APPLICATION FOR OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY
APPLICATION #: OPM-0200-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal ☐ Update to Pre-CBC 2013 OPA Number: _____

Manufacturer Information

Manufacturer: Pentair Equipment Protection

Manufacturer's Technical Representative: Nate Westby

Mailing Address: 2100 Hoffman Way, Anoka, MN. 55303

Telephone: (763) 422-2660 Email: Nate.westby@pentair.com

Product Information

Product Name: Cabinet Rack

Product Type: Communication Equipment

Product Model Number: ENC2178S, ENC2189S, ENC21710S, ENC21712S

General Description: Hoffman Pentair Cabinet Closed frame LAN rack is designed to hold electronic equipment in communication data centers and telecommunication rooms.

Applicant Information

Applicant Company Name: **EASE Co.**

Contact Person: Jonathan Roberson, S.E.

Mailing Address: 5877 Pine Ave. Suite 210, Chino Hills, CA. 91709

Telephone: (909) 606-7622 Email: J.Roberson@EASECo.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: _____ Date: 3/12/15

Title: Principal Engineer Company Name: **EASE Co.**

Registered Design Professional Preparing Engineering Recommendations

Company Name: EASE Co.

Name: Jonathan Roberson, S.E. California License Number: S4197

Mailing Address: 5877 Pine Ave. Suite 210, Chino Hills, CA. 91709

Telephone: 909-606-7667 Email: J.Roberson@EASECo.com

OSHPD Special Seismic Certification Preapproval (OSP)

☐ Special Seismic Certification is preapproved under OSP-
(Separate application for OSP is required)

☒ Special Seismic Certification is not preapproved

Certification Method(s)

☐ Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950-10

☐ Other* (Please Specify):

*Use of test criteria other than those adopted by the California Building Standards Code, 2013 (CBSC 2013) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2013 may be used when approved by OSHPD prior to testing.

☒ Analysis

☐ Experience Data

☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify):

List of Attachments Supporting the Manufacturer's Certification

☐ Test Report ☒ Drawings ☒ Calculations ☐ Manufacturer's Catalog

☐ Other(s) (Please Specify):

OFFICE USE ONLY – OSHPD APPROVAL VALID FOR CBC 2013 ONLY

Signature: Date: 07/08/2015

Print Name: Jeffrey Kikumoto

Title: SSE

Condition of Approval (if applicable):

EASE
EQUIPMENT ANCHORAGE
& SEISMIC ENGINEERING

5877 Pine Ave, Ste. 210
Chino Hills, CA. 91709
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Office of Statewide Health Planning and Development

