



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0869

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Post Glover Resistors, Inc

Manufacturer's Technical Representative: Jonathan Nash

Mailing Address: 1369 Cox Ave., Erlanger, KY 41018

Telephone: (859) 283-0778

Email: jonathan.nash@postglover.com

Product Information

Product Name: Neutral Grounding Resistor and Dynamic Braking Resistor

Product Model Number(s): See attached

Product Category: Power Isolation and Correction Systems

Product Sub-Category: Grounding Systems

General Description: Floor mounted units consisting of two to five power high sections, grounded Indoor and outdoor safety enclosure, with options for bushing entry/exit, window style current transformers, sensing resistor, junction box and heater circuit.

Mounting Description: Base Mounted Rigid

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Rachel Wolfe

Mailing Address: 1315 Greg Street, Sparks, NV 89431

Telephone: (775) 358-5085

Email: rachel.wolfe@shaketest.com

Title: Seismic Test Engineer



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

Company Name: THE VMC GROUP

Name: Kenneth Tarlow California License Number: S2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3
☐ Other (Please Specify): _____

Testing Laboratory

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)

Contact Person: Josh Sailer

Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431

Telephone: (775) 358-5085 Email: josh@shaketest.com

BY: Mohammad Karim

DATE: 10/1/2025



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Seismic Parameters

Certified Response Spectral Acceleration Factors: (F_p/W_p)

Horizontal (A Flx-H), $g =$ 3.62 (A Rig-H), $g =$ 2.43

Vertical (A Flx-V), $g =$ 1.51 (A Rig-V), $g =$ 0.6

S_{DS} (Design spectral response acceleration at short period, g) = 2.26 at $z/h=1.0$ and 0

H_f (Force amplification height factor) = 3.5 at $z/h=1.0$; 1 at $z/h=0$

R_u (Structure ductility reduction factor) = 1.3 at $z/h=1.0$; 1 at $z/h=0$

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 0 and 1

HCAI Approval (For Office Use Only) - Approval Expires on 10/01/2031

Date: 10/1/2025

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Condition of Approval (if applicable): _____

OSP-0869

BY: Mohammad Karim

DATE: 10/1/2025

Special Seismic Certification

Table 1 - Certified Components



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Product Construction Summary: Mill Galvanized Carbon Steel or 304 Stainless Steel Enclosure, NEMA 2 or NEMA 3R/IP23 or NEMA 1

Mounting: Rigid Base Mounted

Certified Seismic Levels: Sds 2.26 g at z/h = 1.0 and z/h = 0.0

Factors for Force Amplification and Structure Ductility Reduction: $H_f = 3.5$ at z/h=1.0; 1.0 at z/h=0 and $R_p = 1.3$ at z/h=1.0; 1.0 at z/h=0

Model Number	Resistor Type	Description	Max. Dimensions [in.]			Max. Operating Weight [lb.] ¹	Unit
			Depth	Width	Height		
M-NGD27A2D3-118021K-UUT09	Wirewound	Resistor, Neutral Grounding, 277V, 2.3A, 10SEC/760°C	20.0	30.5	15.3	82.6	UUT-09
MX-NGDXXXXX-118XXX-MODXXX	Edgewound, Wirewound, Smoothwound	Resistor, Neutral Grounding	20.0	30.5	15.3	150.0	Interpolated
MX-NGDXXXXX-127XXX-MODXXX	Edgewound, Wirewound, Smoothwound	Resistor, Neutral Grounding	20.0	30.5	22.3	220.0	Interpolated
MX-NGDXXXXX-136XXX-MODXXX	Edgewound, Wirewound, Smoothwound	Resistor, Neutral Grounding	20.0	30.5	29.3	290.0	Interpolated
MX-NGDXXXXX-145XXX-MODXXX	Edgewound, Wirewound, Smoothwound	Resistor, Neutral Grounding	20.0	30.5	36.3	304.0	Interpolated
M-NGD60A0D2-145AA5M-UUT10	Edgewound, Wirewound, Smoothwound	Resistor, Neutral Grounding, 600V, 0.2A, 10SEC/760°C	21.5	30.6	36.0	304.0	UUT-10a,b
MX-NGDXXXXX-1G2XXX-MODXXX	Grid	Resistor, Neutral Grounding	21.5	30.6	15.3	160.0	Interpolated
MX-NGDXXXXX-1G3XXX-MODXXX	Grid	Resistor, Neutral Grounding	21.5	30.6	22.3	250.0	Interpolated
MX-NGDXXXXX-1G4XXX-MODXXX	Grid	Resistor, Neutral Grounding	21.5	30.6	29.3	313.4	Interpolated
MX-NGDXXXXX-1G5XXX-MODXXX	Grid	Resistor, Neutral Grounding	21.5	30.6	36.0	313.4	Interpolated
M-NGD60A146-1G50A00-UUT11	Grid	Resistor, Neutral Grounding, 600V, 146A, 10SEC/760°C	21.5	30.6	36.0	313.4	UUT-11a,b

Note:

1. UUT-10a and UUT-11a were tested with an optional interior bracket. UUT-10b and UUT-11b were tested without an optional interior bracket. Maximum weight includes optional interior brackets. The optional bracket can be installed in any height NEMA 3R enclosure. The optional brackets can be up to 4" wide.

