
| SCALE | NTS | |

# EXPOSURE B (140 MPH)

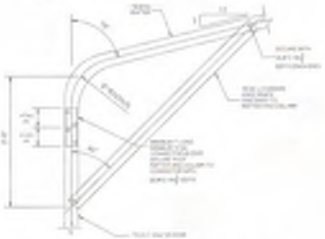


1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 12'-0" < TO ≤ 14'-0"
SCALE: NTS



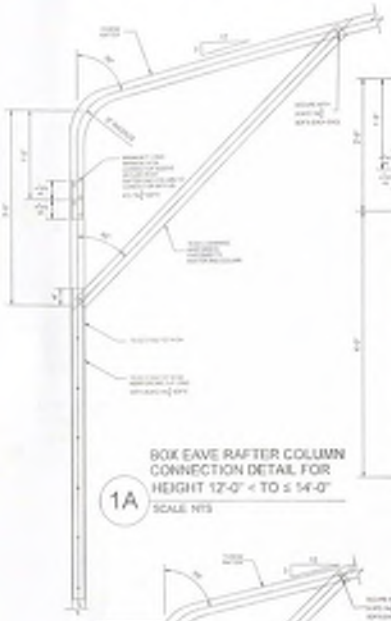
1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 11'-0" < TO ≤ 12'-0"
SCALE: NTS

BRACE SECTION
SCALE: NTS



1C BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 11'-0"
SCALE: NTS

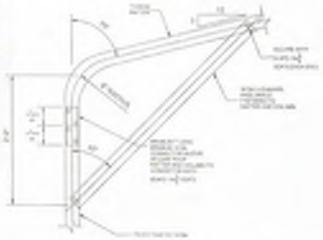
# EXPOSURE B (170 MPH)



1A BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 12'-0" < TO ≤ 14'-0"
SCALE: NTS

1B BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 12'-0"
SCALE: NTS

BRACE SECTION
SCALE: NTS



1C BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0"
SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 05/18/2020

PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

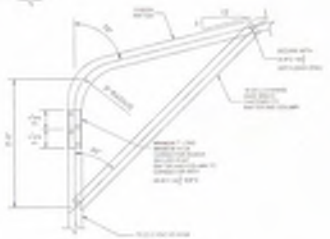
| | |
|---|---|
| DESIGN DATE | 05/18/2020 |
| REVISION 1 DATE | |
| REVISION 2 DATE | |
| SCALE | NTS |

## EXPOSURE C (140 MPH)

BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 12'-0" < TO ≤ 14'-0"
1A SCALE: NTS

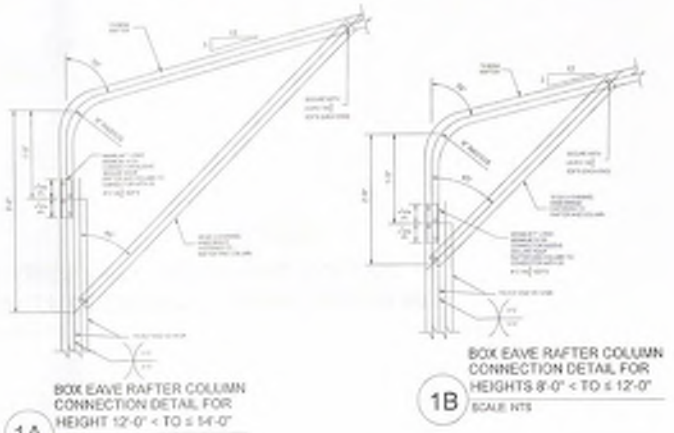
BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 10'-0" < TO ≤ 12'-0"
1B SCALE: NTS

BRACE SECTION
SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 10'-0"
1C SCALE: NTS

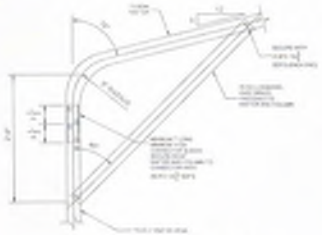
## EXPOSURE C (170 MPH)



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHT 12'-0" < TO ≤ 14'-0"
1A SCALE: NTS

BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO ≤ 12'-0"
1B SCALE: NTS

BRACE SECTION
SCALE: NTS



BOX EAVE RAFTER COLUMN CONNECTION DETAIL FOR HEIGHTS ≤ 8'-0"
1C SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 05/10/2020

PROJECT NO. 2020625

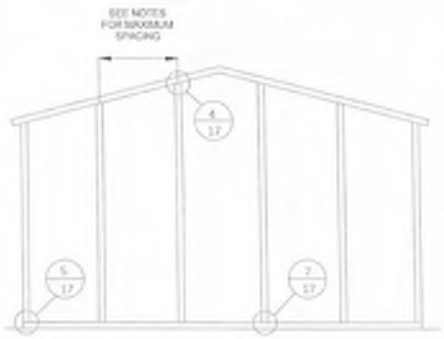
CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | |
|---|---|
| DESIGN DATE | 08/10/2020 |
| REVISION 1 | DATE |
| REVISION 2 | DATE |
| SCALE | NTS |

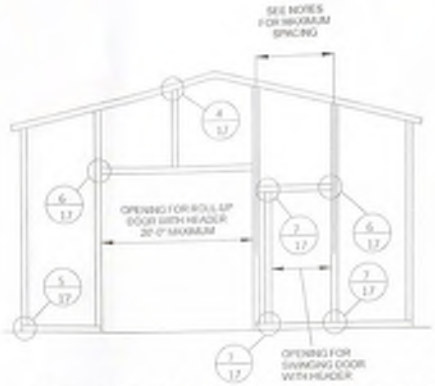
PAGE 14 OF

# BOX EAVE RAFTER END WALL AND SIDE WALL OPENINGS



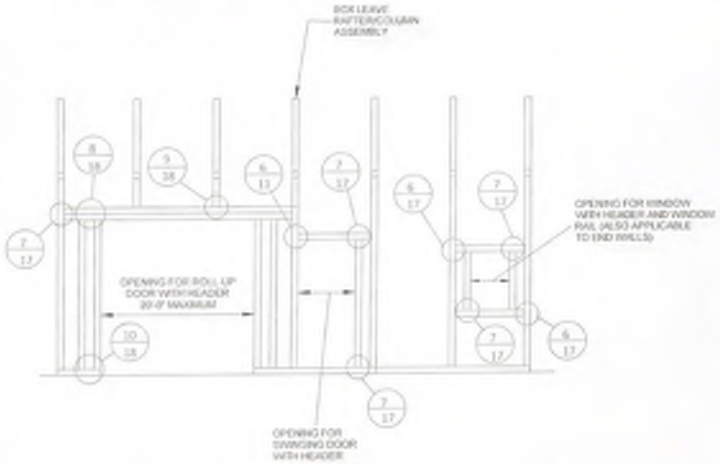

TYPICAL BOX EAVE RAFTER
END WALL FRAMING SETION

SCALE: NTS




TYPICAL BOX EAVE RAFTER END
WALL OPENINGS FRAMING SETION

SCALE: NTS




TYPICAL BOX EAVE RAFTER
SIDE WALL OPENINGS FRAMING SECTION

SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 08/10/2020

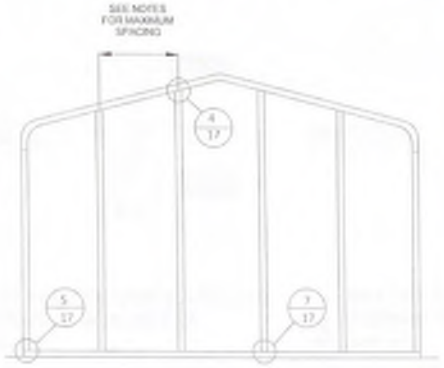
PROJECT NO. 2020625

CONSTRUCTION: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

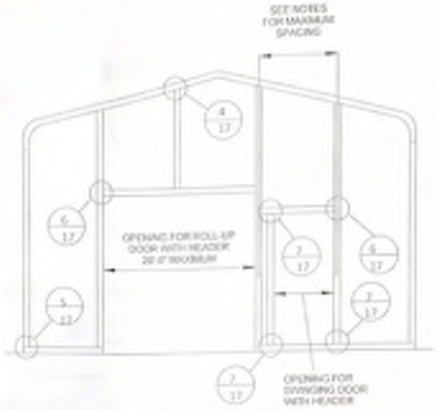
| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 15 OF 24 |
| SCALE | NTS | |

