



## DENVER MODEL

16' X 16'

## SPECIFICATIONS

### Dimensions:

Roof Dimensions	16'-0"x 16'-0"
Column Dimensions (center to center)	12'-8½"x 12'-8½"
Eave Height	7'-2"
Roof Height @ Peak	±10'-3"
Hip Roof	4:12 pitch
Square Feet Under Roof	256
Date of drawing	April 14, 2017

Stub columns shall be 6"x 6" steel tube, .250" minimum wall thickness.

All beams are structural steel tube sized according to engineering.

All bolts are A-307 or A-325 and hidden at all connections.

Roofing shall be 24 gauge HR-36 steel pre-cut and pre-finished with ribs running with the slope of the roof.

Embed plates included with structure.

Masonry columns shall be by others.

Fascia trim shall be 3½"x 3½", 24 gauge minimum.

Trim shall be 24 gauge, finish to match roof

Open or welded "C" channel, "I" beams, "S" or "Z" purlins or angle iron shall not be allowed.

There shall be provisions for (1) light and (1) electrical outlet.



## STANDARD SPECIFICATIONS

w/ TRUZINC RICH PRIMER & SUPER DURABLE POWDER COAT PAINT

### **GENERAL:**

1. All structures shall be designed and fabricated to the IBC (Latest Edition) or current local building code with standard load designs of the greater value of 20# per S.F. minimum live load and 100 mph sustained wind load or site specific conditions and the applicable zone for seismic loads.
2. All members shall be designed according to the "American Institute of Steel Construction (AISC) specifications and the American Iron and Steel Institute (AISI) specifications for cold-formed members.
3. All fabrication welds shall be in strict accordance with the structural welding code of the American Welding Society (AWS) specifications. All structural welds shall be in compliance with the requirements of "Pre-qualified" welded joints. All welding shall conform to ASTM A-233 series E-70XX electrodes - low hydrogen.  
*Field welding shall not be required.*
4. When required, after award of bid, the shade structure manufacturer shall submit structural calculations, sealed by a registered engineer in the state in which the structure is to be erected for review and approval by the approving agency.
5. Manufacturer qualifications: All manufacturers shall have a minimum of (20) twenty years experience in the fabrication of tubular steel shade structures. Shade structure and kiosk fabrication shall be the manufacturer's primary business. Manufacturer shall have fabricated similar structures to that which is specified. All non-specified manufacturers shall submit complete shop drawings indicating type, size & gauge of material used, with detailed connections to the specifying agency or design firm at least 10 days prior to bid opening for review and written pre-approval. All bids submitted without prior approval will be rejected.

### **FOOTINGS & COLUMNS:**

1. Footings shall be structurally engineered by the structure manufacturer to meet local codes and site conditions. (Sample footing drawings shall be made available to the contractor or owner from the manufacturer). When required for structure installation, anchor bolts shall be supplied by the owner / contractor. Columns shall be ASTM 500 grade B. Concrete footing rebar (if required) shall be ASTM A-615 grade 40 #4 bars & smaller, grade 60 #5 bars & larger. Concrete shall be 5 sack mix "Portland" cement. Maximum slump shall not exceed 4". Concrete compressive strength shall be a minimum of 2500 psi @ 28 days.



### **FRAME MEMBERS AND COMPRESSION RING:**

1. 90% American (domestic) made steel shall be used in the construction of this shelter. Mill certification shall be made available upon request. All frame members shall be one piece structural steel tube with a minimum .120 (1/8") wall thickness, sized according to engineering. All frame members shall be bolted together with bolts totally concealed. All tubing for frame members shall be ASTM 500 grade B. Beam end plates shall be ASTM A36 fy=36,000 psi UNO. Bolts shall be A 307's, or 325's unless noted otherwise. *"I" beams, Angle iron, "C", "Z" or "S" purlins or beams, open or closed, shall not be allowed.*

### **ROOFING:**

1. All roofing shall be 24 gauge Zincalume / Galvalume coated steel panels, ICBO #ER-2757. "HR-36" panels shall be 36" wide with 1½" high ribs @ 7.2". All roofing shall be pre-finished with PVF2 (Polyvinylidene Fluoride) Kynar 500 on the top side. All roof panels shall be pre-cut with ribs running with the slope of the roof. Roof fascia trim shall be 3 ½" square fascia trim 24 gauge Zincalume / Galvalume coated pre-finished matching the roof color. Screws & rivets shall match roof color. No exceptions taken for roof type or trim.

