APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0258 – 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 CIII

Product Type: Lighting Inverter System

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

General Description: 3-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: August 6, 2016

Print Name: Timothy J. Piland Title: SSE

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

Condition of Approval (if applicable):

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SPECIAL SEISMIC CERTIFICATION

CERTIFIED COMPONENTS

TABLE **1**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 Lighting Inverters

TABLE DESCRIPTION: Lighting Inverters

CONSTRUCTION SUMMARY:

Powder-coated cold-rolled carbon steel enclosure. Lockable hinged doors. 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		kVA	Voltage	
Illuminator Series IC3	1-D-1-S-Cxxx01-S-H	25.0	60.0	47.0	1,633	4	120/208V	
	2-D-1-S-Cxxx01-S-H	25.0	60.0	47.0	1,633	4	277/480V	
	1-D-2-S-Cxxx01-S-H	25.0	60.0	47.0	1,855	6	120/208V	
	2-D-2-S-Cxxx01-S-H	25.0	60.0	47.0	1,855	6	277/480V	
	1-D-3-S-Cxxx01-S-H	25.0	90.0	47.0	2,247	8	120/208V	
	2-D-3-S-Cxxx01-S-H	25.0	90.0	47.0	2,247	8	277/480V	
	1-D-4-S-Cxxx01-S-H	25.0	90.0	47.0	2,835	10	120/208V	
	2-D-4-S-Cxxx01-S-H	25.0	90.0	47.0	2,835	10	277/480V	
	1-D-5-S-Cxxx01-S-H	25.0	90.0	47.0	3,279	12.5	120/208V	
	2-D-5-S-Cxxx01-S-H	25.0	90.0	47.0	3,279	12.5	277/480V	
	1-D-6-S-Cxxx01-S-H	25.0	90.0	47.0	4,063	16.7	120/208V	
	2-D-6-S-Cxxx01-S-H	25.0	90.0	47.0	4,063	16.7	277/480V	1
	1-D-7-S-Cxxx01-S-H	31.0	92.0	72.0	6,390	24	120/208V	
	2-D-7-S-Cxxx01-S-H	31.0	92.0	72.0	6,390	24	277/480V	
	1-D-8-S-Cxxx01-S-H	31.0	140.0	72.0	8,630	33	120/208V	
	2-D-8-S-Cxxx01-S-H	31.0	140.0	72.0	8,630	33	277/480V	
	1-D-9-S-Cxxx01-S-H	31.0	140.0	72.0	10,150	40	120/208V	
	2-D-9-S-Cxxx01-S-H	31.0	140.0	72.0	10,150	40	277/480V	
	1-D-10-S-Cxxx01-S-H	31.0	140.0	72.0	11,980	50	120/208V	
	2-D-10-S-Cxxx01-S-H	31.0	140.0	72.0	11,980	50	277/480V	2

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SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **2**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 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 Transformers	XF-FM113777		
		XF-FM113799		
		XF-FM113807		
		XF-FM113809		
		XF-FM113745		
		XF-FM113778		
		XF-FM113806		1
		XF-FM113808		2

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SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **3**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 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

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SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **4**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 Lighting Inverters

TABLE DESCRIPTION: DC Sub-Assembly

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:

Sub-Assembly Part Number: SA-403002, SA-403007

Manufacturer	Sub-Component	Model	Description	UUT
Powerex	IGBT	NF Series		1,2
Precision Graphics	IGBT PCB	403164		1,2
Cornell Dubilier	DC Capacitor	Type DCMC		1,2
Richardson RFPD	Heatsink	96-0117 - 203135		1
		96-0117 - 203141		2
Mechatronics	Fan	UF12A12		1,2
Filtran Limited	Current Transformer	113141		1,2
Little Fuse	DC Fuse	NLN		1,1
Square D	DC Fuse	LAL		2,2
		JDL		2,2
Marathon	Fuse Block	RF100A1B		1,2
LEM	Current Sensor	HAS 100-S		1
		HAS 400-S		2
Precision Graphics	Control PCB	403569		1,2