PREAPPROVAL OF MANUFACTURER'S CERTIFICATION

OPM-0200-13

THIS PREAPPROVAL CONFORMS TO THE 2013 CALIFORNIA BUILDING CODE

MANUFACTURER: **PENTAIR**

EQUIPMENT NAME: **CABINET**

Date: 7/7/15

GENERAL NOTES

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2013 CBC. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2013 CBC
2. THIS DOCUMENT MAY ONLY BE USED WITH THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER LISTED ABOVE FOR THE SPECIFIC PROJECT SITE AND INSTALLATION LOCATION. THIS DOCUMENT IS INVALID WITHOUT SUCH CONSENT.
3. THIS PREAPPROVAL CONFORMS TO THE 2013 CALIFORNIA BUILDING CODE WHERE S_{DS} IS NOT GREATER THAN 1.35, 1.90 & 2.20: SEE DETAILS FOR APPLICABILITY.
4. FORCES PER ASCE 7-10 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3,
   WHERE S_{DS} = 1.35, a_p = 2.5, I_p = 1.5, R_p = 6.0, z/h = 0 AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR Ω_o
   WHERE S_{DS} = 1.90, a_p = 2.5, I_p = 1.5, R_p = 6.0, z/h = 0 AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR Ω_o
   WHERE S_{DS} = 2.20, a_p = 2.5, I_p = 1.5, R_p = 6.0, z/h $\leq$ 1 AT CONCRETE SLAB ON METAL DECK. SEE FOLLOWING SHEETS FOR Ω_o
5. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
6. ALL DESIGN FORCES SHOWN ON THE DRAWINGS ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.
7. CONCRETE SLAB ON METAL DECK DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION IN THE BUILDING. (i.e. z/h $\leq$ 1)
8. CONCRETE SLAB ON GRADE DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION BELOW GRADE. (i.e. z/h = 0)
9. **RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING**
   A. PROVIDE SUPPORTING STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
   B. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2013 CBC AND WITH THE DETAILS, MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PREAPPROVAL DOCUMENTS.
   C. VERIFY THAT PROJECT SPECIFIC VALUES OF S_{DS} & z/h RESULT IN SEISMIC FORCES (E_h, E_v) THAT DO NOT EXCEED THE VALUES ON THE DETAILS.
   D. VERIFY THAT THE CONCRETE SLAB TO WHICH THE EQUIPMENT IS ANCHORED MEETS THE REQUIREMENTS OF THE APPLICABLE ICC ESR.
   E. VERIFY THAT THE ANCHORS ARE AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPENINGS (SEE TYPICAL DETAIL ON SHEET 2).
   F. VERIFY THAT ALL NEW OR EXISTING ANCHORS ARE AN ADEQUATE DISTANCE FROM THE UNIT ATTACHMENTS AND CHECK FOR INTERACTION WHERE OTHER ANCHORS ARE WITHIN 18" OR 6hef FROM THIS UNIT'S ANCHORS.
   G. EQUIPMENT MANUFACTURER MUST DESIGN UNIT TO MAKE C.G. <= THAN THE C.G. HEIGHT DIMENSION SHOWN ON DRAWINGS.
   H. ALL HOLES THRU STEEL FOR BOLTS SHALL BE STANDARD HOLE SIZE PER ANSI/AISC 360-10 TABLE J3.3.

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10. **EXPANSION ANCHORS:**

A. ATTACHMENT IS TO BE MADE WITH THE ANCHORS LISTED BELOW AND INSTALLED AS DESCRIBED IN THE CORRESPONDING ICC REPORT.

Anchor Diameter	Concrete Type	Min. f'c (psi)	Anchor Type	ICC Report No.	Min. Embed.	Min. Spacing	Min. Edge Dist.	Min. Conc. Thickness	Torque Test	Direct Tension
3/8"	Sand Light Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	2"	N/A	N/A	See Sheet 8 of 8	25 FT-LB	1186 lb
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	3-1/8"	12"	24"	5"	60 FT-LB	3135 lb
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	4"	12"	24"	6"	60 FT-LB	4540 lb

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 24" AWAY MINIMUM (i.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.

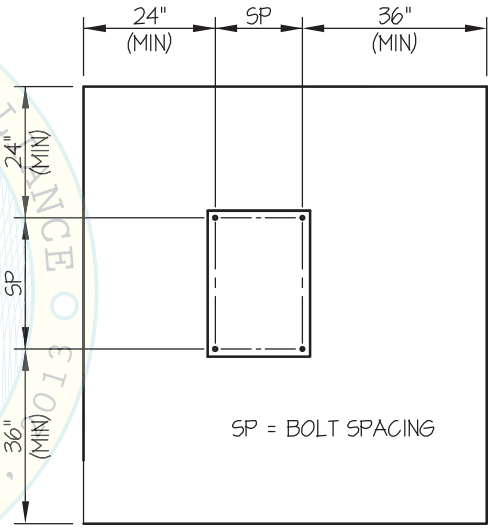
C. TESTING OF EXPANSION ANCHORS PER 2013 CBC, 1913A.7: TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO OSHPD

(i) AFTER AT LEAST 24 HOURS HAVE ELAPSED SINCE INSTALLATION, DIRECT PULL TENSION TEST OR TORQUE TEST AT LEAST 50% OF THE ANCHORS.

(ii) ACCEPTANCE CRITERIA:

- DIRECT TENSION TEST: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.
- TORQUE TEST: THE APPLICABLE TORQUE MUST BE ACHIEVED WITHIN THE FOLLOWING LIMITS: WEDGE TYPE : 1/2 TURN OF THE NUT

(iii) IF ANY ANCHOR FAILS, TEST ALL ANCHORS.



