



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0482 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Post Glover Resistors, Inc.

Manufacturer's Technical Representative: Jonathan Nash, Engineering Manager

Mailing Address: 1369 Cox Avenue, Erlanger, KY 41018

Telephone: (859) 372-8919 Email: jonathan.nash@postglover.com

Product Information

Product Name: Neutral Grounding Device

Product Type: Electrical Equipment

Product Model Number: See Attachment

(List all unique product identification numbers and/or part numbers)

General Description: Units consist of enclosure, insulator, current transformer, voltage transformer, sensing resistor, terminal block and resistors

Mounting Description: Rigid base mount

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

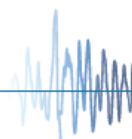
Telephone: (973) 8388-1780 Email: john.giuliano@thevmcgroup.com

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: 10/5/16

Title: President Company Name: The VMC Group

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

Company Name: The VMC Group
Name: Ken Tarlow California License Number: SE-2851
Mailing Address: 980 9th Street, Sacramento, CA 95814
Telephone: (973) 838-1780 Email: Ken.tarlow@thevmcgroup.com

Supports and Attachments Preapproval

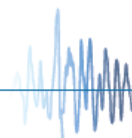
- ☐ Supports and attachments are preapproved under OPM-
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
☒ Supports and attachments are not preapproved

Certification Method

- ☒ Testing in accordance with: ☒ ICC-ES AC156
☐ Other (Please Specify): _____

Testing Laboratory

Company Name: Dynamic Certification Laboratories
Contact Name: Kelly Laplace, Project Manager
Mailing Address: 1315 Greg Street, Suite 109, Sparks, NV 89431
Telephone: (775) 358-5085 Email: Kelly@shaketest.com





OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 2.71

S_{DS} (Design spectral response acceleration at short period, g) = 2.26

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

R_p (Equipment or component response modification factor) = 1.5

Ω_0 (System overstrength factor) = 1.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See attachments

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

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): OSP product summary

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

Signature: _____

Date: January 9, 2017

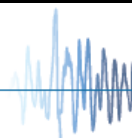
Print Name: ALI SUMER

Title: DSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.26

z/h = 1

Condition of Approval (if applicable): _____



Special Seismic Certification Certified Components



Manufacturer: Post Glover Resistors, Inc.

Certified Product Line: Neutral Grounding Device

Certified Product Construction: NEMA 3R or NEMA 1 enclosure; Carbon Steel coated by either Mill Galvanized or Galvanneal corrosion protection

Mounting Description: Rigid base mounted

Model ¹	Enclosure Type	Voltage L-L	Voltage L-N	Secondary Voltage	Time	Current	Dimensions (in)			Resistor Banks	Weight (lb)	Sds (g), z/h=1	Unit
							Length	Width	Height				
M -GTR080C5D0-EGK0A01G0	NEMA 3R	13800	8000	228	Cont/385C	5	42	48	60	3	1,260	2.26	UUT1
M -GTR076C5D0-EGK0A01G0	NEMA 3R	13200	7620	218	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
M -GTR072C5D0-EGK0A01G0	NEMA 3R	12470	7200	206	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
M -GTR069C5D0-EGK0A01G0	NEMA 3R	12000	6930	198	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
M -GTR063C5D0-EGK0A01G0	NEMA 3R	11000	6350	181	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
M -GTR042C5D0-EGK0A01G0	NEMA 3R	7200	4160	118	Cont/385C	5	42	48	60	2	1,218	2.26	Extrapolated
M -GTR040C5D0-EGK0A01G0	NEMA 3R	6900	3985	113	Cont/385C	5	42	48	60	2	1,218	2.26	Extrapolated
M -GTR038C5D0-EGK0A01G0	NEMA 3R	6600	3810	109	Cont/385C	5	42	48	60	2	1,218	2.26	Extrapolated
M -GTR024C5D0-EGK0A01G0	NEMA 3R	4160	2400	68	Cont/385C	5	42	48	60	1	1,176	2.26	Extrapolated
M -GTR019C5D0-EGK0A01G0	NEMA 3R	3300	1905	54	Cont/385C	5	42	48	60	1	1,176	2.26	Extrapolated
M -GTR014C5D0-EGK0A01G0	NEMA 3R	2400	1385	39	Cont/385C	5	42	48	60	1	1,176	2.26	Extrapolated
MU -GTR080C5D0-EGK0A01G0	NEMA 3R	13800	8000	228	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
MU -GTR076C5D0-EGK0A01G0	NEMA 3R	13200	7620	218	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
MU -GTR072C5D0-EGK0A01G0	NEMA 3R	12470	7200	206	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
MU -GTR069C5D0-EGK0A01G0	NEMA 3R	12000	6930	198	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
MU -GTR063C5D0-EGK0A01G0	NEMA 3R	11000	6350	181	Cont/385C	5	42	48	60	3	1,260	2.26	Extrapolated
MU -GTR042C5D0-EGK0A01G0	NEMA 3R	7200	4160	118	Cont/385C	5	42	48	60	2	1,218	2.26	Extrapolated
MU -GTR040C5D0-EGK0A01G0	NEMA 3R	6900	3985	113	Cont/385C	5	42	48	60	2	1,218	2.26	Extrapolated
MU -GTR038C5D0-EGK0A01G0	NEMA 3R	6600	3810	109	Cont/385C	5	42	48	60	2	1,218	2.26	Extrapolated
MU -GTR024C5D0-EGK0A01G0	NEMA 3R	4160	2400	68	Cont/385C	5	42	48	60	1	1,176	2.26	Extrapolated
MU -GTR019C5D0-EGK0A01G0	NEMA 3R	3300	1905	54	Cont/385C	5	42	48	60	1	1,176	2.26	Extrapolated
MU -GTR014C5D0-EGK0A01G0	NEMA 3R	2400	1385	39	Cont/385C	5	42	48	60	1	1,176	2.26	Extrapolated