DATE: 10/1/2025



Special Seismic Certification

Table 2 - Certified Options - Neutral Grounding Resistor Nomenclature Chart



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor

Mounting Description: Rigid Base Mounted

Certified Seismic Levels: Sds 2.26 g at z/h = 1.0 and z/h = 0.0

Sample Part Number: MCU-NGD27A400-145AA00-MODXXX

Model Number Nomenclature

M	CU	-	NG	D27	A	400	-	1	45	A	A	0	0	-	MODXXX
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Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
M	M	Seismic	Seismic	Tested	UUT-09, UUT-10a,b, UUT-11a,b
CU	Blank	Seismic	OSP Certified	Tested	UUT-09, UUT-10a,b, UUT-11a,b
	xx	Other	Other Regulatory Compliance ¹	Same design as tested units	Same as tested
NG	NG	Resistor Style	Neutral Grounding	Tested	UUT-09, UUT-10a,b, UUT-11a,b
D27	D10	Voltage	100V	Bookended by tested units	Interpolated
	D16		160V	Bookended by tested units	Interpolated
	D24		240V	Bookended by tested units	Interpolated
	D27		277V	Tested	UUT-09
	D37		370V	Bookended by tested units	Interpolated
	048		480V	Bookended by tested units	Interpolated
	D60		600V	Tested	UUT-10a,b, UUT-11a,b
A	W	Duty ²	2 Sec/760C OR 2 Sec/750C	Bookended by tested units	Extrapolated
	A		10 Sec/760C OR 10 Sec/750C	N/A	UUT-09, UUT-10a,b, UUT-11a,b
	B		15 Sec/760C OR 15 Sec/750C	Bookended by tested units	Interpolated
	D		20 Sec/760C OR 20 Sec/750C	Bookended by tested units	Interpolated
	H		30 Sec/760C OR 30 Sec/750C	Bookended by tested units	Interpolated
	M		60 Sec/610C OR 60 Sec/600C	Bookended by tested units	Interpolated
	N		60 Sec/760C OR 60 Sec/750C	Bookended by tested units	Interpolated
	C		Continuous/385C OR Continuous/375C	Bookended by tested units	Interpolated
	E		Extended/610C OR Extended/600C	Bookended by tested units	Interpolated
400	0D2	Current ³	0.2A	Tested	UUT-10a,b
	2D3		2.3A	Tested	UUT-09
	5D0		5A	Bookended by tested units	Interpolated
	010		10A	Bookended by tested units	Interpolated
	019		19A	Bookended by tested units	Interpolated
	030		30A	Bookended by tested units	Interpolated
	053		53A	Bookended by tested units	Interpolated
	146		146A	Tested	UUT-11a,b
	M		Multiple Amps Option	Bookended by tested units	Interpolated
1	1	Enclosure Quantity	One Enclosure	Tested	UUT-09, UUT-10a,b, UUT-11a,b
45	18	Enclosure Height	2 x 7 in section	Tested	UUT-09
	G2		2 x 7 in section - Grid	Bookended by tested units	Interpolated
	27		3 x 7 in section	Bookended by tested units	Interpolated
	G3		3 x 7 in section - Grid	Bookended by tested units	Interpolated
	36		4 x 7 in section	Bookended by tested units	Interpolated
	G4		4 x 7 in section - Grid	Bookended by tested units	Interpolated
	45		5 x 7 in section	Tested	UUT-10a,b
	G5		5 x 7 in section - Grid	Tested	UUT-11a,b

Continued on next page

Notes:

- Other regulatory compliance certifications outside of OSHPDs are not certified under this OSP.
- The duty rating relates directly to the number of resistors, a range of resistors were tested in the selected units.
- Current may be any value. Subcomponents relating to the Current Option are bookended by tested units.

Special Seismic Certification

Table 3 - Certified Options - Neutral Grounding Resistor Nomenclature Chart (Continued)



