APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0629

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: AMETEK Powervar

Manufacturer's Technical Representative: On File

Mailing Address: 1450 Lakeside Drive, Waukegan, IL, 60085

Telephone: On File Email: On File

Product Information

Product Name: 3400 Series UPS

Product Type: Uninterruptable Power Supply

Product Model Number: See attached
(List all unique product identification numbers and/or part numbers)

General Description: The units are enclosures with a Main Board, Silicon Controlled Rectifier, Fuse, Insulated Gate Bipolar Transistor, Capacitor, Fans, Contactor, Battery Inductor, Power Factor Correction Inductor, and Inverter Inductor.

Mounting Description: Units are rigid base mounted.

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thevmcgroup.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: Date: 12/2/19

Title: President Company Name: The VMC Group

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: The VMC Group

Name: Kenneth Tarlow California License Number: SE-2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: ken.tarlow@thevmcgroup.com

Supports and Attachments Preapproval

☐ Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)

☒ Supports and attachments are not preapproved

Certification Method

☒ Testing in accordance with: ☒ ICC-ES AC156

☐ Other (Please Specify): _____

Testing Laboratory

Company Name: DCL Labs

Contact Name: Josh Sailer, Laboratory Manager

Mailing Address: 1315 Greg Street, Suite 109, Sparks, NV 89431

Telephone: (775) 358-5085 Email: josh@shaketest.com

Seismic Parameters

Design in accordance with ASCE 7-16 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.44 (S_{DS} = 2.00, z/h = 1); 1.13 (S_{DS} = 2.50, z/h = 0)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00 (z/h = 1), 2.50 (z/h = 0)

a_p (In-structure equipment or component amplification factor) = 1

R_p (Equipment or component response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1 (S_{DS} = 2.00), 0 (S_{DS} =2.50)

Equipment or Component Natural Frequencies (Hz) = See attachment

Overall dimensions and weight (or range thereof) = See attachment

Equipment or Components @ grade designed in accordance with ASCE 7-16 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Design spectral response acceleration at short period, g) =

S_{D1} (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Ω_0 (System overstrength factor) =

C_d (Deflection amplification factor) =

I_p (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component Natural Frequencies (Hz) =

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2015: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

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

☐ Other(s) (Please Specify):

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: _____ Date: April 17, 2021

Print Name: William Staehlin Title: Senior Structural Engineer

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = See Above

Condition of Approval (if applicable):

Table 1 - Certified Components

Mounting Configuration: Rigid base mounted

Test Levels: Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

Manufacturer: Kehua for AMETEK Powervar

Product Type: Uninterruptable Power Supply (UPS)

Product Line: 3400 Series UPS

Model Number	Max. Dimensions (in)			Max. Weight (lb)	Unit
	Length	Width	Height		
34080-01R	31.5	28.0	71.0	990	UUT 1
34100-01R	31.5	28.0	71.0	1000	Interpolated
34125-01R	31.5	28.0	71.0	1020	UUT 2

Table 2 - Certified Subcomponents

Mounting Configuration: Rigid base mounted
Test Levels: Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0
Manufacturer: Kehua for AMETEK Powervar
Product Type: Uninterruptable Power Supply (UPS)
Product Line: 3400 Series UPS