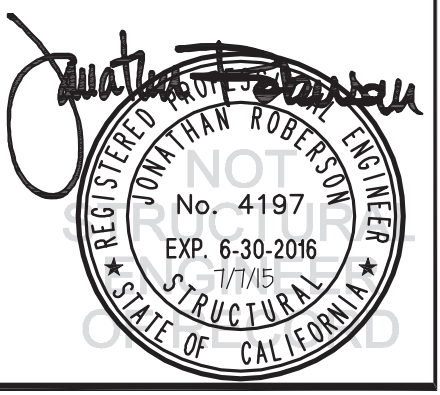
TYPICAL CONCRETE EDGE DETAIL

11. BOLTS THROUGH CONCRETE ON METAL DECK

A. BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUTS AFTER THE SNUG TIGHT (THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT) CONDITION IS ACHIEVED, UNLESS OTHERWISE NOTED.

B. THROUGH BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16) FOR CONCRETE.

C. THROUGH-BOLTS IN CONCRETE SHALL RECEIVE SPECIAL INSPECTION AND TESTING (THROUGH BOLTS WITH STEEL TO STEEL CONNECTION IN TENSION DO NOT REQUIRE TENSION TESTING) IN ACCORDANCE WITH REQUIREMENTS FOR POST-INSTALLED ANCHORS.



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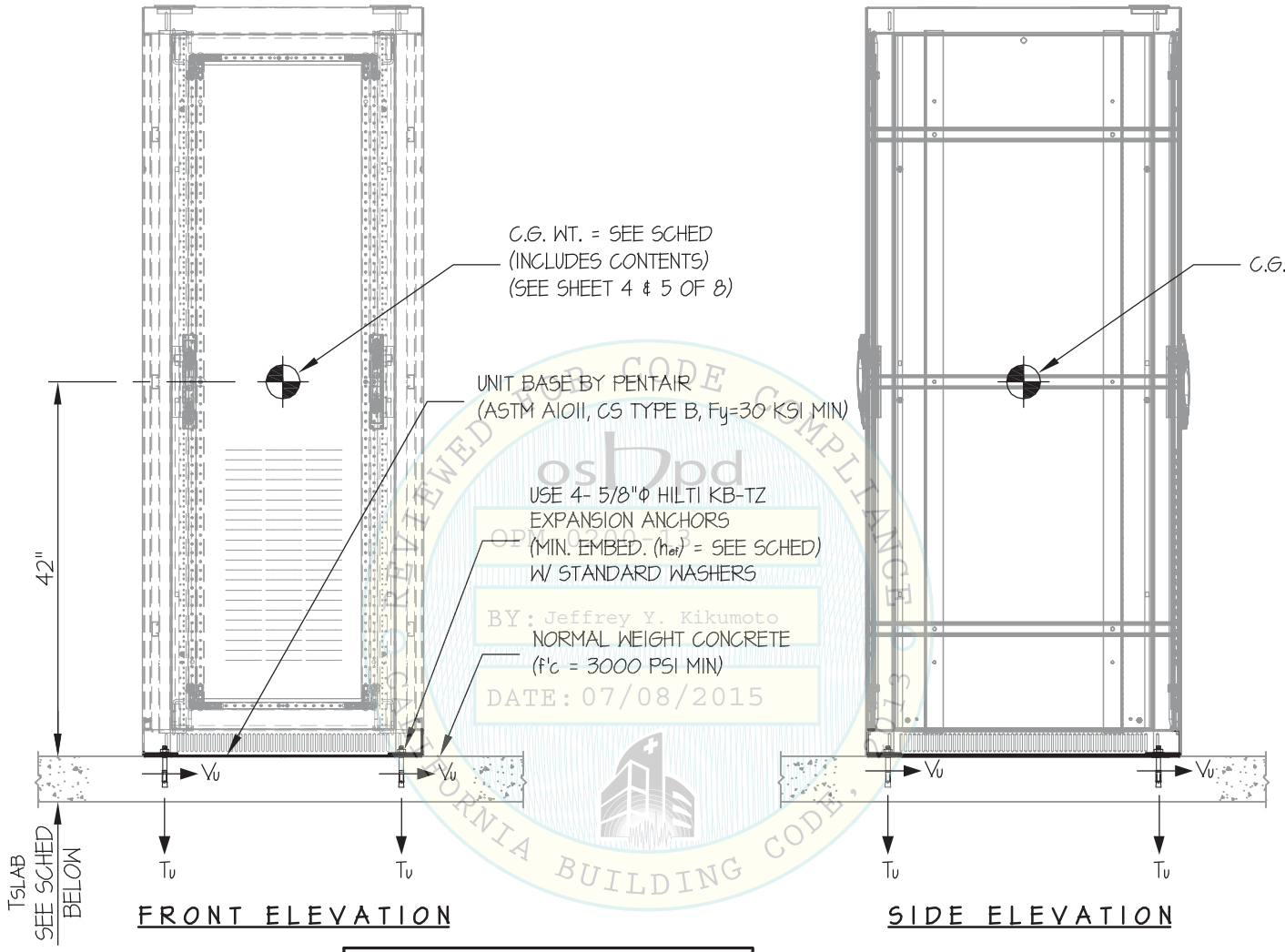
SHEET 3 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