Note:

1. The standard product model number is M/MU-GTR0xxC5D0-EGK0y01G0, where:

- i. M units are physically identical to MU units; the U only indicates that the product is UL listed
- ii. xx can be from 14 to 80, and indicates the input voltage of the model as calculated from the resistance, related to the number of resistor banks are placed within the electrical circuit. Three resistor banks were present in the tested units. Three, two or one resistor banks are present in the extrapolated units.
- iii. y can be A or 0, for a NEMA 3R or NEMA 1 enclosure

Special Seismic Certification Certified Components (Continued)



Manufacturer: Post Glover Resistors, Inc.

Certified Product Line: Neutral Grounding Device

Certified Product Construction: NEMA 3R or NEMA 1 enclosure; Carbon Steel coated by either Mill Galvanized or Galvanneal corrosion protection

Mounting Description: Rigid base mounted

Model ¹	Enclosure Type	Voltage L-L	Voltage L-N	Secondary Voltage	Time	Current	Dimensions (in)			Resistor Banks	Weight (lb)	Sds (g), z/h=1	Unit
							Length	Width	Height				
M-GTR080C5D0-EGK0001G0	NEMA 1	13800	8000	228	Cont/385C	5	42	48	60	3	1,200	2.26	UUT2
M-GTR076C5D0-EGK0001G0	NEMA 1	13200	7620	218	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
M-GTR072C5D0-EGK0001G0	NEMA 1	12470	7200	206	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
M-GTR069C5D0-EGK0001G0	NEMA 1	12000	6930	198	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
M-GTR063C5D0-EGK0001G0	NEMA 1	11000	6350	181	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
M-GTR042C5D0-EGK0001G0	NEMA 1	7200	4160	118	Cont/385C	5	42	48	60	2	1,158	2.26	Extrapolated
M-GTR040C5D0-EGK0001G0	NEMA 1	6900	3985	113	Cont/385C	5	42	48	60	2	1,158	2.26	Extrapolated
M-GTR038C5D0-EGK0001G0	NEMA 1	6600	3810	109	Cont/385C	5	42	48	60	2	1,158	2.26	Extrapolated
M-GTR024C5D0-EGK0001G0	NEMA 1	4160	2400	68	Cont/385C	5	42	48	60	1	1,116	2.26	Extrapolated
M-GTR019C5D0-EGK0001G0	NEMA 1	3300	1905	54	Cont/385C	5	42	48	60	1	1,116	2.26	Extrapolated
M-GTR014C5D0-EGK0001G0	NEMA 1	2400	1385	39	Cont/385C	5	42	48	60	1	1,116	2.26	Extrapolated
MU-GTR080C5D0-EGK0001G0	NEMA 1	13800	8000	228	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
MU-GTR076C5D0-EGK0001G0	NEMA 1	13200	7620	218	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
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MU-GTR069C5D0-EGK0001G0	NEMA 1	12000	6930	198	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
MU-GTR063C5D0-EGK0001G0	NEMA 1	11000	6350	181	Cont/385C	5	42	48	60	3	1,200	2.26	Extrapolated
MU-GTR042C5D0-EGK0001G0	NEMA 1	7200	4160	118	Cont/385C	5	42	48	60	2	1,158	2.26	Extrapolated
MU-GTR040C5D0-EGK0001G0	NEMA 1	6900	3985	113	Cont/385C	5	42	48	60	2	1,158	2.26	Extrapolated
MU-GTR038C5D0-EGK0001G0	NEMA 1	6600	3810	109	Cont/385C	5	42	48	60	2	1,158	2.26	Extrapolated
MU-GTR024C5D0-EGK0001G0	NEMA 1	4160	2400	68	Cont/385C	5	42	48	60	1	1,116	2.26	Extrapolated
MU-GTR019C5D0-EGK0001G0	NEMA 1	3300	1905	54	Cont/385C	5	42	48	60	1	1,116	2.26	Extrapolated
MU-GTR014C5D0-EGK0001G0	NEMA 1	2400	1385	39	Cont/385C	5	42	48	60	1	1,116	2.26	Extrapolated

Note:

1. The standard product model number is M/MU-GTR0xxC5D0-EGK0y01G0, where:

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- ii. xx can be from 14 to 80, and indicates the input voltage of the model as calculated from the resistance, related to the number of resistor banks are placed within the electrical circuit. Three resistor banks were present in the tested units. Three, two or one resistor banks are present in the extrapolated units.
- iii. y can be A or 0, for a NEMA 3R or NEMA 1 enclosure

Special Seismic Certification Certified Subcomponents



Manufacturer: Post Glover Resistors, Inc.