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor

Mounting Description: Rigid Base Mounted

Certified Seismic Levels: Sds 2.26 g at z/h = 1.0 and z/h = 0.0

Sample Part Number: MCU-NGD27A400-145AA00-MODXXX

Model Number Nomenclature

M	CU	-	NG	D27	A	400	-	1	45	A	A	0	0	-	MODXXX
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Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
A	0	Resistor Enclosure Material	Mill Galvanized	N/A	UUT-09, UUT-11a,b
	A		304 Stainless Steel	N/A	UUT-10a,b
	B		316 Stainless Steel	Corrosion-Resistant 304 Stainless Steel	Same as UUT-10a,b
	D		Galvanneal Steel, ANSI 49	Different Paint	Same as UUT-09, UUT-11a,b
	E		Galvanneal Steel, ANSI 61	Different Paint	Same as UUT-09, UUT-11a,b
	F		Galvanneal Steel, ANSI 70	Different Paint	Same as UUT-09, UUT-11a,b
	G		304 Stainless Steel, ANSI 49	Different Paint	Same as UUT-10a,b
	H		304 Stainless Steel, ANSI 61	Different Paint	Same as UUT-10a,b
	I		304 Stainless Steel, ANSI 70	Different Paint	Same as UUT-10a,b
	J		304 Stainless Steel, Special Paint	Different Paint	Same as UUT-10a,b
	K		316 Stainless Steel, ANSI 49	Different Paint	Same as UUT-10a,b
	L		316 Stainless Steel, ANSI 61	Different Paint	Same as UUT-10a,b
	M		316 Stainless Steel, ANSI 70	Different Paint	Same as UUT-10a,b
	N		316 Stainless Steel, Special Paint	Different Paint	Same as UUT-10a,b
	P		Galvanneal Steel, Special Paint	Mill Galvanized Steel with finish	Same as UUT-09, UUT-11a,b
	R		Galvanneal Steel, RAL7035	Different Paint	Same as UUT-09, UUT-11a,b
A	0	Enclosure Rating	NEMA 1 / Type 1	Same design as UUT-09	Same as Tested
	2		NEMA 2 / Type 2	Tested	UUT-09
	A		NEMA 3R / IP23 / Type 3R	Tested	UUT-10a,b and UUT-11a,b
0	0	Current Transformer Ratio	None	N/A	UUT-11a,b
	1		10:5	N/A	UUT-09
	2		25:5	Different Ratio	Same construction as UUT-09
	3		50:5	Different Ratio	Same construction as UUT-10a,b
	4		100:5	Different Ratio	Same construction as UUT-10a,b
	5		200:5	N/A	UUT-10a,b
	6		300:5	Different Ratio	Same construction as UUT-10a,b
	7		400:5	Different Ratio	Same construction as UUT-10a,b
	8		600:5	Different Ratio	Same construction as UUT-10a,b
	9		1000:5	Different Ratio	Same construction as UUT-10a,b
0	0	Terminal Block ¹	None	N/A	UUT-11a,b
	J		Junction Box Only	Bookended by tested units	Interpolated
	K		Junction Box and 2 pole Terminal Block	Tested	UUT-09
	L		Junction Box and 4 pole Terminal Block	Bookended by tested units	Interpolated
	M		Junction Box and 6 pole Terminal Block	Tested	UUT-10a,b
	N		Junction Box and 8 pole Terminal Block	Bookended by tested units	Interpolated
MODXXX	MODXXX	Optional, Job Specific	Modification Number	Digits for non-standard options that are within OSHPD guidelines	Same as Tested ²

Note:

1. Terminal Block split into multiple shorter Terminal Blocks to get total poles required. Worst case configuration is Six Pole, which was tested in UUT-10a,b.
2. UUT09, UUT10 and UUT11 are the MODXXX for the tested units.

Special Seismic Certification

Table 4 - Certified Options - Dynamic Braking Resistor Nomenclature Chart (Alternative Branding)



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: Dynamic Braking Resistor

Mounting Description: Rigid Base Mounted

Certified Seismic Levels: Sds 2.26 g at z/h = 1.0 and z/h = 0.0

Sample Part Number: MCU-DB6D00-10K0-1G30AAN0-MODXXX

Model Number Nomenclature

M	CU	-	DB	6D00	-	10K0	-	1	G3	0	A	A	N	0	-	MODXXX
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Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
M	M	Seismic	Seismic	Tested	UUT-09, UUT-10a,b, UUT-11a,b
CU	Blank	Seismic	OSP Certified	Tested	UUT-09, UUT-10a,b, UUT-11a,b
	X	Other ¹	Other Regulatory Compliance	Same design as tested units	Same as tested
DB	DB	Resistor Style	(Dynamic Braking) - One system	Difference is branding only	Same as UUT-09, UUT-10a,b, UUT-11a,b
	DB2		(Dynamic Braking) - Two Systems	Difference is branding only	Same as UUT-09, UUT-10a,b, UUT-11a,b
	DB3		(Dynamic Braking) - Three Systems	Difference is branding only	Same as UUT-09, UUT-10a,b, UUT-11a,b
	DB4		(Dynamic Braking) - Four Systems	Difference is branding only	Same as UUT-09, UUT-10a,b, UUT-11a,b
6D00	0D24	Resistance ²	0.24 Ohms	Less than tested units	Extrapolated
	4D12		4.12 Ohms	Tested	UUT-11a,b
	5D23		5.23 Ohms	Bookended by tested units	Interpolated
	14D8		14.8 Ohms	Bookended by tested units	Interpolated
	0120		120 Ohms	Tested	UUT-09
	0700		700 Ohms	Bookended by tested units	Interpolated
	3K00		3000 Ohms	Tested	UUT-10a,b
	M		Multiple Ohm Option	Bookended by tested units	Interpolated
10K0	0075	Watts ³	75 Watts	Less than tested units	Extrapolated
	0120		120 Watts	Tested	UUT-10a,b
	0640		640 Watts	Tested	UUT-09
	1K75		1,750 Watts	Bookended by tested units	Interpolated
	14K7		14,700 Watts	Tested	UUT-11a,b
	16K1		16,100 Watts	Bookended by tested units	Interpolated
	M		Multiple Watt Option	Bookended by tested units	Interpolated
1	1	Enclosure Quantity	One Enclosure	Tested	UUT-09, UUT-10a,b, UUT-11a,b
G3	18	Enclosure Height	2 x 7 in section	Tested	UUT-09
	G2		2 x 7 in section - Grid	In between tested sizes	Interpolated
	27		3 x 7 in section	In between tested sizes	Interpolated
	G3		3 x 7 in section - Grid	In between tested sizes	Interpolated
	36		4 x 7 in section	In between tested sizes	Interpolated
	G4		4 x 7 in section - Grid	In between tested sizes	Interpolated
	45		5 x 7 in section	Tested	UUT-10a,b
	G5		5 x 7 in section - Grid	Tested	UUT-11a,b
0	0	Resistor Enclosure Material	Mill Galvanized	Tested	UUT-09, UUT-11a,b
	A		304 Stainless Steel	Tested	UUT-10a,b
	B		316 Stainless Steel	Corrosion-Resistant 304 Stainless Steel	Same as UUT-10a,b
	D		Galvanneal Steel, ANSI 49	Different Paint	Same as UUT-09, UUT-11a,b
	E		Galvanneal Steel, ANSI 61	Different Paint	Same as UUT-09, UUT-11a,b
	F		Galvanneal Steel, ANSI 70	Different Paint	Same as UUT-09, UUT-11a,b
	G		304 Stainless Steel, ANSI 49	Different Paint	Same as UUT-10a,b
	H		304 Stainless Steel, ANSI 61	Different Paint	Same as UUT-10a,b
	I		304 Stainless Steel, ANSI 70	Different Paint	Same as UUT-10a,b
	J		304 Stainless Steel, Special Paint	Different Paint	Same as UUT-10a,b
	K		316 Stainless Steel, ANSI 49	Different Paint	Same as UUT-10a,b
	L		316 Stainless Steel, ANSI 61	Different Paint	Same as UUT-10a,b
	M		316 Stainless Steel, ANSI 70	Different Paint	Same as UUT-10a,b
	N		316 Stainless Steel, Special Paint	Different Paint	Same as UUT-10a,b
	P		Galvanneal Steel, Special Paint	Mill Galvanized Steel with finish	Same as UUT-09, UUT-11a,b
	R		Galvanneal Steel, RAL7035	Different Paint	Same as UUT-09, UUT-11a,b

