

OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT **FACILITIES DEVELOPMENT DIVISION**

OFFICE USE ONLY APPLICATION FOR OSHPD PREAPPROVAL OF **MANUFACTURER'S CERTIFICATION (OPM) APPLICATION #:** OPM-0255-13 **OSHPD Preapproval of Manufacturer's Certification (OPM)** Type: ⊠ New Renewal Update to Pre-CBC 2013 OPA Number: **Manufacturer Information** Manufacturer: APC by Schneider-Electric Manufacturer's Technical Representative: Greg Ivey Mailing Address: 801 Corporate Centre Drive Telephone: 636-300-2300 Email: Dgreg.ivey@schneider-electric.com **Product Information** Product Name: Netshelter SX Network Equipment Cabinet OPM-0255-13 Product Type: Product Model Number: Netshelter SX Cabinet Series (AR3abcXXXX) Data center network equipment cabinet. See OPM drawing sheet SKIa for specific models included General Description: in this OPM. **Applicant Information** Applicant Company Name: APC by Schneider-Electric Contact Person: Greg Ivey Mailing Address: 801 Corporate Centre Drive Telephone: 636-300-2300 Email: greg.ivey@schneider-electric.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: 8-5-15 Engineering Manager - Rack Title: Company Name: Schneider-Electric Systems

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"







OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Registered Design Professional Preparing Engineering Recommendations							
Company Name: RMJ							
Name: Jayson E. Haines California License Number: 4801							
Mailing Address: 241 Joaquin Avenue, San Leandro, CA 94577							
Telephone: 510-991-0977 Email: jhaines@rmjse.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 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 ☐ Other(s) (Please Specify): 							
OFFICE USE ONLY – OSHPD APPROVAL VALID FOR CBC 2013 ONLY							
Signature: Date:							
Condition of Approval (if applicable):							

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"







Robinson Meier Juilly & Associates Principals
Peter Robinson, S.E.
Jayson E. Haines, S.E.



NetShelter SX

OPM-0255-13

BY: Jeffrey Y. Kikumoto

DATE: 02/27/2017

Structural Drawings

For Seismic Supports and Attachments

Prepared for:

Schneider Electric February 14, 2017 RMJ Job No. 15262



241 Joaquin Avenue San Leandro, CA 94577 (510) 991-0977

GENERAL NOTES

DESIGN

- 1. This OSHPD pre-approval of Manufacturer's Certification (OPM) based on the 2013 CBC. The demand (Design) forces for use with this OPM shall be based on the 2013 CBC.
- 1. This Document may only be used with the express written consent of the manufacturer listed below for the specific project site and installation location. This document is invalid without such consent.

Design Criteria:

Importance Factor1.5

Maximum Value of $S_{DS}=2.0$, $a_P=1.0$, $R_P=2.5$, $\Omega_0=2.5$ (As req'd for anchorage to concrete), z/h=0.0 (Concrete slab on grade), z/h<=0.5 for raised floor in lower half of building height. Forces per ASCE 7-10 section 13.3.1, Equations 13.3-1, 13.3-2 & 13.3-3.

Note: For Site Specific S_{DS}, SEOR shall determine appropriate value to be utilized.

Dimensions: Refer to rough concrete surfaces, or top of slab,unless otherwise indicated.

Fasteners Expansion Anchors:

1/2" Normal 3,000 Hilti Kwik Bolt 17 ESR-1917 2" 6" 24" 4" 40 FT-LB 1605	Anchor Diameter	Min. f'c (psi)	Anchor		ICC Report No.		Min. Spacing		Min. Conc. Thickness		Direct Tension
	1/2"		CC	Bolt IZ	ESR-1917	2"	6" OC	24"	4"	40 FT-LB	1605 lb

This pre-approval allows for up to a maximum of two adjacent concrete slab edges, 24" away minimum. See detail below for additional minimum allowable concrete edge distances. Testing of expansion anchors per 2013 CBC, 1913A.7: After a minimum of 24 hours have elapsed since installation, bolt testing shall be done in the presence of the special inspector and a report of the test results shall be submitted to SEOR and building code enforcement agency. Testing may be, direct pull tension test or torque test of at least 50% of the anchors.

DATE: 02/27/2017

<u>Test Loads:</u>

Drawing package is in accordance with the 2013 California Building Code. The details are applicable to locations in California where S_{DS} <= 2.0 and z/h <= 0.5. For site specific S_{DS} , SEOR shall determine appropriate value to be utilized.

Anchorage forces shown on the drawings are factored loads that are associated with strength design.

This pre-approval only applies to the supports & attachments of the cabinet unit to the structure.



