



**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-0830

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Cummins Power Generation

Manufacturer's Technical Representative: Abhishek Patil

Mailing Address: 1400, Fridley, MN 55432

Telephone: (763) 574-5000 Email: abhishek.patil@cummins.com

Product Information

Product Name: GZ17 Diesel Generator Sets

Product Model Number(s): C600D6E, C750D6E, C800D6E, C900D6E, C1000D6ED, C825D5EB, C900D5EB, C1000D5E
C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB

Product Category: Emergency and Standby Power Systems

Product Sub-Category: Generators

General Description: Diesel Generator sets with or without fuel tank and/or enclosure

Mounting Description: Rigid Mounting from Unit base or Fuel Tank to Rigid Structure

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thvmcgroup.com

Title: President





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

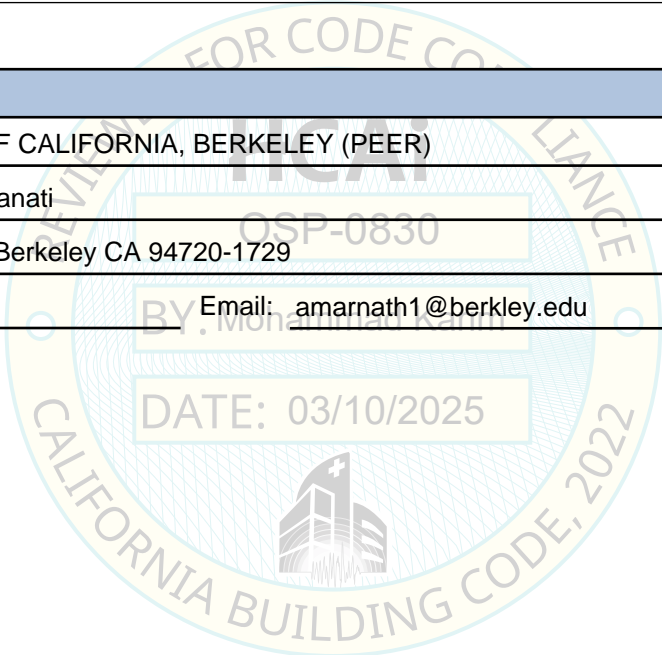
Company Name: THE VMC GROUP
Name: Kenneth Tarlow California License Number: S2851
Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814
Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

Certification Method

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

Testing Laboratory

Company Name: UNIVERSITY OF CALIFORNIA, BERKELEY (PEER)
Contact Person: Amarnath Kasalanati
Mailing Address: 325 Davis Hall, Berkeley CA 94720-1729
Telephone: (510) 642-3437 Email: amarnath1@berkeley.edu



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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY



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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.45

SDS (Design spectral response acceleration at short period, g) = 1.94

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 2.0 (Internally Isolated)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 03/10/2031

Date: 3/10/2025

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = 1.94 z/h = 0

Condition of Approval (if applicable): DATE: 03/10/2025

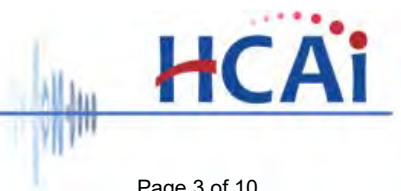
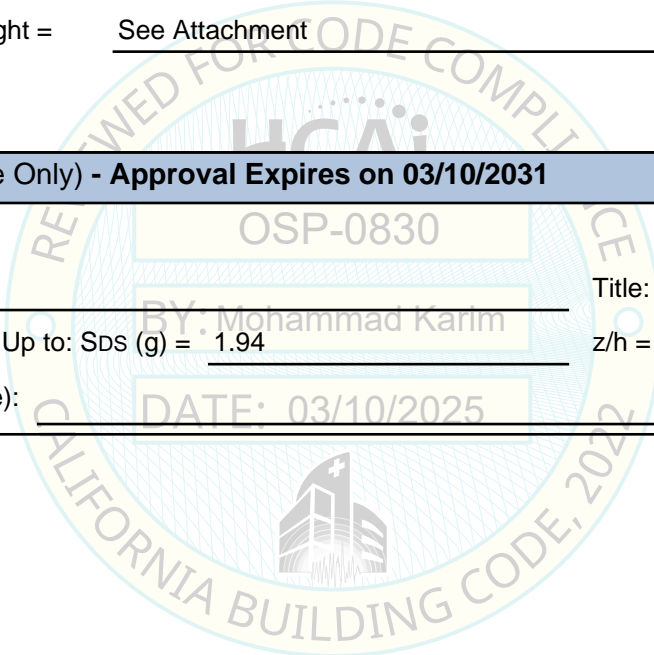


Table 1a - Diesel Generator Sets Off Tanks

Model	Max Rating [kW]	Configuration	Max Dimensions [in.]			Max Operating Weight [lbs.]	Mounting	UUT
			Length	Width ⁽¹⁾	Height			
C600D6E, C750D6E C800D6E, C900D6E C1000D6ED	600,750, 800, 900,1000	Open	178.0	87.0	86.0	14,388	Rigid	Interpolated
		Enclosed	363.0	87.0	113.0	20,388	Rigid	Interpolated

Note: Models listed in Table 1a are depopulated versions of units listed in Table 1b (i.e. without sub base fuel tank)

Table 1b - Diesel Generator Sets On Tanks

Model	Max Rating [kW]	Configuration	Max Dimensions [in.]			Max Operating Weight [lbs.]	Mounting	UUT
			Length	Width ⁽¹⁾	Height			
DQDAx	300	Enclosed On Tank	232.0	90.0	128.0	29,504	Isolated	UUT-03
C600D6E, C750D6E C800D6E, C900D6E C1000D6ED	600 - 1000	Open On Tank ¹	363.0	87.0	113.0	20,388	Rigid	Interpolated
		Enclosed On Tank ²	363.0	87.0	140.0	25,027	Rigid	Interpolated
C1000D6ED	1000 kW	Enclosed On Tank	376.0	86.5	125.5	37,176	Rigid	UUT-01
C825D5EB, C900D5EB, C1000D5E C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB	600 - 1000	Open On Integral Tank	179.0	92.0	85.0	14,925	Rigid	Interpolated
		Enclosed On Integral Tank	253.0	92.0	111.0	22,241	Rigid	Interpolated
C1100D5E	1000 kW	Enclosed On Integral Tank	253.0	91.5	109.0	23,046	Rigid	UUT-02

Notes:

- 1) Open on tank model does not have approved/tested vent pipe configuration
- 2) Fuel tank vent pipe is fastened to top of enclosure

Table 2 - Certified Engines

Manufacturer	Applicable Genset Model	Model	Material	Weight [lbs.]	UUT
Cummins	DQFAx	QSL9-G7	Cast Iron	1,627	UUT-03
	CxD6E(B), C1000D6ED, CxD5E(B)	GZ17		4,972	UUT-01, UUT-02

Table 3 - Certified Alternators

Manufacturer	Applicable Genset Model	Model	Material	Max Weight [lbs.]	UUT
Cummins	DQDAx	HC4	Steel Lamination & Copper Windings	2,582	UUT-03
CGT	CxD6E(B), C1000D6ED, CxD5E(B)	S6-C		4,173	Extrapolated
		S6-D		4,297	Extrapolated
		S6-E		4,444	Extrapolated
		S6-F		5,095	UUT-01, UUT-02

Table 4 - Certified Chassis

Manufacturer	Applicable Genset Model	Applicable Genset Configuration		Material	Dry Weight [lbs.]	UUT
BTD	C600D6E, C750D6E C800D6E, C900D6E C1000D6ED	Open/Enclosed		Steel	1,434	UUT-01
Matchwell	C825D5EB, C900D5EB, C1000D5E C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB	Open/Enclosed	With Integral Fuel Tank (1335 L)	Steel	3,626	UUT-02

Table 5a - Certified Enclosures

Manufacturer	Applicable Genset Model	Model	Material	Weight [lbs.]	UUT
Cummins	DQDAx	Thor-1	Carbon Steel	4,398	UUT-03
	C600D6E, C750D6E C800D6E, C900D6E C1000D6ED	Sound Level 2	Steel, UL Foam	4,759	UUT-01
	C825D5EB, C900D5EB, C1000D5E C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB	High Node	Steel, UL Foam	4,781	UUT-02

Table 5b - Certified Silencers

Manufacturer	Applicable Genset Model	Model	Material	Weight [lbs.]	UUT
Cummins	C600D6E, C750D6E, C800D6E, C900D6E C1000D6ED	CMI	Steel	2,090	UUT-01
Cummins	C825D5EB, C900D5EB, C1000D5E C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB	CMI	Steel	1,918	UUT-02

Table 6 - Certified Fuel Tanks

Manufacturer	Applicable Genset Model	Model	Material	Wet Weight [lbs.]	UUT
Tramont	C600D6E, C750D6E C800D6E, C900D6E C1000D6ED	885 gallon ¹	Steel	11,391	Extrapolated
		1470 gallon ¹	Steel	14,697	UUT-03
		1770 gallon ¹	Steel	18,989	UUT-01

Notes:

1) Only a 2" vent pipe was tested. No larger diameter vent pipes are approved. Vent pipe must be secured to top of enclosure as tested.

Table 7 - Certified Radiators

Manufacturer	Applicable Genset Model	Model	Frequency	Material	Weight [lbs.]	UUT
Bearward	DQDAx	7ft ² Cooling Area	60 Hz	Carbon Steel & Aluminum	418	UUT-03
Modine	C600D6E, C750D6E C800D6E, C900D6E C1000D6ED	2.57m ² Cooling Area	60 Hz	Carbon Steel & Aluminum	1,155	UUT-01
AKG	C825D5EB, C900D5EB, C1000D5E C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB	2.7m ² Cooling Area	50 HZ	Carbon Steel & Aluminium	1,012	UUT-02
			60 Hz		1,012	