FRONT ELEVATION

SIDE ELEVATION

	ANCHORS				
MAX SDS	TYPE	DIAM	EFF EMBED	QTY	TSLAB
1.35	HILTI KB-TZ	5/8"	3.125"	4	5"
1.90	HILTI KB-TZ	5/8"	4"	4	6"

NOTES:

1. FORCES ARE DETERMINED PER 2013 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. (a_p = 2.5, I_p = 1.5, R_p = 6.0, Ω_0 = 2.5, z/h = 0)
2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

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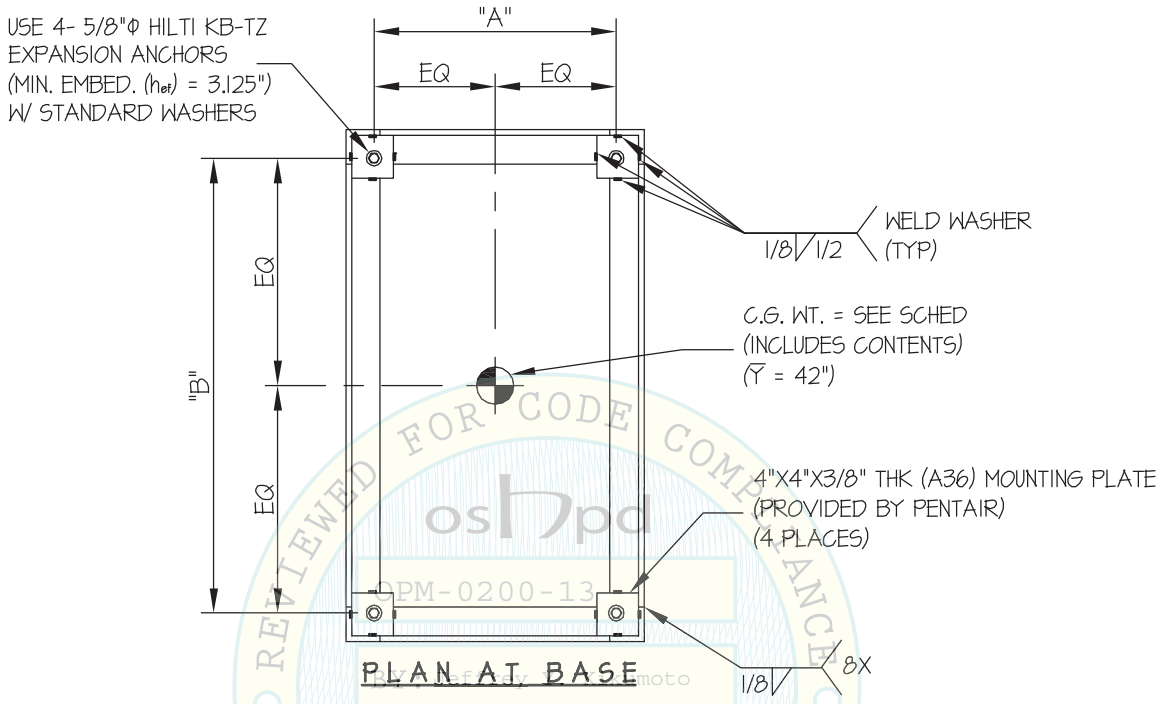
SHEET 4 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — MAX $S_{DS} \leq 1.35$ — CONCRETE SLAB

