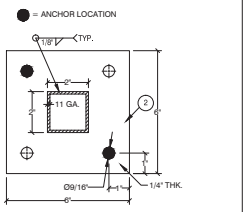
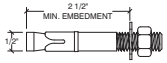
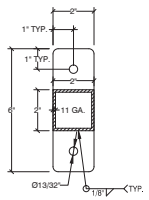


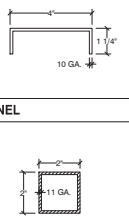
2 BASE PLATE



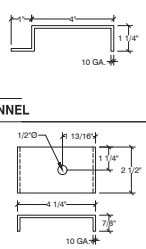
3 ANCHOR



4 BRACE

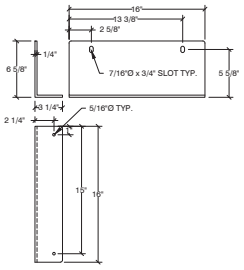


6A CHANNEL

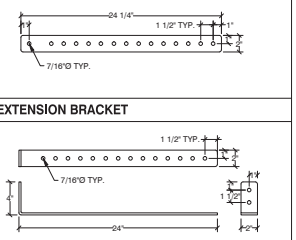


6C CHANNEL

6B CHANNEL

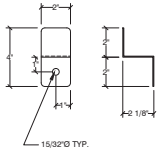


7 SEISMIC BRACKET (UPPER UNIT)

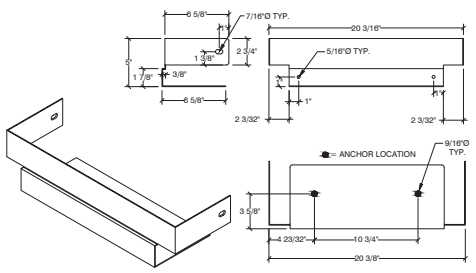


8 WALL MOUNTED BRACKET

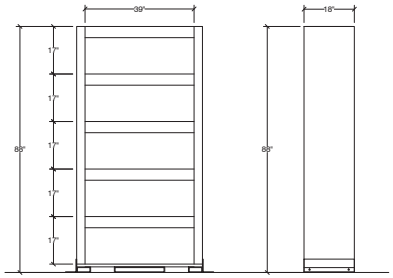
9 EXTENSION BRACKET



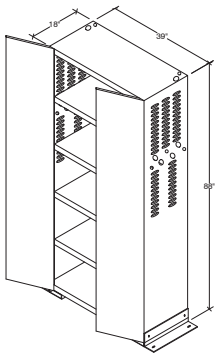
10 BRACKET



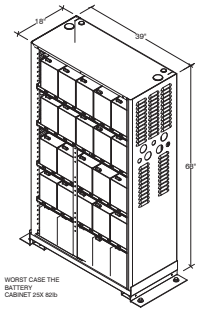
11 SEISMIC BRACKET (LOWER UNIT)

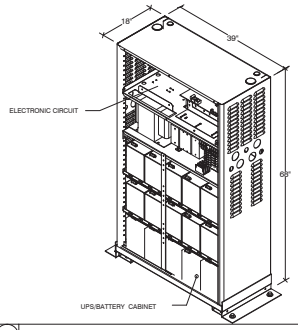


**NOTE: ANALSIS ON 88" TALL MOST CRITICAL

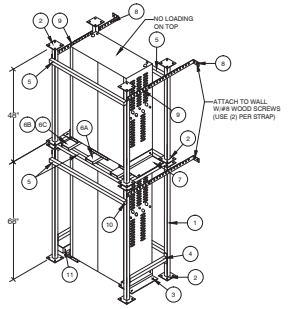


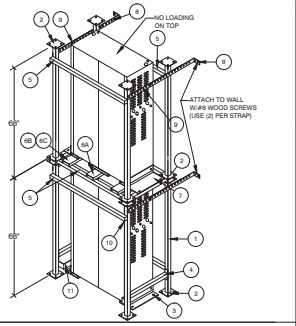
CABINET ELEVATIONS





TYP. LOADING PROFILE (BATTERY)





CABINET ELEVATIONS (STACKED UNITS)