Certified Product Line: Neutral Grounding Device

Certified Subcomponents: Enclosures, insulators, current transformers, sensing resistors, terminal blocks and resistors

Enclosures								
Model	Manufacturer	Dimensions (in)			Material	Coating	Notes	Unit
		Length	Width	Height				
GTRMC005-01	Post Glover	42	48	60	Carbon Steel	Mill Galvanized	NEMA 3R	UUT1
GTRMC005-01-PG		42	48	60	Carbon Steel	Galvanneal, Painted	NEMA 3R	Extrapolated
GTRMC005-01	Post Glover	42	48	60	Carbon Steel	Mill Galvanized	NEMA 1	UUT2
GTRMC005-01-PG		42	48	60	Carbon Steel	Galvanneal, Painted	NEMA 1	Extrapolated

Insulators				
Model Number	Manufacturer	Notes		Unit
I15	Meister Intl.	Stand off, 15kV, 110 kV BIL		UUT1, UUT2

Current Transformer				
Model Number	Manufacturer	Notes		Unit
21-201	Spectrum Ind.	200:5 current ratio, C20		UUT1, UUT2

Sensing Resistor				
Model Number	Manufacturer	Notes		Unit
ER-600VC	Bradford Stuart Ind.	600V		UUT1, UUT2

Terminal Block				
Model Number	Manufacturer	Notes		Unit
304	Kulka	600V, 4 pole		UUT1, UUT2

Resistors							
Manufacturer	Material	Grid Width	Bank Width	Number of Banks	Bank Type	Grid Thickness	Unit
Post Glover	18SR stainless	610 mm	811 mm	2 + 1	EN	20 Ga	UUT1, UUT2
Post Glover	18SR stainless or 13-4SR stainless	610 mm	811 mm	3, 2 or 1	EN	20 Ga - 14 Ga	Extrapolated*

*Tested unit contained 3 banks (2 + 1). Resistor bank material and 3-bank resistor configuration tested featured the lowest seismic withstand capacity. Weights of extrapolated resistor banks do not exceed those of the tested units.

Special Seismic Certification

Tested Units



Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Device

Tested Product Construction: NEMA 3R or NEMA 1 enclosure; Carbon Steel coated by either Mill Galvanized or Galvanneal corrosion protection

Tested Mounting Description: Rigid base mounted

Model	Enclosure Type	Voltage L-L	Voltage L-N	Secondary Voltage	Time	Current	Dimensions (in)			Weight (lb)	Sds (g), z/h=1	Unit
							Length	Width	Height			
M-GTR080C5D0-EGK0A01G0	NEMA 3R	13800	8000	228	Cont/385C	5	42	48	60	1,260	2.26	UUT1
M-GTR080C5D0-EGK0001G0	NEMA 1	13800	8000	228	Cont/385C	5	42	48	60	1,200	2.26	UUT2

UUT1

UNIT UNDER TEST Summary Sheet



Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Device

Model Number: M-GTR080C5D0-EGK0A01G0

Product Construction Summary: NEMA 3R enclosure; carbon steel coated by mill galvanized corrosion protection

Subcomponent Summary: Enclosure, insulator, current transformer, sensing resistor, terminal block and resistors

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

UUT Properties

Operating Weight (lb)	Test Unit Overall Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
1,260	42	48	60	8.5	11.0	17.0

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	2.26	1.0	1.5	3.62	2.71	1.51	0.60

Unit Mounting Description:



Unit was rigidly attached to shake table interface frame with (4) 1/2" diameter Grade 5 bolts

UUT2**UNIT UNDER TEST Summary Sheet****Manufacturer:** Post Glover Resistors, Inc.**Product Line:** Neutral Grounding Device**Model Number:** M-GTR080C5D0-EGK0001G0**Product Construction Summary:** NEMA 1 enclosure; carbon steel coated by mill galvanized corrosion protection**Subcomponent Summary:** Enclosure, insulator, current transformer, sensing resistor, terminal block and resistors**Note:** The UUT was tested full of operating content and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.**UUT Properties**

Operating Weight (lb)	Test Unit Overall Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Length	Width	Height	Front-Back	Side-Side	Vertical
1,200	42	48	60	7.0	7.5	17.5

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	2.26	1.0	1.5	3.62	2.71	1.51	0.60

Unit Mounting Description:

Unit was rigidly attached to shake table interface frame with (4) 1/2" diameter Grade 5 bolts