Structural Engineers

241 Joaquin Avenue San Leandro CA 94577 510.991.0977

SCHNEIDER ELECTRIC NETSHELTER SX

OSHPD CABINET
SUPPORTS AND ATTACHMENTS

Signed by JEH

Date 11/14/2016

Job No. 15262

Sheet No.



Juilly & Associates

RACK MATRIX (Netshelter SX Series)

					Anch	or fo	orces	(lbs)	Maximum anchor value for either a single unit or set
					_			<=0.5	f of ganged units. 600 mm units must ganged at ground
			U ref.	1	2/11	-0.0	2/11	T 0.5	floor; Single 600mm units not allowed at ground floor.
Model #	WidthXDepth	Height	per EIA-310	Weight	Tu	V _u	Tu	V _u	AR3abc XXXXXX Series cabinets defined by:
		1198	24	196	1220	440	625	660	The about the series submitted asimisal by:
		1991	42	275	1220			660	a denotes depth:
		2124	45	300	1220			660	7 1 01 2 42.1 (1070 11111) deep
	600x1070	2258	48	327		440		660	
	0000000	2347	50	196	1220	440	625	660	
		2436	52	367		440		660	
		2525	54	389		440		660	1 4 or 5 29.5 (750 mm) wide
		1198	24	212	1220			660	71
		1991	42	295	1220			660	<u> </u>
		2124	45	322		440		660	denotes height.
	600x1200	2258	48	350	1220	440	625	660	[] 0, 1 or 2 76.4 (1991 mm) night for 420
		2347	50	372	1220	440	625	660	7] 4 47.2 (1196 mm) nigh for 240
		2436	52	394	1220			660	71
		2525	54	417	1220	440	625	660	6 92.4" (2347 mm) high for 50U 7 88.9" (2258 mm) high for 48U 8 95.9" (2436 mm) high for 52U
		1198	24	235	1220	440	625	660	8 95.9" (2436 mm) high for 52U
		1991	42	335	1220			660	9 99.4" (2525 mm) high for 54U
		2124	45	365	1220	440	625	660	Note: U designations are per EIA-310
AR3abcXXXX	750x1070	2258	48	398	1220	440	625	660	Note: U designations are per EIA-310 EIA is Electronic Industries Association
		2347	50	422	1220	440	625	660	LIA IS Electronic industries Association
		2436	52	447	1220			660	
		2525	54	474	1220			660	
		1198	24	251	1220			660	CERTIFIES THIS DOCUMENT AS
		1991	42	355	1220			660	AN OUTLINE DRAWING.
		2124	45/	387	1220			660	
	750x1200	2258	48		1220			660	PRINT NAME: Counting
		2347	50	447	1220			660	TITLE: ME: Moranger Flacks
		2436	52	474	1220			660	
		2525	54	502	1220	440	625	660	
		1198	24	249				660	
		1991	42	355	1220			660	
	800x1070	2124	45	387		440		660	
		2258	48	422/	1220			660	
		2347	50	447		440		660	
		2436	52	474	1220			660	
		2525	54	502	1220			660	2
		1198	24	265	1220			660	
	800x1200	1991	42	375	1220			660	
		2124	45	409	1220			660	
		2258 2347	48 50	446	1220 1220			660	
		2436	52	501	1220			660 660	
		2525	54	531	1220			660	
		2020	J 54	ا دد ا	11220	440	025	1000	<u>/ </u>

U reference is depth of cabinet per Electronic Industries Alliance.

FOR PLAN REFERENCE, SEE SHEET SK4



2/24/2017

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Meier
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OSHPD CABINET SUPPORTS AND ATTACHMENTS

Signed by JEH Date

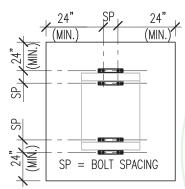
Job No. 15262

Sheet No.



RESPONSIBILITY OF STRUCTURAL ENGINEER OF RECORD

- 1. Verify that the concrete meets the requirements of the applicable ICC ESR.
- 2. Verify that the anchors are at an adequate distance from any slab opening or edges.
- 3. Verify that all new or existing anchors are at an adequate distance from the anchors shown in this pre-approval. The SEOR shall verify that there is no adverse interaction where other anchors are within 18" or 6 h_{ef} from the unit's anchors.
- 4. Verify the adequacy of the structure to support the weight and forces shown in this pre-approval in addition to all other weights and forces that are imposed on it.
- 5. Provide any supplementary structure required for strength and stability.
- 6. Verify that the installation is in conformance with the 2013 CBC and with the notes and details shown in this pre-approval. Verify that the equipment's actual weight, center of gravity location, anchor locations, anchor details and the material and gage of the unit where attachments are made conform with the information shown in this pre-approval.
- 7. If content weight is less than 33 pcf, maximum live loads permitted shall be posted.