LOADS & DISTRIBUTION: CABINET

ANALYSIS BASED ON SECTION 13.3 OF THE ASCE 7-10 SPECIFICATION
REFERENCED IN CHAPTER 16 OF THE 2012 IBC/2013 CBC/2014 LABC

Fp (13.3-1)= 0.4 x ap x S_{DS} x Wp/ [Rp/ Ip]	0.235 x Wp	
Fp (13.3-2)= 1.6 x S_{DS} x Ip x Wp	2.352 x Wp	SHALL NOT BE GREATER THAN
Fp (13.3-3)= 0.3 x S_{DS} x Ip x Wp	0.441 x Wp	SHALL NOT BE LESS THAN

SITE CLASS = D
Fa = **1**
Ss = **2.2**
S_{DS} = 1.47
Ip = 1.00
Rp = 2.5 ASCE 7-10 Table 13.5-1
ap = 1 ASCE 7-10 Table 13.5-1
wDL = 20 LB PER LEVEL
wLL = 410 LB PER LEVEL

Wp = wDL + wLL
# OF SHELF LEVEL = 5

0.7Fp = 0.7 x 0.441 x Wp
= 0.31 x [20 + 410] LB
= 133 LB

SEISMIC DISTRIBUTION:

LEVEL	h	WEIGHT	HEIGHT	Fi	Mot
	IN	LB	IN	LB	IN-LB
1	3.0	430	3.0	133	398
2	17.0	430	20.0	133	2655
3	17.0	430	37.0	133	4911
4	17.0	430	54.0	133	7168
5	17.0	430	71.0	133	9425
Σ =	71 IN	2150 LB		664 LB	24,557 IN-LB

OVERTURNING ANALYSIS: CABINET

ANCHORS SPACING, D = 14 IN
TOP LEVEL HEIGHT = 71 IN

FULLY LOADED:
Total Shear= 664 LB
Mot = Σ(Fi*hi)
= 24,557 IN-LB
Mst = Σ(wDL + wLL)*D/2
= (100 LB + 2050 LB)*14 IN/2
= 15,050 IN-LB
Puplift = (Mot - 0.6*Mst)/D
= (24557- 0.6*15050)/14
= 1109 LB <= UPLIFT

TOP SHELF LOADED ONLY:
Shear = 133 LB
Mot = Vtop * ht
= 133 LB * 71 IN
= 9,425 IN-LB
Mst = Σ(wDL + wLL)*D/2
= (100 LB + 410 LB)*14 IN/2
= 3,570 IN-LB
Puplift = (Mot - 0.6*Mst)/D
= (9425 - 0.6*3570)/14
= 520 LB <= UPLIFT

ANCHORS
ALLOWABLE CAPACITY PER ICC REPORT AND ACI APPENDIX-D
PULLOUT : 830 LB $T_{allowable,\ ASD}$
SHEAR : 900 LB $V_{allowable,\ ASD}$

COMBINED STRESS1 = (1109 LB/1660 LB) + (664 LB/3600 LB)
= 0.85 < 1.2 OK

COMBINED STRESS2 = (520 LB/1660 LB) + (133 LB/3600 LB)
= 0.35 < 1.2 OK

USE 1/2"Ø x 2 -1/2"MIN. EMBED. HILTI KB-TZ, ICC ESR-1917 (LARR #25701) OR APPROVED EQUAL
(4) TOTAL PER CABINET, (2) PER SEISMIC BRACKET

NOTES:
1. DESIGNED PER THE 2012 IBC / 2013 CBC / 2014 LABC,
Fa = 1.0 & Ss = 2.2
2. STORAGE CAPACITY: **410#** PER LEVEL
3. ANCHORS: HILTI KWIK BOLT TZ, ICC **#ESR-1917**, LARR **#25701**
4. CONCRETE: **5"** THICK x **2,500** PSI.
5. SOIL BEARING PRESSURE: **500** PSF. (MIN. REQD).
6. EVALUATION BASED ON NORTHRIDGE LOCATION
(ONE OF THE HIGHEST LA FAULT AREA)
WITH THE FOLLOWING CALCULATION AS A TYPICAL EXAMPLE.
(ASSUMED GROUND FLOOR INSTALLATION)

POWER COMPANY
20000 TAPE AVE
NORTHRIDGE, CA 91324

ADDRESS:

REV.	DATE	BY	DESCRIPTION

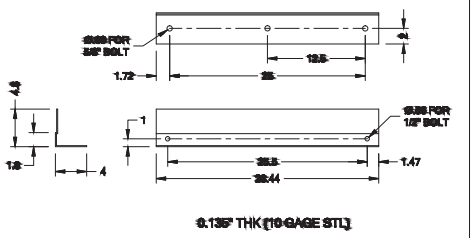
SEIZMIC
EST. 1985
SEIZMIC ENGINEERING, INC.
161 Atlantic Street
Pomona, California 91768
Tel.(909)869-0989
Fax (909)869-0981

DRAWN BY:	M.V. / T.C.
DATE:	01/13/16
LAST REV. BY:	
REV. DATE:	
TYPE:	OL
SCALE:	N.T.S.
APRVD BY:	SAL E. FATEEN

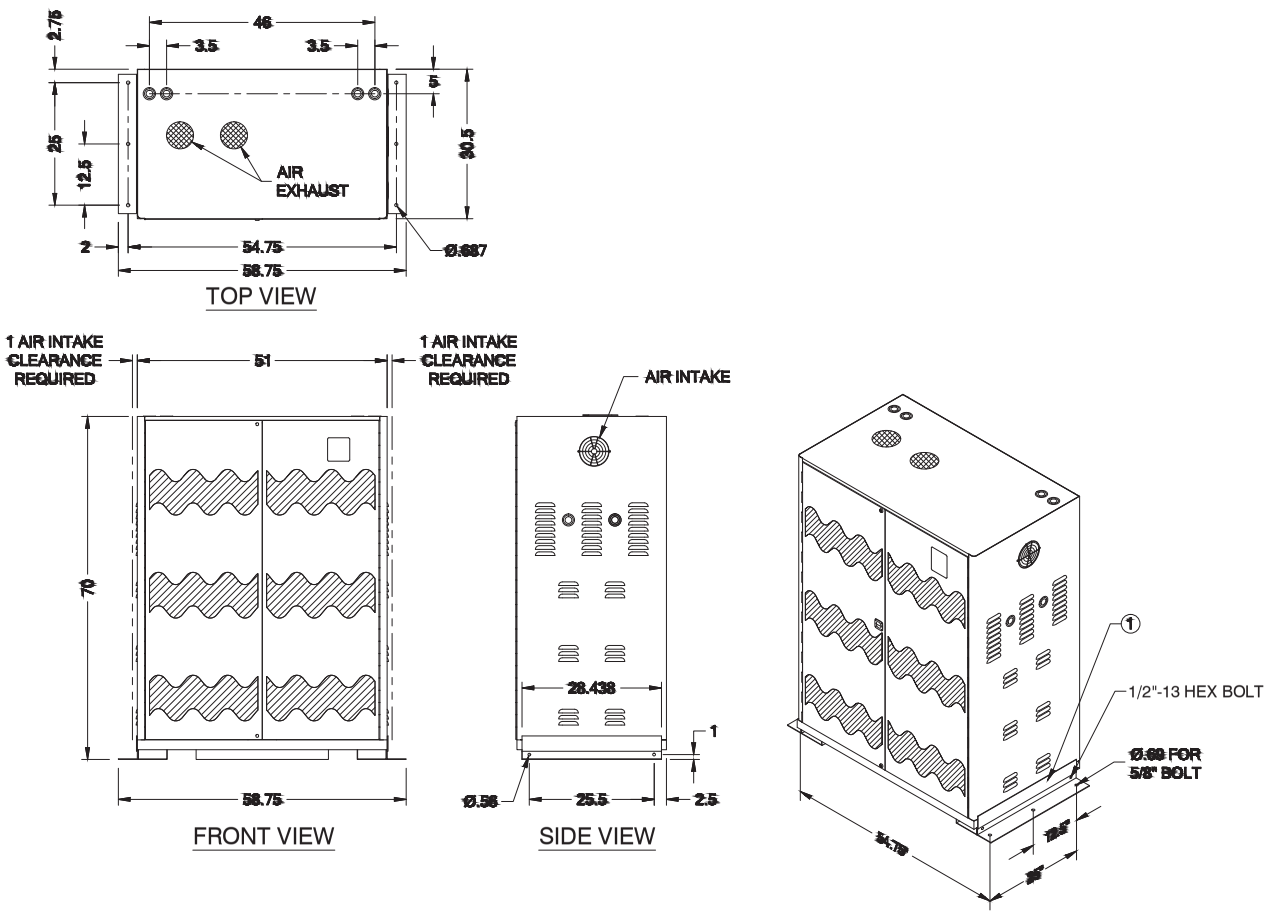
REGISTERED PROFESSIONAL ENGINEER SAL E. FATEEN No. 25969 CIVIL STATE OF CALIFORNIA
EXPIRES 12-31-2017

