

APPLICABLE STANDARDS  
1. ASCE 7-16: MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES  
2. ASCE 7-22: MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES  
3. AISC STEEL CONSTRUCTION MANUAL (15TH EDITION)  
4. ACI 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE  
5. ACI 318-19: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE  
6. TMS 402-16: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES  
7. AWS D1.1: STRUCTURAL WELDING

DESIGN LOADS  
1. DEAD LOAD = 15 PSF  
2. ROOF LIVE LOAD = 12 PSF  
3. GROUND SNOW LOAD = 25 PSF  
4. WIND LOAD  
A. RISK CATEGORY = I  
B. WIND EXPOSURE CATEGORY = B  
C. ULTIMATE WIND SPEED = 110 MPH TO 140 MPH  
NOMINAL WIND SPEED = 85 MPH TO 108 MPH  
STRUCTURE HAS BEEN DESIGNED TO WITHSTAND WIND SPEEDS UP TO 140 MPH PER CONTRACTORS REQUEST, AT EXPOSURE B.

INSTALLATION NOTES AND SPECIFICATIONS  
1. THESE PLANS BELONG EXCLUSIVELY TO THE STRUCTURE, INCLUDING MAIN WIND FORCE RESISTING SYSTEM (MWFRS), COMPONENTS AND CLADDING (C&C), AND BASE RAIL 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 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 INTERNATIONAL BUILDING CODE APPROVED 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.  
3. ALL STEEL TUBING SHALL BE 50 KSI GALVANIZED STEEL WITH MINIMUM YIELD STRENGTH OF 54 KSI. ALL FASTENERS SHALL BE ZINC COATED HARDWARE.  
4. END WALL COLUMNS (POST) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING U.N.O.  
5. SPECIFICATIONS APPLICABLE TO 29 GA METAL PANELS FASTENED DIRECTLY TO 2.5"x2.5"x14 GA 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 27'-6" OR LESS, AND ROOF SLOPES OF 26.6° (6:12 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. THESE GENERICS ARE DESIGNED ONLY FOR FLOOD ZONE X.  
10. MAXIMUM RAFTER SPACING IS 5'-0".  
11. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:  
SOIL SITE CLASS = D  
SEISMIC DESIGN CATEGORY = C  
R= 3.5  
SDS = 0.45 g  
SD1 = 0.45 g  
12. THE PROPOSED GENERICS ARE NOT DESIGNED FOR SPECIAL FLOOD HAZARD AREAS.

ENCLOSED METAL BUILDING DESIGN  
MAXIMUM 32'-0" WIDE X 100'-0" LONG X 20'-0" HIGH (EAVE)  
BOX EAVE FRAME / BOW EAVE FRAME

| ADJUSTED C & C WIND PRESSURES (ROOF, ASD, PSF) |        |                                |         | ADJUSTED C & C WIND PRESSURES (WALL, ASD, PSF) |         |
|------------------------------------------------|--------|--------------------------------|---------|------------------------------------------------|---------|
| EFFECTIVE WIND AREA (SQ. FT) :                 | 10.00  | EFFECTIVE WIND AREA (SQ. FT) : | 200.00  | EFFECTIVE WIND AREA (SQ. FT) :                 | 10.00   |
| ALL ZONES (POSITIVE) =                         | NA     | ALL ZONES (POSITIVE) =         | NA      | ALL ZONES (POSITIVE) =                         | 27.9    |
| ZONE 1' (NEGATIVE) =                           | NA     | ZONE 1' (NEGATIVE) =           | NA      | ZONE 4 (NEGATIVE) =                            | -29.7   |
| ZONE 1' (OVERHANG) =                           | NA     | ZONE 1' (OVERHANG) =           | NA      | ZONE 5 (NEGATIVE) =                            | -35.1   |
| ZONE 1 (NEGATIVE) =                            | -45.8  | ZONE 1 (NEGATIVE) =            | -22.1   | EFFECTIVE WIND AREA (SQ. FT) :                 | 20.00   |
| ZONE 1 (OVERHANG) =                            | -63.8  | ZONE 1 (OVERHANG) =            | -35.9   | ALL ZONES (POSITIVE) =                         | 26.9    |
| ZONE 2 (NEGATIVE) =                            | -58.4  | ZONE 2 (NEGATIVE) =            | -27.9   | ZONE 4 (NEGATIVE) =                            | -28.7   |
| ZONE 2 (OVERHANG) =                            | -76.3  | ZONE 2 (OVERHANG) =            | -41.7   | ZONE 5 (NEGATIVE) =                            | -33.2   |
| ZONE 3 (NEGATIVE) =                            | -74.6  | ZONE 3 (NEGATIVE) =            | -42.2   | EFFECTIVE WIND AREA (SQ. FT) :                 | 50.00   |
| ZONE 3 (OVERHANG) =                            | -92.5  | ZONE 3 (OVERHANG) =            | -56.1   | ALL ZONES (POSITIVE) =                         | 25.7    |
| EFFECTIVE WIND AREA (SQ. FT) :                 | 20.00  | EFFECTIVE WIND AREA (SQ. FT) : | 300.00  | ZONE 4 (NEGATIVE) =                            | -27.5   |
| ALL ZONES (POSITIVE) =                         | NA     | ALL ZONES (POSITIVE) =         | NA      | ZONE 5 (NEGATIVE) =                            | -30.6   |
| ZONE 1' (NEGATIVE) =                           | NA     | ZONE 1' (NEGATIVE) =           | NA      | EFFECTIVE WIND AREA (SQ. FT) :                 | 100.00  |
| ZONE 1' (OVERHANG) =                           | NA     | ZONE 1' (OVERHANG) =           | NA      | ALL ZONES (POSITIVE) =                         | 24.7    |
| ZONE 1 (NEGATIVE) =                            | -40.4  | ZONE 1 (NEGATIVE) =            | -18.9   | ZONE 4 (NEGATIVE) =                            | -26.5   |
| ZONE 1 (OVERHANG) =                            | -57.3  | ZONE 1 (OVERHANG) =            | -32.2   | ZONE 5 (NEGATIVE) =                            | -28.7   |
| ZONE 2 (NEGATIVE) =                            | -51.3  | ZONE 2 (NEGATIVE) =            | -27.9   | EFFECTIVE WIND AREA (SQ. FT) :                 | 200.00  |
| ZONE 2 (OVERHANG) =                            | -68.3  | ZONE 2 (OVERHANG) =            | -41.1   | ALL ZONES (POSITIVE) =                         | 23.7    |
| ZONE 3 (NEGATIVE) =                            | -64.8  | ZONE 3 (NEGATIVE) =            | -42.2   | ZONE 4 (NEGATIVE) =                            | -25.5   |
| ZONE 3 (OVERHANG) =                            | -81.8  | ZONE 3 (OVERHANG) =            | -55.5   | ZONE 5 (NEGATIVE) =                            | -26.8   |
| EFFECTIVE WIND AREA (SQ. FT) :                 | 50.00  | EFFECTIVE WIND AREA (SQ. FT) : | 500.00  | EFFECTIVE WIND AREA (SQ. FT) :                 | 300.00  |
| ALL ZONES (POSITIVE) =                         | NA     | ALL ZONES (POSITIVE) =         | NA      | ALL ZONES (POSITIVE) =                         | 23.2    |
| ZONE 1' (NEGATIVE) =                           | NA     | ZONE 1' (NEGATIVE) =           | NA      | ZONE 4 (NEGATIVE) =                            | -25.0   |
| ZONE 1' (OVERHANG) =                           | NA     | ZONE 1' (OVERHANG) =           | NA      | ZONE 5 (NEGATIVE) =                            | -25.7   |
| ZONE 1 (NEGATIVE) =                            | -33.1  | ZONE 1 (NEGATIVE) =            | -18.9   | EFFECTIVE WIND AREA (SQ. FT) :                 | 500.00  |
| ZONE 1 (OVERHANG) =                            | -48.8  | ZONE 1 (OVERHANG) =            | -31.5   | ALL ZONES (POSITIVE) =                         | 22.5    |
| ZONE 2 (NEGATIVE) =                            | -42    | ZONE 2 (NEGATIVE) =            | -27.9   | ZONE 4 (NEGATIVE) =                            | -24.3   |
| ZONE 2 (OVERHANG) =                            | -57.7  | ZONE 2 (OVERHANG) =            | -40.4   | ZONE 5 (NEGATIVE) =                            | -24.3   |
| ZONE 3 (NEGATIVE) =                            | -51.9  | ZONE 3 (NEGATIVE) =            | -42.2   | EFFECTIVE WIND AREA (SQ. FT) :                 | 1000.00 |
| ZONE 3 (OVERHANG) =                            | -67.7  | ZONE 3 (OVERHANG) =            | -54.8   | ALL ZONES (POSITIVE) =                         | 22.5    |
| EFFECTIVE WIND AREA (SQ. FT) :                 | 100.00 | EFFECTIVE WIND AREA (SQ. FT) : | 1000.00 | ZONE 4 (NEGATIVE) =                            | -24.3   |
| ALL ZONES (POSITIVE) =                         | NA     | ALL ZONES (POSITIVE) =         | NA      | ZONE 5 (NEGATIVE) =                            | -24.3   |
| ZONE 1' (NEGATIVE) =                           | NA     | ZONE 1' (NEGATIVE) =           | NA      |                                                |         |
| ZONE 1' (OVERHANG) =                           | NA     | ZONE 1' (OVERHANG) =           | NA      |                                                |         |
| ZONE 1 (NEGATIVE) =                            | -27.6  | ZONE 1 (NEGATIVE) =            | -18.9   |                                                |         |
| ZONE 1 (OVERHANG) =                            | -42.4  | ZONE 1 (OVERHANG) =            | -31.5   |                                                |         |
| ZONE 2 (NEGATIVE) =                            | -35    | ZONE 2 (NEGATIVE) =            | -27.9   |                                                |         |
| ZONE 2 (OVERHANG) =                            | -49.7  | ZONE 2 (OVERHANG) =            | -40.4   |                                                |         |
| ZONE 3 (NEGATIVE) =                            | -42.2  | ZONE 3 (NEGATIVE) =            | -42.2   |                                                |         |
| ZONE 3 (OVERHANG) =                            | -57.0  | ZONE 3 (OVERHANG) =            | -54.8   |                                                |         |

CONTRACTOR TO PROVIDE BUILDING CODE APPROVED PRODUCTS TO MEET OR EXCEED THE DESIGN PRESSURES AS TABULATED.

| DRAWING INDEX |                                                |
|---------------|------------------------------------------------|
| PAGE NO.      | DESCRIPTION                                    |
| 1             | TITLE PAGE WITH INDEX                          |
| 2             | ELEVATION VIEWS                                |
| 3             | TRUSS DESIGN FOR BLDG LENGTH<=80'              |
| 4             | TRUSS DESIGN FOR BLDG LENGTH>80'               |
| 5             | CONNECTION DETAILS (1-2)                       |
| 6             | BASE RAIL AND FOUNDATION ANCHORAGE             |
| 7             | RAFTER END WALL, SIDE WALL AND OPENING FRAMING |
| 8             | CONNECTION DETAILS (4-14)                      |
| 9             | BOX EAVE RAFTER LEAN-TO OPTIONS                |
| 10            | CONNECTION DETAILS (15-19)                     |
| 11            | BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION    |
| 12            | OPTIONAL HELICAL ANCHORING DETAIL              |

GENERIC PLANS ARE NOT VALID WITHOUT A RAISED SEAL & BLUE INK SIGNATURE.