Continued on next page

Note:

- Other regulatory compliance certifications outside of HCAI are not certified under this OSP.
- Resistance and Watts may be any value. Subcomponents related to the Resistance and Watts Options are bookended by tested units.
- Where Watts is Greater than 10kW, top section of the enclosure is left empty. This configuration is bookended by the tested units

Special Seismic Certification

Table 5 - Certified Options - Dynamic Braking Resistor Nomenclature Chart (Alternative Branding) (Continued)



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: Dynamic Braking Resistor

Mounting Description: Rigid Base Mounted

Certified Seismic Levels: Sds 2.26 g at z/h = 1.0 and z/h = 0.0

Sample Part Number: MCU-DB6D00-10K0-1G30AAN0-MODXXX

Model Number Nomenclature

M	CU	-	DB	6D00	-	10K0	-	1	G3	0	A	A	N	0	-	MODXXX
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Sample Value	Allowable Value	Category	Definition	Justification for Interpolation/ Extrapolation	Unit
A	0	Enclosure Rating	NEMA 1 / Type 1	Same design as UUT-09	Same as Tested
	2		NEMA 2 / Type 2	Tested	UUT-09
	A		NEMA 3R / IP23 / Type 3R	Tested	UUT-10a,b, UUT-11a,b
A	0	Thermal Switch	None	Depopulated version of tested units	Extrapolated
	A		Normally Closed	Tested	UUT-09, UUT-10a,b, UUT-11a,b
	B		Normally Open	Same as tested	Same as tested
	C		Both Normally Open / Normally Open	Same as tested	Same as tested
N	0	Terminal Block	None	Tested	UUT-11a,b
	A		Two Pole	Bookended by tested units	Interpolated
	B		Four Pole	Tested	UUT-09
	C		Six Pole	Tested	UUT-10a,b
	D		Eight Pole ¹	Bookended by tested units	Interpolated
	E		Ten Pole ¹	Bookended by tested units	Interpolated
	F		Twelve Pole ¹	Bookended by tested units	Interpolated
	N		NEMA Two Hole Bus	Bookended by tested units	Interpolated
0	0	Bottom	Open	Tested	UUT-09, UUT-10a,b, UUT-11a,b
MODXXX	MODXXX	Optional, Job Specific	Modification Number	Digits for non-standard options that are within OSHPD guidelines	Same as Tested ²

Note:

1. Terminal Block split into multiple shorter Terminal Blocks to get total poles required. Worst case configuration is Six Pole, which was tested in UUT-10a,b.