TYPICAL CONCRETE EDGE DETAIL

- Avoid damaging existing steel reinforcing in concrete slab when installing expansion anchors.
- Provide for full thread engagement of nut & washer.

Acceptance Criteria for Expansion Anchors:

Direction Tension Test: Anchor shall maintain and hold test load of minimum (15) seconds & shall exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.

Torque Test: S The applicable torque must be achieved within the following limits: wedge type: 1/2 turn of the nut.

Acceptance Criteria for Bolts thru Concrete on Metal Deck:

- Az Bolts shall be torqued by $\frac{3}{4}$ turn of the $\frac{1}{10}$ after snug tight condition is achieved. Shug tight condition is defined as the tightness required to bring the connected plies into firm contact.
- B. Thru bolt holes size shall be 1/16" larger than bolt size for concrete. C. Thru 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 concrete anchors.

*If any anchor fails testing, all anchors of the same type shall be tested, which are install by the same trade, not previously tested until twenty (20) consecutive anchors pass, then resume initial test frequency.



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SCHNEIDER ELECTRIC NETSHELTER SX

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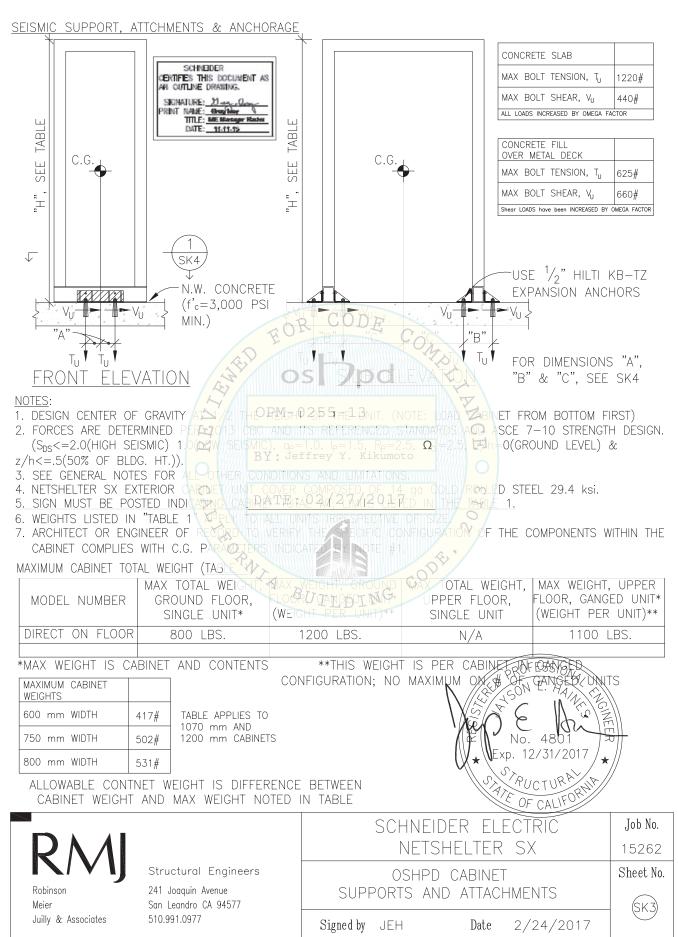
Signed by JEH Date 11/14/2016

Job No. 15262

Sheet No.



Meier

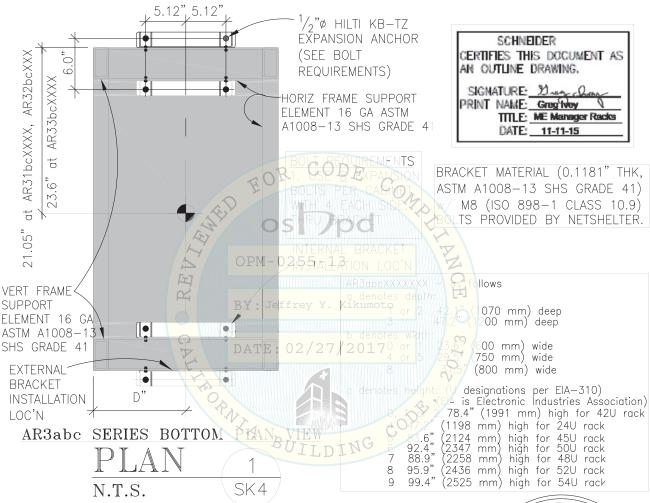


NOTES:

*SEE Rack Matrix on sheet SK1a for all possible dimensions. Design based on AR3 series rack. *INTERNAL and EXTERNAL BRACKETS SHALL BE INSTALLED FOR OSHPD PROJECTS.

