# APPLICABLE CODES

1 2023 FLORIDA BUILDING CODE

# APPLICABLE STANDARDS

- 1. ASCE 7-22: MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES
- 2. AISC STEEL CONSTRUCTION MANUAL (17TH EDITION)
- 3. ACI 318-19: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
- 4. TMS 402-16: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
- 5. AWS D1.1: STRUCTURAL WELDING

- 1. DEAD LOAD = 1.5 PSF
- 2. ROOF LIVE LOAD = 12 PSF
- 3. WIND LOAD
- B. WIND EXPOSURE CATEGORY = C

- A. RISK CATEGORY = II
- C. ULTIMATE WIND SPEED = 120 MPH
- NOMINAL WIND SPEED = 94 MPH

# DRAWING INDEX

PAGE NO.	DESCRIPTION
1	TITLE PAGE WITH INDEX
2	TRUSS DESIGN FOR RAFTER SPAN
3	CONNECTION DETAILS (1-3)
4	BASE RAIL AND FOUNDATION ANCHORAGE
5	RAFTER END WALL, SIDE WALL AND OPENING FRAMING
6	CONNECTION DETAILS (5-17)
7	BOX EAVE RAFTER LEAN-TO OPTIONS
8	CONNECTION DETAILS (19-21)
9	BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION
10	OPTIONAL HELICAL ANCHORING ON GRADE DETAIL

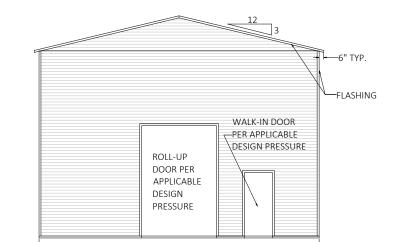
- THESE PLANS BELONG EXCLUSIVELY TO THE STRUCTURE, INCLUDING MAIN WIND FORCE RESISTING SYSTEM (MWERS) COMPONENTS AND CLADDING (C&C) AND BASE RAIL ANCHORAGE. OTHER DESIGN ISSUES, INCLUDING BUT NOT LIMITED TO PROPERTY SET-BACKS, FLECTRICAL, PLUMBING, INGRESS/EGRESS, FINISH FLOOR SLOPES AND FLEVATIONS, OR OTHER LOCAL ZONING REQUIREMENTS ARE THE LIABILITY OF OTHERS
- 2. THESE STRUCTURES ARE ENGINEERED AS CAPABLE OF SUPPORTING DEAD LOAD OF THE STRUCTURE AND LIVE AND WIND LOADS. UPGRADES NOT SPECIFICALLY ADDRESSED HEREIN, APROVED PRODUCT LIST, AND NOT PROVIDED AND INSTALLED BY THE CONTRACTOR, 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.
- 54 KSI. ALL FASTENERS SHALL BE ZINC COATED HARDWARE
- 4. END WALL COLUMNS (POST) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND
- 5. SPECIFICATIONS APPLICABLE TO 29 GA METAL PANELS FASTENED DIRECTLY TO 2.5"X2.5"X14 GA/2.5"X2.5"X12GA TUBE STEEL (TS) FRAMING MEMBERS FOR VERTICAL PANELS, 29 GA METAL PANELS SHALL BE FASTENED DIRECTLY TO 18 GA HAT CHANNELS U.N.O.
- 6. AVERAGE FASTENER SPACING ON-CENTERS ALONG RAFTERS OR PURLINS, AND POSTS INTERIOR = 9" AND END = 6" MAX.
- 7. FASTENERS CONSIST OF #12-14X3/4" SELF-DRILLING SCREWS (SDS), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 20'-0" OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS. SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY.
- 8. ANCHORS SHALL BE INSTALLED THROUGH THE BASE RAIL WITHIN 6" OF EACH RAFTER COLUMN ALONG SIDES AND ENDS
- 9. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBARS WITH WELDED NUT X 36" LONG AND MAY BE USED IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED. SOIL NAILS MAY BE USED FOR WIND SPEEDS LESS THAN OR EQUAL TO 145 MPH.
- 10. RAFTER SPACING IS 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 140 MPH AND 4'-0" FOR WIND SPEEDS BETWEEN 140 MPH AND 170 MPH.
- 11. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:

SOIL SITE CLASS = D RISK CATEGORY II

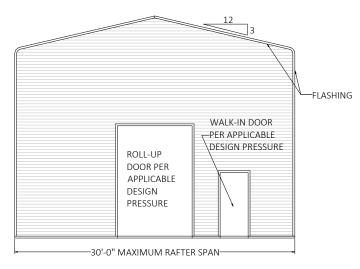
BOX EAVE FRAME / BOW EAVE FRAME

Ie = 1.0 Sds = 0.075 g V = CsW Sd1 = 0.051 g

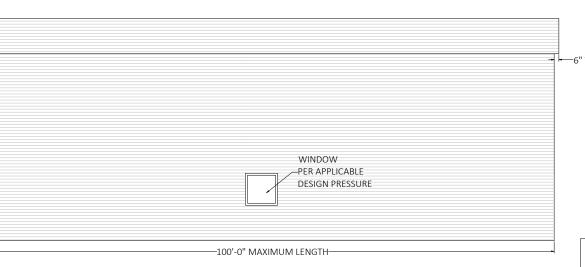








TYPICAL END ELEVATION - BOW EAVE



TYPICAL SIDE ELEVATION - HORIZONTAL ROOF

THE ENGINEERING ON THESE PLANS IS SITE SPECIFIC FOR (1) STRUCTURE ONLY AT THE PROVIDED ADDRESS(ES).

Digitally signed CICENSE by Richard E No. 61240 Walker Date: STATE OF STATE OF ORIDA 2024.07.23 16:01:30-04'00'

# PORT CHARLOTTE, FLORIDA 33952 (941) 391-5980 FLEng.com ENGINEERING TAMIAMI TRAIL, **FLORIDA**

FLEng.com Orders@FLEng.com

PROJECT NO.

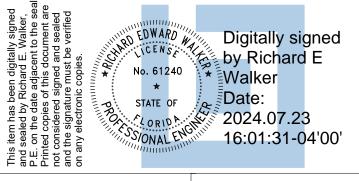
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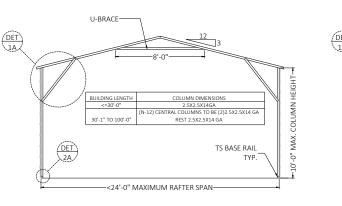
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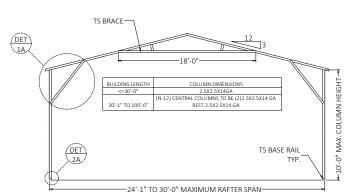
# MEMBER LEGEND:

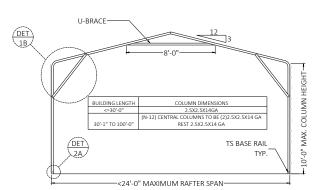
- 1. TS COLUMN = 2.5X2.5X14 GA U.N.O.
- 2. TRUSS MEMBERS = 2.5X2.5X14 GA U.N.O.
- 3. KNEE-BRACE = 2.5"X2"X18GA CHANNEL
- 4. PURLIN = 1.125"X18GA HAT CHANNEL
- 5. TS BRACE = 2.5"X2.5"X14GA TUBE
- 6. U-BRACE = 2.5"X2"X18GA CHANNEL
- 7. END WALL COLUMN = (2)2.5X2.5X14GA U.N.O.

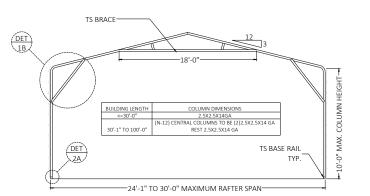
## TRUSS LAYOUT- BOX EAVE TRUSS LAYOUT- BOW EAVE