# BOX RAFTER END WALL AND SIDE WALL OPENINGS



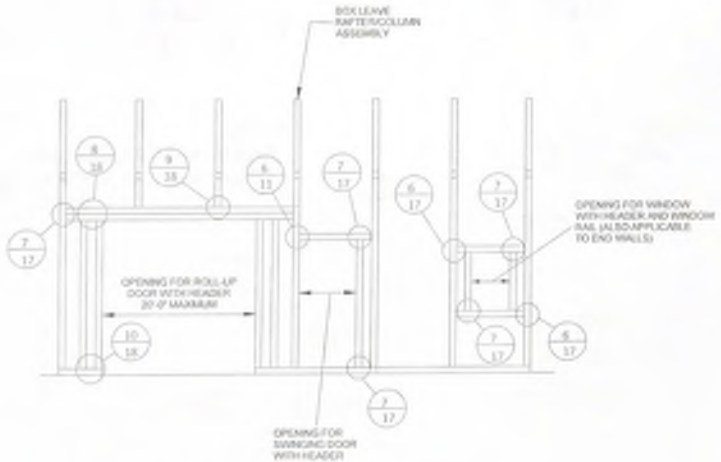

TYPICAL BOX RAFTER
END WALL FRAMING SETION

SCALE: NTS




TYPICAL BOX RAFTER END
WALL OPENINGS FRAMING SETION

SCALE: NTS




TYPICAL BOX RAFTER SIDE
WALL OPENINGS FRAMING SECTION

SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

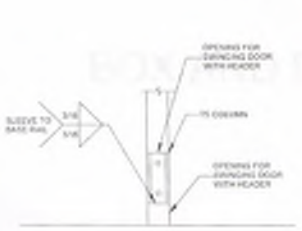
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

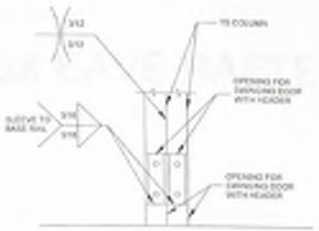
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 16 |
| SCALE | NTS | |

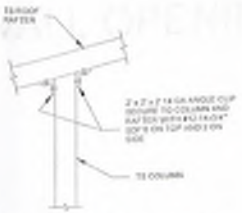
# BOX AND BOX EAVE RAFTER WALL OPENING DETAILS



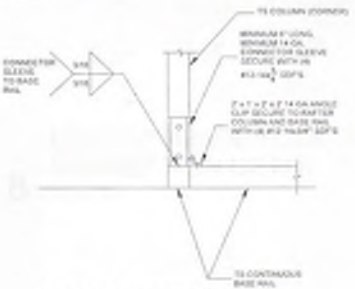
2 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



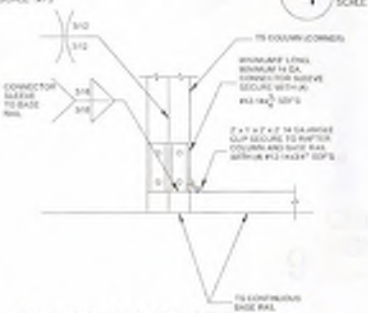
3 RAFTER COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



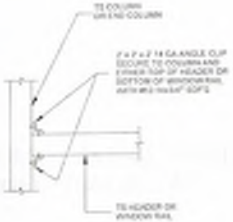
4 END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS



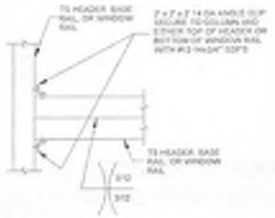
5 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



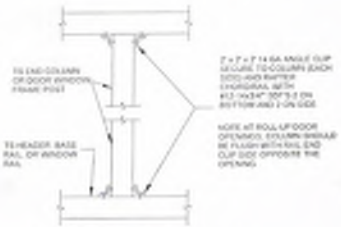
5A END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



