

CHATSWORTH PRODUCTS, INC.

SEISMIC FRAME CABINET

DES. J. ROBERSON

JOB NO. 11-1131

DATE 6/18/12

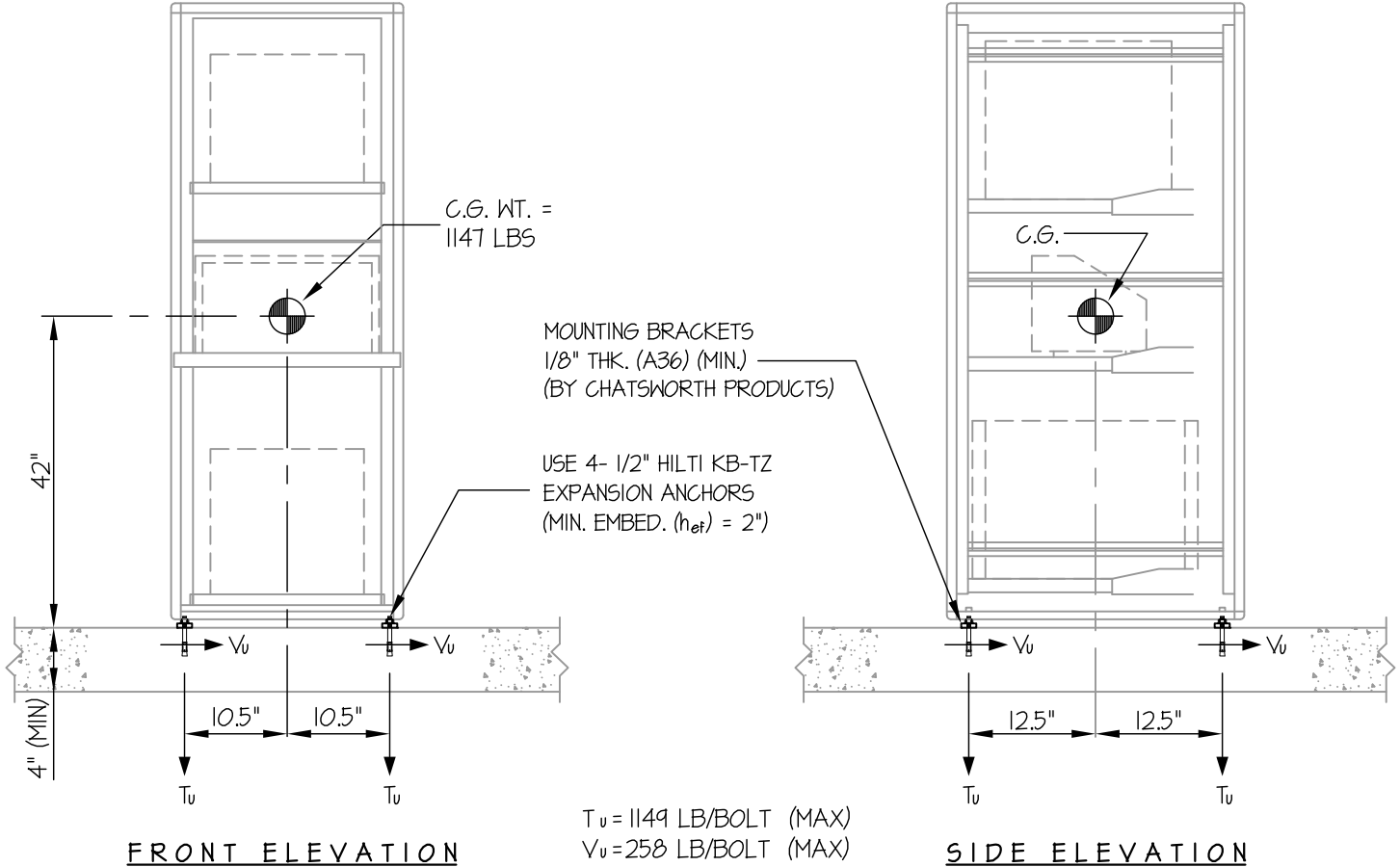
SHEET

1

OF **2** SHEETS

SEISMIC ANCHORAGE

CONCRETE SLAB



NOTES:

1. FORCES ARE DETERMINED PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05. STRENGTH DESIGN IS USED.

HORIZONTAL FORCE (E_h) = 0.90 W_p ($S_{Ds} = 2.00$, $a_p = 2.5$, $I_p = 1.5$, $R_p = 6.0$, $z/h = 0.0$)

VERTICAL FORCE (E_v) = 0.40 W_p

2. CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. THIS PRE-APPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE SUPPORT STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN.