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

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com



PROJECT NO. 2515624

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/06/2024

REVISION 1: DATE

REVISION 2: DATE

DRAWN BY: HK

SCALE: NTS

PAGE :  
1 OF 12

Richard E. Walker, P.E. #053314  
CA CERT. #PE007324

DATE: 06/05/2025

Richard E. Walker, P.E. #057896  
CA CERT. #P-2016

DATE: 06/05/2025

Richard E. Walker, P.E. #42463  
CA CERT. #6921

DATE: 06/05/2025

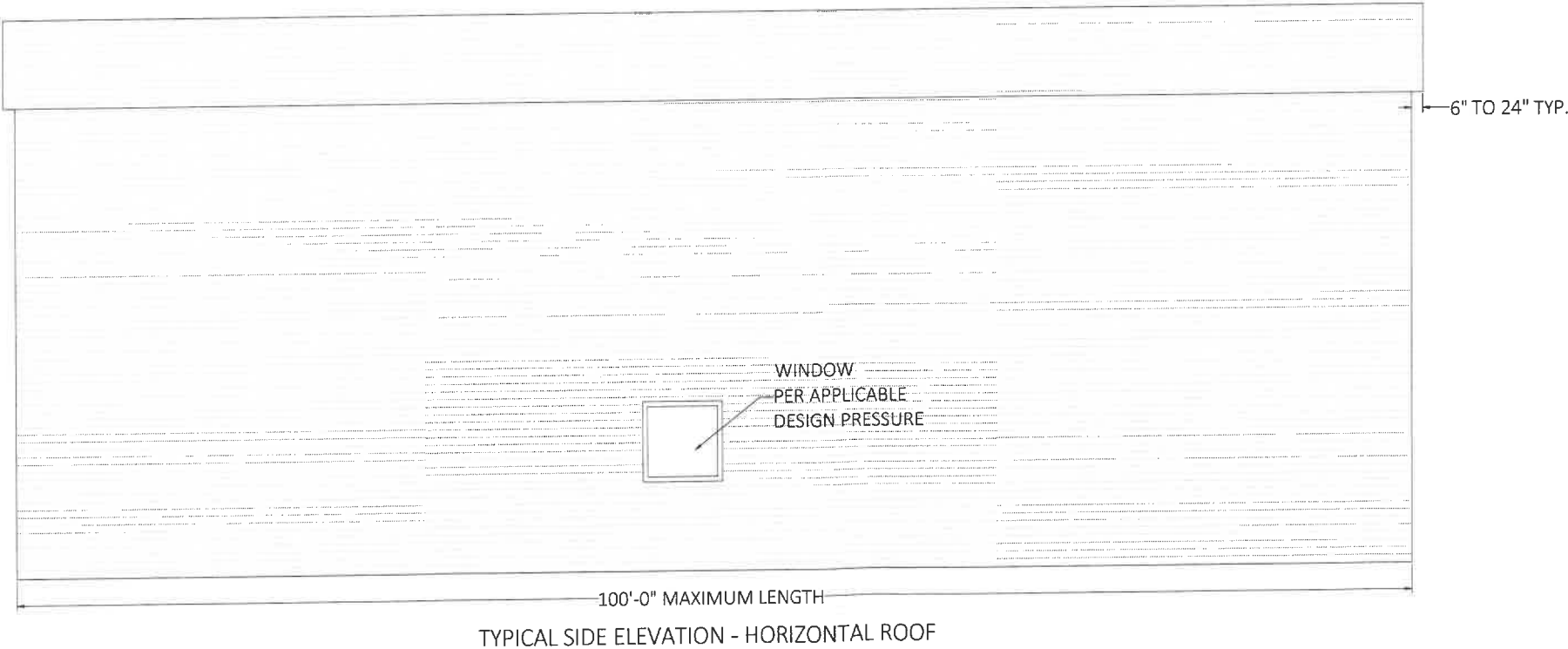
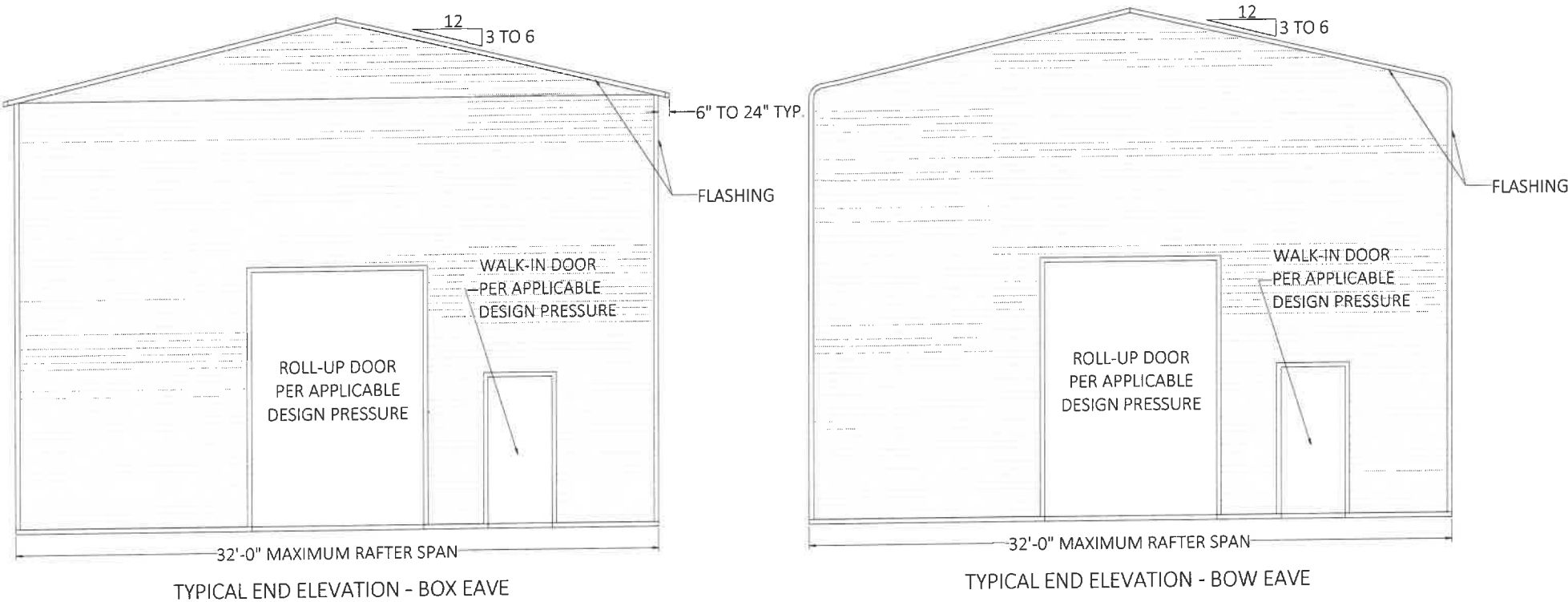
Richard E. Walker, P.E. #131664  
CA CERT. #9631

DATE: 06/05/2025

Richard E. Walker, P.E. #69485  
CA CERT. # 407008475

DATE: 06/05/2025

ENCLOSED METAL BUILDING DESIGN  
MAXIMUM 32'-0" WIDE X 100'-0" LONG X 20'-0" HIGH (EAVE)  
BOX EAVE FRAME / BOW EAVE FRAME



DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com



PROJECT NO. 2515624

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/06/2024

REVISION 1: DATE

REVISION 2: DATE

DRAWN BY: HK

SCALE: NTS

PAGE :