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



6A COLUMN OR WINDOW RAIL TO POST CONNECTION DETAIL
SCALE: NTS



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

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 05/10/2020

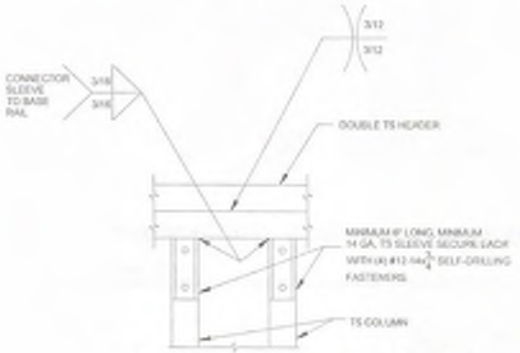
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

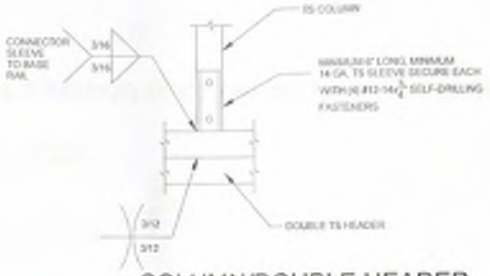
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 05/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 17 OF 34 |
| SCALE | NTS | |

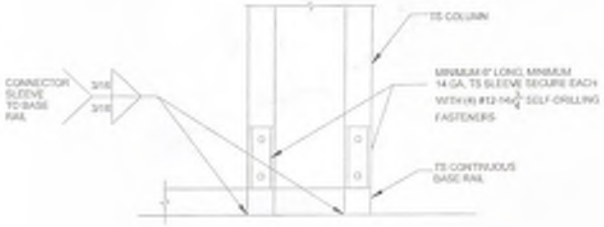
# BOX AND BOX EAVE RAFTER WALL OPENING DETAILS




8 DOUBLE HEADER/COLUMN CONNECTION DETAIL
SCALE: NTS




9 COLUMN/DOUBLE HEADER CONNECTION DETAIL
SCALE: NTS




10 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS


11 RAFTER TO CHORD CONNECTION DETAIL
SCALE: NTS


12 COLLAR TIE CONNECTION DETAIL
SCALE: NTS

DATE 08/10/2020

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

PROJECT NO. 2020625

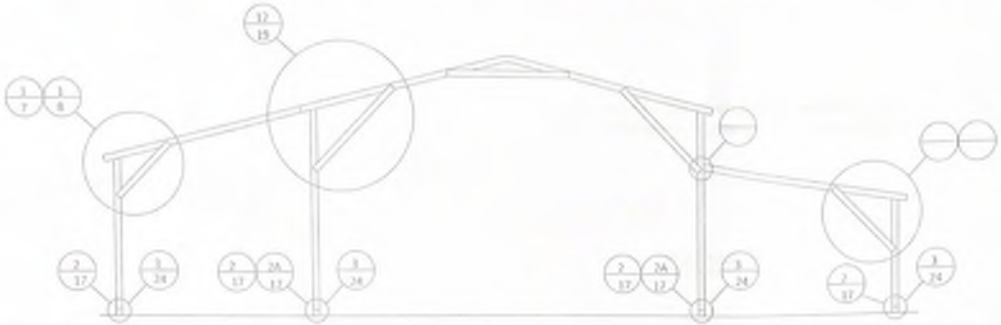
CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | |
|---|---|
| DESIGN DATE | 08/10/2020 |
| REVISION 1 | DATE |
| REVISION 2 | DATE |
| SCALE | NTS |