CONDITION SCHEDULE

CONDITION	SEE
CONCRETE SLAB	SK6



MAX/MIN DIMENSIONS: (TABLE 2)

'H 'n. MAX CABINET MODEL MAX MIN FRAME (in.) (in.) WEIGHT AR3abcXX 99.4" 531# BASED ON ARaOcxxx and AR3a1cxxx SERIES BASED ON AR3ab9xxx SERIES



11/14/2016



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SCHNEIDER ELECTRIC NETSHELTER SX

OSHPD CABINET SUPPORTS AND ATTACHMENTS

JEH Signed by

Date

15262

Sheet No.

Job No.



NOTES:

*SEE Rack Matrix on sheet SK1a for all possible dimensions. Design based on AR3 series rack. *INTERNAL and EXTERNAL BRACKETS SHALL BE INSTALLED FOR OSHPD PROJECTS.

CONDITION SCHEDULE

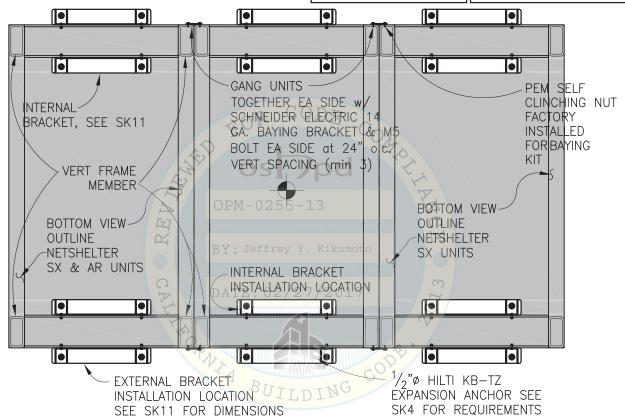
<u>CONDITION</u>	<u>SEE</u>
CONCRETE SLAB	SK6
CONCRETE FILL OVER METAL DECK	SK7

CONCRETE SLAB		CONCRETE FILL OVER METAL DECK	
MAX BOLT TENSION, T _U	1220#	MAX BOLT TENSION, T _U	625#
MAX BOLT SHEAR, V _U	440#	MAX BOLT SHEAR, V	660#
ALL LOADS have been INCREASED BY OM	EGA FACTOR	Shear LOADS have been INCREASED BY 0	MEGA FACTOR

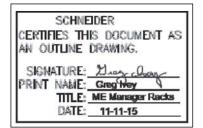
CONCRETE FILL OVER METAL DECK	
	625#
MAX BOLT SHEAR, V _U	660#

INSTALLATION FOR THE FOLLOWING CONDITIONS:

SEE BOLT REQUIREMENTS ON SK4 FOR ANCHORAGE REQUIREMENTS.



GANG UNIT BOTTOM PLAN VIEW (3 UNITS OR MORE GANGED TOGETHER)





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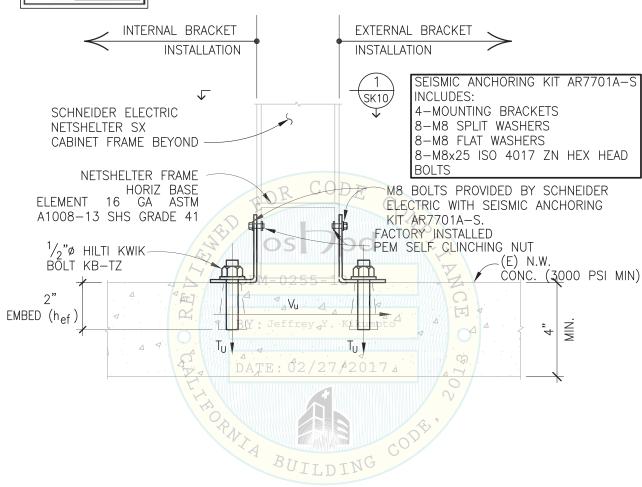
2/24/2017

Job No. 15262

Sheet No.

(SK5)







 $\frac{\text{DETAIL}}{3"=1'-0"} \text{SK6}$



2/24/2017



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Sheet No.

(SK6)

SCHNEIDER NETSHELTER SX UNIT CABINET NOTES:

- 1. CABINET COVER GAGE THICKNESS SHALL NOT BE LESS THAN 16 ga.
- 2. BASE MATERIAL SHALL BE COLD ROLLED STEEL 29.4 ksi.
- 3. THE STRUT(S) AND ITS ATTACHMENTS ARE DESIGNED TO RESIST A LOAD NOT LESS THAN V_U STRUT IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT, WHERE V_U STRUT=0.7V_U x (NO. OF ANCHORS ENGAGED BY STRUT), MIN.