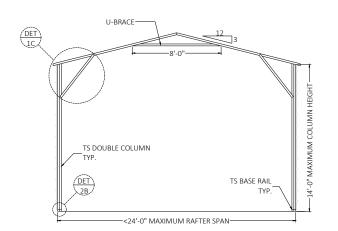


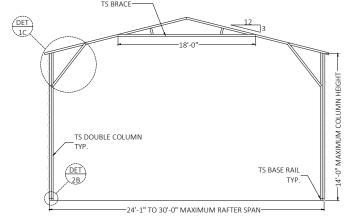


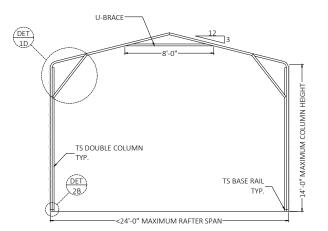


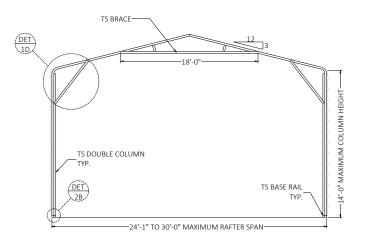


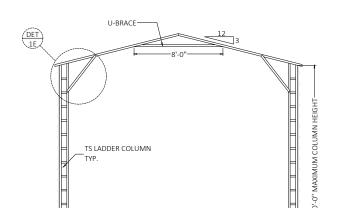








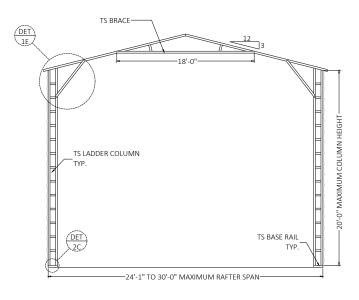


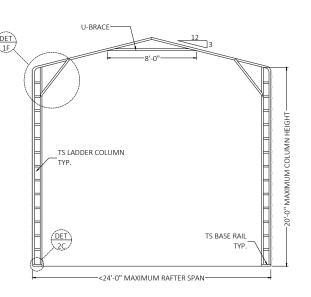


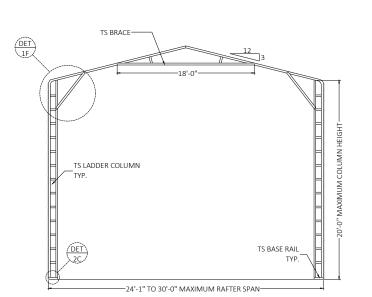
-<24'-0" MAXIMUM RAFTER SPAN-

TS BASE RAII

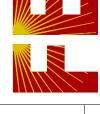
DET 2C











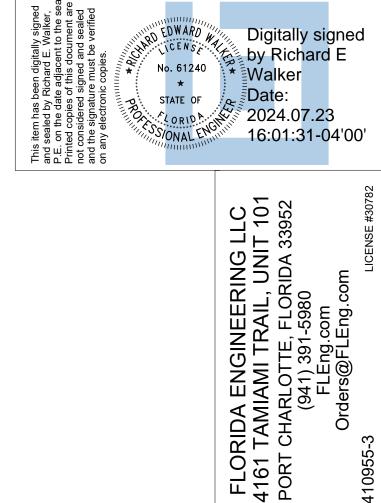
ARCHITECTURAL ARTS STUDIO 143 SW. MEADOWLAND, DR. LAKE CITY, FL. 32024 BEST METAL BUILDINGS LLC 484 NW TURNER AVE LAKE CITY FL 32055 JECT ADDRESS:

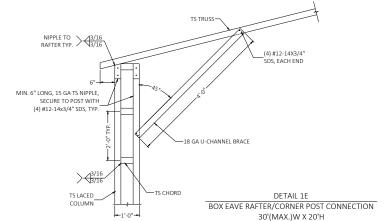
LICENSE #30782

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30'(MAX.)W X 20'H

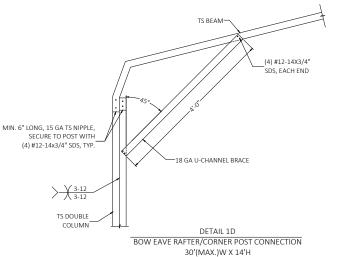
(4) #12-14X3/4" SDS, EACH END

DETAIL 3

U-BRACE CONNECTION DETAIL

18 GA U-CHANNEL BRACE

FASTENED TO COLUMN & ROOF BEAM



DETAIL 1C

BOX EAVE RAFTER/CORNER POST CONNECTION

30'(MAX.)W X 14'H



\_(4) #12-14X3/4" SDS, EACH END



3/16

TS BEAM-

TS LACED

COLLIMN





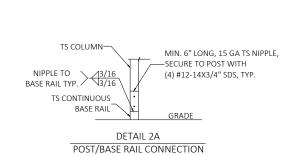




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NIPPLE TO 3/16

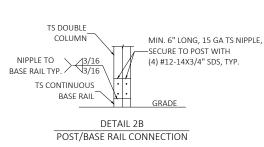
MIN. 6" LONG. 15 GA TS NIPPLE.

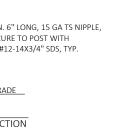
MIN. 6" LONG. 15 GA TS NIPPLE.

SECURE TO POST WITH (4) #12-14x3/4" SDS, TYP.

TS COLLIMN-

SECURE TO POST WITH (4) #12-14x3/4" SDS, TYP.





NIPPLE TO 3/16
RAFTER TYP. 3/16

MIN. 6" LONG, 15 GATS NIPPLE,

SECURE TO POST WITH (4) #12-14x3/4" SDS, TYP.

3-12

TS DOUBLE

COLUMN

(4) #12-14X3/4<sup>1</sup>

DFTAIL 1A

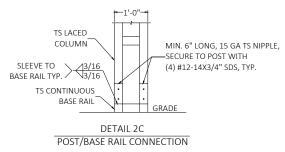
BOX EAVE RAFTER/CORNER POST CONNECTION

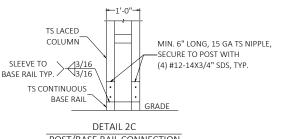
30'(MAX.)W X 10'H

DETAIL 1B

BOW EAVE RAFTER/CORNER POST CONNECTION 30'(MAX.)W X 10'H

TS BEAM-





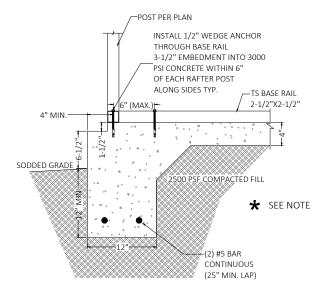
CONCRETE MONOLITHIC SLAB DESIGN IS BASED ON A MINIMUM SOIL BEARING CAPACITY OF 2500 PSF

MINIMUM 28-DAY SPECIFIED COMPRESSIVE STRENGTH = 3000 PSI

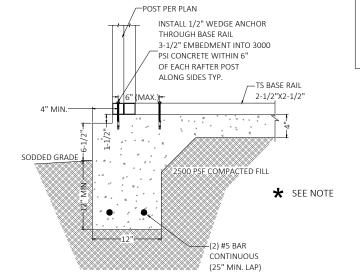
- EXPOSED TO SOIL OR WATER, 1.5" EVERYWHERE ELSE.
- 5. MINIMUM INSIDE DIAMETER OF BEND = (6) BAR DIAMETERS
- 6. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD

- 1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 10'.
- 2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS,

- 1. ANCHOR TO BE 3/4" DIA (A529 GRADE 50) WITH 30" MIN. EMBEDMENT & (4)
- 2. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS,
- 2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS,
- 3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR



DETAIL 4A-I CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE



DETAIL 4A-II CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

POST PER PLAN OPTIONAL 1/2" WEDGE ANCHOR INSTALL 1/2" WEDGE ANCHOR THROUGH BASE RAIL THROUGH BASE RAIL 3-1/2" EMBEDMENT INTO 3000 3-1/2" EMBEDMENT INTO 3000 PSI CONCRETE WITHIN 6" PSI CONCRETE WITHIN 6" OF EACH RAFTER POST OF EACH RAFTER POST ALONG SIDES TYP. ALONG SIDES TYP. 2.25"X2.25"X15GA 4" (MIN.) SODDED GRAI 500 PSE COMPACIED FILL \* SEE NOTE CONTINUOUS DETAIL 4A-III

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

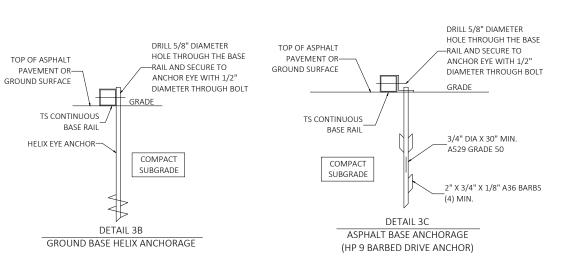
TYPICAL ANCHOR DETAIL WHEN BASE RAIL IS NEAR EDGE OF CONCRETE BASE RAIL ANCHORAGE OPTION FDGF OF CONCRETE

TS COLUMN

TOP VIEW

TS 2.5"X2.5"X14GA

★ = COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH BASED ON FROST LINE DEPTH.



# T CHARLOTTE, FLORIDA 33952 (941) 391-5980 FLEng.com Orders@FLEng.com 101 L N O ENGINEERING TAMIAMI TRAIL, ORIDA **PORT** 4161

Digitally signed by Richard E

16:01:32-04'00'

Walker

2024.07.23

Date:

STATE OF CORID A CHILLINGS SONAL ENGINEERS

This item has be and sealed by R P.E. on the date Printed copies o not considered s and the signatur on any electronic

2410955

S.

**PROJECT** 

STUDIO DR. BEST METAL BUILDINGS 484 NW TURNER AVE LAKE CITY FL 32055 ARCHITECTURAL ARTS: 143 SW. MEADOWLAND, LAKE CITY, FL. 32024

PROJECT ADDRESS: DESIGN DATE: 04/25/2024 REVISION 1: DATE REVISION 2: DATE SHEET: DRAWN BY: JS

NTS

SCALE:

1. TURNDOWN REINFORCING STEEL = ASTM A615 GRADE 60

2. SLAB REINFORCEMENT = WELDED WIRE FABRIC PER ASTM A185 OR FIBERGLASS

3. REINFORCING STEEL COVER = 3" WHERE CASE AGAINST AND PERMENENTLY

- 4. REINFORCEMENT IS BENT COLD.

# HELIX ANCHOR NOTES

- ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 5' OR EVERY POST (LEG)
- 3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.

# HP 9 BARBED DRIVE ANCHOR NOTES

- MIN. BARBS AS SHOWN IN DETAIL 3C.
- SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, MAXIMUM SPACING TO BE 10'.
- ALLUVIAL FILL, MAX. SPACING TO BE 5' OR EVERY POST (LEG).
- GREATER THAN 8.5 KIPS.