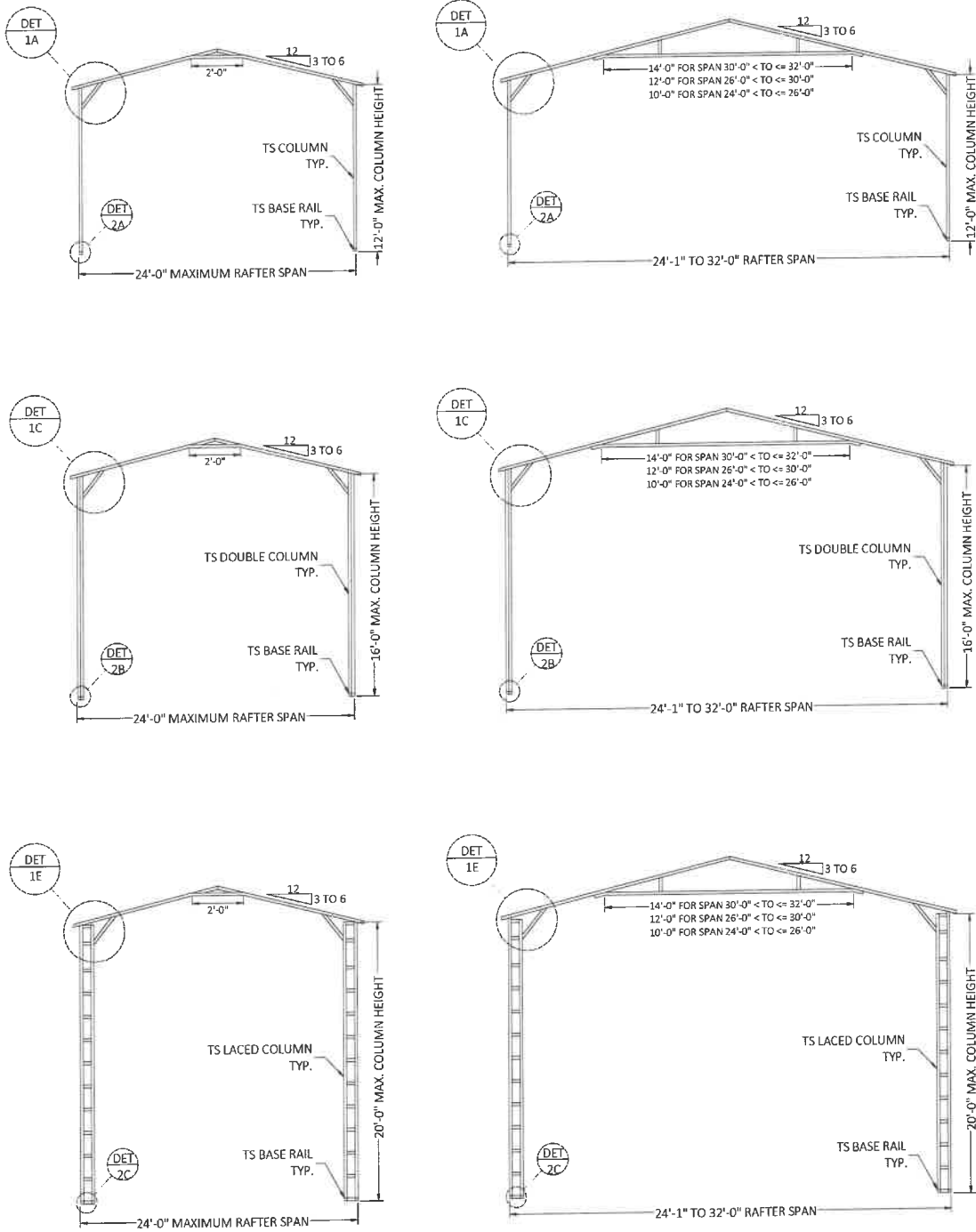
2

OF 12

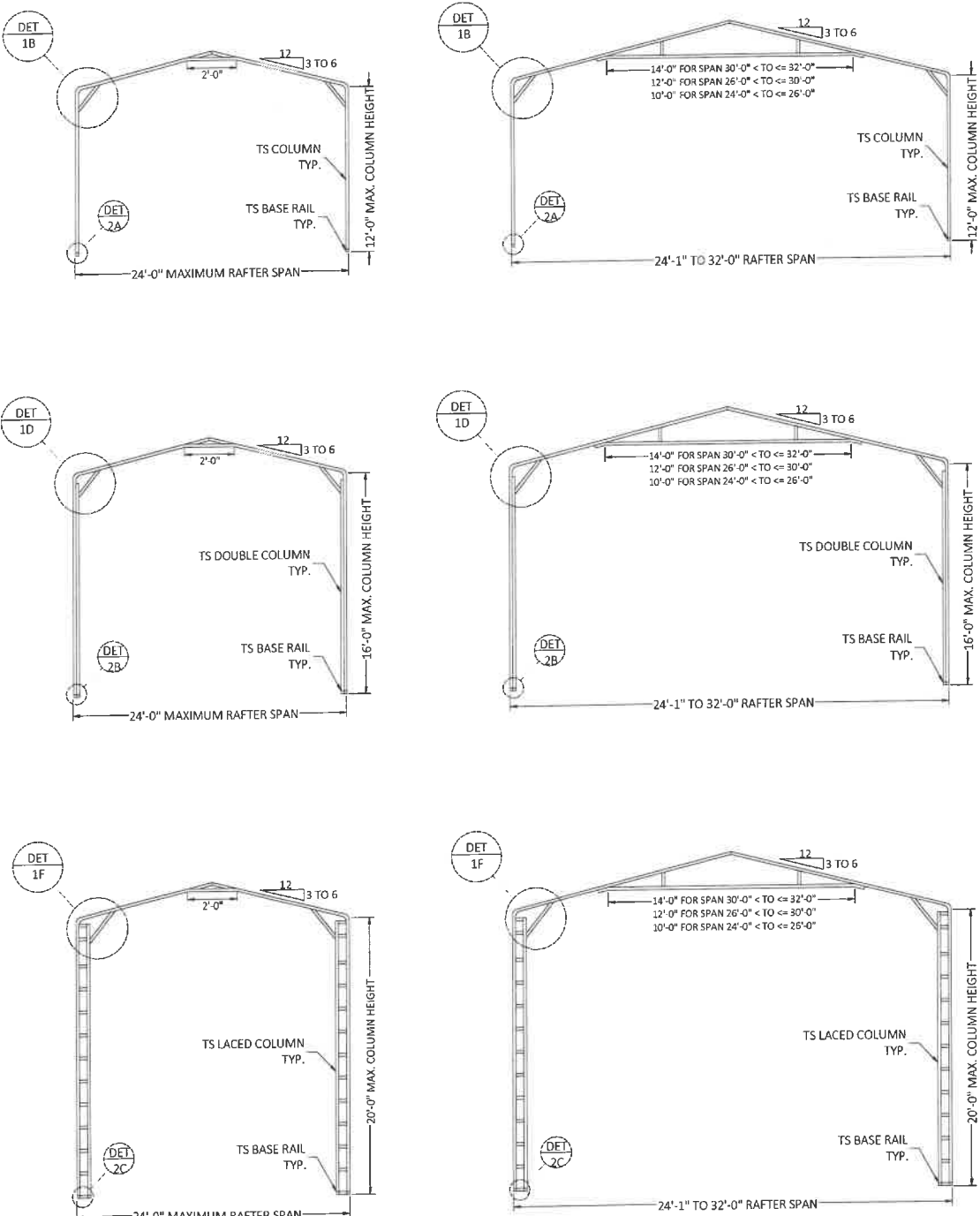
- MEMBER LEGEND:
- 1. TS COLUMN = 2.5X2.5X14GA U.N.O. OR 2.25X2.25X12GA U.N.O.
  - 2. TS DOUBLE COLUMN = (2)2.5X2.5X14GA OR (2) 2.25X2.25X12GA U.N.O.
  - 3. TRUSS MEMBERS = 2.5X2.5X14GA U.N.O.
  - 4. KNEE-BRACE = 2.5"X1.5"X18GA CHANNEL
  - 5. PURLIN = 1.5"X18GA HAT CHANNEL
  - 6. U-BRACE = 2.5"X1.5"X18GA CHANNEL

BUILDING LENGTH <=80'-0"

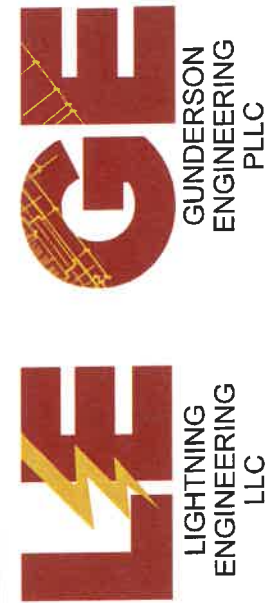
TRUSS LAYOUT- BOX EAVE



TRUSS LAYOUT- BOW EAVE



DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineering.com  
www.GundersonEngineering.com



PROJECT NO. 2515624

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/06/2024  
REVISION 1: DATE  
REVISION 2: DATE  
DRAWN BY: HK  
SCALE: NTS

PAGE :  
3 OF 12

- MEMBER LEGEND:
- 1. TS COLUMN = 2.5X2.5X14GA U.N.O. OR 2.25X2.25X12GA U.N.O.
  - 2. TS DOUBLE COLUMN = (2)2.5X2.5X14GA OR (2) 2.25X2.25X12GA U.N.O.
  - 3. TRUSS MEMBERS = 2.5X2.5X14GA U.N.O.
  - 4. KNEE-BRACE = 2.5"X1.5"X18GA CHANNEL
  - 5. PURLIN = 1.5"X18GA HAT CHANNEL
  - 6. U-BRACE = 2.5"X1.5"X18GA CHANNEL

BUILDING LENGTH 80'-1" TO 100'-0"

TRUSS LAYOUT- BOX EAVE

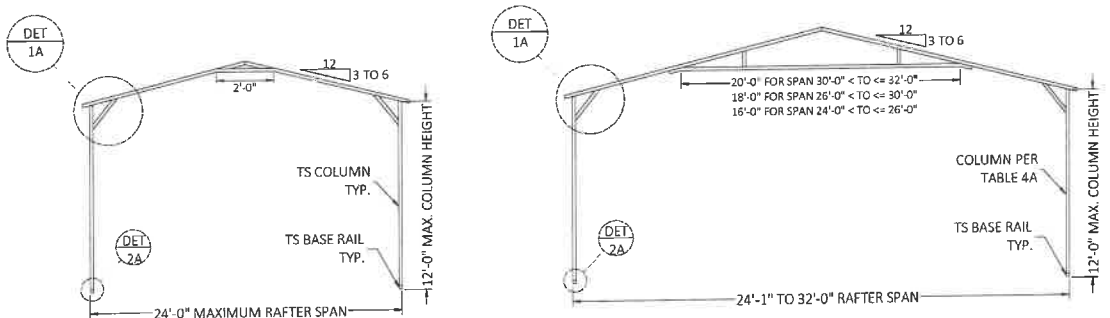
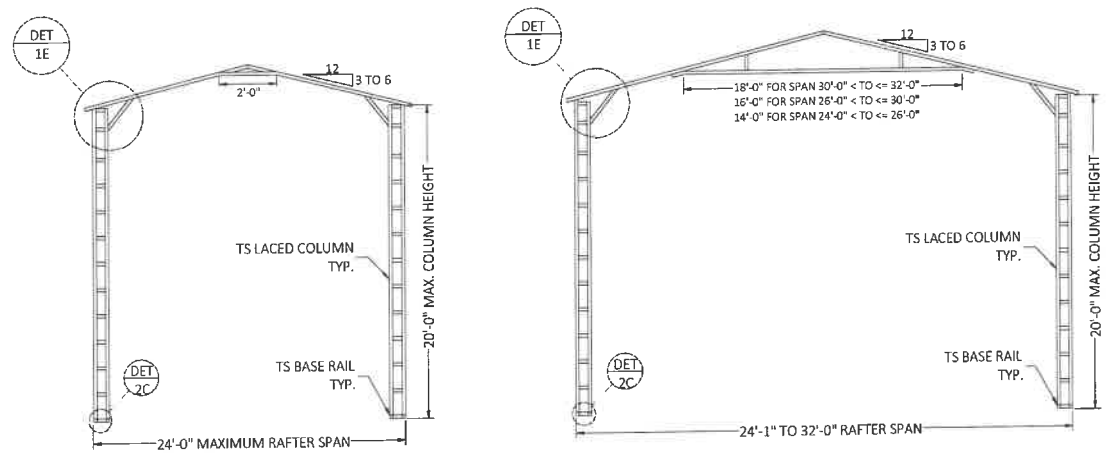
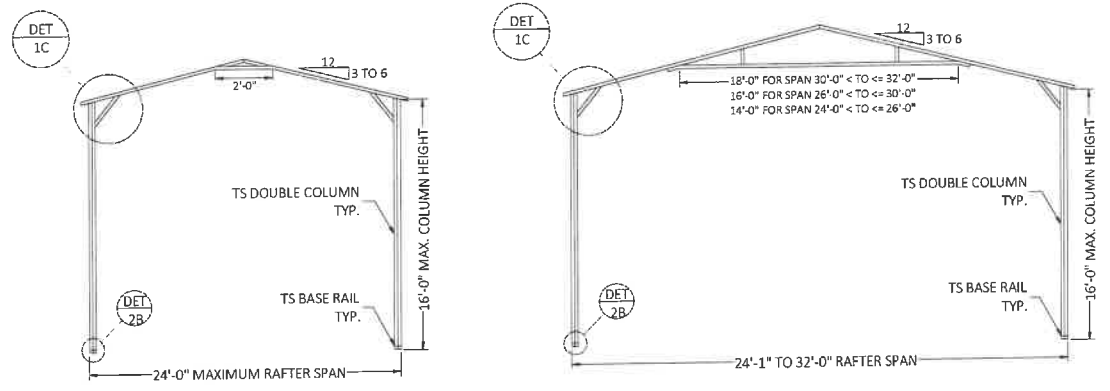


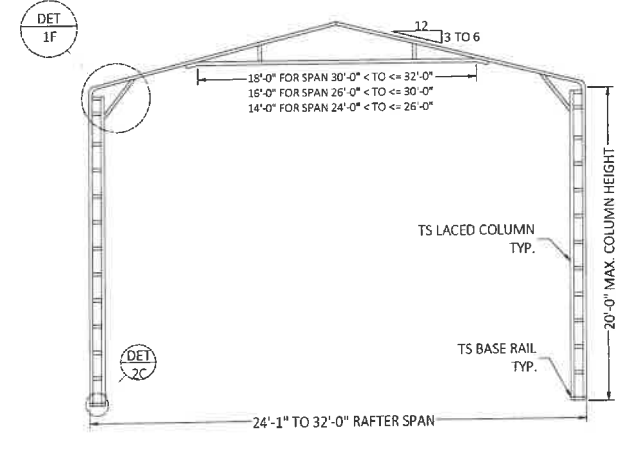
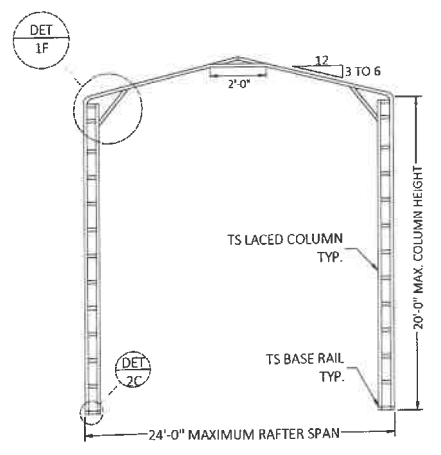
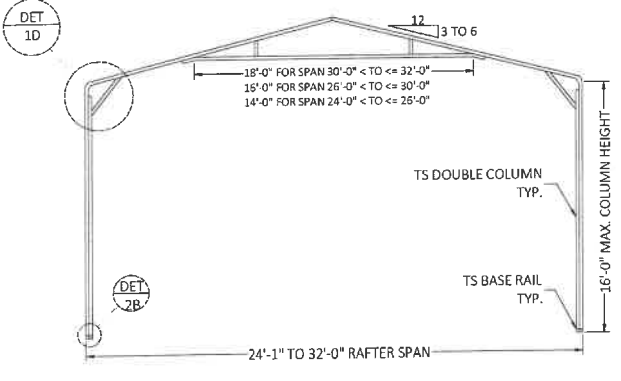
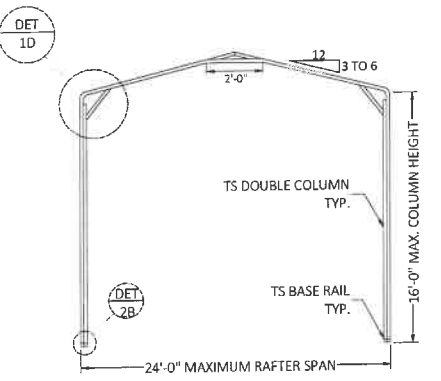
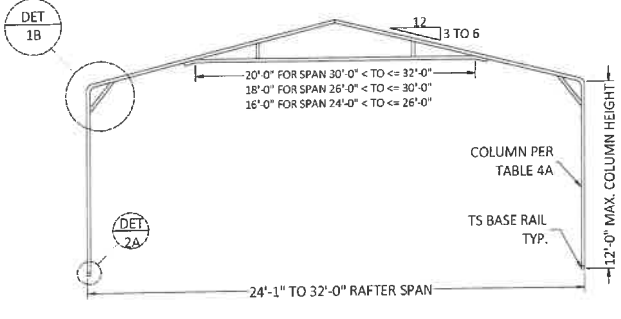
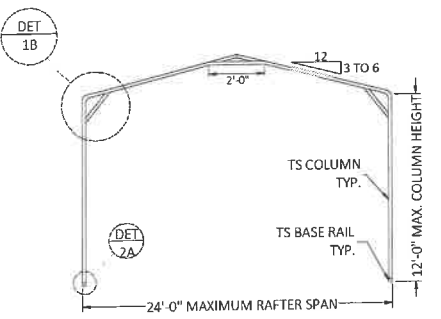
TABLE 4A:

| MAX. COLUMN HEIGHT | COLUMN DIMENSIONS                                                   |
|--------------------|---------------------------------------------------------------------|
| 12'-0"             | (N-12) CENTRAL COLUMNS TO BE (2)2.5X2.5X14 GA<br>REST 2.5X2.5X14 GA |