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SPECIAL SEISMIC CERTIFICATION

CERTIFIED SUB-COMPONENTS

TABLE **5**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 Lighting Inverters

TABLE DESCRIPTION: AC Sub-Assembly

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:

Sub-Assembly Part Number: SA-403003, SA-403006

Manufacturer	Sub-Component	Model	Description	UUT
Infineon	SCR	G2B17		1,2
AZ Circuits	SCR PCB	403764		1,2
Bussman	SCR Fuse	FWH Series		1,2
Richardson RFPD	Heatsink	202867		1
		203091		2
Little Fuse	Varistor	V321DA40		1,2
Myers	Power Supply Trans.	113751		1,2
Kraus & Naimer	Bypass Switch	C80-6US6900-600E		1,2
Square D	Circuit Breaker	FAL		1,2

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SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **1**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 Lighting Inverters

MODEL NUMBER: D-6-S

CONSTRUCTION SUMMARY:

Powder-coated cold-rolled carbon steel enclosure. Lockable hinged doors.

OPTIONS SUMMARY:

Myers XF-FM113806 main transformer, Little Fuse NLN fuses, Marathon F60A1B fuse block, East Penn Mfg. 12AVR100-3ET batteries, Leoch FT12-100 batteries, Powerex NF Series IGBT, Precision Graphics 403164 IGBT PCB, Cornell Dubilier type DCMC DC capacitor, Richardson RFPD 96-0117-203135 heatsink, Mechatronics UF12A12 fan, Filtran Limited 113141 current transformer, Marathon RF100A1B fuse block, LEM HAS 100-S current sensor, Precision Graphics 403569 control PCB, Infineon G2B17 SCR, AZ Circuits 403764 SCR PCB, Bussman FWH SCR fuses, Richardson RFPD 202867 heatsink, Little Fuse V321DA40 varistor, Myers 113751 power supply transformer, Kraus & Naimer C80-6US6900-600E bypass switch, Square D FAL circuit breaker

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mount. Unit mounted to shake table using six (6) grade 5 5/8-11 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	90.0	47.0	4,015	23.1	24.5	N/A

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

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SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

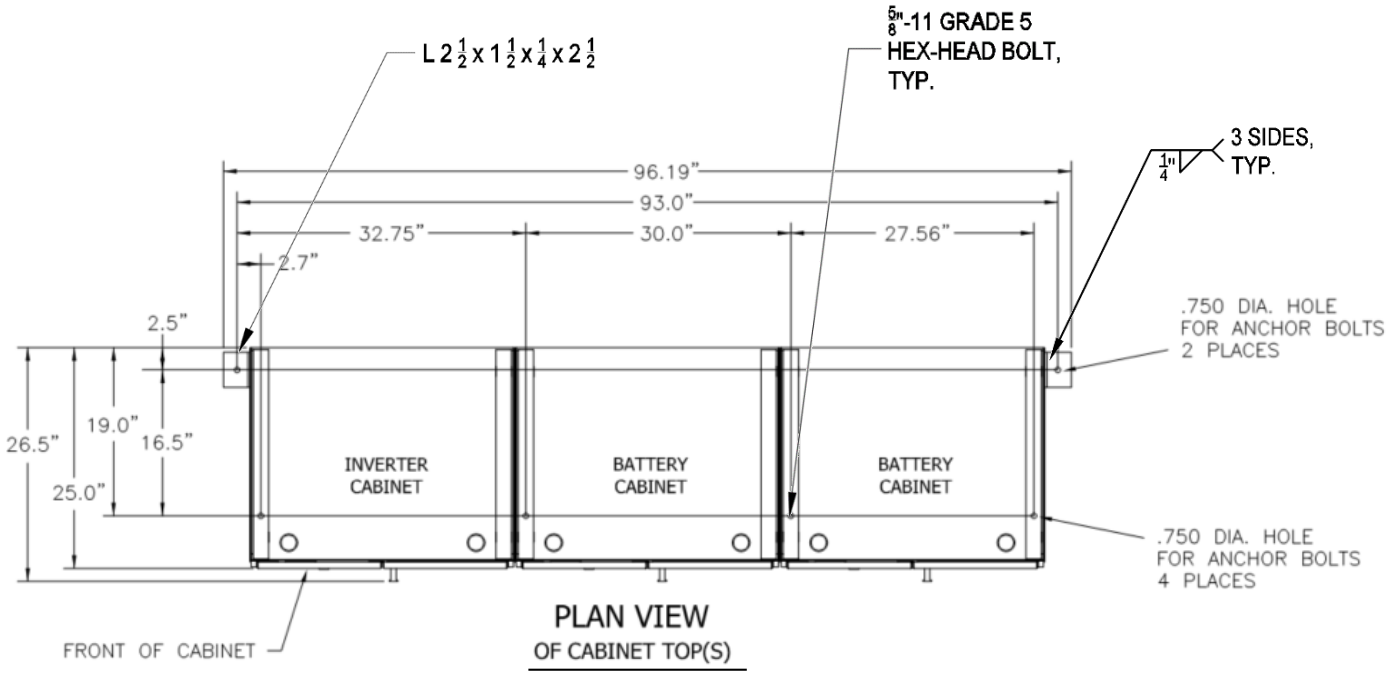
UUT **1**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 Lighting Inverters