Subcomponent	Model Number	Description	Material	Weight (lb)	Unit
Main Board	A26-00288	ACDEF80.0-48D	Printed Circuit Board	1.1	UUT 1
	A26-00258	STA33125-H(V1.0)	Printed Circuit Board	1.1	Interpolated
			Printed Circuit Board	1.1	UUT 2
Silicon Controlled Rectifier (SCR)	A71-00014	MCC200-16iO1 | 1600V | 216.0A	Ceramic, Aluminum	1.1	UUT 1
				1.1	Interpolated
	A71-00013	SCR | MCC200-16iO1 | 1600V | 216.0A		0.8	UUT 2
Fuse	A35-00092	690V | 315.0A	Copper, Fiberglass, Ceramic	0.2	UUT 1, UUT 2
Insulated Gate Bipolar Transistor (IGBT)	A74-00007	1200V | 600A	Ceramic, Aluminum	0.7	UUT 2
	A74-00007	1200V | 600A		0.7	Interpolated
	A74-00008	650V | 600A		0.7	Interpolated
	A74-00008	650V | 600A		0.7	UUT 2
	A74-00009	1200V | 400A		0.7	UUT 2
	A74-00010	650V | 450A		0.8	UUT 1
Capacitor	A32-00009	12 count (UUT 1) to 20 count (UUT 2) | 500V | 5600.0uF	Aluminum Electrolytic	2.7	UUT 1, UUT 2
Enclosure	3400-ENCLOSURE	Dimensions: 31.5" L x 28.0" W x 71.0" H	Powder Coated Carbon Steel	NA	UUT 1, UUT 2
Fan	A37-00055	(6) count | DC Fan | 4715VL-05W-B69/DC24	Plastic	0.8	UUT 1, UUT 2
	A37-00056	(2) count | DC Fan | 9G0824G101/DC24	Plastic	0.37	UUT 1, UUT 2
Contactor	A48-00042	1NO+1NC | 100-250V AC/DC | 1000Vac | 190.0A	Plastic	7.0	UUT 1, UUT 2
Battery Inductors	A07-00209	90uH	Aluminum, Ferrous Silicon	24.3	UUT 1, UUT 2
Power Factor Correction (PFC) Inductor	A07-00209	140uH	Alumninum, Silicon Steel	22.1	UUT 1, UUT 2
Inverter (INV) Inductor	A07-00211	150uH	Aluminum, Ferrous Silicon	19.4	UUT 1, UUT 2

Table 3 - Tested Units

Mounting Configuration: Rigid base mounted

Test Levels: Sds=2.0g, z/h=1.0; Sds=2.5g, z/h=0.0

Manufacturer: Kehua for AMETEK Powervar

Product Type: Uninterruptable Power Supply (UPS)

Product Line: 3400 Series UPS

Model Number	Dimensions (in)			Weight (lb)	Mounting	Unit
	Length	Width	Height			
34080-01R	31.5	28.0	71.0	990	Rigid base	UUT 1
34125-01R	31.5	28.0	71.0	1020	Rigid base	UUT 2

UUT 1
Unit Under Test (UUT) Summary Sheet

Manufacturer:	AMETEK Powervar (by Kehua)
Product Type:	Uninterruptable Power Supply
Product Line:	3400 Series Uninterruptable Power Supply
Model Number:	34080-01R
Mounting:	Rigid Base Mount

Product Construction Summary:

Powder Coated Carbon Steel

Options / Component Summary:

The unit is an Enclosure that encapsulates the following: a Main Board, Silicon Controlled Rectifier, Fuse, Insulated Fate Bipolar Transistor, Capacitor, Fans, Contactor, Battery Inductor, Power Factor Correction Inductor, and Inverter Inductor.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
990	31.5	28.0	71.0	18.0	20.0	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
		2.50	0.0	1.5	2.50	1.00	1.67	0.68

Unit Mounting Description:

UUT 1 was rigid base mounted to a shake table interface plate with (4) 1/2" grade 5 bolts and washers at the base of the unit. The holes at the base of the unit were spaced 24” widthwise and 22” lengthwise. The unit had (3) manufacturer provided brackets (drawing: A05-00955) screwed to the side of the base of the unit with (2) manufacturer provided machine screws. Each bracket had (3) 3/8” grade 5 bolts and washers to mount it to the shake table interface plate for a total of (9) bolts mounted via the brackets. Each bolt on the bracket is spaced 10” apart.