### **POWDER COATING:**

1. All frame members shall be media blasted to a white finish removing all rust, scale, oil and grease. Powder coating for all frame members shall be provisionally warranted for (5) five years with **TRUZINC** 7520-70138 primer with a Dry Film Thickness of (2.0 - 6.0 mils) & hardness of 2H-3H with a Salt Spray Resistance of **6000 hours** and **Super Durable Gloss Polyester 9000** series finish paint (2.5-3.5 mils) with a hardness of H-H2 & has **1000 hour** salt spray resistance. Total of primer & finish paint shall be 4.5-9.5 mils of paint. Finish shall be a smooth uniform surface with no pits, runs or sags. For additional information, please visit <http://www.tcipowder.com/> for a complete list of specifications.

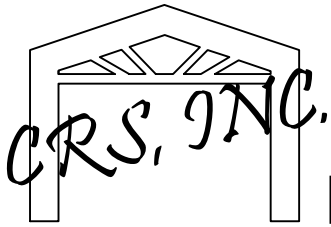
### **ERECTION:**

1. Manufacturer shall supply complete layout and detail plans with installation instructions for the structure. The structure shall be erected in a work-man-like manner with framing, roofing and trim installed according to the manufacturer's installation instructions. Care shall be taken to avoid damaging the structure during installation. Touch up powder coat paint with paint provided to prevent rusting. Components of the structure shall be covered and kept dry prior to erection.