MODEL NUMBER: D-6-S

SUPPORT AND ATTACHMENT SUMMARY:



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SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

UUT **2**

MANUFACTURER: Myers Power Products, Inc.

MODEL LINE: Illuminator Series IC3 Lighting Inverters

MODEL NUMBER: D-10-S

CONSTRUCTION SUMMARY:

Powder-coated cold-rolled carbon steel enclosure. Lockable hinged doors.

OPTIONS SUMMARY:

Myers XF-FM113808 main transformer, Little Fuse NLN fuses, Marathon F60A1B fuse block, East Penn Mfg. 12AVR100-3ET batteries, Leoch FT12-100 batteries, Powerex NF Series IGBT, Precision Graphics 403164 IGBT PCB, Cornell Dubilier type DCMC DC capacitor, Richardson RFPD 96-0117-203141heatsink, Mechatronics UF12A12 fan, Filtran Limited 113141 current transformer, Marathon RF100A1B fuse block, LEM HAS 400-S current sensor, Precision Graphics 403569 control PCB, Infineon G2B17 SCR, AZ Circuits 403764 SCR PCB, Bussman FWH SCR fuses, Richardson RFPD 203091 heatsink, Little Fuse V321DA40 varistor, Myers 113751 power supply transformer, Kraus & Naimer C80-6US6900-600E bypass switch, Square D FAL circuit breaker

TEST PARAMETERS:

Building Code: CBC 2016

Component Importance Factor: $I_p = 1.5$

Test Criteria: AC-156

MOUNTING SUMMARY:

Rigid floor mount. Unit mounted to shake table using sixteen (16) grade 5 5/8-11 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
31.0	140.0	72.0	11,398	5.7	7.0	9.9

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

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SPECIAL SEISMIC CERTIFICATION