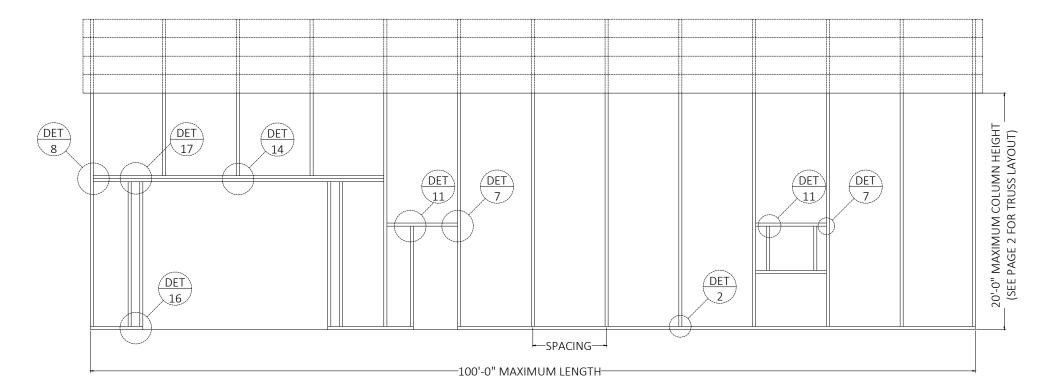
1/2" DIA EXPANSION

SECTION

TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION

SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 150 MPH SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 151 MPH AND 170 MPH

(SEE PG-09 FOR HEADER DETAILS)



# TYPICAL BOX EAVE RAFTER SIDE WALL FRAMING SECTION

SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 150 MPH SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 151 MPH AND 170 MPH

No. 61240 Digitally signed by Richard E Walker Date: STATE OF CORID A CHARLES STATE OF 2024.07.23 16:01:32-04'00'

FLORIDA ENGINEERING LLC 4161 TAMIAMI TRAIL, UNIT 101 PORT CHARLOTTE, FLORIDA 33952 (941) 391-5980 FLEng.com Orders@FLEng.com

ARCHITECTURAL ARTS STUDIO 143 SW. MEADOWLAND, DR. LAKE CITY, FL. 32024

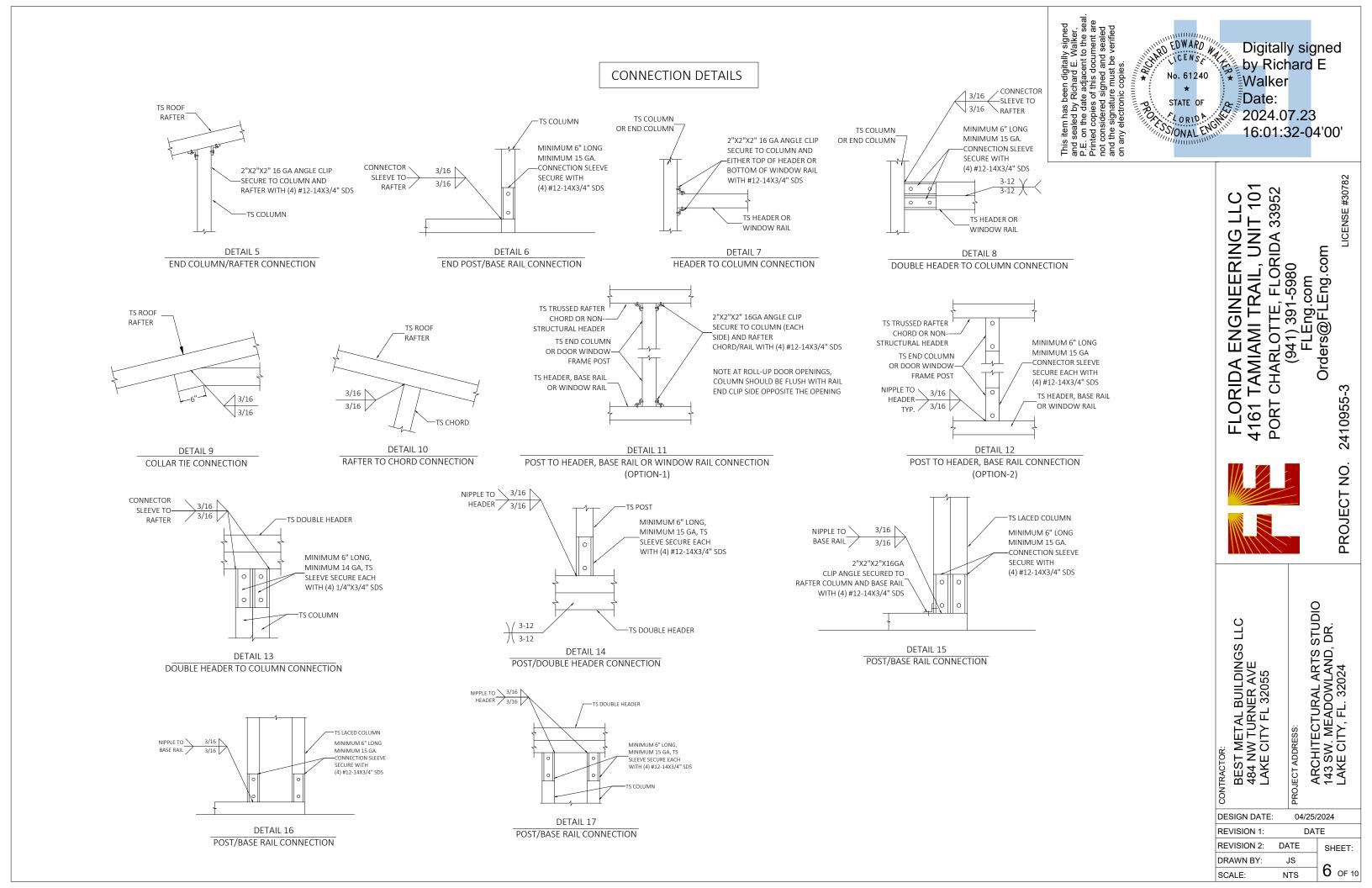
LICENSE #30782

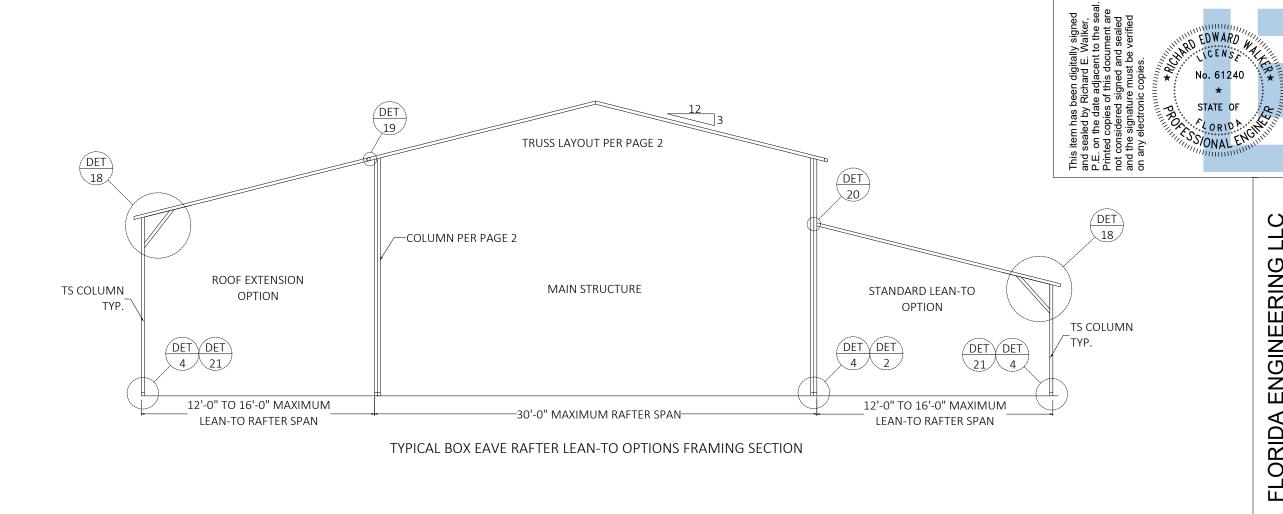
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PROJECT NO.

BEST METAL BUILDINGS LLC 484 NW TURNER AVE LAKE CITY FL 32055 PROJECT ADDRESS:

CONTRACTOR DESIGN DATE: 04/25/2024 DATE REVISION 1: REVISION 2: DATE SHEET: DRAWN BY: JS **5** OF 10 SCALE: NTS









Digitally signed by Richard E
Walker

LICENSE #30782

2410955-3

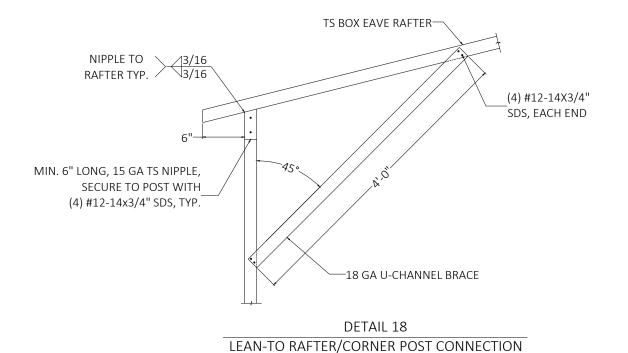
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Date:

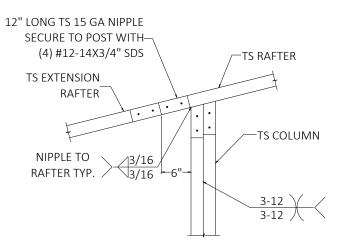
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ARCHITECTURAL ARTS STUDIO 143 SW. MEADOWLAND, DR. LAKE CITY, FL. 32024 BEST METAL BUILDINGS LLC 484 NW TURNER AVE LAKE CITY FL 32055 PROJECT ADDRESS:

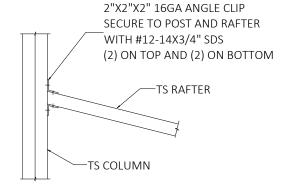
04/25/2024 DESIGN DATE: DATE REVISION 1: REVISION 2: DATE SHEET: DRAWN BY: JS 7 OF 10 SCALE: NTS



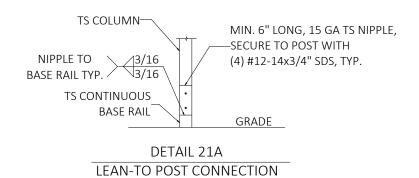
# CONNECTION DETAILS

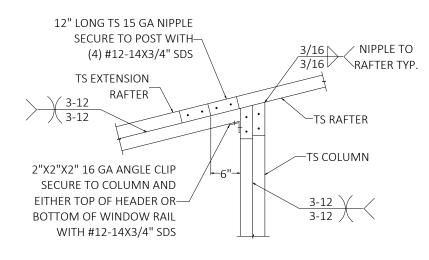


DETAIL 19A SIDE EXTENSION RAFTER/COLUMN CONNECTION FOR RAFTER SPANS LESS THAN 12'-0"

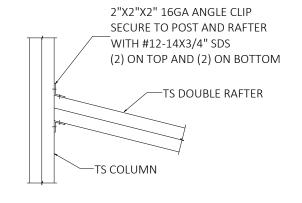


**DETAIL 20A** LEAN TO RAFTER/COLUMN CONNECTION FOR RAFTER SPANS LESS THAN 12'-0"

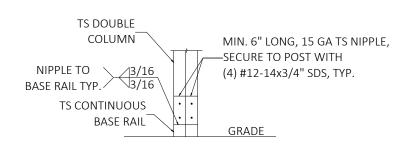




DETAIL 19B SIDE EXTENSION RAFTER/COLUMN CONNECTION FOR RAFTER SPANS BETWEEN 12'-0" AND 16'-0"



**DETAIL 20B** LEAN TO RAFTER/COLUMN CONNECTION FOR RAFTER SPANS BETWEEN 12'-0" AND 16'-0"



DETAIL 21B LEAN-TO DOUBLE POST CONNECTION

EDWARD WARD ICENSE ALE by Richard E Walker Date: STATE OF ORIDACIONAL ENGINEERS STATE OF 2024.07.23 16:01:33-04'00' PORT CHARLOTTE, FLORIDA 33952 (941) 391-5980 **ENGINEERING LL** (941) 391-5980 FLEng.com Orders@FLEng.com

FLORIDA ENGINEERING LLC 4161 TAMIAMI TRAIL, UNIT 101 **FLORIDA** 

Digitally signed



2410955-3

PROJECT NO.

BEST METAL BUILDINGS LLC 484 NW TURNER AVE LAKE CITY FL 32055

ARCHITECTURAL ARTS STUDIO 143 SW. MEADOWLAND, DR. LAKE CITY, FL. 32024 PROJECT ADDRESS

DESIGN DATE: 04/25/2024 DATE REVISION 1: REVISION 2: DATE SHEET: DRAWN BY: 8 OF 10

WINDOW --PER APPLICABLE
DESIGN PRESSURE

WALK-IN DOOR PER APPLICABLE
DESIGN PRESSURE ROLL-UP DOOR DESIGN PRESSURE

> -30'-0" MAXIMUM RAFTER SPAN TYPICAL END ELEVATION - VERICAL ROOF/SIDING

1-1/8" 18 GA FURRING CHANNEL FASTENED TO EACH RAFTER
WITH (2) #12-14X3/4" SDS

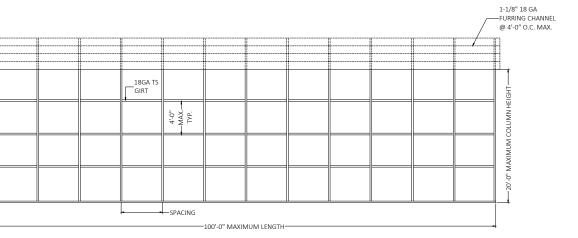
SPACED AT 48" O.C. MAX

PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)

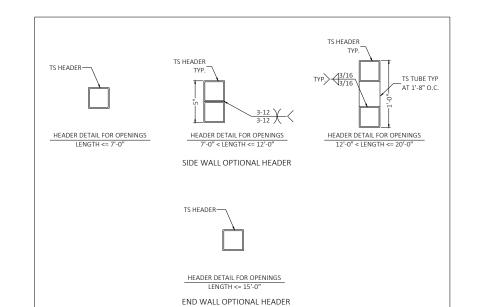
TYPICAL SIDE ELEVATION - VERTICAL ROOF/SIDING

