APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0485 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Purcell Systems, Inc.

Manufacturer's Technical Representative: Marcel Vezeau

Mailing Address: 16125 E. Euclid Avenue, Spokane, WA 99216

Telephone: 509.720.5510 Email: mvezeau@purcellsystems.com

Product Information

Product Name: VaultFlex Outdoor UPS Battery Enclosure

Product Type: UPS Battery Enclosure

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

General Description: Outdoor UPS Battery Enclosure

Mounting Description: Rigid floor mounted with and without optional carbon steel plinth.

Applicant Information

Applicant Company Name: TRU Compliance, LLC

Contact Person: Matthew J Tobolski, PhD, S.E.

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200 Email: mtobolski@trucompliance.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: 10/13/2016

Title: President Company Name: TRU Compliance, LLC

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

Company Name: TRU Compliance, LLC

Name: Matthew J Tobolski, PhD, S.E. California License Number: S5648

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200 Email: mtobolski@trucompliance.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: Environmental Testing Laboratory (ETL)

Contact Name: Paul E. Little

Mailing Address: 11034 Indian Trail, Dallas, TX 75229

Telephone: 972.247.9657 Email: paul@etldallas.com

Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.44 (S_{DS} = 2.0g); 1.44 (S_{DS} = 3.2g)

S_{DS} (Design spectral response acceleration at short period, g) = 2.0g (z/h = 1.0); 3.2g (z/h = 0.0)

a_p (In-structure equipment or component amplification factor) = 1.0

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) = 1.0 (S_{DS} = 2.0g); 0.0 (S_{DS} = 3.2g)

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 7-10 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): Attachment

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: Date: January 26, 2017

Print Name: ALI SUMER Title: DSE

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

Condition of Approval (if applicable):

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16007

Manufacturer: Purcell Systems, Inc.
Model Line: VaultFlex Outdoor UPS Battery Enclosure

TABLE 1

Certified Product Construction Summary:
Cabinet: 0.080" aluminum with 1.5" foil backed insulation; Battery Rack: 0.120" carbon steel.

Certified Options Summary:
Center tap, 400/500/600A circuit breaker, carbon steel plinth or corrosion inhibiting pad gasket, 24/48VDC shunt/dual aux, 24/48 UVR dual aux, 250 VDC shunt/dual aux, bell alarm. Note: Model numbers shown specifiy options and follow the Base Model Number "VFX42-6534-UPS-". Refer to model line numbering for the significance of "X".

Mounting Configuration:
Base mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 *Seismic Certification Limits:* S_{DS} = 2.0 g z/h=1.0; S_{DS} = 3.2 g z/h=0.0 I_P = 1.5

Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
VaultFlex Outdoor UPS Battery Enclosure (models preceded by "VFX42-6534-UPS-")	3840N400AB0A	34	65	75	4567	UUT: Pad	1
	3840XXXXXXXA	34	65	75	4567		Interp.
	3841XXXXXXXA	34	65	75	5033		Interp.
	3842XXXXXXXA	34	65	75	5503		Interp.
	4800XXXXXXXA	34	65	75	5677		Interp.
	4801XXXXXXXA	34	65	75	5941		Interp.
	4802XXXXXXXA	34	65	75	6452		Interp.
	4802C600DF1A	34	65	75	6452	UUT: Plinth	2

SPECIAL SEISMIC CERTIFICATION
MODEL LINE NUMBERING - FOR REFERENCE ONLY

TRU PROJECT NO. 16007

Manufacturer:	Purcell Systems, Inc.	TABLE 1
Model Line:	VaultFlex Outdoor UPS Battery Enclosure	

Options: The options below follow the Base Model Number "VFX42-6534-UPS-".

Columns 1 - 3	Bus Voltage	480 = 480 VDC
		384 = 384 VDC
Column 4	Battery Model	0 = 12XE1010F-FR
		1 = 12XE1110F-FR
		2 = 12XE1150F-FR
Column 5	Center Tap Option	N = No Center Tap
		C = Center Tap
Columns 6 - 8	Breaker Size	600 = 600 Amp
		500 = 500 Amp
		400 = 400 Amp
Column 9	Aux Contacts	A = No option installed
		B = Dual Aux
		C = Alarm
		D = Dual Aux + Alarm
Column 10	Breaker Option	A = No option installed
		B = 24 VDC Shunt
		C = 48 VDC Shunt
		D = 24 UVR
		E = 48 UVR
		F = 250 VDC Shunt
Column 11	Plinth Option	0 = No Plinth
		1 = Galvanized steel plinth
Column 12	Thermal Option	A = 48 VDC ACU & Heater

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16007

Manufacturer: Purcell Systems, Inc. *Table Description:* Batteries

Model Line: VaultFlex Outdoor UPS Battery Enclosure

TABLE 2

Building Code: CBC 2016 *Seismic Certification Limits:* S_{DS} = 2.0 g z/h = 1.0; S_{DS} = 3.2 g z/h = 0.0 I_P = 1.5

Model Line (Manufacturer)	Model	Dimension (in)			Weight (lb)	Material	Notes	UUT
		Depth	Width	Height				
DataSafe (EnerSys)	12XE1010F-FR	22.1	4.9	11.1	107.3	Lead-acid	*UUT: quantity (32) installed*	1
	12XE1110F-FR	22.1	4.9	11.1	114.0	Lead-acid		Interp.
	12XE1150F-FR	22.1	4.9	12.4	129.2	Lead-acid	*UUT: quantity (40) installed*	2

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16007

Manufacturer: Purcell Systems, Inc.
Model Line: VaultFlex Outdoor UPS Battery Enclosure
Table Description: Electrical Components

TABLE 3

Building Code: CBC 2016
Seismic Certification Limits: S_{DS} = 2.0 g z/h = 1.0; S_{DS} = 3.2 g z/h = 0.0 I_P = 1.5

Component Type	Manufacturer	Model	Description	Notes	UUT
Heating Assembly	Purcell	2000003845	550W, 60VDC		1,2
Active Cooling Unit	Purcell	2000003565	3.8A, R 134A compressor		1,2
Circuit Breaker	Eaton	LGEDC3400	400A, 600 VDC	UUT: 24V shunt trip, 24V UVR	1
		LGEDC3500	500A, 600 VDC		Interp.
		LGEDC3600	600A, 600 VDC	UUT: 250V shunt trip, 48V UVR	2
Power Supply	Mean Well	HEP-600-54	54V		1,2

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16007

Manufacturer:	Purcell Systems, Inc.	UUT 1
Model Line:	VaultFlex Outdoor UPS Battery Enclosure	
Model Number:	VFX42-6534-UPS-3840N400AB0A	*Serial Number:* N/A

Product Construction Summary:

Cabinet: 0.080" aluminum with 1.5" foil backed insulation; Battery Rack: 0.120" carbon steel.

Options/Subcomponent Summary:

(32) 12XE1010F-FR batteries; 550W, 60VDC Heating assembly; 3.8A, R 134A Active Cooling Assembly; 400A, 600 VDC breaker; 450A, 600 VDC breaker; 54 V Power supply; corrosion inhibiting pad gasket

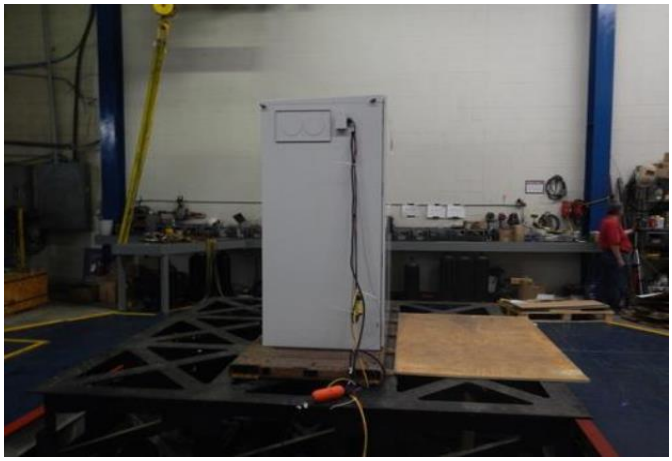
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
4567	34	65	75	9	10	24.7

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.0 g	1.0	1.5	3.2	2.4	2.13	0.85
		3.2 g	0.0					

Test Mounting Details:



The UUT was rigid floor mounted to the table using eight (8) 5/8" Grade 8 Bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16007

UUT 2

Manufacturer: Purcell Systems, Inc.
Model Line: VaultFlex Outdoor UPS Battery Enclosure
Model Number: VFX42-6534-UPS-4802C600DF1A *Serial Number:* N/A

Product Construction Summary:
Cabinet: 0.080" aluminum with 1.5" foil backed insulation; Battery Rack: 0.120" carbon steel.

Options/Subcomponent Summary:
(40) 12XE1150F-FR batteries; 550W, 60VDC Heating assembly; 3.8A, R 134A Active Cooling Assembly; 600A, 600 VDC Shunt trip breaker; 54 V Power supply; carbon steel plinth

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
6452	34	65	75	6.7	8.3	22.4

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2016	ICC-ES AC156	2.0 g	1.0	1.5	3.2	2.4	2.13	0.85
		3.2 g	0.0					

Test Mounting Details:

The UUT was rigid mouned to the plinth using eight (8) 5/8" Grade 8 Bolts. The plinth was rigid floor mounted to the table using eight (8) 5/8" Grade 8 Bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.