UNIT UNDER TEST (UUT) DESCRIPTION

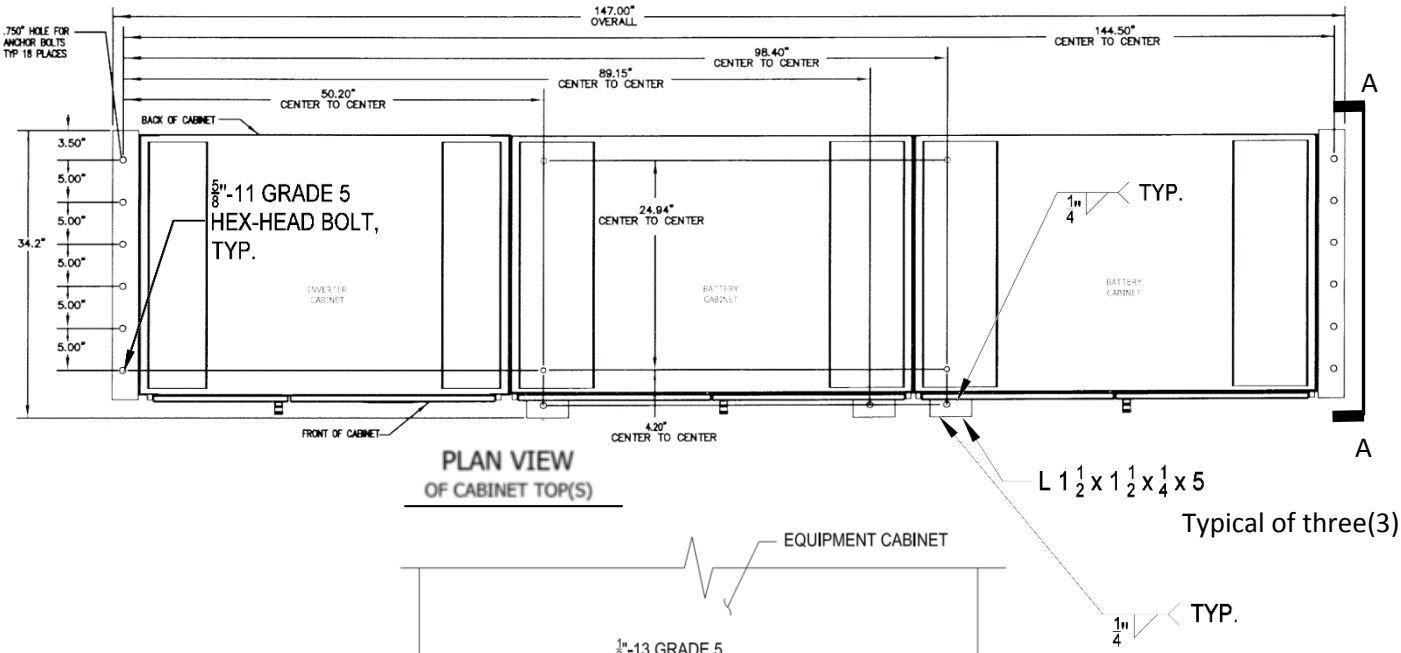
UUT **2**

MANUFACTURER: Myers Power Products, Inc.

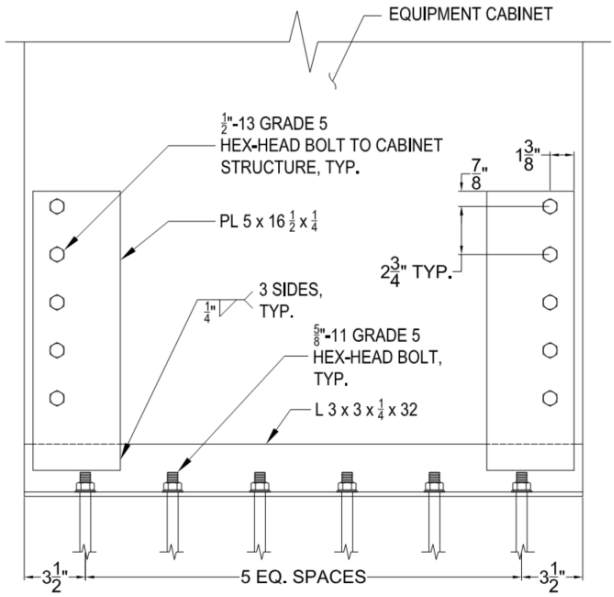
MODEL LINE: Illuminator Series IC3 Lighting Inverters

MODEL NUMBER: D-10-S

SUPPORT AND ATTACHMENT SUMMARY:



PLAN VIEW
OF CABINET TOP(S)



SECTION A-A