UUT 2
Unit Under Test (UUT) Summary Sheet

Manufacturer:	AMETEK Powervar (by Kehua)
Product Type:	Uninterruptable Power Supply
Product Line:	3400 Series Uninterruptable Power Supply
Model Number:	34125-01R
Mounting:	Rigid Base Mount

Product Construction Summary:

Powder Coated Carbon Steel

Options / Component Summary:

The unit is an Enclosure that encapsulates the following: a Main Board, Silicon Controlled Rectifier, Fuse, Insulated Fate Bipolar Transistor, Capacitor, Fans, Contactor, Battery Inductor, Power Factor Correction Inductor, and Inverter Inductor.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
1,020	31.5	28.0	71.0	10.5	14.5	>33.3

Seismic Test Parameters

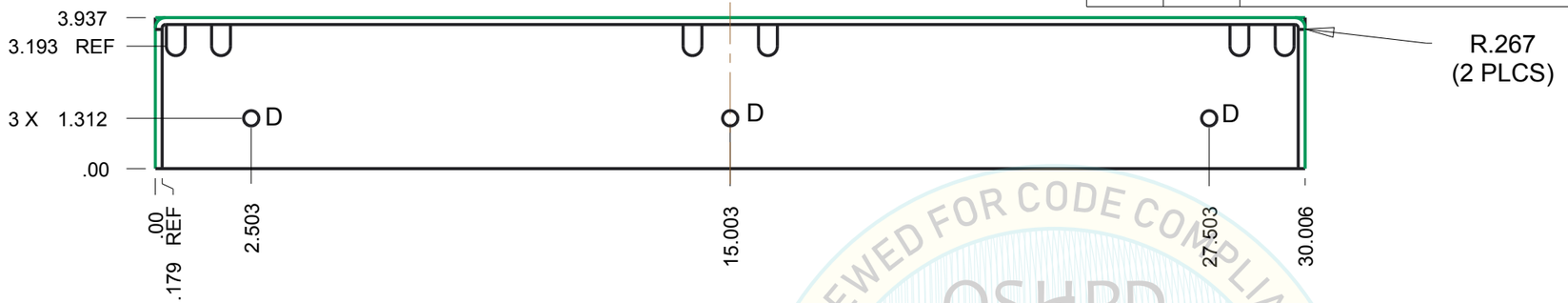
Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.33	0.53
		2.50	0.0	1.5	2.50	1.00	1.67	0.68

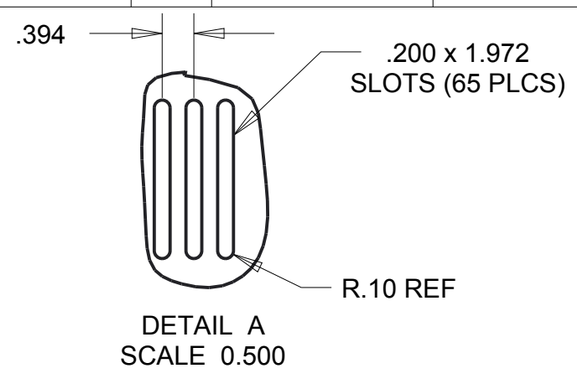
Unit Mounting Description:

UUT 2 was rigid base mounted to a shake table interface plate with (4) 1/2" grade 5 bolts and washers at the base of the unit. The holes at the base of the unit were spaced 24” widthwise and 22” lengthwise. The unit had (3) manufacturer provided brackets (drawing: A05-00955) screwed to the side of the base of the unit with (2) manufacturer provided machine screws. Each bracket had (3) 3/8” grade 5 bolts and washers to mount it to the shake table interface plate for a total of (9) bolts mounted via the brackets. Each bolt on the bracket is spaced 10” apart.