2. UUT09, UUT10 and UUT11 are the MODXXX for the tested units.

DATE: 10/1/2025

Special Seismic Certification

Table 6 - Certified Subcomponents



DCL Project Number: 94797-2401

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Subcomponent Type	Model Number	Manufacturer	Description	Material	Weight [lb.]	Unit
Enclosures	M-CU-NG-DO18-2-XX	Post Glover Resistors	2 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	Mill Galvanized	70	UUT-09
	M-CU-NG-DO18-2-XX-PG			Galvanneal, Painted	70	Interpolated
	CU-NG-DO18-2-GU-MOD558-XX-PG		2 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	Mill Galvanized	70	Interpolated
	CU-NG-DO18-2-GU-MOD558-XX			Galvanneal, Painted	70	Interpolated
	CU-NG-DO18-3R-MOD558-XX-PG		2 high, Nema 3R / IP23, Type 3R Coil Enclosure	Galvanneal, Painted	87	Interpolated
	CU-NG-DO18-3R-MOD558-XX			Mill Galvanized	87	Interpolated
	CU-NG-DO18-3R-GU-MOD558-XX-PG		2 high, Nema 3R / IP23, Type 3R Grid Enclosure	Galvanneal, Painted	87	Interpolated
	CU-NG-DO18-3R-GU-MOD558-XX			Mill Galvanized	87	Interpolated
	M-CU-NG-DO27-2-XX-PG		3 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	Galvanneal, Painted	85	Interpolated
	M-CU-NG-DO27-2-XX			Mill Galvanized	85	Interpolated
	CU-NG-DO27-2-GU-MOD558-XX-PG		3 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	Mill Galvanized	85	Interpolated
	CU-NG-DO27-2-GU-MOD558-XX			Galvanneal, Painted	85	Interpolated
	CU-NG-DO27-3R-MOD558-XX-PG		3 high, Nema 3R / IP23, Type 3R Coil Enclosure	Galvanneal, Painted	110	Interpolated
	CU-NG-DO27-3R-MOD558-XX			Mill Galvanized	110	Interpolated
	CU-NG-DO27-3R-GU-MOD558-XX-PG		3 high, Nema 3R / IP23, Type 3R Grid Enclosure	Galvanneal, Painted	110	Interpolated
	CU-NG-DO27-3R-GU-MOD558-XX			Mill Galvanized	110	Interpolated
	M-CU-NG-DO36-2-XX-PG		4 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	Galvanneal, Painted	99	Interpolated
	M-CU-NG-DO36-2-XX			Mill Galvanized	99	Interpolated
	CU-NG-DO36-2-GU-MOD558-XX-PG		4 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	Galvanneal, Painted	99	Interpolated
	CU-NG-DO36-2-GU-MOD558-XX			Mill Galvanized	99	Interpolated
	CU-NG-DO36-3R-MOD558-XX-PG		4 high, Nema 3R / IP23, Type 3R Coil Enclosure	Galvanneal, Painted	133	Interpolated
	CU-NG-DO36-3R-MOD558-XX			Mill Galvanized	133	Interpolated
	CU-NG-DO36-3R-GU-MOD558-XX-PG		4 high, Nema 3R / IP23, Type 3R Grid Enclosure	Galvanneal, Painted	133	Interpolated
	CU-NG-DO36-3R-GU-MOD558-XX			Mill Galvanized	133	Interpolated
	M-CU-NG-DO45-2-XX-PG		5 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	Galvanneal, Painted	114	Interpolated
	M-CU-NG-DO45-2-XX			Mill Galvanized	114	Interpolated
	CU-NG-DO45-2-GU-MOD558-XX-PG		5 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	Galvanneal, Painted	114	Interpolated
	CU-NG-DO45-2-GU-MOD558-XX			Mill Galvanized	114	Interpolated
	CU-NG-DO45-3R-MOD558-XX-PG		5 high, Nema 3R / IP23, Type 3R Coil Enclosure	Galvanneal, Painted	156	Interpolated
	CU-NG-DO45-3R-MOD558-XX			Mill Galvanized	156	Interpolated
	CU-NG-DO45-3R-GU-MOD558-XX-PG		5 high, Nema 3R / IP23, Type 3R Grid Enclosure	Galvanneal, Painted	156	Interpolated
	CU-NG-DO45-3R-GU-MOD558-XX			Mill Galvanized	156	Interpolated
	M-CU-NG-DO18-2-XX-304		2 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	304 Stainless Steel	71	Interpolated
	M-CU-NG-DO18-2-XX-316			316 Stainless Steel	71	Interpolated
	CU-NG-DO18-2-GU-MOD558-XX-304		2 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	304 Stainless Steel	71	Interpolated
	CU-NG-DO18-2-GU-MOD558-XX-316			316 Stainless Steel	71	Interpolated
	CU-NG-DO18-3R-MOD558-XX-304		2 high, Nema 3R / IP23, Type 3R Coil Enclosure	304 Stainless Steel	89	Interpolated
	CU-NG-DO18-3R-MOD558-XX-316			316 Stainless Steel	89	Interpolated
	CU-NG-DO18-3R-GU-MOD558-XX-304		2 high, Nema 3R / IP23, Type 3R Grid Enclosure	304 Stainless Steel	89	Interpolated
	CU-NG-DO18-3R-GU-MOD558-XX-316			316 Stainless Steel	89	Interpolated
	M-CU-NG-DO27-2-XX-304		3 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	304 Stainless Steel	86	Interpolated
	M-CU-NG-DO27-2-XX-316			316 Stainless Steel	86	Interpolated
	CU-NG-DO27-2-GU-MOD558-XX-304		3 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	304 Stainless Steel	86	Interpolated
	CU-NG-DO27-2-GU-MOD558-XX-316			316 Stainless Steel	86	Interpolated
	CU-NG-DO27-3R-MOD558-XX-304		3 high, Nema 3R / IP23, Type 3R Coil Enclosure	304 Stainless Steel	112	Interpolated
	CU-NG-DO27-3R-MOD558-XX-316			316 Stainless Steel	112	Interpolated
	CU-NG-DO27-3R-GU-MOD558-XX-304		3 high, Nema 3R / IP23, Type 3R Grid Enclosure	304 Stainless Steel	112	Interpolated
	CU-NG-DO27-3R-GU-MOD558-XX-316			316 Stainless Steel	112	Interpolated
	M-CU-NG-DO36-2-XX-304		4 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	304 Stainless Steel	101	Interpolated
	M-CU-NG-DO36-2-XX-316			316 Stainless Steel	101	Interpolated
	CU-NG-DO36-2-GU-MOD558-XX-304		4 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	304 Stainless Steel	101	Interpolated
	CU-NG-DO36-2-GU-MOD558-XX-316			316 Stainless Steel	101	Interpolated
	CU-NG-DO36-3R-MOD558-XX-304		4 high, Nema 3R / IP23, Type 3R Coil Enclosure	304 Stainless Steel	136	Interpolated
	CU-NG-DO36-3R-MOD558-XX-316			316 Stainless Steel	136	Interpolated
	CU-NG-DO36-3R-GU-MOD558-XX-304		4 high, Nema 3R / IP23, Type 3R Grid Enclosure	304 Stainless Steel	136	Interpolated
	CU-NG-DO36-3R-GU-MOD558-XX-316			316 Stainless Steel	136	Interpolated
	M-CU-NG-DO45-2-XX-304		5 high, Type 2, NEMA 1 / NEMA 2 Coil Enclosure	304 Stainless Steel	116	Interpolated
	M-CU-NG-DO45-2-XX-316			316 Stainless Steel	116	Interpolated
	CU-NG-DO45-2-GU-MOD558-XX-304		5 high, Type 2, NEMA 1 / NEMA 2 Grid Enclosure	304 Stainless Steel	116	Interpolated
	CU-NG-DO45-2-GU-MOD558-XX-316			316 Stainless Steel	116	Interpolated
	CU-NG-DO45-3R-GU-MOD558-XX-304		5 high, Nema 3R / IP23, Type 3R Grid Enclosure	304 Stainless Steel	159	Interpolated
	CU-NG-DO45-3R-GU-MOD558-XX-316			316 Stainless Steel	159	Interpolated
	CU-NG-DO45-3R-MOD558-XX-316		5 high, Nema 3R / IP23, Type 3R Coil Enclosure	316 Stainless Steel	159	Interpolated
	CU-NG-DO45-3R-MOD558-XX-304			304 Stainless Steel	159	UUT-10