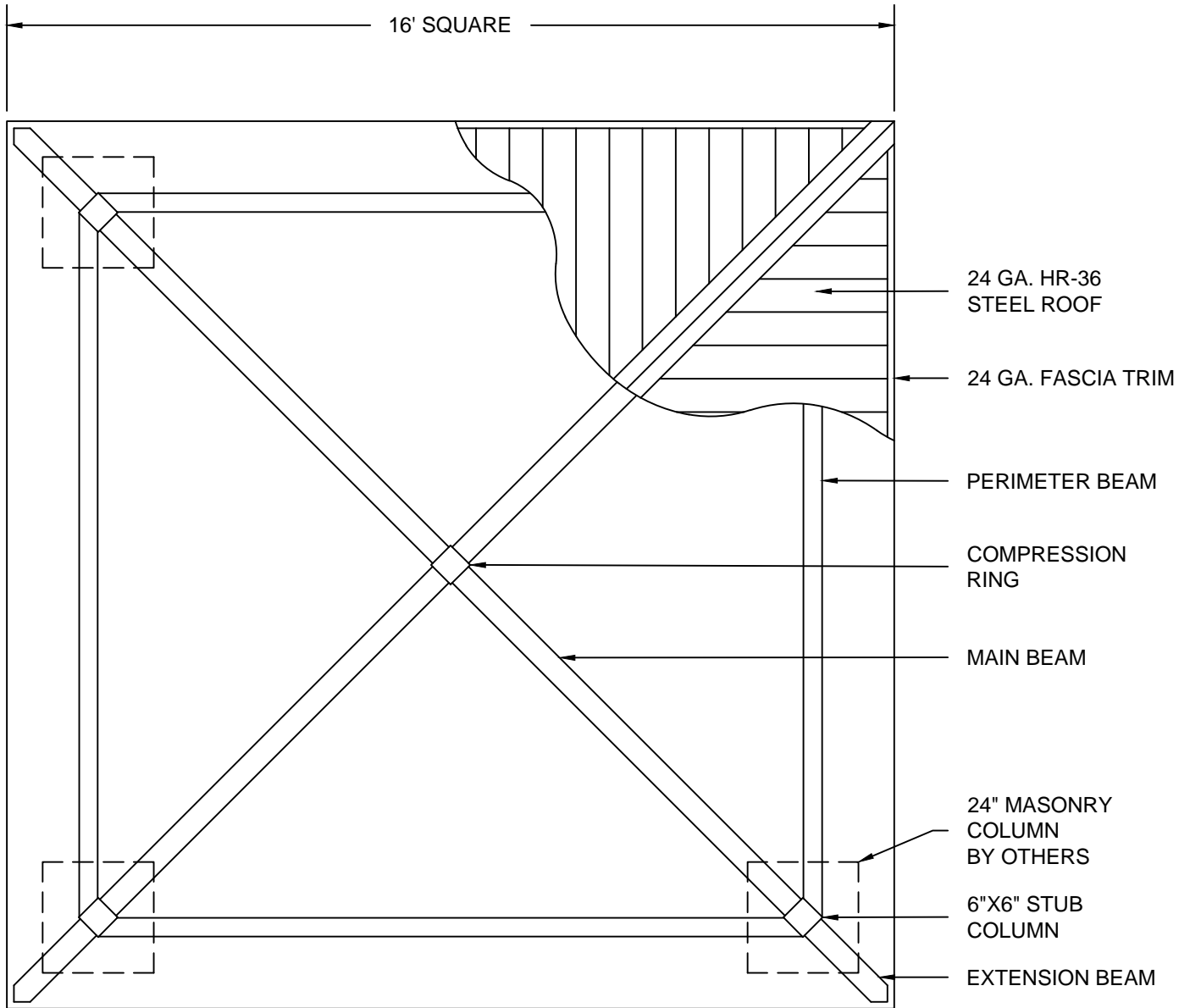
### **WARRANTEE:**

1. Manufacturer shall warranty the structure to be free from defects in material and workmanship for a period of (10) ten years from date of acceptance by owner. Warranty does not include damage from theft, fire, vandalism or acts of God. Manufacturer shall repair or replace structure components of like kind at his option, to match existing material and workmanship. Steel roof finish shall be warranted for (30) thirty years under a separate roof manufacturer's warranty. Powder coat paint shall be warranted for (5) five years after acceptance from owner against peeling, flaking and rusting. Warranty does not cover damage caused from shipping, erection of structure, lack of touchup and maintenance, overspray from lawn sprinklers or vandalism. Bolt threads are not powder coated and therefore are not covered under the powder coat warranty.

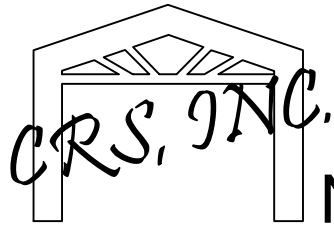
*NOTE: Engineering specifications take precedence over drawings if differences occur.*