CHATSWORTH PRODUCTS, INC.

SEISMIC FRAME CABINET

DES. J. ROBERSON

JOB NO. 11-1131

DATE 6/18/12

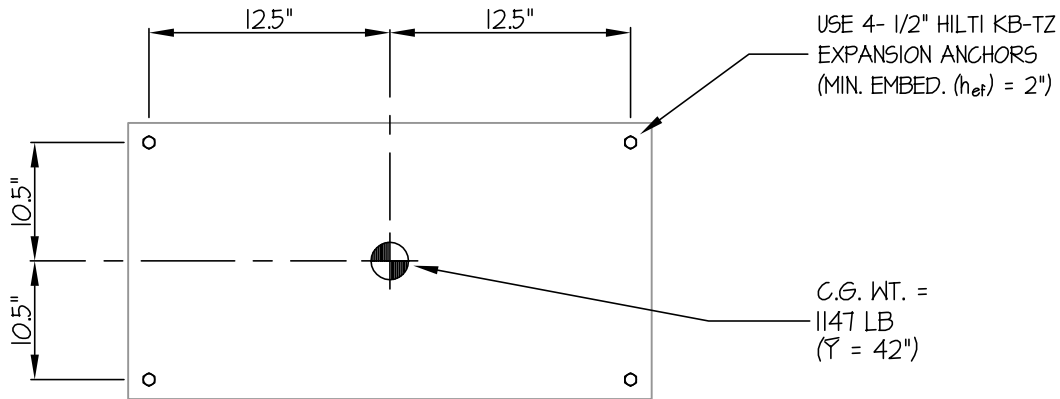
SHEET

2

OF **2** SHEETS

SEISMIC ANCHORAGE

CONCRETE SLAB



PLAN VIEW

LOADS: PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05.

(STRENGTH DESIGN IS USED) (S_{Ds} = 2.00, a_p = 2.5, I_p = 1.5, R_p = 6.0, z/h = 0.0)

WEIGHT = 1147 LB

HORIZONTAL FORCE (E_h) = 0.90W_p = 1032 LB

VERTICAL FORCE (E_v) = 0.40W_p = 459 LB

BOLT FORCES:

BOLT SPECS: 1/2"ϕ HILTI KB-TZ

ϕT = 0.75ϕN_n = 1172 LB/BOLT (TENSION)

ϕV = 0.75ϕV_n = 1262 LB/BOLT (SHEAR)

TENSION (T)

$$T_{U \text{ MAXIMUM}} = \left[\frac{1032\#(42")}{2\text{BOLTS}(25")} \times (0.3) \right] + \frac{1032\#(42")}{2\text{BOLTS}(21")} - \frac{1147\#(0.9) - 459\#}{4\text{BOLTS}} = 1149 \text{ LB/BOLT (MAX)}$$

(HORIZ - SIDE TO SIDE) (HORIZ - FRONT TO BACK) (WEIGHT (0.9) - E_v)

SHEAR (V)

$$V_{U \text{ MAXIMUM}} = \frac{1032\#}{4\text{BOLTS}} = 258 \text{ LB/BOLT (MAX)}$$

UNITY CHECK:

$$\left(\frac{T_U}{\phi T} \right) + \left(\frac{V_U}{\phi V} \right) \leq 1.2 \quad \left(\frac{1149}{1172} \right) + \left(\frac{258}{1262} \right) = 1.18 \leq 1.2 \quad \therefore \text{O.K.}$$

CHATSWORTH PRODUCTS, INC.