Special Seismic Certification
Table 7 - Certified Subcomponents (continued)



DCL Project Number: 94797-2401

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Subcomponent Type	Model Number	Manufacturer	Description		Material	Weight [lb.]	Unit
Bushing	I21	Warco	5kV, 196 Amp Constant		Porcelain	<1	UUT-10a,b
Current Transformer	20-4-010	GE	600V, 10:5 Ratio		Carbon Steel, Copper	8	UUT-09
	20-4-XXX		600V, 5:5 to 50:5 Ratio		Carbon Steel, Copper	8	Interpolated
	21-XXX		600V, Window Type, 1.25" Window, 50:5 to 1000:5 Ratio		Carbon Steel, Copper	10	Interpolated
	21-201		600V, Window Type, 1.25" Window, 200:5		Carbon Steel, Copper	10	UUT-10a,b
Junction Box	BN4060604CH	Wiegman	Mounted on side of enclosure		Galvanneal, Painted	5	UUT-09
	BN4060604CHSSA		Mounted on side of enclosure		316 Stainless Steel	5	Interpolated
	BN4060604CHSS		Mounted on side of enclosure		304 Stainless Steel	5	UUT-10a,b
Sensing Resistor	ER-600VC	Littelfuse	Max Voltage 600 V		Polymer, Copper	<1	UUT-09, UUT-10a,b
Temperature Switch	TS36TXE21	Eska	Temperature Switch, NC, 150°C		Aluminum	<1	UUT-11a,b
	HSW150	Senasys	Temperature Switch, NC, 150°C		Aluminum, Epoxy	<1	UUT-09, UUT-10a,b
Subcomponent Type	Model Number	Manufacturer	Grid Width (mm)	Number of Grid Elements	Grid Thickness (Gauge)	Weight per Grid Element [lb.]	Unit
Resistor Banks, Grid Element Type	GUX62C24LE24	Post Glover Resistors	117.5	4	24	1.0	UUT-11a,b
	GUX62X24XXXX		117.5	2 to 56	24	1.0	Interpolated
	GUX62X20XXXX		117.5	2 to 56	20	1.3	Interpolated
	GUX62X14XXXX		117.5	2 to 56	14	2.5	Interpolated
	GUX62B14HE28		117.5	52	14	2.5	UUT-11a,b
Subcomponent Type	Model Number	Manufacturer	Number of Resistors ¹	Wire Material	Wire Thickness (Gauge)	Weight per Resistor Assembly [lb.]	Unit
Resistor Banks, Wirewound	FDL120000-UR ²	Post Glover Resistors	1 and 2	Chromium Alloy	23	2.0	UUT-09, UUT-10a,b
	FDLXXX		2 to 72	Chromium Alloy	13 to 23	2.0	Interpolated
	FDL3000-UR ³		1 and 2	Chromium Alloy	13	2.0	UUT-09, UUT-10a,b
Resistor Banks, Smoothwound	DECSW5-1280	Post Glover Resistors	2	Chromium Alloy	28	3.5	UUT-10a,b
	DECSW5-XXXX		1 to 36	Chromium Alloy	13 to 28	3.5	Interpolated
	DECSW5-8D00		2	Chromium Alloy	13	3.5	UUT-10a,b
Resistor Banks, Edgewound	DEEWR5-R60A-12S	Post Glover Resistors	2	18 SR Stainless Steel	14	5.0	UUT-10a,b
	DEEWR5-RXXA-XS		1 to 28	18 SR Stainless Steel	11 to 14	5.0	Interpolated
	DEEWR5-R80A-S		22	18 SR Stainless Steel	11	5.0	UUT-10a,b

Note:

1. Total number of resistors tested in UUT-10a,b is 32.
2. There was one FDL120000-UR Resistor tested in UUT-09 and two tested in UUT-10a,b.
3. There was one FDL3000-UR Resistor tested in UUT-09 and two tested in UUT-10a,b.