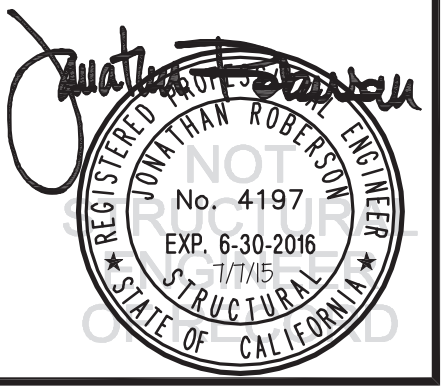


PLAN AT BASE

PLAN AT BASE

MODEL	WEIGHT (lb.)	"A" (in.)	"B" (in.)	* Tu (lb.)	* Vu (lb.)
ENC2178S	1411	22.52	26.46	2288	536
ENC2189S	1458	26.52	30.38	1985	554
ENC21710S	1455	22.52	34.34	2244	554
ENC21712S	1477	22.52	42.2	2196	561

* VALUES INCLUDE Ω_o



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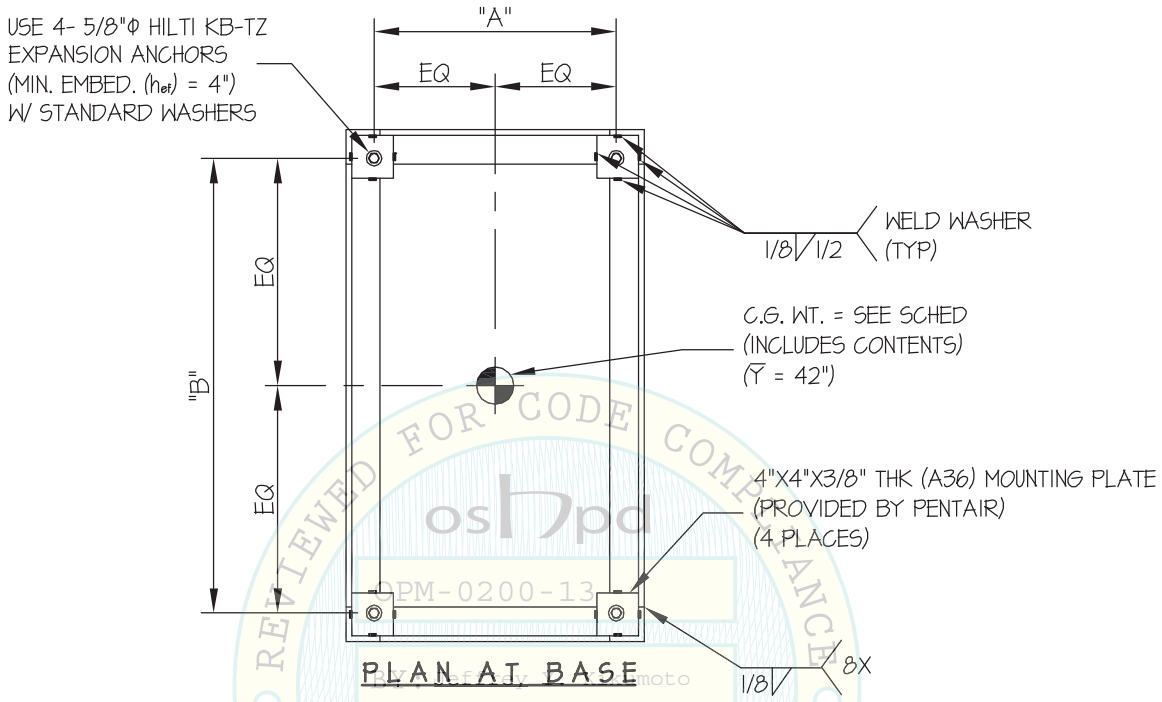
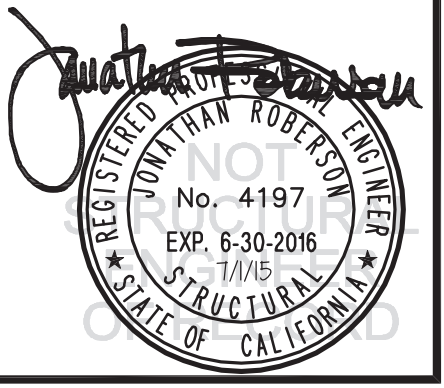
SHEET 5 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — 1.35 < MAX S_{DS} ≤ 1.90 — CONCRETE SLAB