SEISMIC FRAME CABINET

DES. J. ROBERSON

JOB NO. 11-1131

DATE 6/18/12

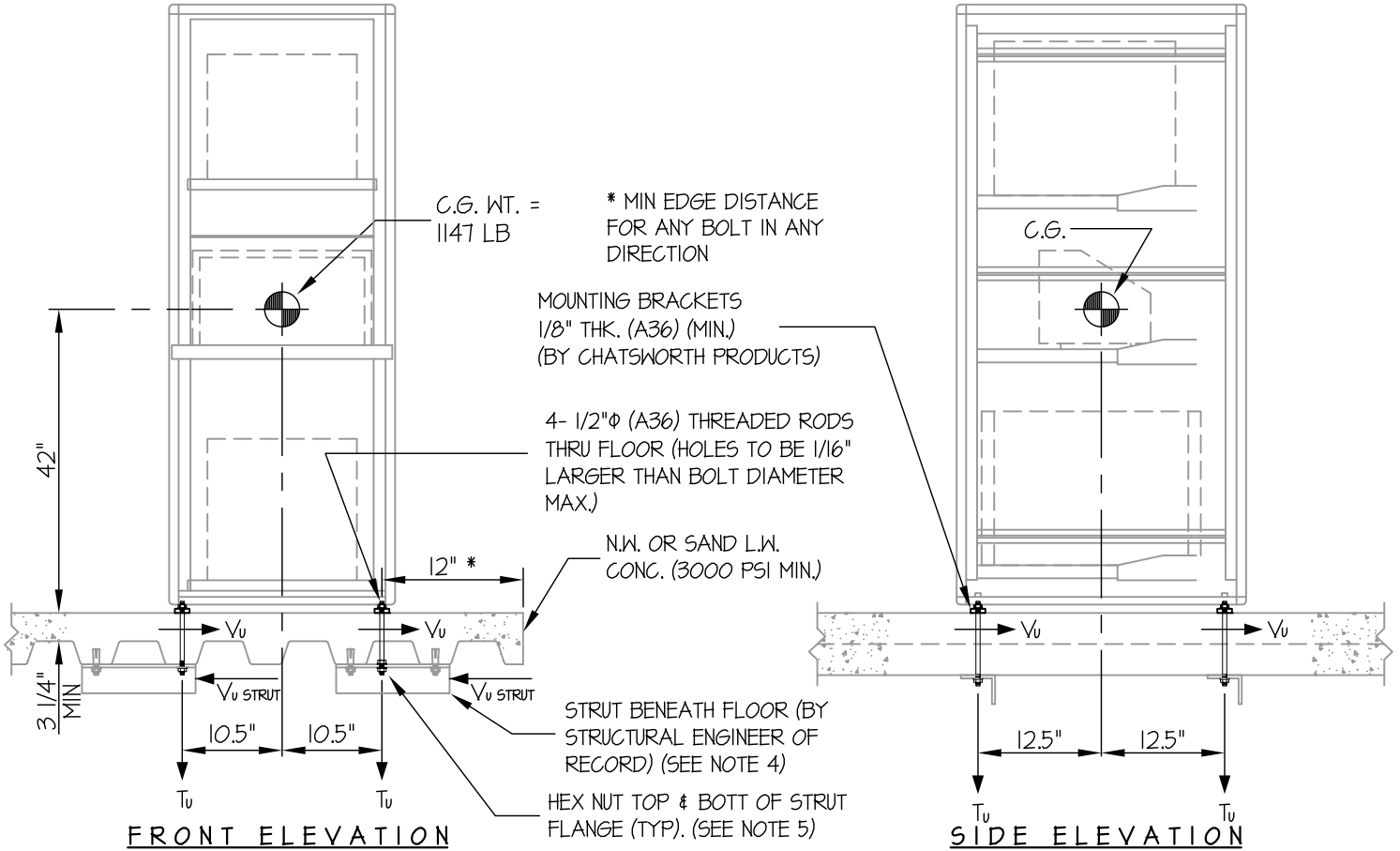
SHEET

1

OF **2** SHEETS

SEISMIC ANCHORAGE

CONCRETE SLAB ON METAL DECK



NOTES:

1. FORCES ARE DETERMINED PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05. STRENGTH DESIGN IS USED.

HORIZONTAL FORCE (E_h) = $1.50 W_p$ ($S_{Ds} = 2.00, a_p = 2.5, I_p = 1.5, R_p = 6.0, z/h \leq 1.0$)
 VERTICAL FORCE (E_v) = $0.40 W_p$

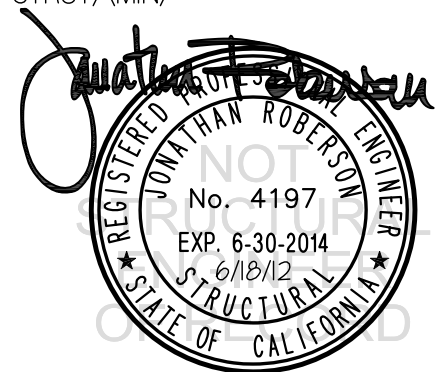
$T_u = 2011$ LB/BOLT (MAX)
 $V_u = 430$ LB/BOLT (MAX)

2. CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. THIS PRE-APPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN.