Special Seismic Certification

Table 8 - Tested Units



DCL Project Number: 94797-2401

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Product Construction Summary: Mill Galvanized Carbon Steel or 304 Stainless Steel Enclosure, NEMA 2 or NEMA 3R/IP23 or NEMA 1

Mounting: Rigid Base Mounted

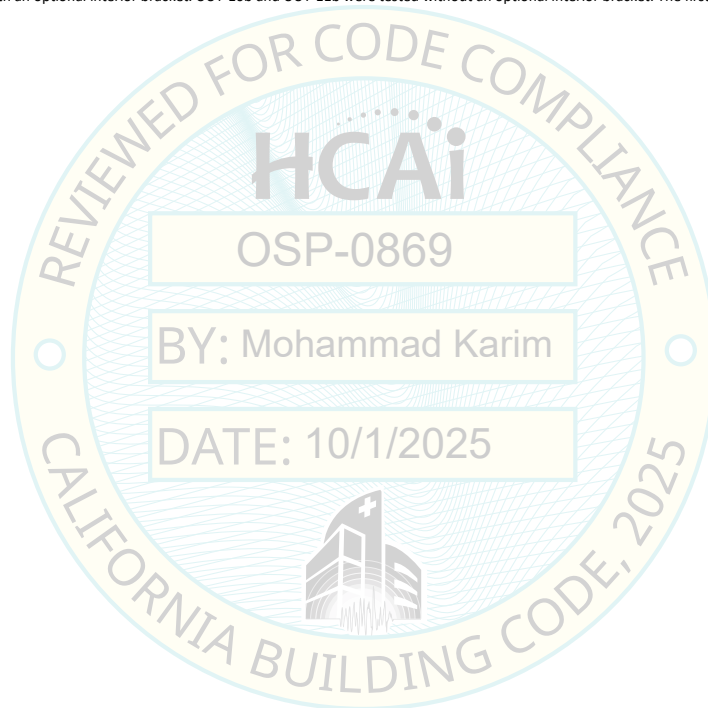
Certified Seismic Levels: Sds 2.26 g at z/h = 1.0 and z/h = 0.0

Factors for Force Amplification and Structure Ductility Reduction: $H_I = 3.5$ at z/h=1.0; 1.0 at z/h=0 and $R_{II} = 1.3$ at z/h=1.0; 1.0 at z/h=0

Model Number	Description	Dimensions [in.]			Weight [lb.] ¹	Unit ¹
		Length	Width	Height		
M-NGD27A2D3-118021K-UUT09	Resistor, Neutral Grounding, 277V, 2.3A, 10SEC/760°C	20.0	30.5	15.3	82.6	UUT-09
M-NGD60A0D2-145AA5M-UUT10	Resistor, Neutral Grounding, 600V, 0.2A, 10SEC/760°C	21.5	30.6	36.0	304.0 / 299.8	UUT-10a / UUT-10b
M-NGD60A146-1G50A00-UUT11	Resistor, Neutral Grounding, 600V, 146A, 10SEC/760°C	21.5	30.6	36.0	313.4 / 309.2	UUT-11a / UUT-11b

Note:

1. UUT-10a and UUT-11a were tested with an optional interior bracket. UUT-10b and UUT-11b were tested without an optional interior bracket. The first weight is the unit with bracket, the second weight is the unit without bracket.



UNIT UNDER TEST (UUT) Summary Sheet



UUT-09

DCL Test Report: 94797-2401a

Test Dates: 7/28/25 – 7/31/25

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Model Number: M-NGD27A2D3-118021K-UUT09

Product Construction Summary: NEMA 2, Type 2 Mill Galvanized Carbon Steel Enclosure

Options / Component Summary:

Tested unit contained a current transformer, junction box, temperature switch and wirewound resistor banks.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
82.6	20.0	30.5	15.3	>33.3	>33.3	>33.3

Seismic Test Parameters

Building Code	Test Criteria	S _{ds} (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.26	1.0	3.5	1.3	1.5	3.62	2.43	N/A	N/A
		2.26	0.0	1.0	1.0		N/A	N/A	1.51	0.60

Unit Mounting Description:

UUT-09 was base mounted to the DCL shake table interface plate using (4) 3/8" Grade 8 bolts and manufacturer-provided flat washers. The 3/8" bolts on UUT-09 were spaced 27" apart in both the front-back direction measured on-center and 14" apart in both the side-side direction measured on-center.



Overall picture of UUT-09.