MODEL	WEIGHT (lb.)	"A" (in.)	"B" (in.)	* Tu (lb.)	* Vu (lb.)
ENC2178S	1411	22.52	26.46	3350	755
ENC2189S	1458	26.52	30.38	2928	780
ENC21710S	1455	22.52	34.34	3286	778
ENC21712S	1477	22.52	42.2	3227	790

* VALUES INCLUDE Ω_0



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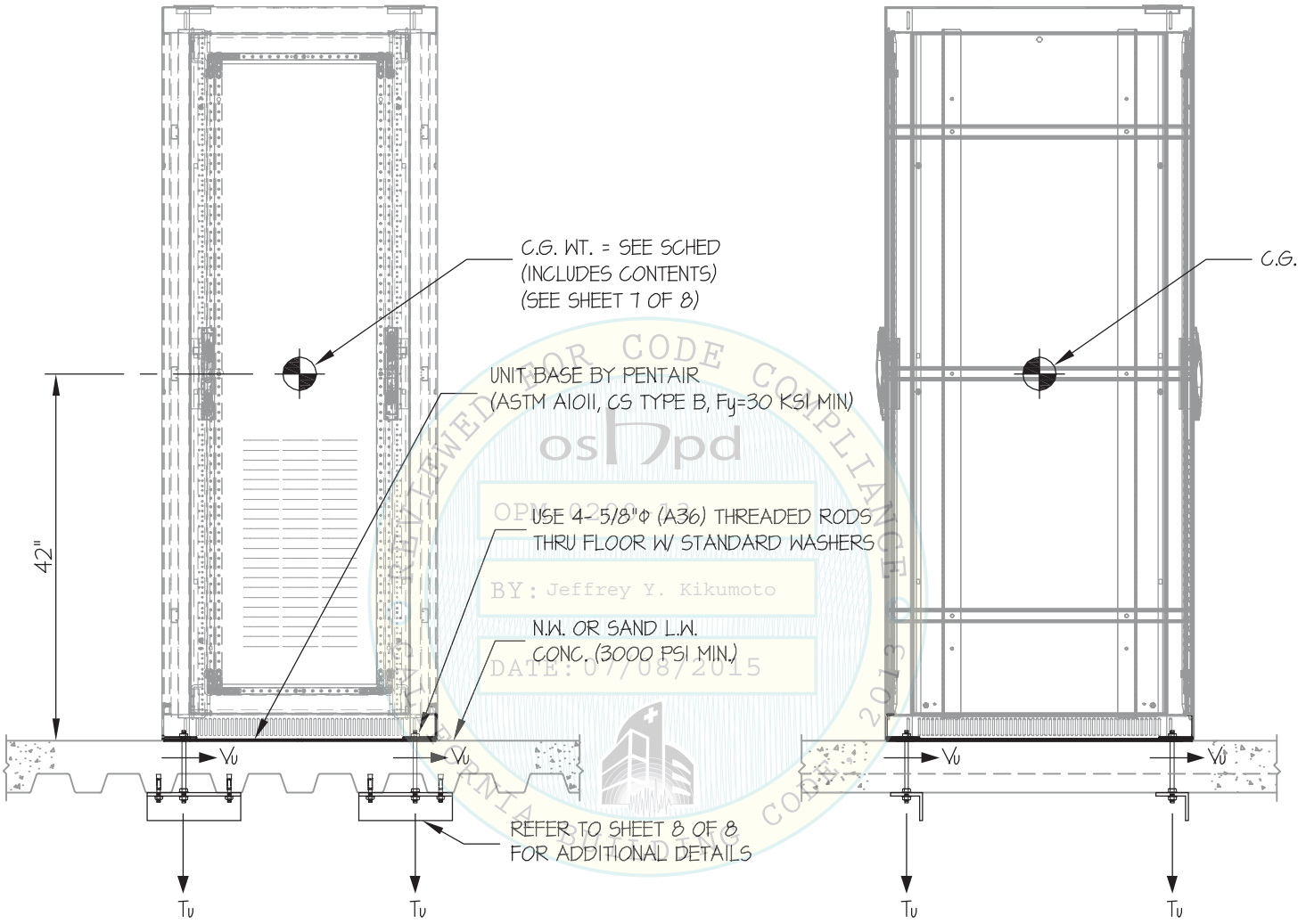
SHEET 6 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