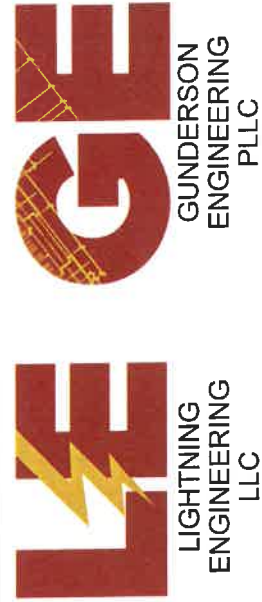
\*N = NO. OF COLUMNS PER SIDE ELEVATION



TRUSS LAYOUT- BOW EAVE



DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com

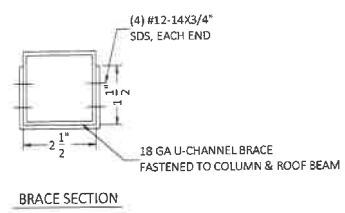
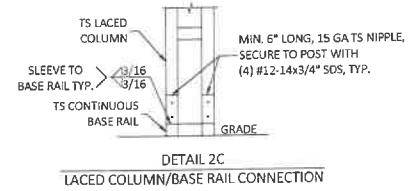
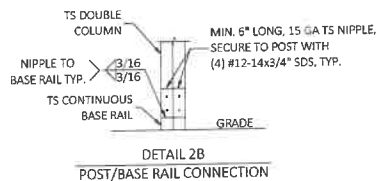
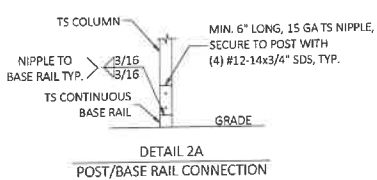
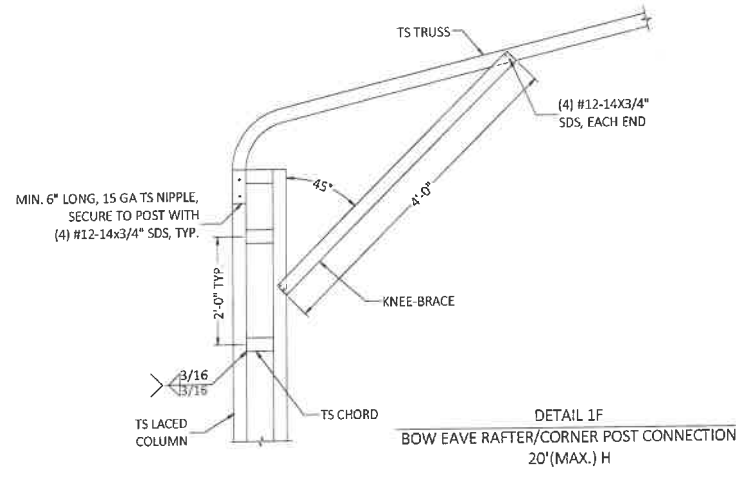
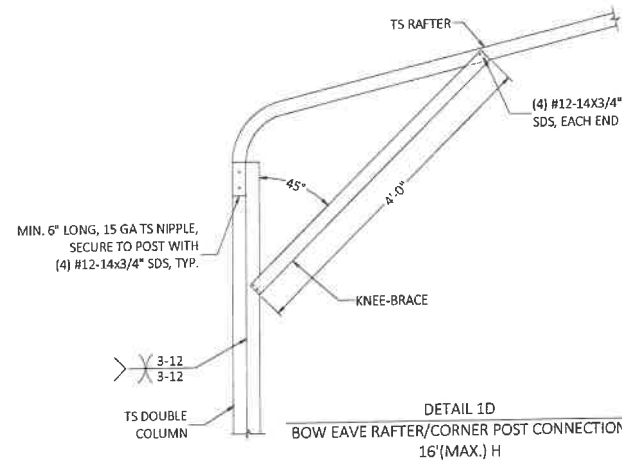
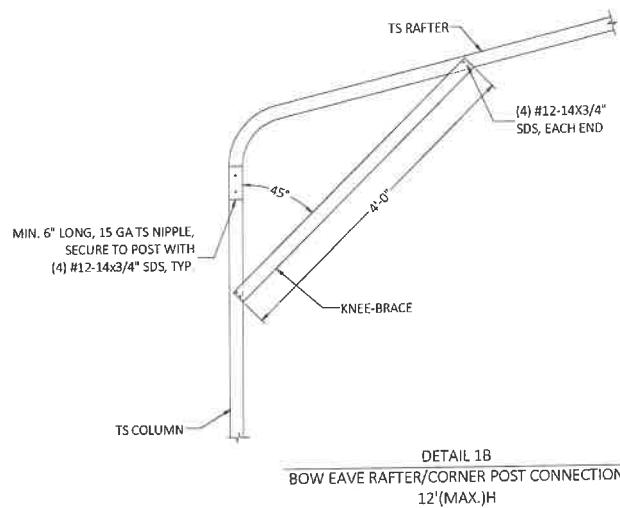
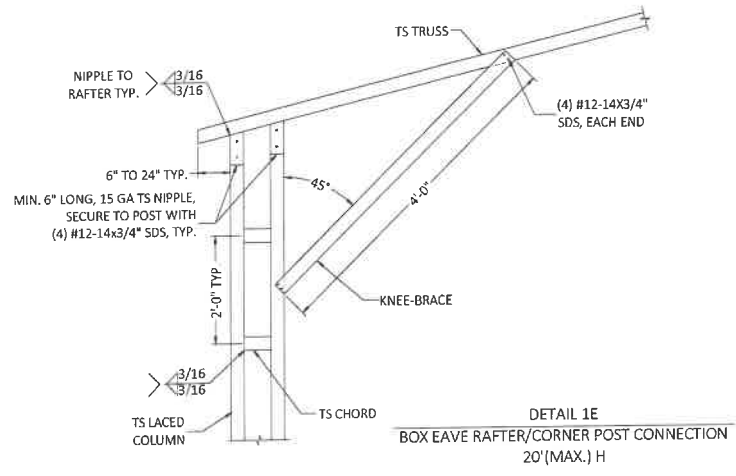
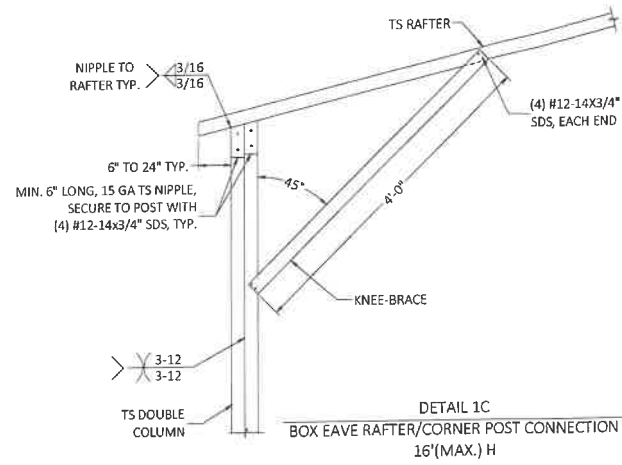
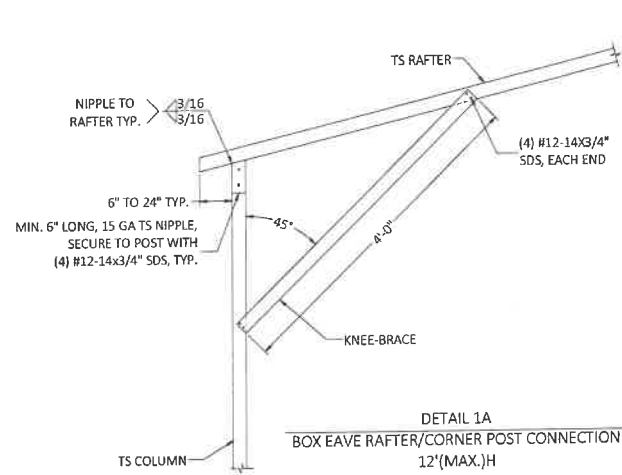


PROJECT NO. 2515624

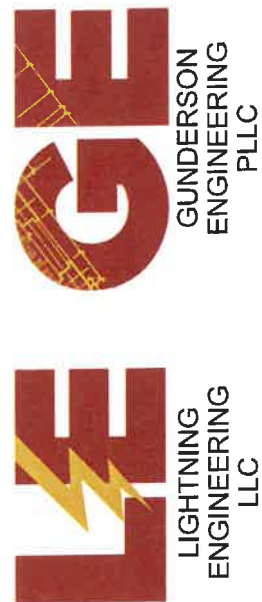
CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

|              |            |
|--------------|------------|
| DESIGN DATE: | 12/06/2024 |
| REVISION 1:  | DATE       |
| REVISION 2:  | DATE       |
| DRAWN BY:    | HK         |
| SCALE:       | NTS        |



DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
 GUNDERSON ENGINEERING (SC, NC)  
 4161 TAMiami TRAIL, UNIT 101  
 PORT CHARLOTTE, FLORIDA 33952  
 (941) 391-5980  
 www.LightningEngineering.com  
 www.GundersonEngineering.com



PROJECT NO. 2515624

CONTRACTOR:  
 STEELCRAFT STRUCTURES  
 1841 AMITY HILL RD.  
 STATESVILLE, NC 28625

PROJECT ADDRESS:  
 12'-32' WIDE ENCLOSED  
 GENERIC PLANS

|              |            |
|--------------|------------|
| DESIGN DATE: | 12/06/2024 |
| REVISION 1:  | DATE       |
| REVISION 2:  | DATE       |
| DRAWN BY:    | HK         |
| SCALE:       | NTS        |

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

1. CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.

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

3. WHERE CONCRETE SPECIFICATIONS ARE REQUIRED, BY ONE OR MORE REGULATORY AGENCY, THE FOLLOWING SPECIFICATIONS ARE APPLICABLE:

a. CONCRETE SHALL CONFORM TO ASTM C94 FOR THE FOLLOWING COMPONENTS:

- i. PORTLAND CEMENT TYPE 1 - ASTM C150
- ii. AGGREGATES - LARGE AGGREGATE 3/4" MAX. - ASTM C 33
- iii. AIR ENTRAINING +/- 1% - ASTM C 260
- iv. WATER REDUCING AGENT - ASTM C 494
- v. CLEAN POTABLE WATER
- vi. OTHER ADMIXTURES NOT PERMITTED

b. CONCRETE SLUMP AT DISCHARGE CHUTE NOT LESS THAN 3" OR MORE THAN 5". WATER ADDED AFTER BATCHING IS NOT PERMITTED.

c. PREPARE & PLACE CONCRETE PER AMERICAN CONCRETE INSTITUTE MANUAL OF STANDARD PRACTICE, PART 1, 2, & 3 INCLUDING HOT WEATHER RECOMMENDATIONS.

d. MOIST CURE OR POLYETHYLENE CURING PERMITTED.

e. PRIOR TO PLACING CONCRETE, TREAT THE ENTIRE SUBSURFACE AREA FOR TERMITES IN COMPLIANCE WITH THE BUILDING CODE (FOR RISK CATEGORY II, III, & IV STRUCTURES ONLY).

f. CONCRETE SLAB SHALL BE PLACED OVER A MIN. 6 MIL POLYETHYLENE VAPOR BARRIER (SLAB ONLY).

4. CONTROL JOINTS SHALL BE PROVIDED AT EVERY 12' O.C. OR 18' O.C. FOR 4" THICK OR 6" THICK CONCRETE SLAB RESPECTIVELY.

1. THE REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.
2. REINFORCEMENT MAY BE BENT IN THE FIELD OR SHOP AS LONG AS:
  - a. IT IS BENT COLD;
  - b. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT;
  - c. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
3. FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING BARS SHALL BE PER ACI-318: 3 INCHES WHERE THE CONCRETE IS POURED AGAINST AND TEMPORARY IT CONTACT WITH THE EARTH OR UNPROTECTED FROM THE EARTH OR WEATHER, OTHERWISE 1-1/2 INCHES.

1. FOUNDATION SHALL BE PROTECTED AGAINST FROST USING RIGID FOAM INSULATION (EPS OR EQUIVALENT). FOR NO FROST PROTECTION OPTION, COORDINATE WITH LOCAL BUILDING CODE AND/OR BUILDING OFFICIAL REGARDING REQUIRED FOOTING DEPTH BASED ON FROST LINE DEPTH.

1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALCAREOUS PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT INSTALLED AT EVERY POST (LEG) / MAX. RAFTER SPACING.
2. THE UPLIFT/BEARING CAPACITY OF HELICAL ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS FOR ANCHORS INSTALLED AT EVERY POST (LEG) / MAX. RAFTER SPACING.
3. THE UPLIFT/BEARING CAPACITY OF HELICAL ANCHORS MUST BE AS SHOWN IN TABLE A FOR ANCHORS PROVIDED AT THE JAMBS OF DOOR OPENINGS. THE INCREASE IN HELICAL ANCHOR CAPACITY MAY BE ACHIEVED BY INCREASING THE DIAMETER AND/OR THE EMBEDMENT OF THE ANCHORS, OR BY USING DIFFERENT ANCHORS DEPENDING ON THE MANUFACTURER'S SPECIFICATIONS.

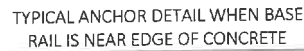
1. ANCHOR TO BE 3/4" DIA (A529 GRADE 50) WITH 30" MIN. EMBEDMENT & (4) MIN. BARB AS SHOWN IN DETAIL 3C.

2. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL AND COBBLES, CALCIFIED PRELOADED SILTS AND CLAYS, CORALS, MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY STIFF SILTS AND CLAYS, MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAY AND SILTS, ALLUVIAL FILL, ANCHOR SHALL BE INSTALLED AT EVERY POST (LEG) / MAX. RAFTER SPACING.

3. THE UPLIFT/BEARING CAPACITY OF EACH ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS FOR ANCHORS INSTALLED AT EVERY POST (LEG) / MAX. RAFTER SPACING.

4. THE UPLIFT/BEARING CAPACITY OF THE ANCHORS MUST BE AS SHOWN IN TABLE A FOR ANCHORS PROVIDED AT THE JAMBS OF DOOR OPENINGS. THE INCREASE IN ANCHOR CAPACITY MAY BE ACHIEVED BY INCREASING THE DIAMETER AND/OR THE EMBEDMENT OF THE ANCHORS, OR BY USING DIFFERENT ANCHORS DEPENDING ON THE MANUFACTURER'S SPECIFICATIONS.

| REQUIRED UPLIFT / BEARING CAPACITY<br>OF HELICAL ANCHORS |      | RAFTER SPACING (FT.) |      |
|----------------------------------------------------------|------|----------------------|------|
| OPENING WIDTH (FT.)                                      |      | 4                    | 5    |
|                                                          | 6    | 11.0                 | 9.5  |
|                                                          | 8    | 13.0                 | 11.5 |
|                                                          | 10   | 15.0                 | 13.0 |
|                                                          | 12   | 17.0                 | 14.5 |
|                                                          | 14   | 19.5                 | 16.5 |
|                                                          | 16   | 21.5                 | 18.0 |
|                                                          | 18   | 23.5                 | 20.0 |
| 20                                                       | 25.5 | 21.5                 |      |

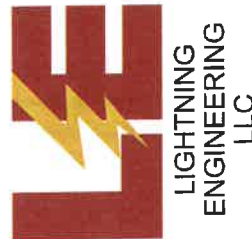


### BASE RAIL ANCHORAGE OPTION

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

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)

4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
[www.LightningEngineer.com](http://www.LightningEngineer.com)  
[www.GundersonEngineering.com](http://www.GundersonEngineering.com)



PROJECT NO. 2515624

TRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/06/2024

REVISION 1: DATE

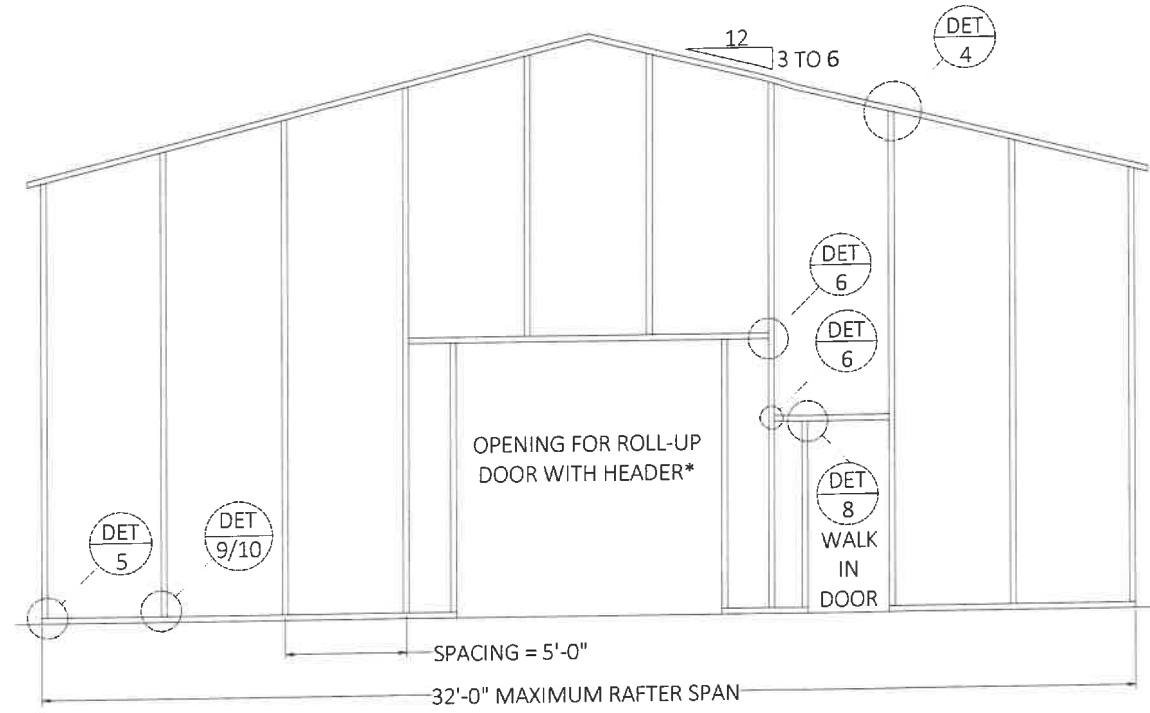
REVISION 2:      DATE

DRAWN BY: HK

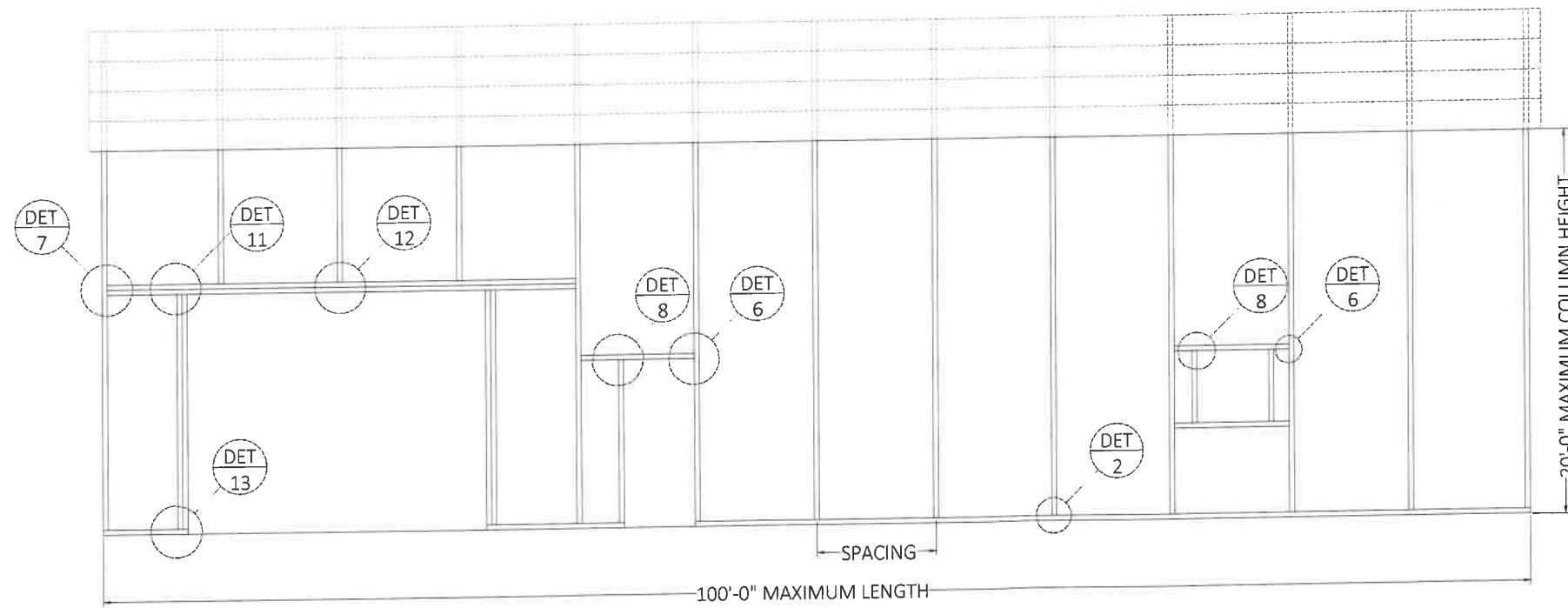
SCALE: NTS

PAGE :  
**6** OF 1

\*SEE PAGE 11 FOR  
HEADER REQUIREMENT



TYPICAL BOX EAVE RAFTER END WALL FRAMING SECTION



TYPICAL BOX EAVE RAFTER SIDE WALL FRAMING SECTION

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/08/2024

REVISION 1: DATE

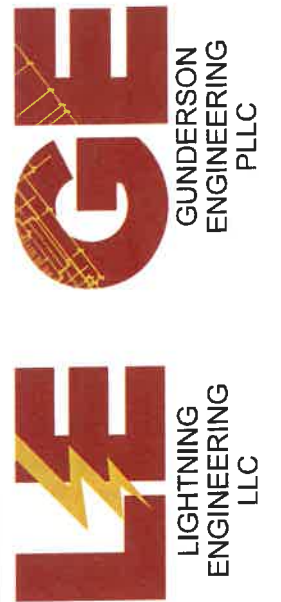
REVISION 2: DATE

DRAWN BY: HK

SCALE: NTS

PAGE :

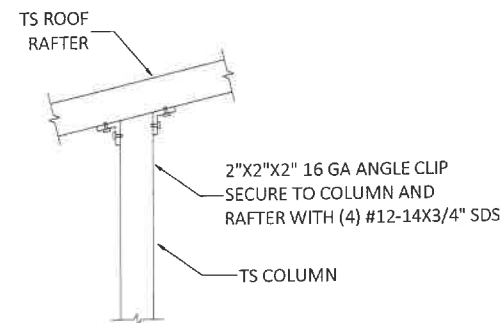
7 OF 12



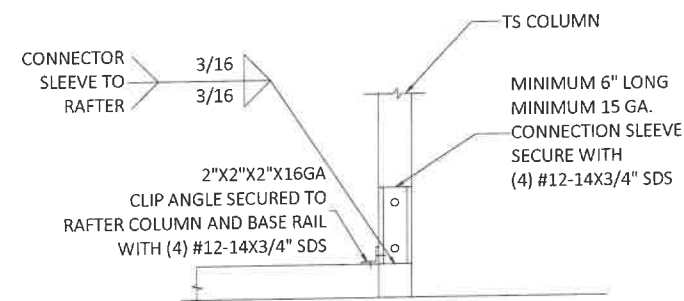
PROJECT NO. 2515624

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com

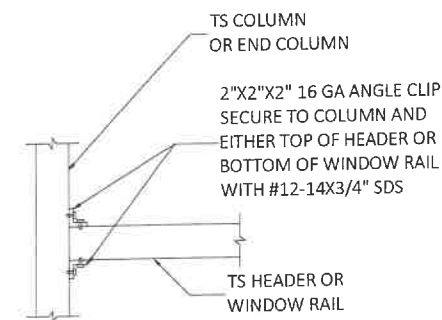
CONNECTION DETAILS



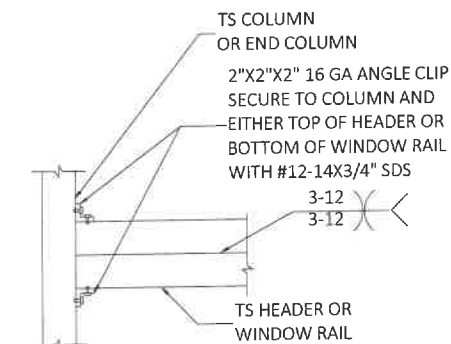
DETAIL 4  
END COLUMN/RAFTER CONNECTION



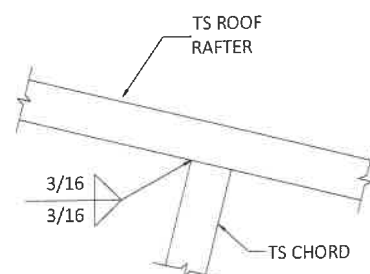
DETAIL 5  
END POST/BASE RAIL CONNECTION



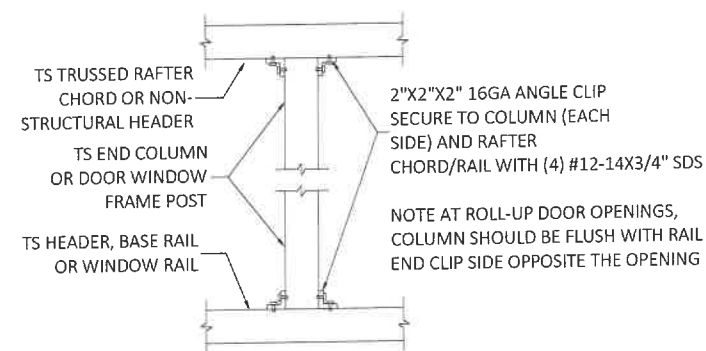
DETAIL 6  
HEADER TO COLUMN CONNECTION



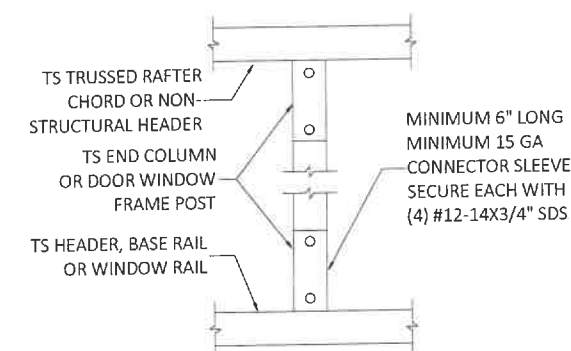
DETAIL 7  
DOUBLE HEADER TO COLUMN CONNECTION



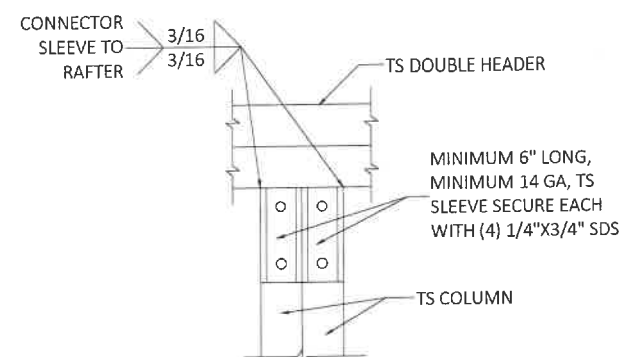
DETAIL 8  
RAFTER TO CHORD CONNECTION



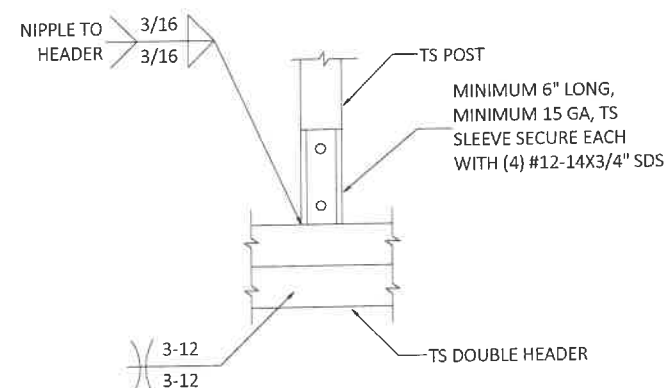
DETAIL 9  
POST TO HEADER, BASE RAIL OR WINDOW RAIL CONNECTION  
(OPTION-1)



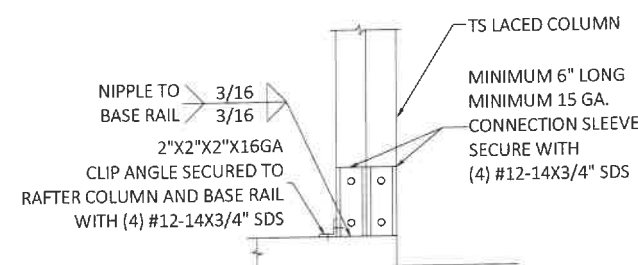
DETAIL 10  
POST TO HEADER, BASE RAIL CONNECTION  
(OPTION-2)



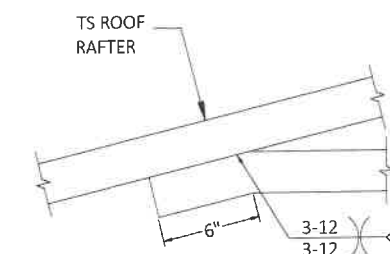
DETAIL 11  
DOUBLE HEADER TO COLUMN CONNECTION



DETAIL 12  
POST/DOUBLE HEADER CONNECTION



DETAIL 13  
POST/BASE RAIL CONNECTION



DETAIL 14  
COLLAR TIE CONNECTION

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com

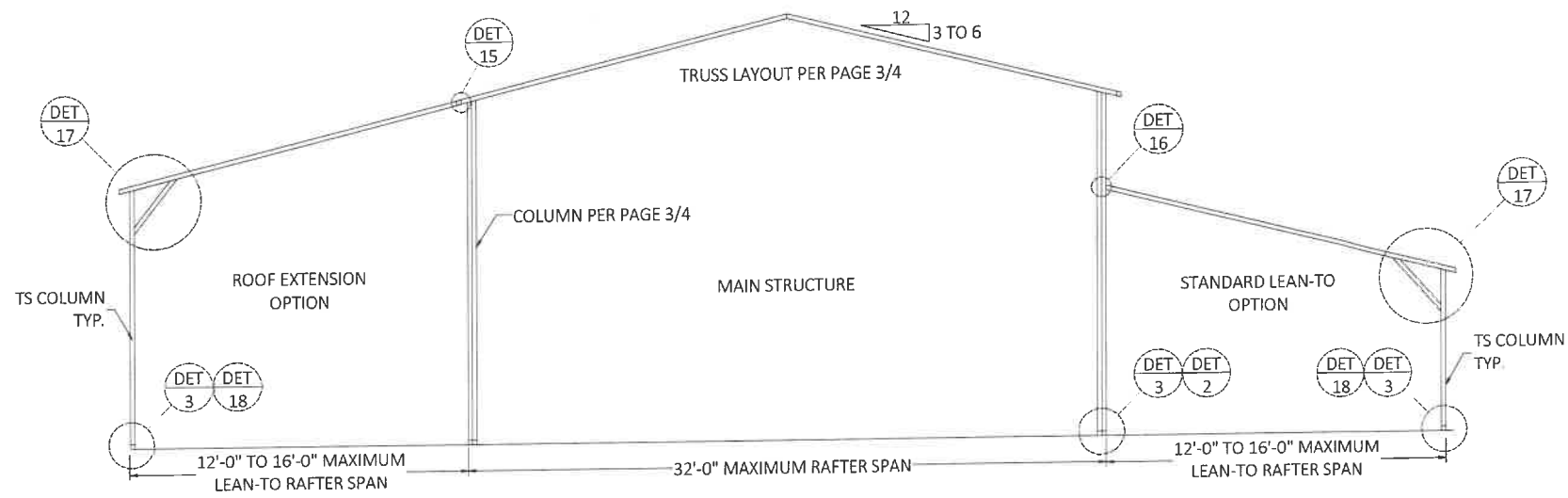


PROJECT NO. 2515624

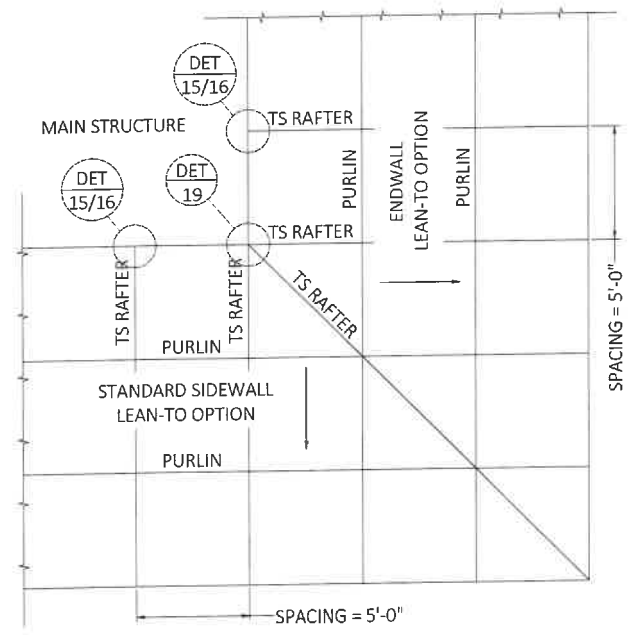
CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

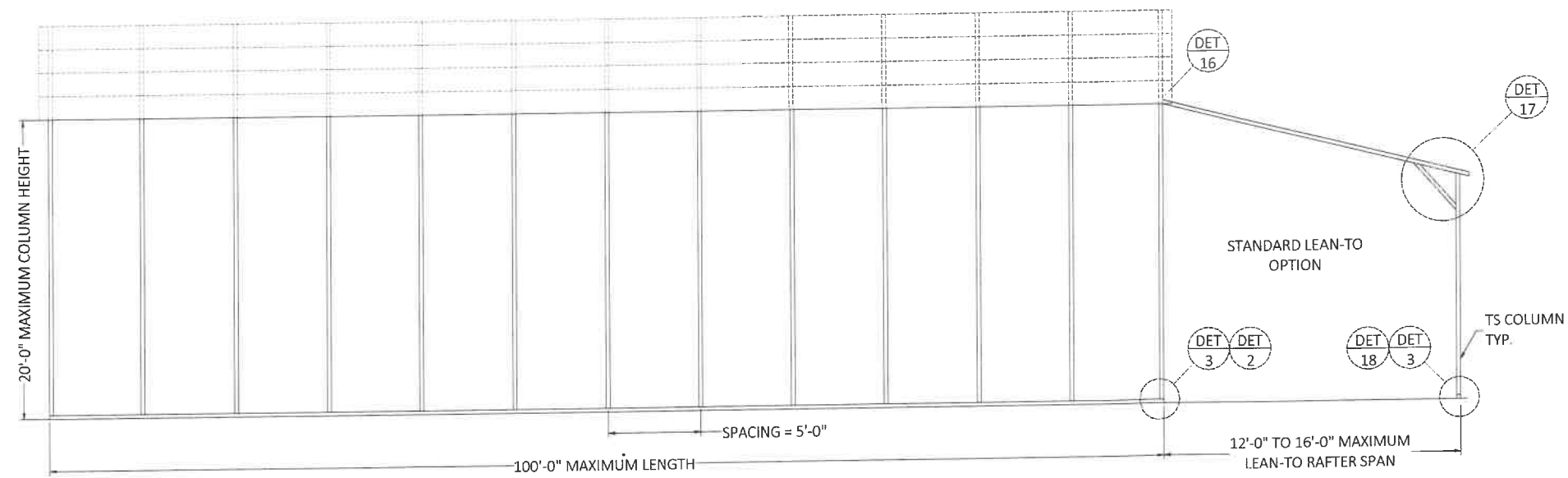
|              |            |
|--------------|------------|
| DESIGN DATE: | 12/06/2024 |
| REVISION 1:  | DATE       |
| REVISION 2:  | DATE       |
| DRAWN BY:    | HK         |
| SCALE:       | NTS        |
| PAGE :       | 8 OF 12    |



TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

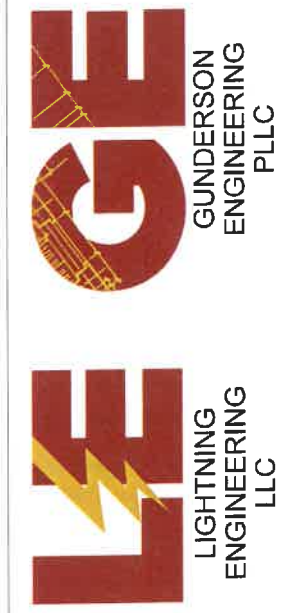


WRAP AROUND LEAN-TO FRAMING TOP VIEW



TYPICAL BOX EAVE ENDWALL LEAN-TO OPTIONS FRAMING SECTION

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com



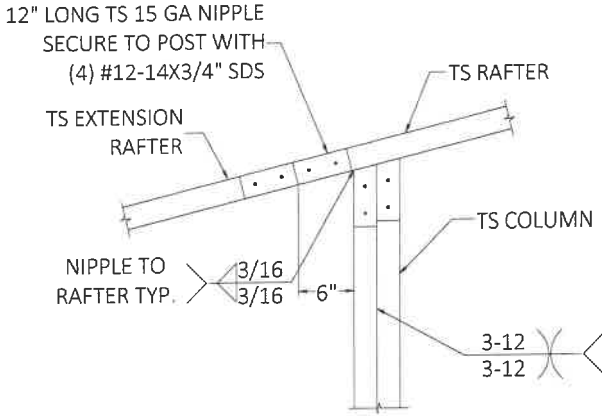
PROJECT NO. 2515624

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

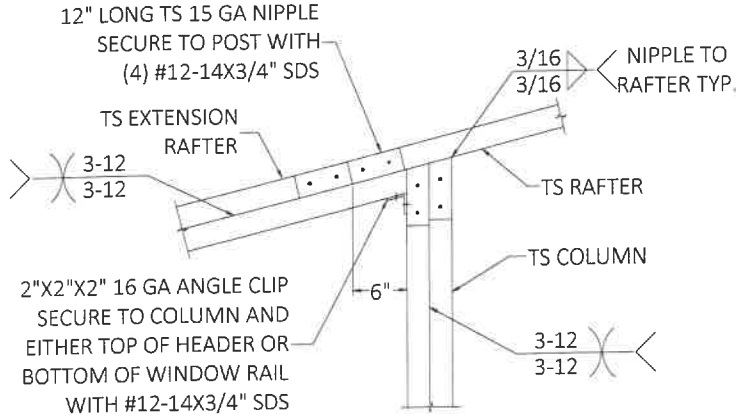
PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

|              |            |
|--------------|------------|
| DESIGN DATE: | 12/06/2024 |
| REVISION 1:  | DATE       |
| REVISION 2:  | DATE       |
| DRAWN BY:    | HK         |
| SCALE:       | NTS        |

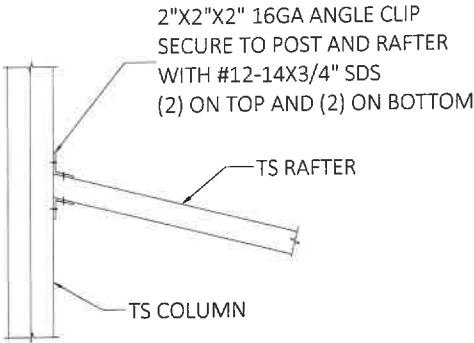
CONNECTION DETAILS



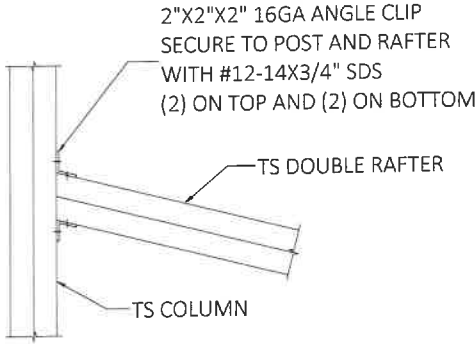
DETAIL 15A  
SIDE EXTENSION RAFTER/COLUMN CONNECTION  
FOR RAFTER SPANS  $\leq 12'-0''$



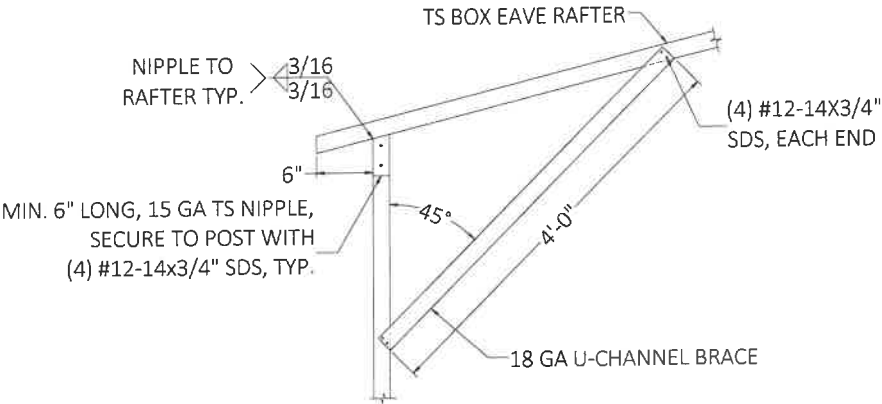
DETAIL 15B  
SIDE EXTENSION RAFTER/COLUMN CONNECTION  
FOR RAFTER SPANS  $12'-0'' < \text{TO} \leq 16'-0''$



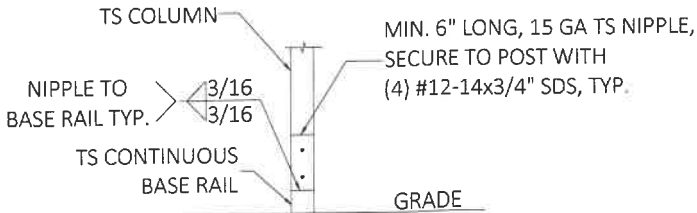
DETAIL 16A  
LEAN TO RAFTER/COLUMN CONNECTION  
FOR RAFTER SPANS  $\leq 12'-0''$



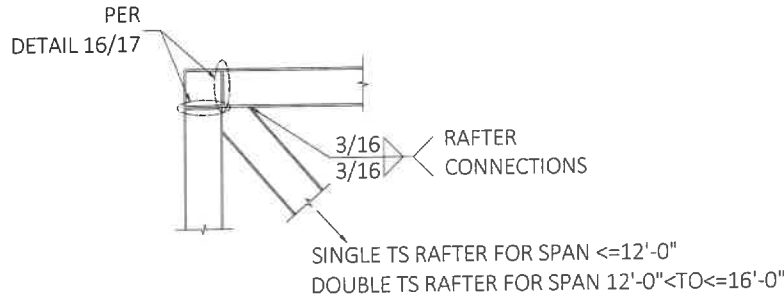
DETAIL 16B  
LEAN TO RAFTER/COLUMN CONNECTION  
FOR RAFTER SPANS  $12'-0'' < \text{TO} \leq 16'-0''$



DETAIL 17  
LEAN-TO RAFTER/CORNER POST CONNECTION

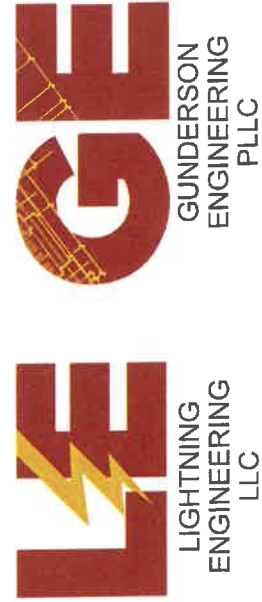


DETAIL 18  
LEAN-TO POST CONNECTION



DETAIL 19  
WRAP AROUND LEAN-TO RAFTER/COLUMN CONNECTION

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com



PROJECT NO. 2515624

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/06/2024

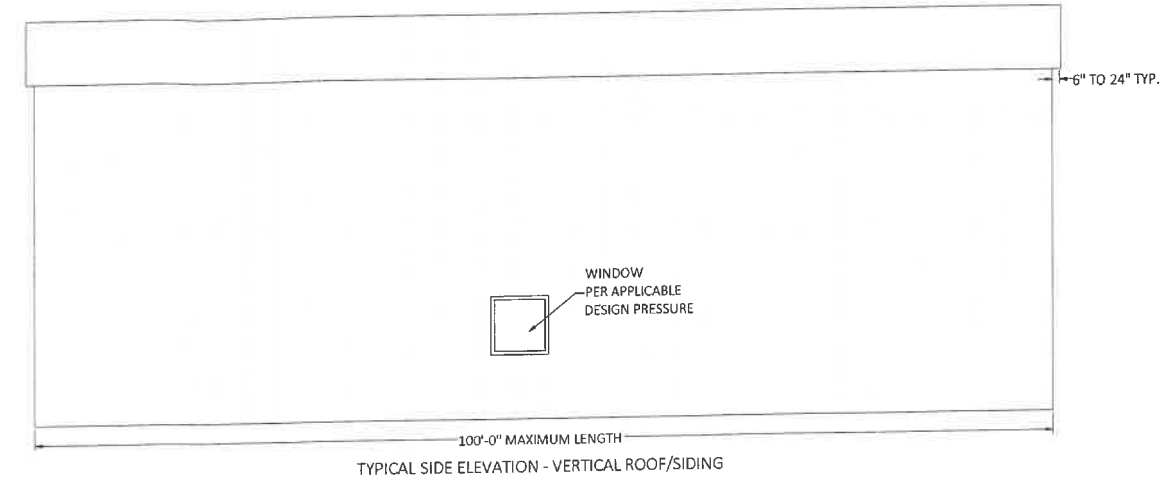
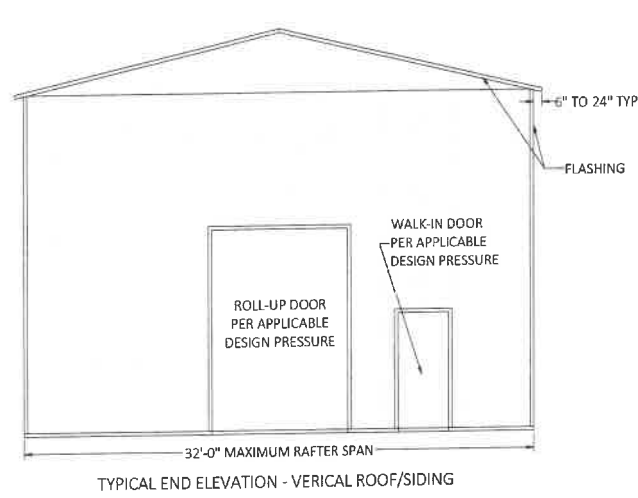
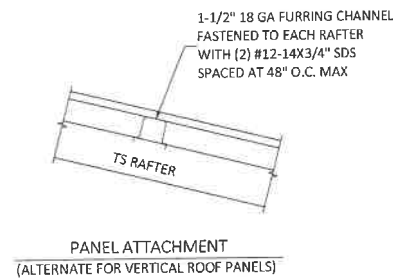
REVISION 1: DATE

REVISION 2: DATE

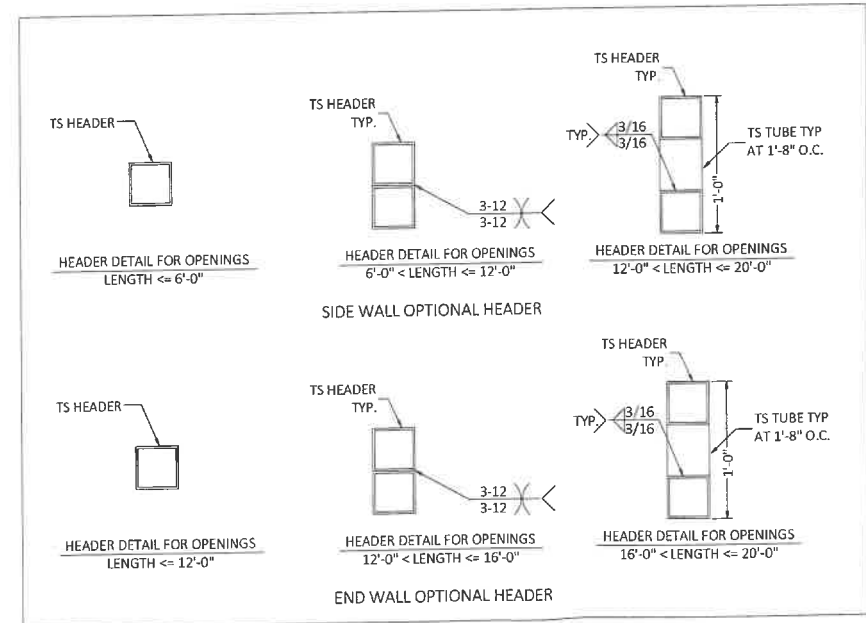
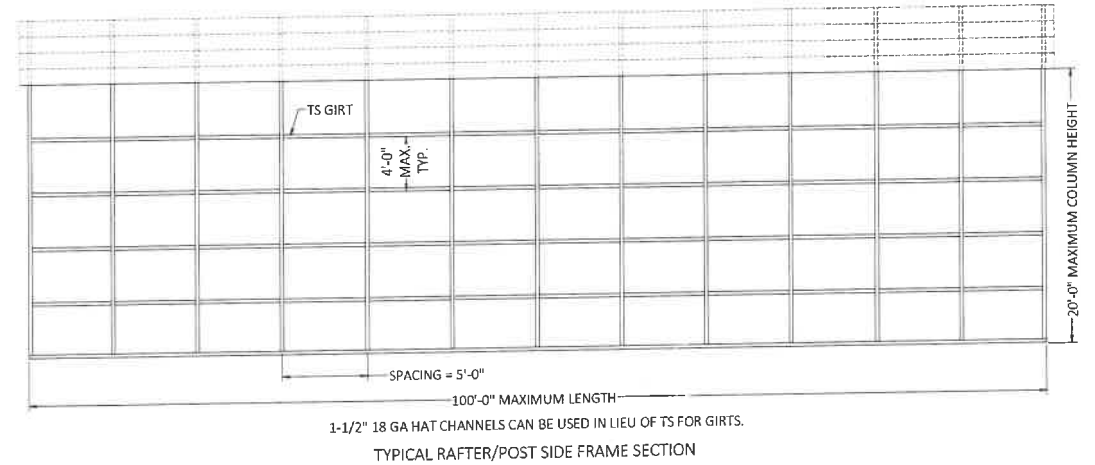
DRAWN BY: HK

SCALE: NTS

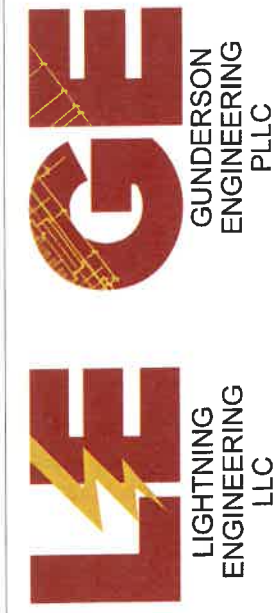
PAGE :  
10 OF 12



BOX EAVE FRAME RAFTER ENCLOSED BUILDING



DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMAMI TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com



PROJECT NO. 2515624

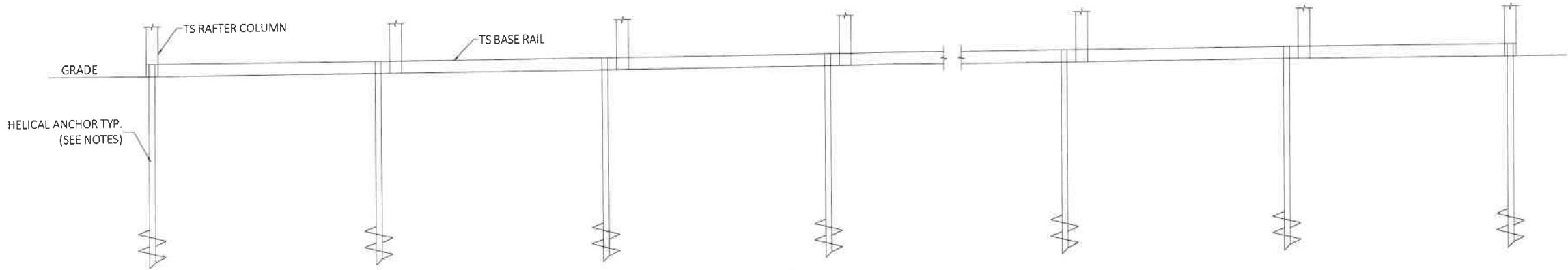
CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

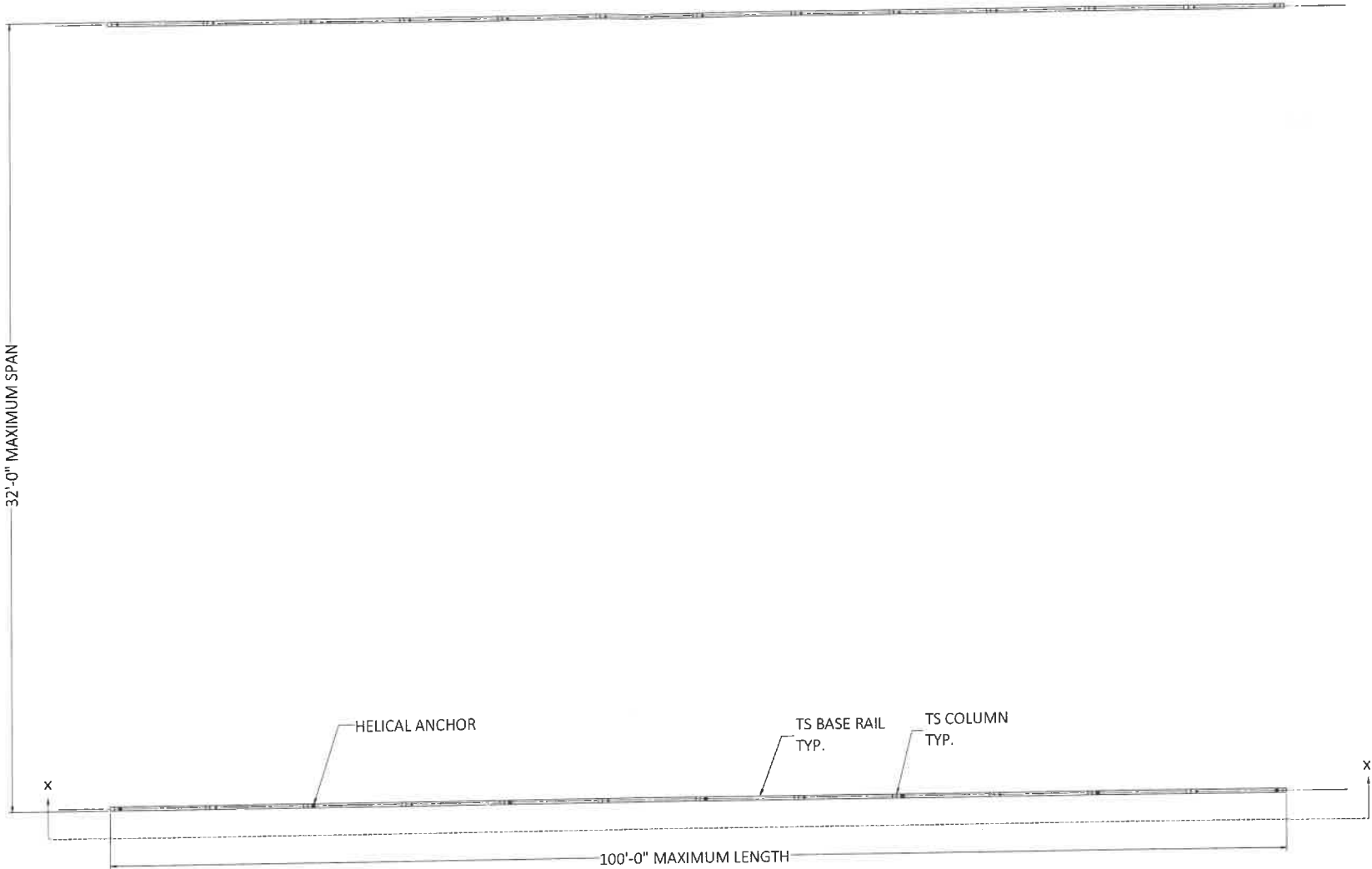
|              |            |
|--------------|------------|
| DESIGN DATE: | 12/06/2024 |
| REVISION 1:  | DATE       |
| REVISION 2:  | DATE       |
| DRAWN BY:    | HK         |
| SCALE:       | NTS        |

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, MEDIUM TO VERY LOOSE DENSE SANDS, FIRM TO STIFF CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT INSTALLED AT EVERY POST (LEG) / MAX. RAFTER SPACING.  
2. THE UPLIFT/BEARING CAPACITY OF HELICAL ANCHOR MUST BE EQUAL TO OR GREATER THAN 8.5 KIPS FOR ANCHORS INSTALLED AT EVERY POST (LEG) / MAX. RAFTER SPACING.  
3. THE UPLIFT/BEARING CAPACITY OF HELICAL ANCHORS MUST BE AS SHOWN IN TABLE A FOR ANCHORS PROVIDED AT THE JAMBS OF DOOR OPENINGS. THE INCREASE IN HELICAL ANCHOR CAPACITY MAY BE ACHIEVED BY INCREASING THE DIAMETER AND/OR THE EMBEDMENT OF THE ANCHORS, OR BY USING DIFFERENT ANCHORS DEPENDING ON THE MANUFACTURER'S SPECIFICATIONS.

| TABLE A                                               |    |                      |      |
|-------------------------------------------------------|----|----------------------|------|
| REQUIRED UPLIFT / BEARING CAPACITY OF HELICAL ANCHORS |    | RAFTER SPACING (FT.) |      |
| OPENING WIDTH (FT.)                                   | 6  | 4                    | 5    |
|                                                       | 8  | 11.0                 | 9.5  |
|                                                       | 10 | 13.0                 | 11.5 |
|                                                       | 12 | 15.0                 | 13.0 |
|                                                       | 14 | 17.0                 | 14.5 |
|                                                       | 16 | 19.5                 | 16.5 |
|                                                       | 18 | 21.5                 | 18.0 |
|                                                       | 20 | 23.5                 | 20.0 |
|                                                       |    | 25.5                 | 21.5 |



SECTION X-X



BASE RAIL PLAN

OPTIONAL HELICAL ANCHORING DETAIL

CONTRACTOR:  
STEELCRAFT STRUCTURES  
1841 AMITY HILL RD.  
STATESVILLE, NC 28625

PROJECT ADDRESS:  
12'-32' WIDE ENCLOSED  
GENERIC PLANS

DESIGN DATE: 12/06/2024

REVISION 1: DATE

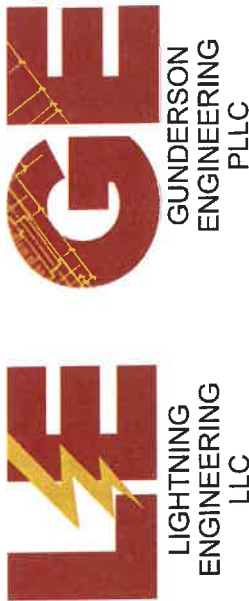
REVISION 2: DATE

DRAWN BY: HK

SCALE: NTS

PAGE :

12 OF 12



PROJECT NO. 2515624

DBA: LIGHTNING ENGINEERING LLC (GA, TN, VA)  
GUNDERSON ENGINEERING (SC, NC)  
4161 TAMiami TRAIL, UNIT 101  
PORT CHARLOTTE, FLORIDA 33952  
(941) 391-5980  
www.LightningEngineer.com  
www.GundersonEngineering.com