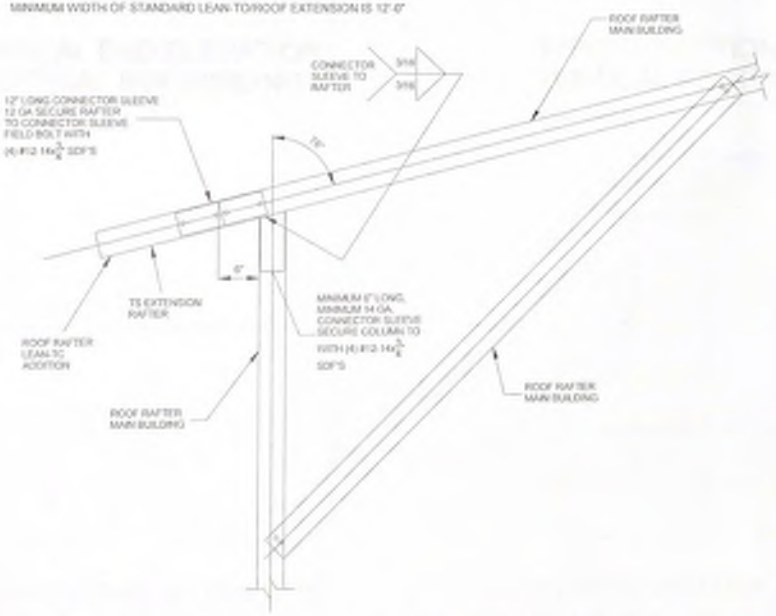
PAGE 18

# BOX EAVE RAFTER LEAN-TO OPTIONS

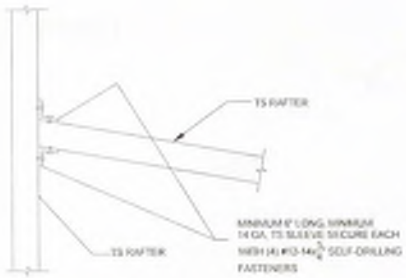


TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOW)

SCALE: NTS
MINIMUM WIDTH OF STANDARD LEAN-TO/ROOF EXTENSION IS 12'-6"




12 SIDE EXTENSION RAFTER/COLUMN DETAIL
SCALE: NTS




13 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL
SCALE: NTS


GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com


GUNDERSON ENGINEERING

DATE 08/10/2020

PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

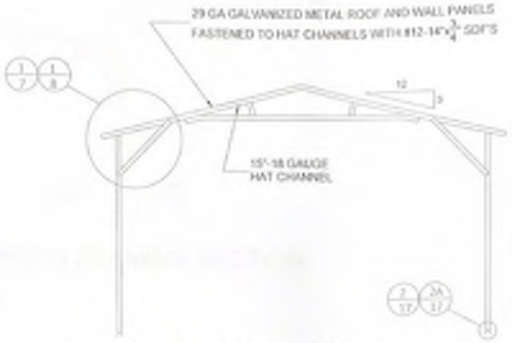
| | |
|---|---|
| DESIGN DATE | 08/10/2020 |
| REVISION 1 | DATE |
| REVISION 2 | DATE |
| SCALE | NTS |

PAGE 19 OF 24

# BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION

TYPICAL END ELEVATION
VERTICAL ROOF/SIDING

SCALE: NTS




TYPICAL SECTION
VERTICAL ROOF/SIDING OPTION

SCALE: NTS

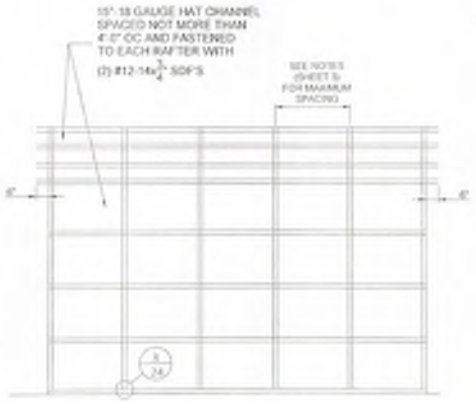

PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)
SCALE: NTS



TYPICAL SIDE ELEVATION
VERTICAL ROOF/SIDING

SCALE: NTS




TYPICAL FRAMING SECTION
VERTICAL ROOF/SIDING OPTION

SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 08/10/2020

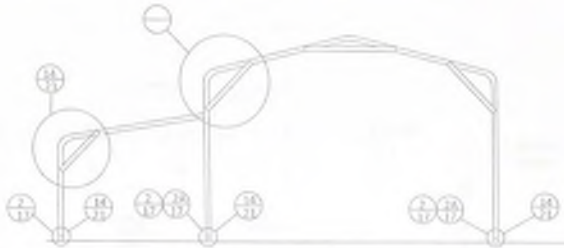
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 20 OF 24 |
| SCALE | NTS | |

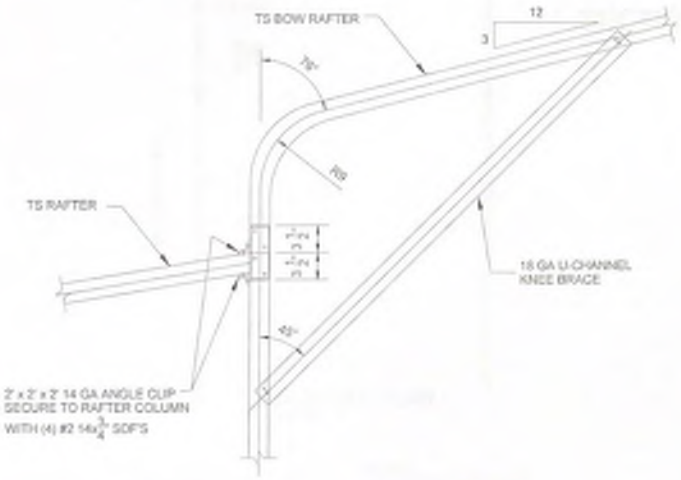
# BOX EAVE RAFTER LEAN-TO OPTIONS



TYPICAL BOW AFTER LEAN-TO OPTION FRAMING SECTION

SCALE: NTS

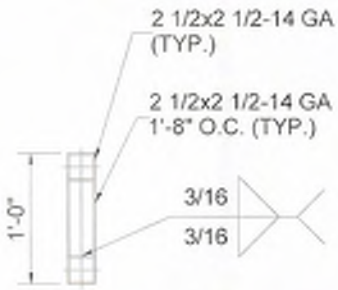
MINIMUM WIDTH OF STANDARD LEAN-TO/ROOF EXTENSION IS 12'-0"




14 LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL

SCALE: NTS

OPTIONAL HEADER




HEADER DETAIL FOR OPENINGS
12'-0" ≤ LENGTH ≤ 20'-0"

SCALE: NTS

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com
GUNDERSON ENGINEERING

DATE 08/10/2020

PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

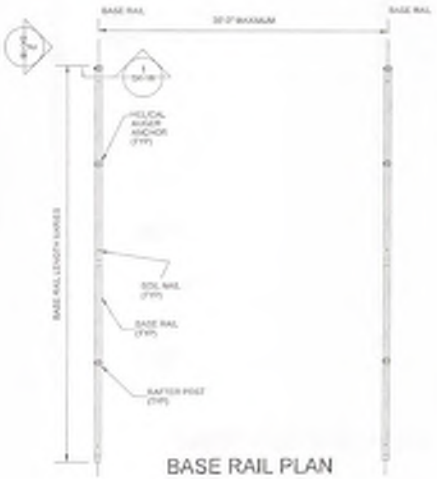
PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE | 08/10/2020 | |
| REVISION 1 | DATE | PAGE 21 OF 24 |
| REVISION 2 | DATE | |
| SCALE | NTS | |

## BASE RAIL ON GRADE APPLICATION


SECTION 2 SK-16
SCALE: NTS


SECTION 1 SK-16
SCALE: NTS




BASE RAIL PLAN
SCALE: NTS

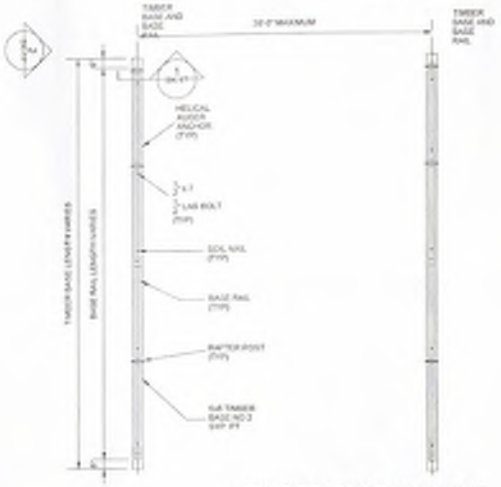
| HELIX ANCHOR | |
|---|---|
| SIDE LENGTH | HELIX ANCHOR |
| 20' | 20' |
| 25' | 25' NOTE 2 |
| 30' | 10' (EVERY OTHER POST |