4. STRUCTURAL ENGINEER OF RECORD SHALL DESIGN THE STRUT(S) AND ITS ATTACHMENTS TO RESIST A LOAD NOT LESS THAN $V_{u \text{ STRUT}}$ IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT, WHERE $V_{u \text{ STRUT}} = 0.6V_{u \text{ MAX}} \times$ (NO. OF ANCHORS ENGAGED BY STRUT) (MIN)

5. AT CONDITIONS WHERE NUT CANNOT BE PROVIDED AT TOP SIDE OF STRUT, PROVIDE TAPPED HOLE THROUGH STRUT FLANGE.



CHATSWORTH PRODUCTS, INC.

SEISMIC FRAME CABINET

DES. J. ROBERSON

JOB NO. 11-1131

DATE 6/18/12

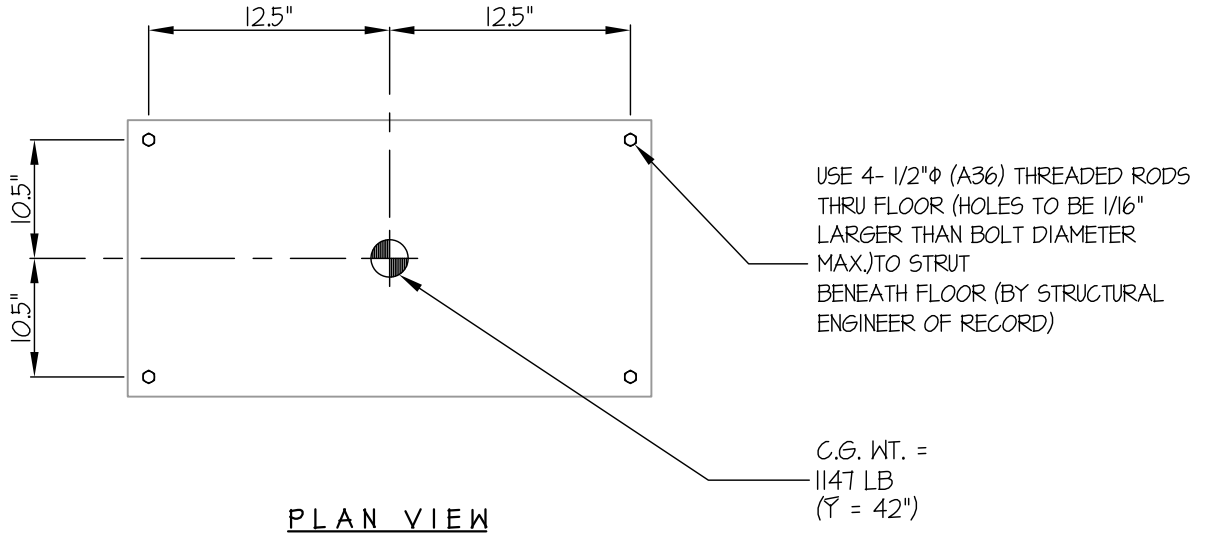
SHEET

2

OF **2** SHEETS

SEISMIC ANCHORAGE

CONCRETE SLAB ON METAL DECK



LOADS: PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05

(STRENGTH DESIGN IS USED) (S_{DS} = 2.00, a_p = 2.5, I_p = 1.5, R_p = 6.0, z/h ≤ 1.0)

WEIGHT = 1147 LB

HORIZONTAL FORCE (E_h) = 150W_p = 1721 LB

VERTICAL FORCE (E_v) = 0.40W_p = 459 LB

BOLT SPECS : 1/2"φ (A36) THREADED ROD

φT = 6610 LB/BOLT

φV = 3530 LB/BOLT

BOLT FORCES:

TENSION (T)

$$T_{U \text{ MAXIMUM}} = \left[\frac{1721\#(42'')}{2\text{BOLTS}(25'')} \times (0.3) \right] + \frac{1721\#(42'')}{2\text{BOLTS}(21'')} - \frac{1147\#(0.9) - 459\#}{4\text{BOLTS}} = 2011 \text{ LB/BOLT (MAX)}$$

(HORIZ. - SIDE TO SIDE) (HORIZ. - FRONT TO BACK) (WEIGHT (0.9) - E_v)

SHEAR (V)

$$V_{U \text{ MAXIMUM}} = \frac{1721\#}{4\text{BOLTS}} = 430 \text{ LB/BOLT (MAX) (PER AISC J3.7, LESS THAN 20% STRESS)}$$