FRONT ELEVATION

SIDE ELEVATION

NOTES:

1. FORCES ARE DETERMINED PER 2013 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 2.5, I_p = 1.5, R_p = 6.0, Ω_o = 2.5, z/h ≤ 1)

   HORIZONTAL FORCE (E_h) = 1.65 W_p
   HORIZONTAL FORCE (E_{mh}) = 4.13 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

4. SEE GENERAL NOTES: SHEETS 1 AND 2

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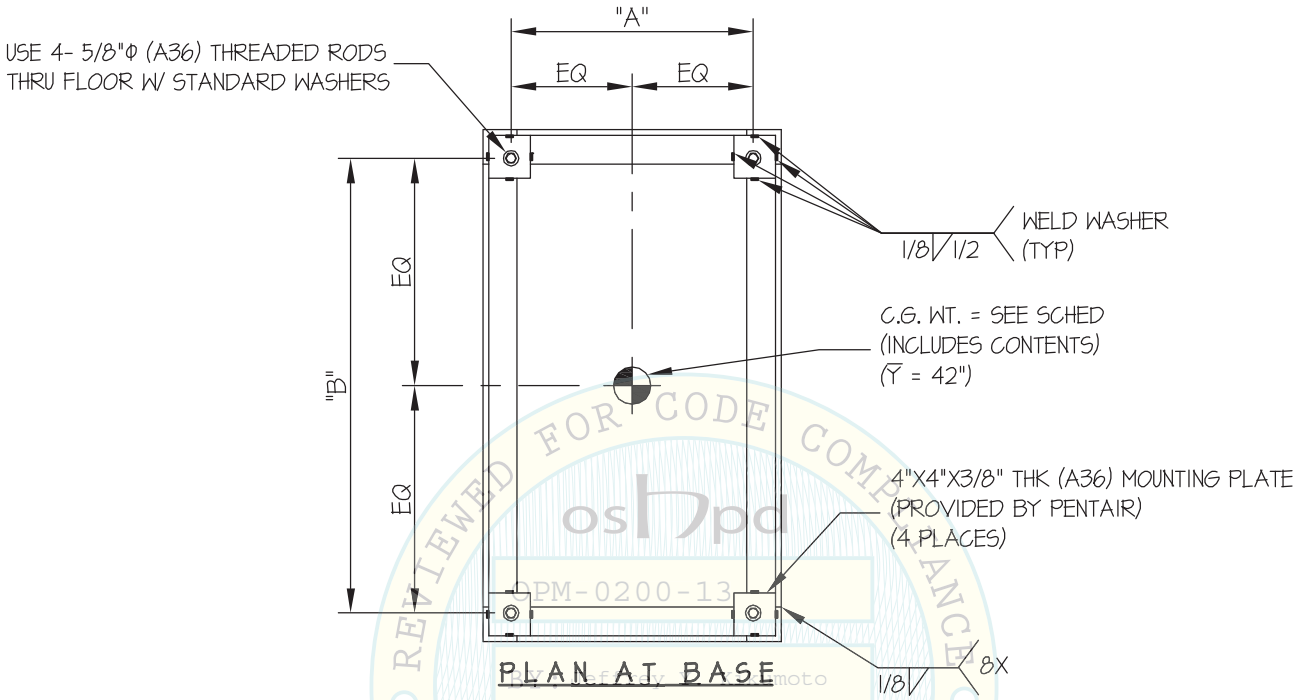
SHEET 7 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK

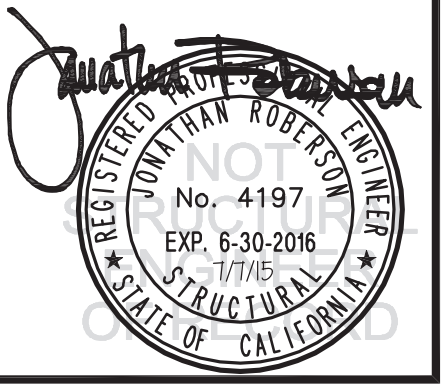


PLAN AT BASE

PLAN AT BASE

MODEL	WEIGHT (lb.)	"A" (in.)	"B" (in.)	** Tu (lb.)	** Vu (lb.)
ENC2178S	1411	22.52	26.46	2563	582
ENC2189S	1458	26.52	30.38	2236	601
ENC21710S	1455	22.52	34.34	2512	600
ENC21712S	1477	22.52	42.2	2467	609

** VALUES DO NOT INCLUDE Ω_0



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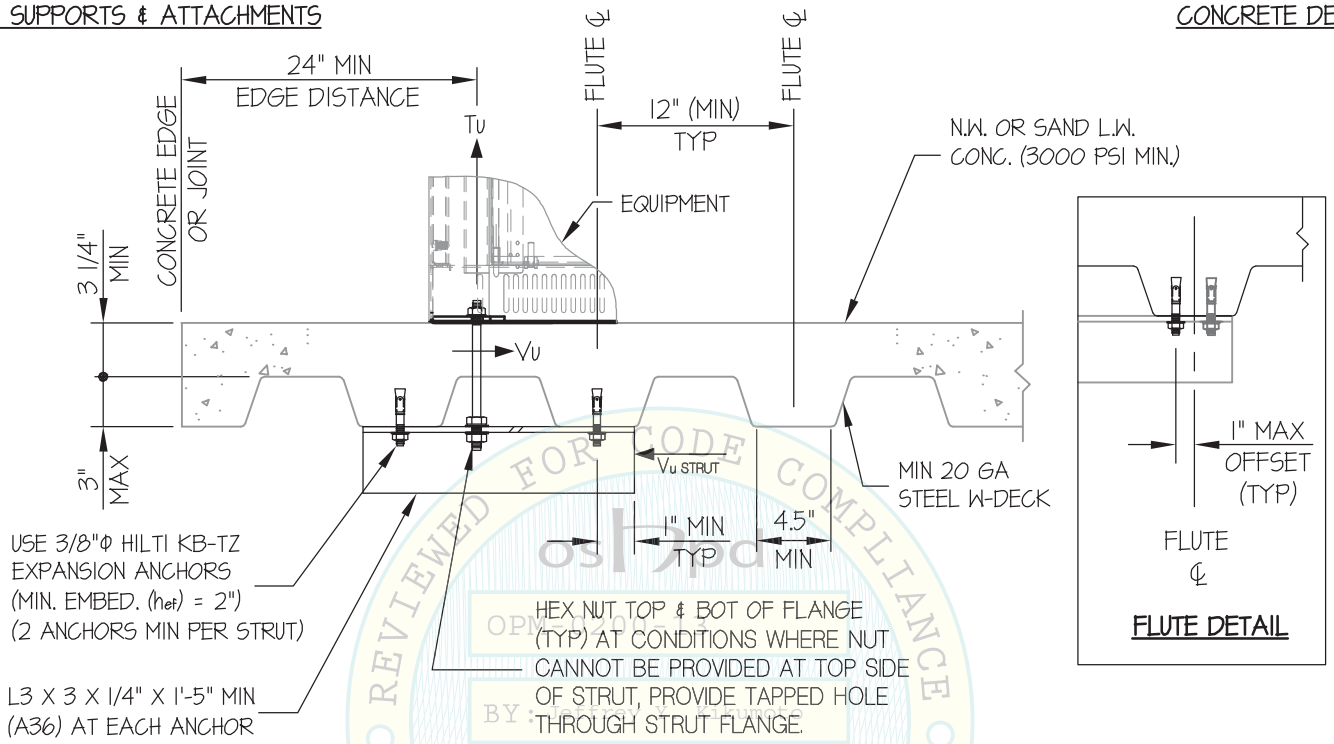
SHEET 8 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE DETAILS



MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL