EASE EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING
www.equipmentanchorage.com

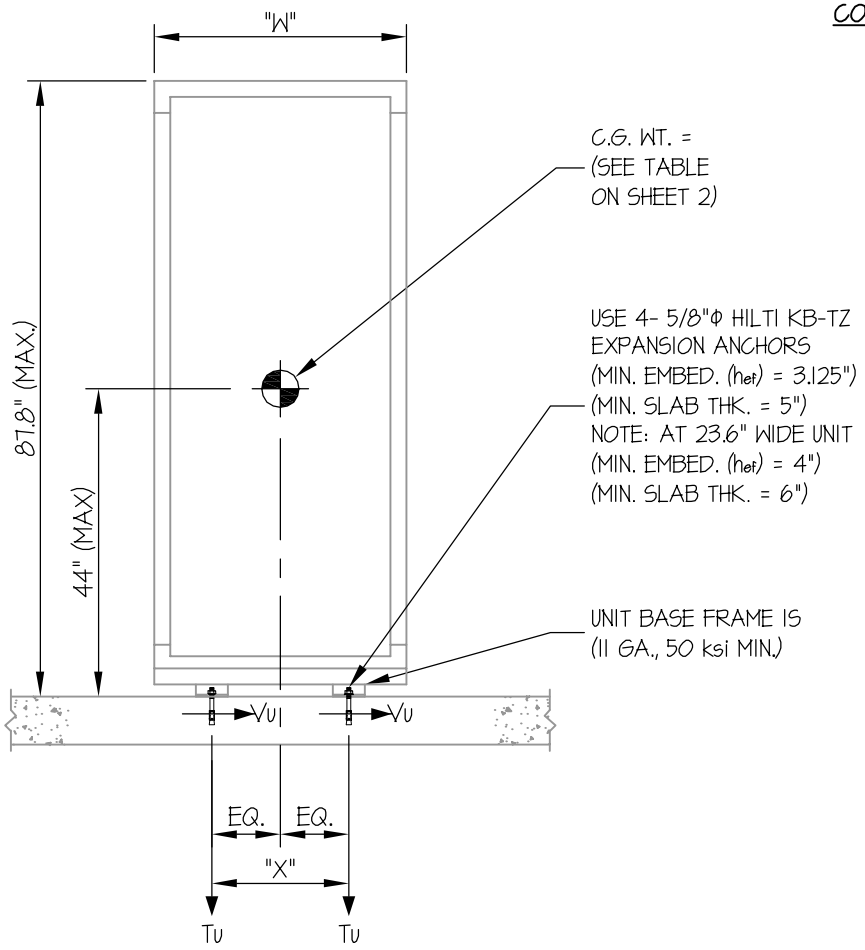
CHATSWORTH PRODUCTS, INC.

GLOBALFRAME CABINET

DES. J. ROBERSON
JOB NO. 11-1051
DATE 10/24/12

SHEET 1 OF 2 SHEETS

SEISMIC ANCHORAGE — CONCRETE SLAB



Tu = 2972 LB/BOLT (MAX)
Vu = 291 LB/BOLT (MAX)

FRONT ELEVATION

NOTES:

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

   HORIZONTAL FORCE (Eh) = 0.90 Wp (SDS = 2.00, ap = 1.0, Ip = 1.5, Rp = 2.5, z/h = 0.0)
   VERTICAL FORCE (Ev) = 0.40 Wp

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.

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2014
10/24/12
STRUCTURAL
STATE OF CALIFORNIA

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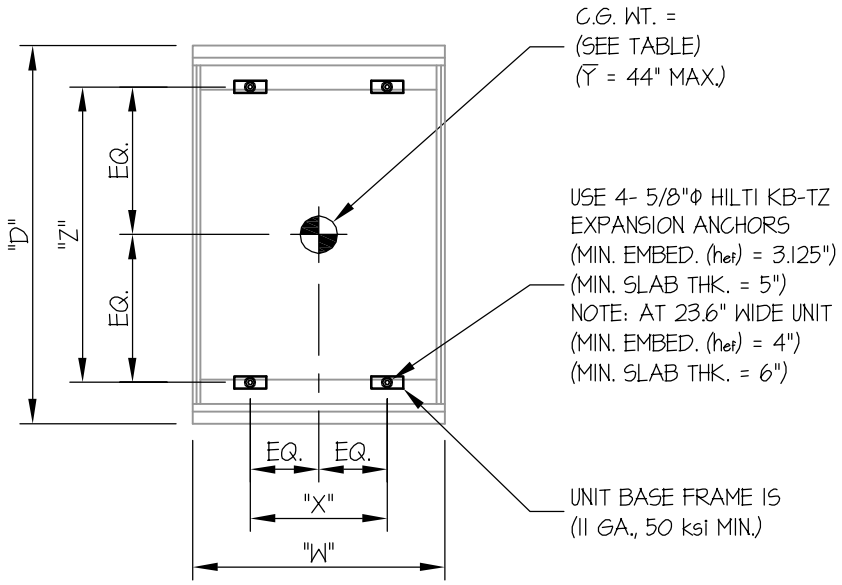

PLAN AT BASE

	WEIGHT (LBS.)	"W" (IN.)	"D" (IN.)	"X" (IN.)	"Z" (IN.)	T_{MAX} (LBS.)	V_{MAX} (LBS.)
*+	1292	23.6	31.5	9.23	21.2	2972	291
+	1317	23.6	39.4	9.23	29.1	2929	296
+	1324	23.6	41.3	9.23	31.0	2928	298
+	1343	23.6	47.2	9.23	36.9	2929	302
	1325	29.5	31.5	15.14	21.2	1938	298
	1352	29.5	39.4	15.14	29.1	1875	304
	1358	29.5	41.3	15.14	31.0	1866	306
	1378	29.5	47.2	15.14	36.9	1852	310
	1340	31.5	31.5	17.11	21.2	1759	302
	1366	31.5	39.4	17.11	29.1	1689	307
	1373	31.5	41.3	17.11	31.0	1680	309
	1459	31.5	47.2	17.11	36.9	1741	328

+ FOR 23.6" WIDE UNIT (MIN. EMBED. (h_{ef}) = 4") (MIN. SLAB THK. = 6")

* THIS UNIT IS USED IN CALCULATION BELOW.

LOADS:

WEIGHT = 1292 LB
HORIZONTAL FORCE (E_h) = $0.90W_p$ = 1163 LB
VERTICAL FORCE (E_v) = $0.40W_p$ = 517 LB

BOLT SPEC: 5/8"ø HILTI KB-TZ (3.125" h_{ef})
$\phi T = 0.75\phi Nn$ = 2485 LB/BOLT (TENSION)
$\phi V = 0.75\phi Vn$ = 4940 LB/BOLT (SHEAR)

+ BOLT SPEC: 5/8"ø HILTI KB-TZ (4" h_{ef})
$\phi T = 0.75\phi Nn$ = 3178 LB/BOLT (TENSION)
$\phi V = 0.75\phi Vn$ = 4940 LB/BOLT (SHEAR)

BOLT FORCES:

TENSION (T)

$$T_{u\ MAXIMUM} = \left[\frac{1163\#(44'')}{2\ BOLTS\ (21.2'')} \times (0.3)\right] + \frac{1163\#(44'')}{2\ BOLTS\ (9.23'')} - \frac{0.9(1292\#) - 517\#}{4\ BOLTS} = 2972\ LB/BOLT\ (MAX)$$

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

SHEAR (V)

$$V_{u\ MAXIMUM} = \frac{1163\#}{2\ BOLTS} = 291\ LB/BOLT\ (MAX)$$

UNITY CHECK:

$$\left(\frac{T_u}{\phi T}\right) + \left(\frac{V_u}{\phi V}\right) \leq 1.2 \quad \left(\frac{2972}{3178}\right) + \left(\frac{291}{4940}\right) = 0.99 \leq 1.2 \quad \therefore \text{ O.K.}$$

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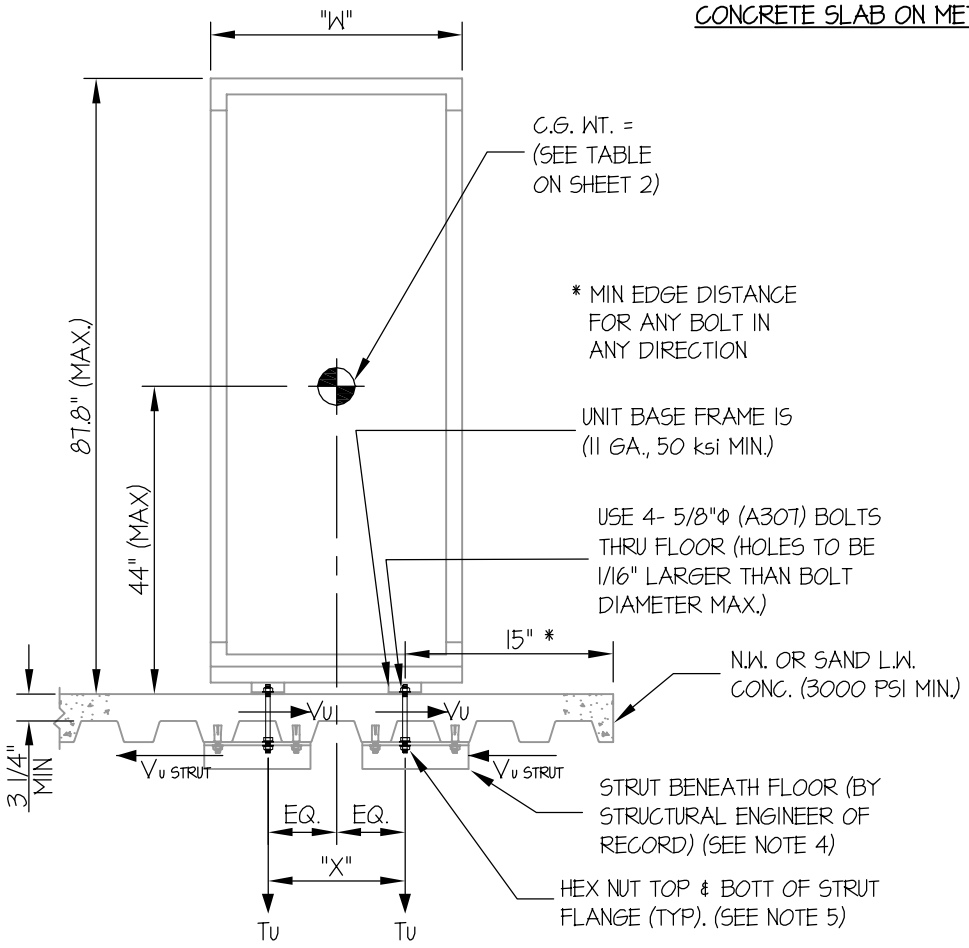
SEISMIC ANCHORAGE — CONCRETE SLAB ON METAL DECK



Tu = 4852 LB/BOLT (MAX)
Vu = 465 LB/BOLT (MAX)

FRONT ELEVATION

NOTES:

1. FORCES ARE DETERMINED PER 2010 CALIFORNIA BUILDING CODE AND ASCE 7-05 STRENGTH DESIGN IS USED.
   HORIZONTAL FORCE (Eh) = 1.44 Wp (S_{DS} = 2.00, a_p = 1.0, I_p = 1.5, R_p = 2.5, $z/h \leq 1.0$)
   VERTICAL FORCE (Ev) = 0.40 Wp
2. CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. 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 $V_{u\,STRUT}$ IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT, WHERE $V_{u\,STRUT} = 0.6V_u$ X (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.

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SEISMIC ANCHORAGE

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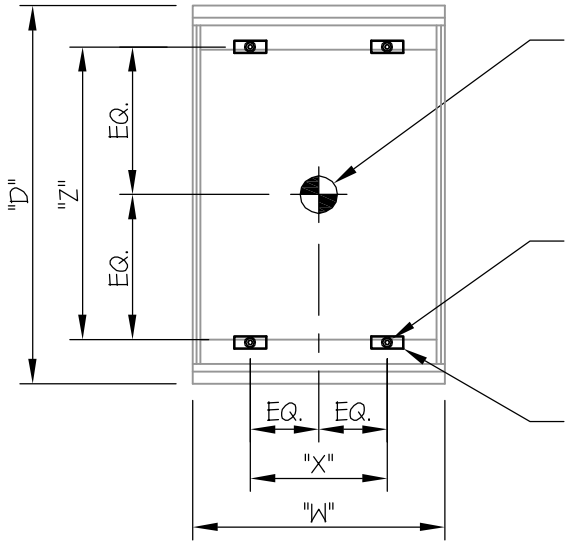

PLAN AT BASE

	WEIGHT (LB.)	"W" (IN.)	"D" (IN.)	"X" (IN.)	"Z" (IN.)	Tu (LB.)	Vu (LB.)
*	1292	23.6	31.5	9.23	21.2	4852	465
	1317	23.6	39.4	9.23	29.1	4786	474
	1324	23.6	41.3	9.23	31.0	4785	477
	1343	23.6	47.2	9.23	36.9	4788	483
	1325	29.5	31.5	15.14	21.2	3201	477
	1352	29.5	39.4	15.14	29.1	3102	487
	1358	29.5	41.3	15.14	31.0	3088	489
	1378	29.5	47.2	15.14	36.9	3066	496
	1340	31.5	31.5	17.11	21.2	2914	482
	1366	31.5	39.4	17.11	29.1	2805	492
	1373	31.5	41.3	17.11	31.0	2791	494
	1459	31.5	47.2	17.11	36.9	2895	525

* THIS UNIT IS USED IN CALCULATION BELOW.

LOADS:

WEIGHT = 1292 LB
HORIZONTAL FORCE (E_h) = 1.44W_p = 1860 LB
VERTICAL FORCE (E_v) = 0.40W_p = 517 LB

BOLT SPEC: 5/8"ø (A36) THREADED ROD
ϕT = 10,360 LB/BOLT
ϕV = 5520 LB/BOLT

BOLT FORCES:

TENSION (T)

$$T_{u\ MAXIMUM} = \left[\frac{1860\#(44")}{2\ BOLTS\ (21.2")} \times (0.3)\right] + \frac{1860\#(44")}{2\ BOLTS\ (9.23")} - \frac{0.9(1292\#) - 517\#}{4\ BOLTS} = 4852\ LB/BOLT\ (MAX)$$

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

SHEAR (V) (ASSUMES HALF THE NUMBER OF BOLTS)

$$V_{u\ MAXIMUM} = \frac{1860\#}{4\ BOLTS} = 465\ LB/BOLT\ (MAX)$$ (PER AISC J3.7, LESS THAN 20% STRESS)