APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0305 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: **Myers Power Products, Inc.**

Manufacturer's Technical Representative: Bruce Steigerwald

Mailing Address: 44 South Commercial Way, Bethlehem, PA 18017

Telephone: 610.868.3500 Email: bruce.steigerwald@myerspower.com

Product Information

Product Name: Illuminator E & IE

Product Type: Lighting Inverter System

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

General Description: Single Phase Emergency Lighting Inverter System. Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid Floor Mounted

Applicant Information

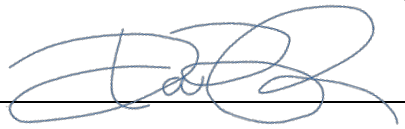
Applicant Company Name: **SEEStudio, Inc.**

Contact Person: Dan Junker, SE

Mailing Address: 1281 9th Ave. san Diego, CA 92101, Suite 1101

Telephone: 619.606.5058 Email: djunker@seestudioinc.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: 04-15-16

Title: Principal Engineer Company Name: SEEStudio, Inc.

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

Company Name: **SEEStudio, Inc.**

Name: Dan Junker, SE California License Number: S6178

Mailing Address: 1281 9th Ave. san Diego, CA 92101, Suite 1101

Telephone: 619.606.5058 Email: djunker@seestudioinc.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: Clark Dynamic Test Laboratory, Inc.

Contact Name: Robert Francis, General Manager

Mailing Address: 1801 Route 51 Jefferson Hills, PA 15025

Telephone: 412-387-1004 Email: rfrancis@clarktesting.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.80

S_{DS} (Design spectral response acceleration at short period, g) = 2.5

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

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): SEES Component Certification Summary

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

Signature:  Date: July 22, 2016

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.50 z/h = 1

Condition of Approval (if applicable):

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

CERTIFIED COMPONENTS

TABLE **1**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

TABLE DESCRIPTION: Lighting Inverters

CONSTRUCTION SUMMARY:

Powder-coated cold-rolled carbon steel enclosure. Certified unit construction shall be identical to cabinet construction of UUT's.

OPTIONS SUMMARY:

Internal components as detailed in following Certified Sub-Component tables.

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$

MOUNTING SUMMARY:

Rigid floor mounted. Unit anchorage shall be designed on a project specific basis by SEOR. Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

NOTES:

Model Line	Model	Max Dimensions (in)			Weight (lb)	Description	UUT
		Depth	Width	Height			
Illuminator Series E & IE	1.5 kVA	25.0	30.0	62.0	511		
	2.25 kVA	25.0	30.0	62.0	674		
	3.00 kVA	25.0	30.0	62.0	827		
	3.75 kVA	25.0	30.0	62.0	980		
	5.00 kVA	25.0	30.0	62.0	1,465		2
	6.00 kVA	25.0	48.0	78.0	1,715		
	8.00 kVA	25.0	48.0	78.0	2,120		
	10.00 kVA	25.0	48.0	78.0	2,561		
	12.50 kVA	25.0	48.0	78.0	3,025		
	16.70 kVA	25.0	48.0	78.0	4,280		1

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **2**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

TABLE DESCRIPTION: Main Transformers

CONSTRUCTION SUMMARY:

Copper Windings.

OPTIONS SUMMARY:

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$

MOUNTING SUMMARY:

Mounted in component. Certified mounting shall be identical to mounting of sub-component in UUT's.

NOTES:

Manufacturer	Sub-Component	Model	Description	UUT
Myers Power Products, Inc.	Main Transformer	XF-FM114052		
		XF-FM114069		
		XF-FM114085		
		XF-FM114091		
		XF-FM114092		
		XF-FM114093		2
		XF-FM114095		
		XF-FM114096		
		XF-FM114097		
		XF-FM114098		
		XF-FM114100		
		XF-FM114101		
		XF-FM114102		
		XF-FM114103		1
		XF-FM114116		
		XF-FM114255		
		XF-FM114258		
		XF-FM114271		
		XF-FM114309		
		XF-FM114310		
		XF-FM114387		

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **3**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

TABLE DESCRIPTION: Option Transformers

CONSTRUCTION SUMMARY:

Copper Windings.

OPTIONS SUMMARY:

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$

MOUNTING SUMMARY:

Mounted in component. Certified mounting shall be identical to mounting of sub-component in UUT's.

NOTES:

Manufacturer	Sub-Component	Model	Description	UUT
Myers Power Products, Inc.	Option Transformer	XF-IS104781		
		XF-IS103534		
		XF-IS106435		
		XF-AU112788		
		XF-AU102331		
		XF-AU101656		
		XF-AU104304		
		XF-IS103533		
		XF-IS102796		
		XF-IS114851		
		XF-IS114849		
		XF-IS105786		
		XF-AU104125		
		XF-AU101612		
		XF-IS105727		
		XF-IS105152		
		XF-IS114673		
		XF-IS113259		
		XF-AU113859		
		XF-AU103093		
		XF-IS102834		
		XF-IS110554		2
		XF-IS102389		
		XF-AU108550		
		XF-AU102316		2
		XF-IS103822		

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **3**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

TABLE DESCRIPTION: Option Transformers

CONSTRUCTION SUMMARY:

Copper Windings.

OPTIONS SUMMARY:

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$

MOUNTING SUMMARY:

Mounted in component. Certified mounting shall be identical to mounting of sub-component in UUT's.

NOTES:

Manufacturer	Sub-Component	Model	Description	UUT
Myers Power Products, Inc.	Option Transformer	XF-IS107057		
		XF-IS101765		
		XF-AU102839		
		XF-AU102077		
		XF-IS114870		
		XF-IS104645		
		XF-IS103354		
		XF-IS111113		
		XF-IS102141		
		XF-AU101676		
		XF-IS102833		
		XF-AU102444		
		XF-AU106763		
		XF-IS104920		
		XF-IS114739		
		XF-AU109375		
		XF-AU102474		
		XF-IS114621		1
		XF-IS113294		
		XF-IS111755		
		XF-IS110639		
		XF-AU111057		
		XF-AU105078		

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **4**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

TABLE DESCRIPTION: Batteries & Fuses

CONSTRUCTION SUMMARY:

OPTIONS SUMMARY:

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$

MOUNTING SUMMARY:

Mounted in component. Certified mounting shall be identical to mounting of sub-component in UUT's.

NOTES:

Manufacturer	Sub-Component	Model	Description	UUT
Little Fuse	Fuse	NLN		1,2
Marathon	Fuse Block	F60A1B	60 Amp	1,2
East Penn Mfg.	Battery	12AVR100-3ET	12V, 100 AH	1,2
Leoch	Battery	FT12-100	12V, 100 AH	1,2

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **5**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

TABLE DESCRIPTION: Miscellaneous Sub-Components

CONSTRUCTION SUMMARY:

OPTIONS SUMMARY:

CERTIFICATION PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

S_{DS} at z/h = 1.0: $S_{DS} = 2.5g$

MOUNTING SUMMARY:

Mounted in component. Certified mounting shall be identical to mounting of sub-component in UUT's.

NOTES:

Manufacturer	Sub-Component	Model	Description	UUT
Myers Power Products, Inc.	AC Sub-Assembly	SA-403244		1
		SA-403245		2
	DC Sub-Assembly	SA-403246		1
		SA-403243		2
	Fax/Modem Option	IC2-Fax/Modem-1		2
		IC2-Fax/Modem-2		1
Precision Graphics	Stagger Start Option	403492		1,2
	Status monitoring	403833		1,2
Newport Electronics	SNMP	EIS-W		1,2
Deltrol Controls	Options Relay	160 Series		1,2
ABB	Output Trip Option	S2C-H6R		1,2
Schnider Electric		MG26928		1,2
Kraus & Naimer	Maintenance Bypass	600 E Series		1,2

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **1**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

MODEL NUMBER: 16.7 kVA

CONSTRUCTION SUMMARY:

Powder-coated Cold-rolled. Lockable hinged doors. Certified unit construction shall be identical to cabinet construction of UUT's.

OPTIONS SUMMARY:

Myers Power IC2-Fax/Modem-2, Precision Graphics 403833 Status monitoring, Newport Electronics EIS-W SNMP, Precision Graphics 403492, Stagger Start Option, Deltrol Controls 160 Series Options Relay, ABB S2C-H6R Output Trip Option, Schnider Electric MG26928 Output Trip Option, Kraus & Naimer 600 E Series Maintenance Bypass, Myers Power SA-403244 AC Sub-Assembly, Myers Power SA-403246 DC Sub-Assembly, Myers Power XF-FM114103 Main Transformer, Myers Power XF-IS114621 Option Transformer, Little Fuse NLN Series Fuse, Marathon F60A1B Fuse Block, East Penn Mfg. 12AVR100-3ET Batteries, Leoch FT12-100 Batteries

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mounted. Unit mounted to shake table at ends with a total of ten (10) 5/8" Gr. 5 bolts.

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE

UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
25.0	48.0	76.0	4,280	19.1	11.3	>33.0

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL

PER MANUFACTURER REQUIREMENT WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.0	4.0	3.0	1.67	0.67

S E E S T U D I O
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

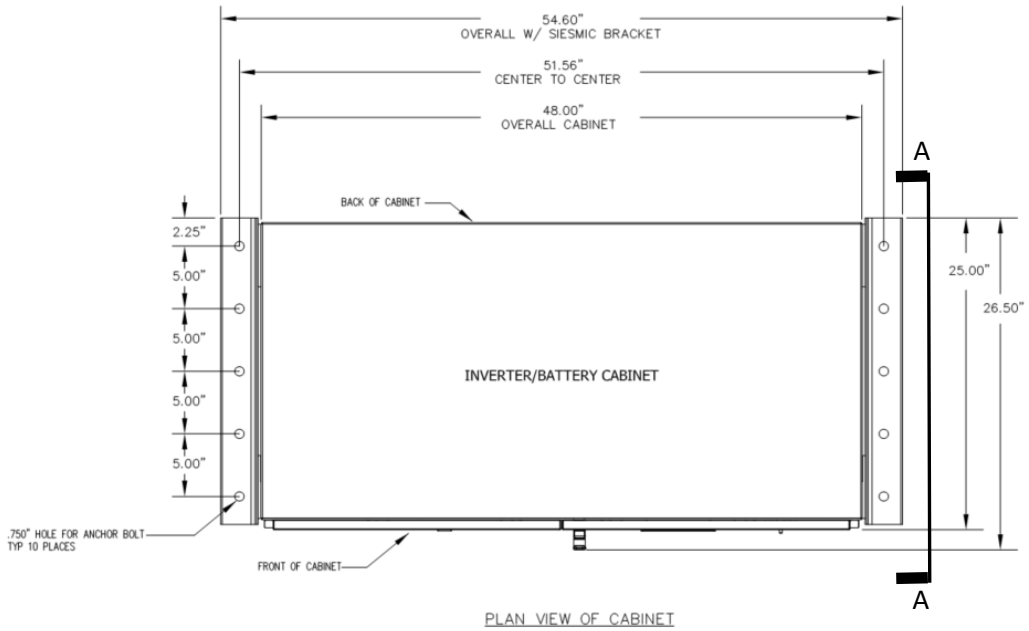
UUT **1**

MANUFACTURER: Myers Power Products, Inc.

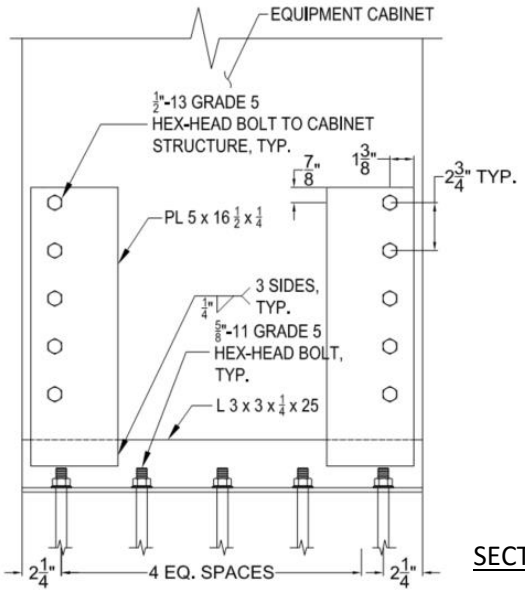
MODEL LINE: Illuminator E & IE Lighting Inverters

MODEL NUMBER: 16.7 kVA

SUPPORT AND ATTACHMENT SUMMARY:



PLAN VIEW OF CABINET



SECTION A-A

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **2**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

MODEL NUMBER: 5 kVA

CONSTRUCTION SUMMARY:

Powder-coated Cold-rolled. Lockable hinged doors. Certified unit construction shall be identical to cabinet construction of UUT's.

OPTIONS SUMMARY:

Myers Power IC2-Fax/Modem-1, Precision Graphics 403833 Status monitoring, Newport Electronics EIS-W SNMP, Precision Graphics 403492, Stagger Start Option, Deltrol Controls 160 Series Options Relay, ABB S2C-H6R Output Trip Option, Schnider Electric MG26928 Output Trip Option, Kraus & Naimer 600 E Series Maintenance Bypass, Myers Power SA-403245 AC Sub-Assembly, Myers Power SA-403243 DC Sub-Assembly, Myers Power XF-FM114092 Main Transformer, Myers Power XF-IS110554 & XF-AU102316 Option Transformers, Little Fuse NLN Series Fuse, Marathon F60A1B Fuse Block, East Penn Mfg. 12AVR100-3ET Batteries, Leoch FT12-100 Batteries

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mounted. Unit mounted to shake table at ends with a total of four (4) 5/8" Gr. 5 bolts

NOTES:

Contents were included in testing per operating conditions.

UUT IMAGE

UUT PROPERTIES

Dimensions (in)			Weight (lb)	First Natural Frequency (Hz)		
Depth	Width	Height		F-B	S-S	Vert
25.0	30.0	62.0	1,465	14.9	10.0	21.7

UNIT MAINTAINED STRUCTURAL INTEGRITY AND REMAINED OPERATIONAL

PER MANUFACTURER REQUIREMENT WHEN SUBJECTED TO THE FOLLOWING TEST PARAMETERS

S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
2.5	1.0	4.0	3.0	1.67	0.67

SEE STUDIO
STRUCTURAL & EARTHQUAKE ENGINEERING
www.seestudioinc.com
P: 619.606.5058
E: designgroup@seestudioinc.com

SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

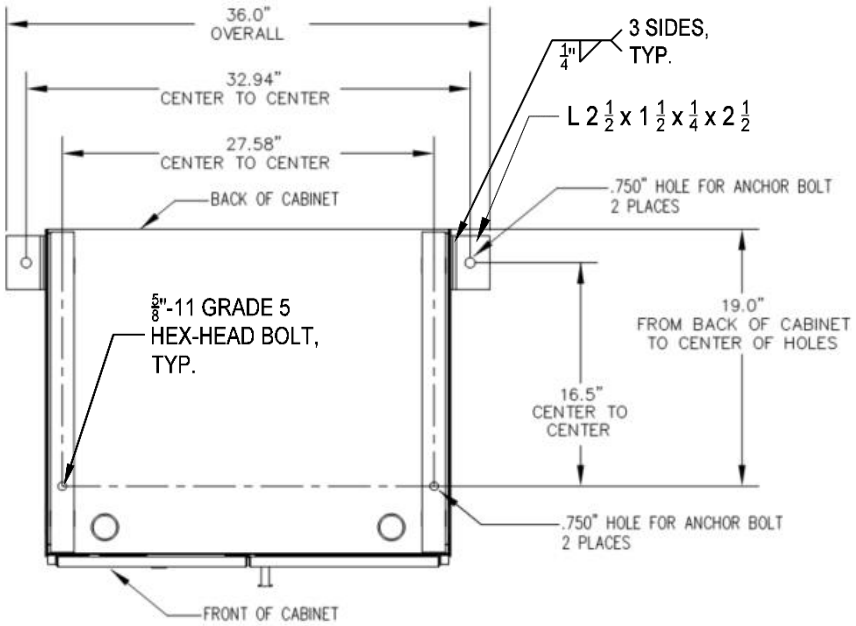
UUT **2**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator E & IE Lighting Inverters

MODEL NUMBER: 5 kVA

SUPPORT AND ATTACHMENT SUMMARY:



PLAN VIEW OF CABINET