# BOX EAVE FRAME RAFTER ENCLOSED BUILDING



TYPICAL RAFTER/POST SIDE FRAME SECTION

SPACING = 5'-0" FOR WIND SPEEDS BETWEEN 110 MPH AND 150 MPH SPACING = 4'-0" FOR WIND SPEEDS BETWEEN 151 MPH AND 170 MPH



# FLORIDA ENGINEERING LLC 4161 TAMIAMI TRAIL, UNIT 101 PORT CHARLOTTE, FLORIDA 33952 (941) 391-5980 FLEng.com Orders@FLEng.com

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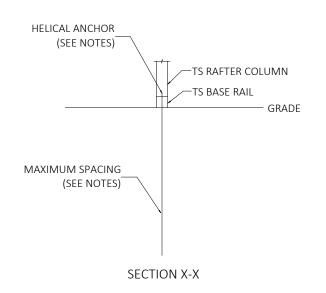
PROJECT NO.

ARCHITECTURAL ARTS STUDIO 143 SW. MEADOWLAND, DR. LAKE CITY, FL. 32024 BEST METAL BUILDINGS LLC 484 NW TURNER AVE LAKE CITY FL 32055 PROJECT ADDRESS:

CONTRACTOR DESIGN DATE: 04/25/2024 DATE REVISION 1: REVISION 2: DATE SHEET: DRAWN BY: JS 9 OF 10 SCALE: NTS

# HELIX ANCHOR NOTES

- 1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 10'
- 2. FOR MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT EVERY 5' OR EVERY POST (LEG).
- 3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS.

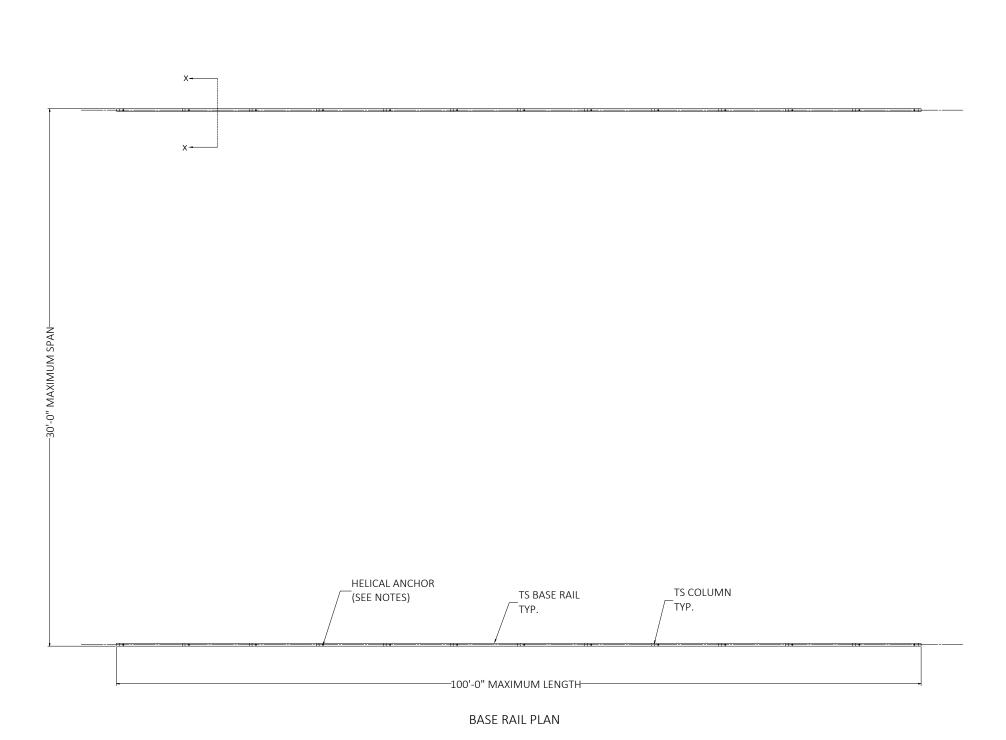


OPTIONAL HELICAL ANCHORING ON GRADE DETAIL

This item has been digitally signed and sealed and sealed by Richard E. Walker.

P.E. on the date adjacent to the seal.

P.E.



FLORIDA ENGINEERING LLC 4161 TAMIAMI TRAIL, UNIT 101 PORT CHARLOTTE, FLORIDA 33952 (941) 391-5980 FLEng.com Orders@FLEng.com



BEST METAL BUILDINGS LLC
484 NW TURNER AVE
LAKE CITY FL 32055

SOJECT ADDRESS:
ARCHITECTURAL ARTS STUDIO
143 SW. MEADOWLAND, DR.
LAKE CITY, FL. 32024

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PROJECT NO.

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