REV	ECN	CHANGE DESCRIPTION	ENG	DATE	APP'D
X1		NEW RELEASE	NLF	06-04-2019	
X2		CHANGED STEEL THICKNESS TO 7 GA (FROM 3 GA)	NLF	06-05-2019	
X3		CHANGED LENGTH OF BRACKET FROM 31.006 to 30.006 (0.5 INCHES ON BOTH SIDES)	NLF	06-21-2019	

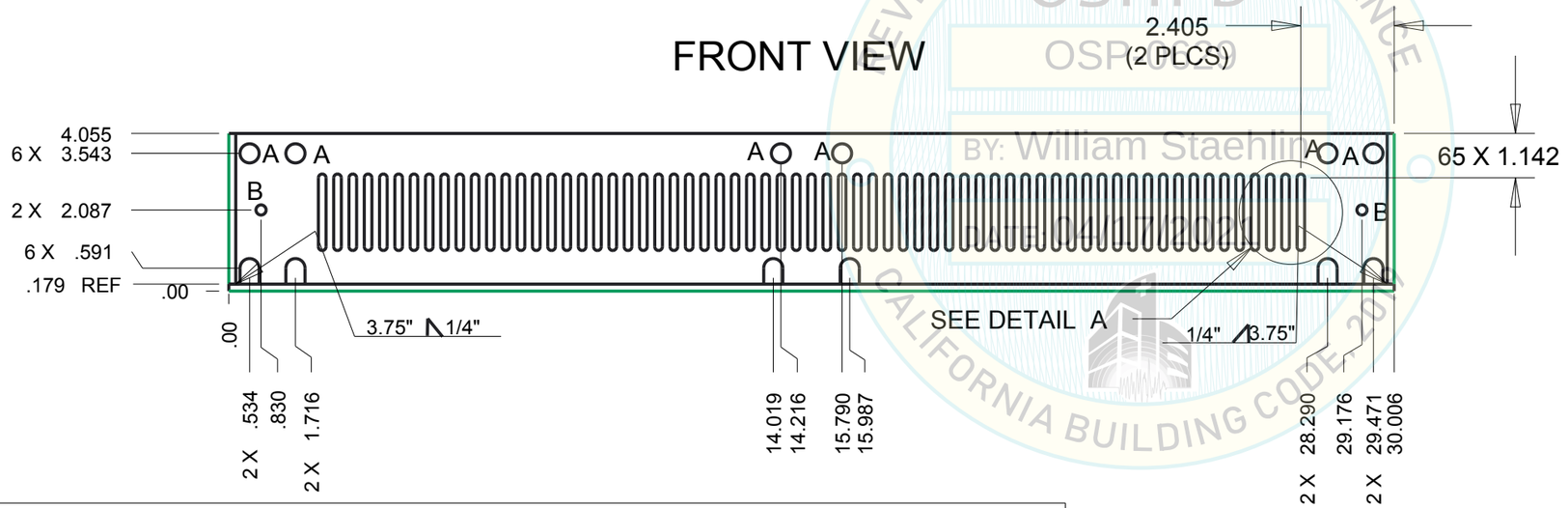
TOP VIEW



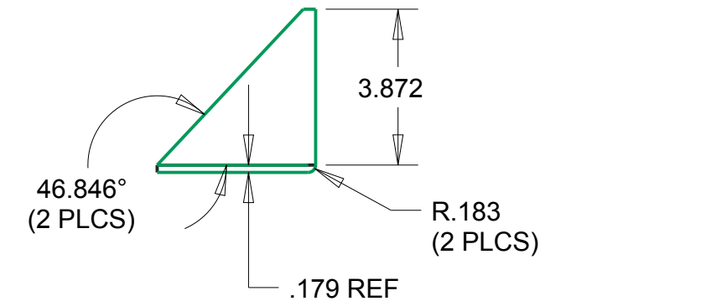


DETAIL A
SCALE 0.500

FRONT VIEW



RIGHT VIEW

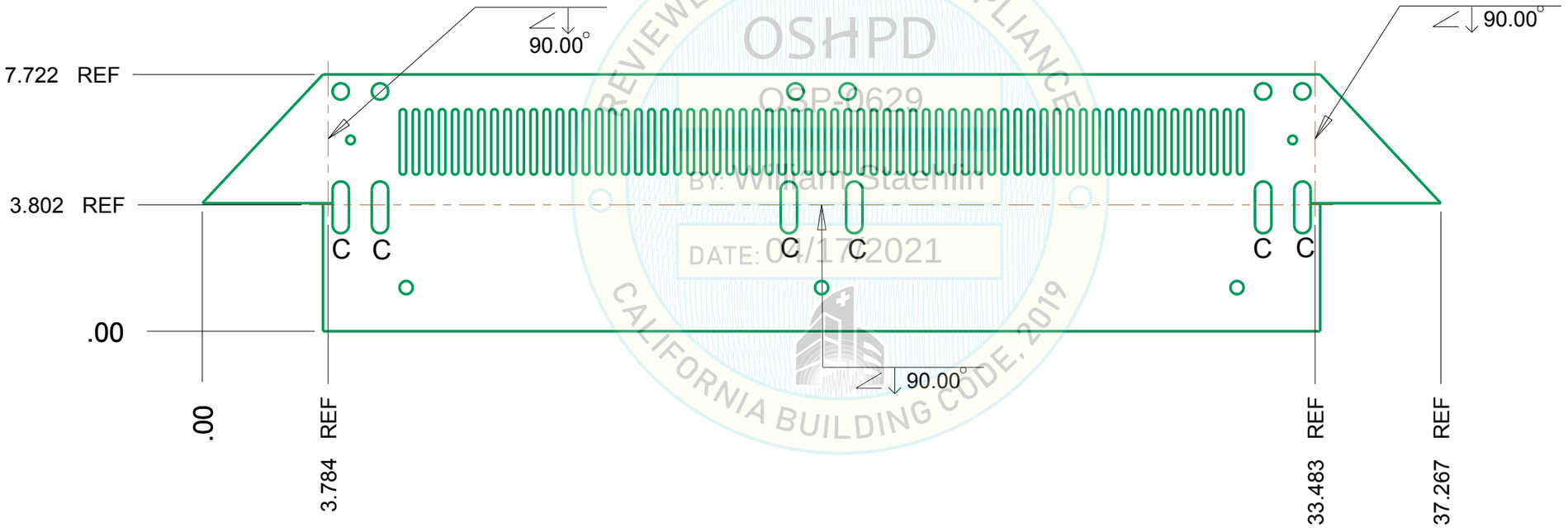


HOLE LEGEND				
HOLE	QUANTITY	SIZE	TOLERANCE	PEM
A	6	.492	--	--
B	2	.261	--	--
C	6	.492 x 1.557	--	--
D	3	.397	--	--

NOTES: (UNLESS OTHERWISE SPECIFIED)
1. ALL DIMENSIONS ARE IN INCHES.
2. BREAK ALL SHARP EDGES.
3. REF. CAD DATABASE FOR DIMENSIONS

TOLERANCE: XX=±.01 XXX=±.005		POWERVAR INC.	SIZE: B
MATERIAL: 7 GA(.1793) COLD-ROLLED STEEL		FILE: A05-00955.DWG	PAGE 1 OF 2
FINISH: POWDER-COATED BLACK		SEISMIC MOUNTING BRKT, SIDE, 3400 SERIES	
SCALE: 0.250	BY: NLF	DWG No: A05-00955	REVISION: X3

FLAT VIEW (DOTTED LINES ARE REF. BEND LINES)



TOLERANCE: XX=±.01 XXX=±.005		POWERVAR INC.	SIZE: B
MATERIAL: 7 GA(.1793) COLD-ROLLED STEEL		FILE: A05-00955.DWG	PAGE 2 OF 2
FINISH: POWDER-COATED BLACK		SEISMIC MOUNTING BRKT, SIDE, 3400 SERIES	
SCALE: 0.250	BY: NLF	DWG No: A05-00955	REVISION: X3