NOTES
1. INSTALLATION OF SOIL NAILS OR EXPANSION ANCHORS ALSO APPLY TO END WALLS

2. FOR EXPOSURE C USE 10' SPACING (EVERY OTHER POST)

## OPTIONAL BASE RAIL ON TIMBER BEAM


SECTION 2 SK-17
SCALE: NTS




TIMBER FOOTING PLAN
SCALE: NTS


SECTION 1 SK-17
SCALE: NTS

| HELIX ANCHOR | |
|---|---|
| SIDE LENGTH | HELIX ANCHOR |
| 20' | 20' |
| 25' | 25' NOTE 2 |
| 30' | 10' (EVERY OTHER POST |

NOTES
1. INSTALLATION OF SOIL NAILS OR EXPANSION ANCHORS ALSO APPLY TO END WALLS

2. FOR EXPOSURE C USE 10' SPACING (EVERY OTHER POST)

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE 08/10/2020

PROJECT NO. 2020825

CONTRACTOR: VIKING STEEL STRUCTURES

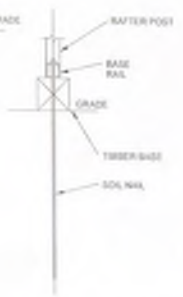
PROJECT ADDRESS: STEEL CARPORT

| | |
|---|---|
| DESIGN DATE | 08/10/2020 |
| REVISION 1 | DATE |
| REVISION 2 | DATE |
| SCALE | NTS |

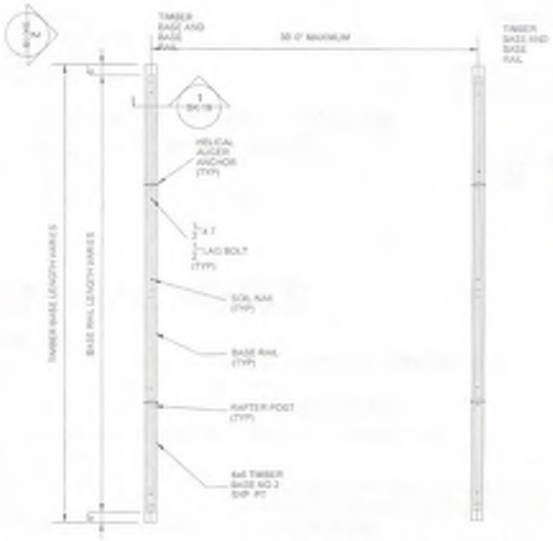
PAGE 22 OF 28

## OPTIONAL BASE RAIL ON TIMBER BEAM WITH SOIL NAIL


SECTION 2 SK-18
SCALE: NTS

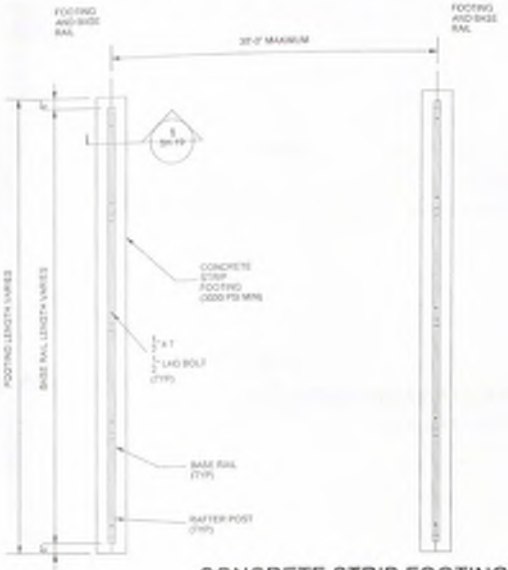



SECTION 1 SK-18
SCALE: NTS

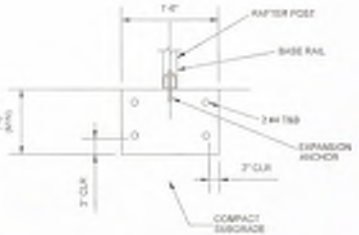



TIMBER FOOTING PLAN
SCALE: NTS

## OPTIONAL CONCRETE STRIP FOOTING




CONCRETE STRIP FOOTING PLAN
SCALE: NTS




SECTION 1 SK-19
SCALE: NTS

* COORDINATE WITH LOCAL CODES/OFD

| HELIX ANCHOR | |
|---|---|
| SIDE LENGTH | HELIX ANCHOR |
| 20' | 20' |
| 25' | 25' NOTE 2 |
| 30' | 10' (EVERY OTHER POST |

NOTES:
1. INSTALLATION OF SOIL NAILS OR EXPANSION ANCHORS ALSO APPLY TO END WALLS.

2. FOR EXPOSURE C USE 10' SPACING (EVERY OTHER POST)


GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com


GUNDERSON ENGINEERING

DATE: 05/18/2020

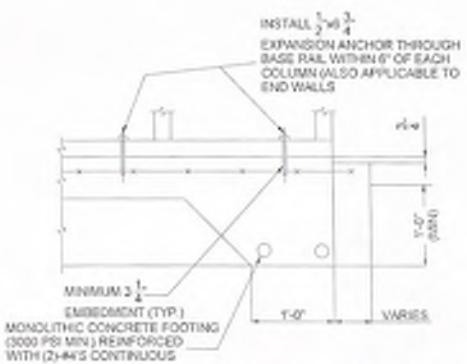
PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE: | 08/18/2020 | |
| REVISION 1 | DATE | PAGE |
| REVISION 2 | DATE | 23 OF 74 |
| SCALE | NTS | |

# BASE RAIL ANCHORAGE OPTIONS

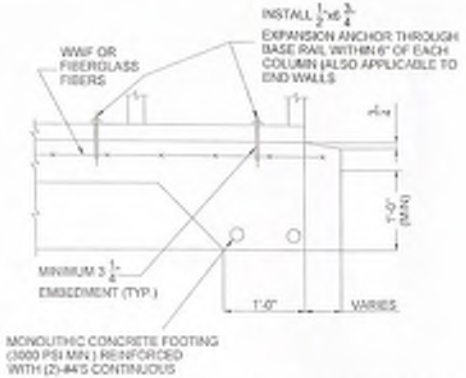



3A CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS

(MINIMUM ANCHOR EDGE DISTANCE IS 4")

* COORDINATE WITH LOCAL CODES/ORD

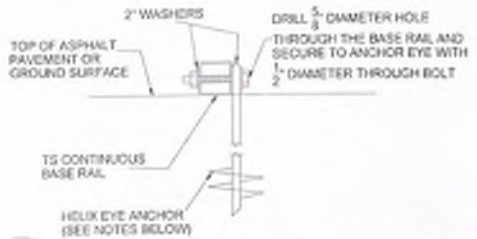



3B CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS

(MINIMUM ANCHOR EDGE DISTANCE IS 4")

* COORDINATE WITH LOCAL CODES/ORD




3C GROUND BASE HELIX ANCHORAGE

SCALE: NTS (CAN BE USED FOR ASPHALT)

## GENERAL NOTES

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

### 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.

### REINFORCING 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" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
2. FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
3. FOR MEDIUM DENSE COARSE SANDS. SANDY GRAVELS, VERY STIFF SILTS AND CLAYS USE MINIMUM (2) 4" HELICES WITH MINIMUM 30 INCH EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT.
4. FOR LOOSE TO MEDIUM DENSE SANDS FIRM TO STIFF CLAYS AND SILTS ALLUVIAL FILL. USE MINIMUM (2) 6" HELICES WITH MINIMUM 50" 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" EMBEDMENT.

GUNDERSON ENGINEERING LLC
4161 TAMIAMI TRAIL, UNIT 101
PORT CHARLOTTE, FLORIDA 33952
(941) 391-5980
www.gundersonengineering.com

GUNDERSON ENGINEERING

DATE: 08/10/2020

PROJECT NO. 2020625

CONTRACTOR: VIKING STEEL STRUCTURES

PROJECT ADDRESS: STEEL CARPORT

| | | |
|---|---|---|
| DESIGN DATE: | 08/10/2020 | |
| REVISION 1: | DATE: | PAGE: 24 OF 74 |
| REVISION 2: | DATE: | |
| SCALE: | NTS | |