DESCRIPTION:
CABINET DETAIL

DRAWING NUMBER:
15-2197-A



1 ANCHOR BRACKET DETAIL



CABINET ELEVATIONS

NOTES:

1. DESIGNED PER THE 2012 IBC / 2013 CBC / 2014 LABC,
   Fa = 1.0 & Ss = 2.2
2. STORAGE CAPACITY: **4,640#** MAX. WEIGHT.
3. ANCHORS: HILTI KWIK BOLT TZ, ICC **#ESR-1917**, LARR **#25701**
4. CONCRETE: **5"** THICK x **2,500** PSI.
5. SOIL BEARING PRESSURE: **500** PSF. (MIN. REQ'D).
6. EVALUATION BASED ON NORTHRIDGE LOCATION
   (ONE OF THE HIGHEST LA FAULT AREA)
   WITH THE FOLLOWING CALCULATION AS A TYPICAL EXAMPLE.
   (ASSUMED GROUND FLOOR INSTALLATION)

LOADS & DISTRIBUTION: CABINET

ANALYSIS BASED ON SECTION 13.3 OF THE ASCE 7-10 SPECIFICATION
REFERENCED IN CHAPTER 16 OF THE 2012 IBC/2013 CBC/2014 LABC

Fp (13.3-1)= 0.4 x ap x S_{DS} x Wp/ [Rp/ Ip]	0.235 x Wp	
Fp (13.3-2)= 1.6 x S_{DS} x Ip x Wp	2.352 x Wp	SHALL NOT BE GREATER THAN
Fp (13.3-3)= 0.3 x S_{DS} x Ip x Wp	0.441 x Wp	SHALL NOT BE LESS THAN

SITE CLASS = D
Fa = **1**
Ss = **2.2**
S_{DS} = 1.47
Ip = 1.00
Rp = 2.5 ASCE 7-10 Table 13.5-1
ap = 1 ASCE 7-10 Table 13.5-1

Wp = **4640 LB**

0.7Fp = 0.7*0.441*Wp
= 0.31*4640 LB
= 1,432 LB

OVERTURNING ANALYSIS:

CABINET HEIGHT, Ht = 70.0 IN
ANCHORS SPACING, D = 25.0 IN

Mot = Vtotal*(1/2 Ht)
= 1432 LB * 70 IN * 1/2
= 50,133 IN-LB

Mst = Wp*D/2
= 4640 LB * 25 IN/2
= 58,000 IN-LB

Puplift = (Mot - 0.6*Mst)/D
= (50133 IN-LB - 0.6 * 58000 IN-LB)/25 IN
= 613 LB <= UPLIFT

ANCHORS
ALLOWABLE CAPACITY PER ICC REPORT AND ACI APPENDIX-D
PULLOUT : 1630 LB $T_{allowable, ASD}$
SHEAR : 3520 LB $V_{allowable, ASD}$

COMBINED STRESS = (613 LB/4890 LB) + (1432 LB/21120 LB)
= 0.19 < 1.2 OK

USE 5/8"Ø x 4"MIN. EMBED. HILTI KB-TZ, ICC ESR-1917 (LARR #25701) OR APPROVED EQUAL
(6) TOTAL PER CABINET, (3) PER SEISMIC BRACKET

ADDRESS:
POWER COMPANY
9301 TAMPA AVE.
NORTHRIDGE, CA 91324

REV.	DATE	BY	DESCRIPTION
△			
△			
△			
△			
△			

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CIVIL
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12-31-2017

DESCRIPTION:
CABINET DETAIL

DRAWING NUMBER:
15-2197-B