UNIT UNDER TEST (UUT) Summary Sheet



UUT-10a

DCL Test Report: 94797-2401a

Test Dates: 7/28/25 – 7/31/25

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Model Number: M-NGD60A0D2-145AA5M-UUT10

Product Construction Summary: NEMA 3R / IP23, Type 3R, 304 Stainless Steel Enclosure

Options / Component Summary:

Tested unit contained a current transformer, junction box, temperature switch, wirewound resistor banks, Smoothwound resistor banks and Edgewound resistor banks.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
304.0	21.5	30.6	36.0	7.0	12.0	23.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.26	1.0	3.5	1.3	1.5	3.62	2.43	N/A	N/A
		2.26	0.0	1.0	1.0		N/A	N/A	1.51	0.60

Unit Mounting Description:

UUT-10a was base mounted to the DCL shake table interface plate using (4) 3/8" Grade 8 bolts and manufacturer-provided flat washers. The 3/8" bolts on UUT-10a were spaced 14" apart in both the front-back direction measured on-center and 27" apart in both the side-side direction measured on-center.

Optional Bracket: UUT-10a was tested with two optional brackets that were channel shaped and were installed in the interior of the enclosure. The brackets were made of 16 gauge stainless steel for UUT-10a. The brackets were 4" wide, 28" for the long side and 2" for the short side. The brackets were installed in the enclosure using (4) 1/4"-20 x 1/2" ASTM F593 18-8 stainless steel round head carriage bolt, nuts, washers and lock washers per bracket. The bolts were spaced 1" apart in the vertical direction measured on-center and 2 1/2" from the top of the bracket.



Overall picture of UUT-10a.

UNIT UNDER TEST (UUT) Summary Sheet



UUT-10b

DCL Test Report: 94797-2401a

Test Dates: 7/28/25 – 7/31/25

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Model Number: M-NGD60A0D2-145AA5M-UUT10

Product Construction Summary: NEMA 3R / IP23, Type 3R, 304 Stainless Steel Enclosure

Options / Component Summary:

Tested unit contained a current transformer, junction box, temperature switch, wirewound resistor banks, Smoothwound resistor banks and Edgewound resistor banks.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
299.8	21.5	30.6	36.0	5.8	11.3	21.8

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.26	1.0	3.5	1.3	1.5	3.62	2.43	N/A	N/A
		2.26	0.0	1.0	1.0		N/A	N/A	1.51	0.60

Unit Mounting Description:

UUT-10b was base mounted to the DCL shake table interface plate using (4) 3/8" Grade 8 bolts and manufacturer-provided flat washers. The 3/8" bolts on UUT-10b were spaced 14" apart in both the front-back direction measured on-center and 27" apart in both the side-side direction measured on-center.

Optional Bracket: UUT-10b was tested without two optional brackets.



Overall picture of UUT-10b.

UNIT UNDER TEST (UUT) Summary Sheet



UUT-11b

DCL Test Report: 94797-2401a

Test Dates: 7/28/25 – 7/31/25

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Model Number: M-NGD60A146-1G50A00-UUT11

Product Construction Summary: NEMA 3R / IP23, Type 3R, Mill Galvanized Carbon Steel Enclosure

Options / Component Summary:

Tested unit contained a temperature switch and grid element type resistor banks.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
309.2	21.5	30.6	36.0	8.3	9.5	25.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.26	1.0	3.5	1.3	1.5	3.62	2.43	N/A	N/A
		2.26	0.0	1.0	1.0		N/A	N/A	1.51	0.60

Unit Mounting Description:

UUT-11b was base mounted to the DCL shake table interface plate using (4) 3/8" Grade 8 bolts and manufacturer-provided flat washers. The 3/8" bolts on UUT-11b were spaced 14" apart in both the front-back direction measured on-center and 27" apart in both the side-side direction measured on-center.

Optional Bracket: UUT-11b was tested without two optional brackets.



Overall picture of UUT-11b.

UNIT UNDER TEST (UUT) Summary Sheet



UUT-10a

DCL Test Report: 94797-2401a

Test Dates: 7/28/25 – 7/31/25

Manufacturer: Post Glover Resistors, Inc.

Product Line: Neutral Grounding Resistor and Dynamic Braking Resistor

Model Number: M-NGD60A0D2-145AA5J-UUT10

Product Construction Summary: NEMA 3R / IP23, Type 3R, 304 Stainless Steel Enclosure

Options / Component Summary:

Tested unit contained a current transformer, junction box, temperature switch, wirewound resistor banks, Smoothwound resistor banks and Edgewound resistor banks.

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
304.0	21.5	30.6	36.0	7.0	12.0	23.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156	2.26	1.0	3.5	1.3	1.5	3.62	2.43	N/A	N/A
		2.26	0.0	1.0	1.0		N/A	N/A	1.51	0.60

Unit Mounting Description:

UUT-10a was base mounted to the DCL shake table interface plate using (4) 3/8" Grade 8 bolts and manufacturer-provided flat washers. The 3/8" bolts on UUT-10a were spaced 14" apart in both the front-back direction measured on-center and 27" apart in both the side-side direction measured on-center.

Optional Bracket: UUT-10a was tested with two optional brackets that were channel shaped and were installed in the interior of the enclosure. The brackets were made of 16 gauge stainless steel for UUT-10a. The brackets were 4" wide, 28" for the long side and 2" for the short side. The brackets were installed in the enclosure using (4) 1/4"-20 x 1/2" ASTM F593 18-8 stainless steel round head carriage bolt, nuts, washers and lock washers per bracket. The bolts were spaced 1" apart in the vertical direction measured on-center and 2 1/2" from the top of the bracket.



Overall picture of UUT-10a.