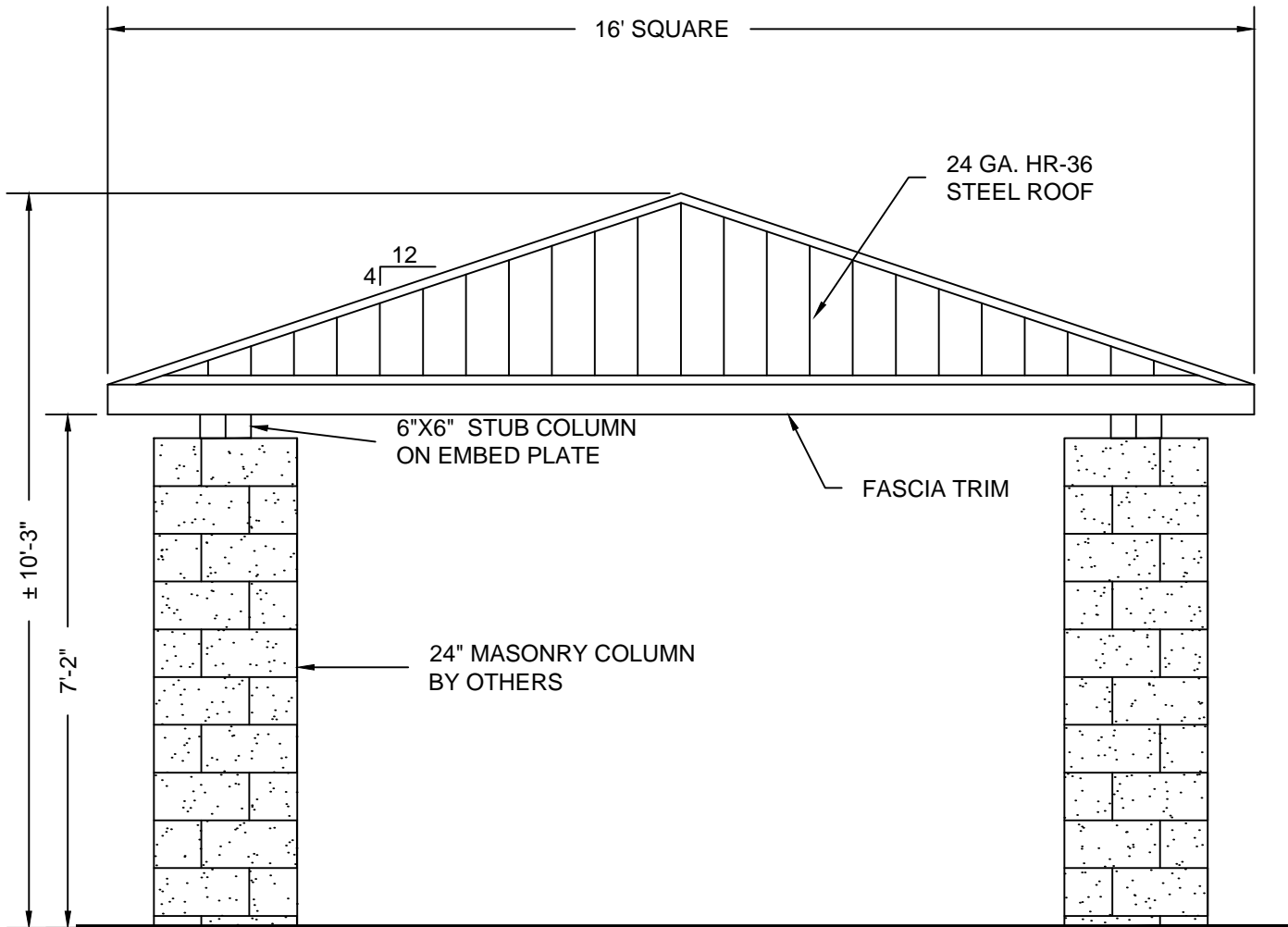
NOT FOR CONSTRUCTION



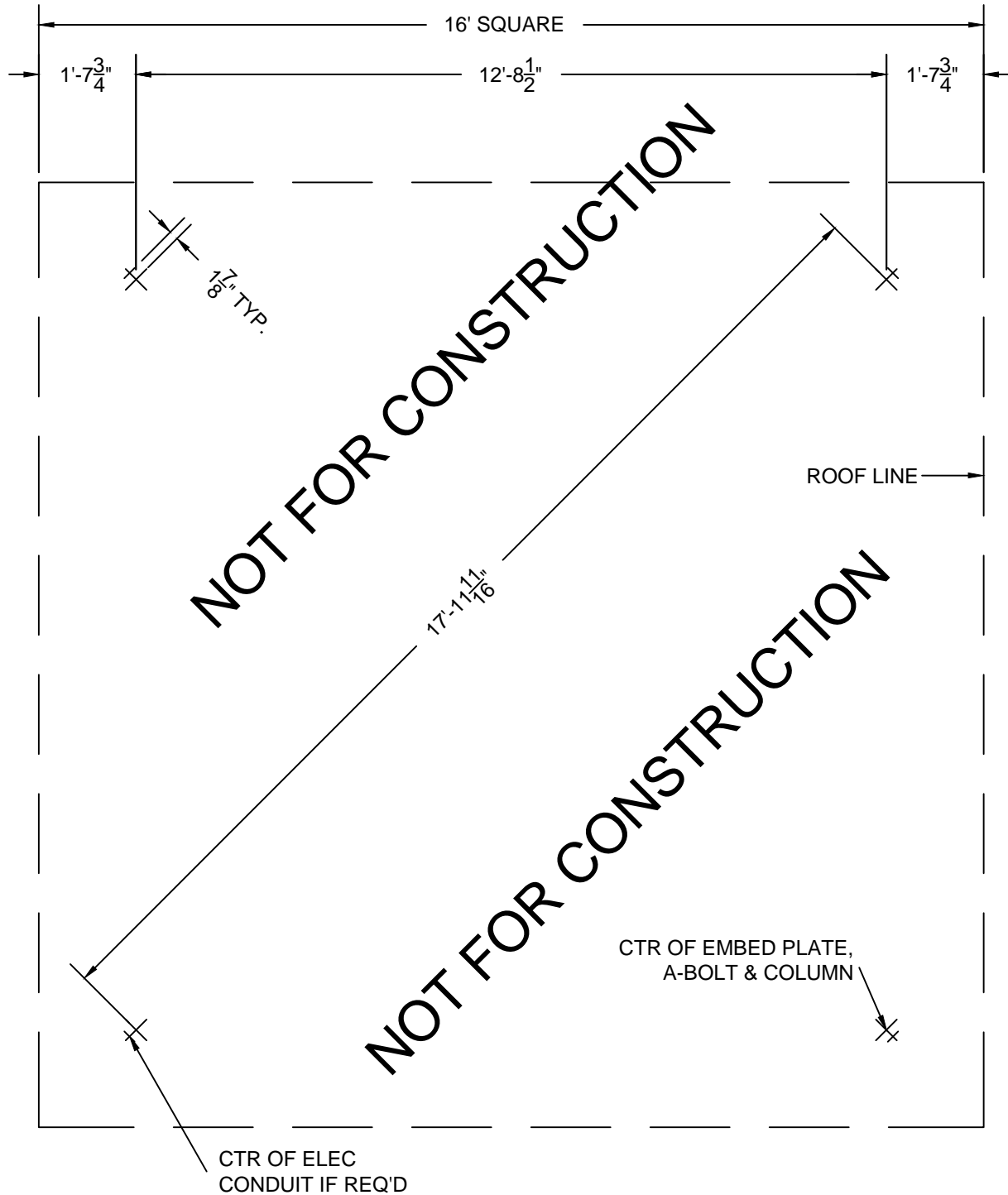
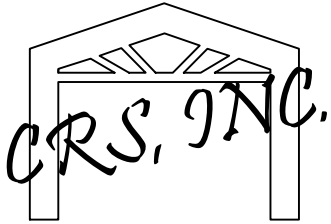
PLAN VIEW 16'X16' DENVER MODEL  
NTS



NOT FOR CONSTRUCTION



END ELEVATION 16'X16' DENVER MODEL  
NTS



LAYOUT PLAN 16'X16' DENVER MODEL  
NTS

**NOTE: FOR ILLUSTRATION ONLY!  
FOOTING SIZE MAY CHANGE w/  
STRUCTURAL ENGINEERING**

#3 TIES 16" OC  
TIGHT AGAINST V-BARS  
w/45° HOOKS TIE PER IBC

**ADJUST FTG DEPTH FOR  
LOCAL FROST CONDITIONS**

ELEC CONDUIT IF REQ'D

A-BOLT HOLE

(6) #4 V-BARS IN CELLS

6"X6" STUB-COLUMN

8"X8"X16" CMU

## EMBED PLATE

6"X6" STUB-COLUMN

## HEX NUT BY CONTRACTOR

### WASHER & BASE PLATE

## EMBED PLATE

## TIES MUST ENGAGE

## 4 A-BOLTS & 4 V-BARS

REMOVE CMU WEBBING  
AS REQ'D & GROUT SOLID

24"X24" MASONRY COLUMN  
(CMU: f' 1500 PSI)  
BY OTHERS

(6) #4 V-BARS @ CELLS  
GROUT SOLID w/2000 PSI GROUT  
(REBAR: 40,000PSI)

#3 TIES 16" OC  
(REBAR: 40,000 PSI)

FINISH GRADE  
4" SLAB

FINISH  
GRADE  
GROUND

2500 PSI CONCRETE  
BY CONTRACTOR

STUB ELEC CONDUIT  
PER LOCAL CODE  
SEE COL DTL PLAN  
FOR LOCATION IF REQ'D

(5) #4 REBAR  
EACH WAY  
TOP & BTM

**NON-EXPANSIVE,  
UNDISTURBED OR 95%  
COMPACTED SUBGRADE**

FOOTING & COLUMN DETAIL  
16'X16' DENVER MODEL<sub>NTS</sub>