Facilities Development Division www.oshpd.ca.gov/fdd
400 R Street. Suite 200, Sacramento, California 95811-6213 Phone (916) 440-8300 Fax (916) 654-2973

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP -0201-10

Check whether application is: NEW [X] RENEWAL [ ]

1.0

Functional Devices	Dana Huntzinger
Manufacturer	*Manufacturer's Technical Representative*
310 South Union Street	Russiaville, IN 46979
Mailing Address	
(765) 883-5538 ext 423	d.huntzinger@functionaldevices.com
Telephone	*E-mail Address*

2.0

PSH AC Power Supplies	Power Supply
Product Name	*Product Type*

See attached OSP Product Summary

Product model No (List all unique product identification numbers and/or serial numbers)

General Description: Rigid Wall Mounted Functional Devices units are 40VA to 500VA AC power supplies, with transformers capable of converting voltage to 24Vac from up to 480Vac.

3.0

Dynamic Certification Laboratories	*Joseph L. La Brie*
Applicant Company Name	*Contact Person*
1315 Greg Street, Suite 109	*Sparks, NV 89431*
Mailing Address	
(775) 358-5085	LaBrie@MakeItRight.net
Telephone	*E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

	07/19/2011
Signature of Applicant	*Date*
Managing Partner	Dynamic Certification Laboratories
Title	*Company Name*

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Registered Design Professional Preparing the Report

4.0

DYNAMIC CERTIFICATION LABORATORIES, LLC
Company Name

JOSEPH LA BRIE, SE | SE-3566
Contact Name | *California License Number*

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

(775) 358-5085 | *LaBrie@MakeItRight.net*
Telephone | *E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

DYNAMIC CERTIFICATION LABORATORIES, LLC
Company Name

DR. AHMAD ITANI, SE | SE-5220
Contact Name | *California License Number*

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

(775) 358-5085 | Itani@shaketest.com
Telephone | *E-mail Address*

Anchorage Pre-Approval

6.0

☐ *Anchorage is pre-approved under OPA-*
(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

Certification Method

70. ☒ *Testing in accordance with:* ☒ *ICC-ES AC-156* ☐ *Other (Please Specify):*

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

Testing Laboratory (if applicable)

8.0

DYNAMIC CERTIFICATION LABORATORIES, LLC | *KELLY LAPLACE, QUALITY MANAGER*
Company Name | *Contact Name*

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

(775) 358-5085 | *Kelly@shaketest.com*
Telephone | E-mail:

Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.39g

S_{DS} (Spectral response acceleration at short period) =1.93g

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

R_p (Equipment or component response modification factor) =2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio)=1

Equipment or Component fundamental period(s) =SEE ATTACHMENT

Building period limits (if any) =NONE

Overall dimensions and weight (or range thereof) =SEE ATTACHMENT

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ No

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

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient)=1.0

Ω_0 (System overstrength factor) =1.0

C_d (Deflection amplification factor) =1.0

I_p (Importance factor) =1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No

10.0 *List of attachments supporting the special seismic certification of equipment or components:*

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

☐ *Calculations* ☐ *Others (Please Specify):*

11.0 *OSHPD Approval* *(For Office Use Only)*

Signature & Date **7/27/2011**	*Approval Expiration Date* **December 31, 2016**
M. R. Karim, SHFR *Name & Title*	S_{DS} (g) = **1.93** z/h = **1.0** *Special Seismic Certification Valid Up to*

Condition of Approval (if any):

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Table 1

Special Seismic Certification Approved Units

((●)) DCL Dynamic Certification Laboratories

Manufacturer: Functional Devices

Product Line: PSH AC Power Supplies

Certified Product Construction

16 or 18 gage cold-rolled steel, coated with smooth powder paint.

Certified Mounting Description

Equipment shall be rigid wall-mounted ~~using #14 sheet metal screws per the attached UUT Summary Sheets (Table 2 and Table 3).~~

Model	Dimensions				Size	Construction	Unit
	Depth (in)	Width (in)	Height (in)	Weight (lb)			
PSH40A	4.5	4.5	5.4	3.1	Smallest	16 Gage CRS	UUT1
PSH75A	4.5	4.5	5.4	4.5	↓		Interpolated
PSH100A	4.5	4.5	5.4	4.6			Interpolated
PSH40A-40A (dual unit)	4.5	4.5	8.6	5.4			Interpolated
PSH40A-75A (dual unit)	4.5	4.5	8.6	6.8			Interpolated
PSH40A-100A (dual unit)	4.5	4.5	8.6	6.9			Interpolated
PSH75A-75A (dual unit)	4.5	4.5	8.6	8.4			Interpolated
PSH75A-100A (dual unit)	4.5	4.5	8.6	8.5			Interpolated
PSH100A-100A (dual unit)	4.5	4.5	8.6	8.6			Interpolated
PSH300A	6.0	12.0	12.0	18.1		18 Gage CRS	Interpolated
PSH500A	6.0	12.0	12.0	30.2	Largest		UUT2

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Table 2

UUT1 Unit Under Test Summary Sheet

((●)) DCL Dynamic Certification Laboratories

Manufacturer: Functional Devices

Product Line: PSH AC Power Supplies

Model Number: PSH40A

Product Construction Summary:

16 gage cold-rolled steel, coated with smooth powder paint.

Options / Component Summary:

Enclosed single 40 VA power supply, 120 to 24 Vac.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
3.1	4.5	4.5	5.4	n/a	n/a	n/a

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
IBC 2009	ICC-ES AC156	1.93	1.0	1.5	3.09	2.32	1.29	0.51

Unit Mounting Description:

UUT1 was tested in a rigid-mount configuration. The rigid-mount support system consisted of a rigid steel frame, a stud wall composed of 16-gage steel studs at 24-inches on center, and backing plates to accommodate the UUT as per manufacturer's instructions. The support system, including rigid steel frame and its attachment to the shake table platform, was provided by DCL. The fixturing wall was attached to the shake table using M12 threaded rod at a spacing of approximately 12-inches on center. The UUT was attached to the fixturing wall utilizing three (3) #14 sheet metal screws and the existing openings in the back of the back-box.

Table 3

UUT2 Unit Under Test Summary Sheet

((●)) DCL Dynamic Certification Laboratories

Manufacturer: Functional Devices

Product Line: PSH AC Power Supplies

Model Number: PSH500A

Product Construction Summary:

18 gage cold-rolled steel, coated with smooth powder paint.

Options / Component Summary:

Enclosed 500VA power supply with five 100VA Class 2 outputs, 480/277/240/120 Vac to 24 Vac.

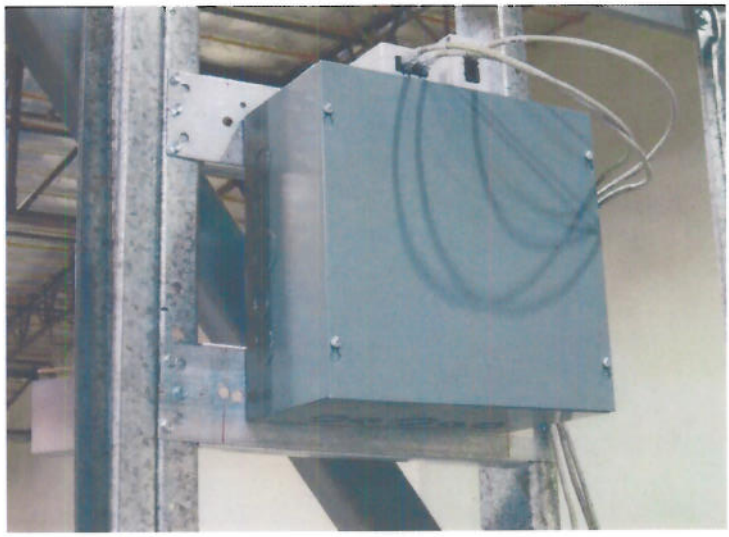
UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
30.2	6.0	12.0	12.0	n/a	n/a	n/a

Seismic Test Parameters

Building Code	Test Criteria	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
IBC 2009	ICC-ES AC156	1.93	1.0	1.5	3.09	2.32	1.29	0.51

Unit Mounting Description:



UUT2 was tested in a rigid-mount configuration. The rigid-mount support system consisted of a rigid steel frame, a stud wall composed of 16-gage steel studs at 24-inches on center, and backing plates to accommodate the UUT as per manufacturer's instructions. The support system, including rigid steel frame and its attachment to the shake table platform, was provided by DCL. The fixturing wall was attached to the shake table using M12 threaded rod at a spacing of approximately 12-inches on center. The UUT was attached to the fixturing wall utilizing four (4) #14 sheet metal screws and the existing openings in the back of the back-box.

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Table 4

Approved Components List

DCL Dynamic Certification Laboratories

Manufacturer: Functional Devices

ENCLOSURES

Component No.	Component Mfg.	Description	Construction Material	Rating	Size	Unit
140793/792 & 140786	Functional Devices	Enclosure	16 Ga CRS	NEMA 1	Smallest	UUT1
140827/787 & 140785	Functional Devices	Enclosure	16 Ga CRS	NEMA 1	↓	Interpolated
140946	Functional Devices	Enclosure	18 Ga CRS	NEMA 1	Largest	UUT2

TRANSFORMERS

Component No.	Component Mfg.	Description	Size	Unit
TR40VA020	Functional Devices (RIB)	Transformer	Smallest	UUT1
560021	Functional Devices (FDI)	Transformer	↓	Interpolated
560058	Functional Devices	Transformer		Interpolated
TR300VA003	Functional Devices	Transformer		Interpolated
TR500VA003	Functional Devices	Transformer	Largest	UUT2