Table 8 - Certified Air Filter Assemblies

Manufacturer	Applicable Genset Model	Model	Material	Weight (total assembly) [lbs.]	UUT
Cummins Filtration	C600D6E, C750D6E, C800D6E, C900D6E C1000D6ED	Normal Duty	Carbon Steel	70	UUT-01
Cummins Filtration	C825D5EB, C900D5EB, C1000D5E C1100D5E, C750D6EB C800D6EB, C900D6EB, C1000D6EB	Heavy Duty	Carbon Steel	273	UUT-02

Table 9 - Certified Controllers

Manufacturer	Applicable Genset Model	Model	Description	Material	Weight [lbs.]	UUT
Cummins	DQDAx	PCC 2100	Control Panel	Carbon Steel & Plastic	10	UUT-03
	CxD6E(B), C1000D6ED, CxD5E(B)	PCC 3300 V2	Control Panel	Carbon Steel & Electrical Components	145	UUT-01, UUT-02

Table 10 - Certified Heaters

Manufacturer	Applicable Genset Model	Model	Description	Material	Weight [lbs.]	UUT
Hotstart	CxD6E(B), C1000D6ED, CxD5E(B)	Coolant Heater	240V, 2.5kW	Carbon Steel	4.4	UUT-01

Table 11 - Certified Circuit Breakers

Manufacturer	kW Range	Model	Description	Material	Weight [lbs.]	UUT
Schneider Electric	CxD6E, C1000D6ED	250 - 800A	Electrically Operated CB	Copper	30	Extrapolated
		1200A			32	UUT-01
		1600 - 3000A			110	Interpolated
		250 - 800A	30		Extrapolated	
		1200A	32		UUT-01	
	CxD6EB, CxD5E(B)	1600 - 2500A	Electrically Operated CB		53	Interpolated
		1250 - 1600A			46	Interpolated
		1250 - 2500A	Disconnect Switch		79	Interpolated
		1250 - 2000A	Manually Operated CB		113	Interpolated
		2500A			113	UUT-02

Table 12 - Certified Circuit Breaker Boxes

Manufacturer	kW Range	Model	Material	Weight [lbs.]	UUT
Cummins	CxD6E, C1000D6ED	Dual CB Box, 2X CB Configuration, Bottom Entry	Carbon Steel	196	UUT-01
Cummins	CxD6EB, CxD5E(B)	2000A - 2500A, 4 Pole	Carbon Steel	110	UUT-02

Table 13 - Certified Terminal Boxes

Manufacturer	kW Range	Model	Material	Weight [lbs.]	UUT
Cummins	CxD6E, C1000D6ED	LHS/RHS CB, LHS/RHS Control	Carbon Steel	222	UUT-01
Cummins	CxD6EB, CxD5E(B)	Circuit Breaker Box - LHS/RHS, Control Panel - Rear	Carbon Steel	205	UUT-02



UNIT UNDER TEST (UUT) Summary Sheet

UUT-1

Test Report: DCL-24474-2401; UUT-12

Model Line	Model Number	Manufacturer
GZ17	C1000D6E	Cummins

Product Construction Summary

Diesel powered electrical generator set. Steel Base Frame

Options / Subcomponent Summary

Engine: Cummins; Alternators: CGT; Chassis: BTD; Enclosures: Cummins; Silencers: Cummins; Fuel Tanks: Tramont; Radiators: Modine; Air Filter Assemblies: Cummins Filtration; Circuit Breaker: Schneider Electric; Circuit Breaker Boxes: Cummins; Terminal Boxes: Cummins; Controllers: Cummins; Heaters: Hotstart

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
37,176	376.0	86.5	125.5	16.0	7.5	11.5

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2022	ICC-ES AC156	1.94	0.0	1.5	1.94	0.78	1.30	0.52
		-	-	-	-	-	-	-

Test Mounting Details

UUT-1 was rigidly mounted to the shake table using (20) 3/4" diameter Grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.



UNIT UNDER TEST (UUT) Summary Sheet

UUT-2

Test Report: DCL-24474-2401; UUT-13

Model Line	Model Number	Manufacturer
GZ17	C1100D5E	Cummins

Product Construction Summary

Diesel powered electrical generator set. Steel Base Frame

Options / Subcomponent Summary

Engine: Cummins; Alternators: CGT; Chassis: Matchwell; Enclosures: Cummins; Silencers: Cummins; Radiators: AKG; Air Filter Assemblies: Cummins Filtration; Circuit Breaker: Schneider Electric; Circuit Breaker Boxes: Cummins; Terminal Boxes: Cummins; Controllers: Cummins

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
23,046	253.0	91.5	109.0	5.0	4.0	10.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2022	ICC-ES AC156	1.94	0.0	1.5	1.94	0.78	1.30	0.52
		-	-	-	-	-	-	-

Test Mounting Details

UUT-2 was rigidly mounted to the shake table using (16) 3/4" diameter Grade 8 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.



UNIT UNDER TEST (UUT) Summary Sheet

UUT-3

Test Report: PEI-PEER-CUM-130; UUT-33

Model Line	Model Number	Manufacturer
DQDA	DQDAC	Cummins

Product Construction Summary

Structural Carbon Steel Skid and Carbon Steel Fuel Tank

Options / Subcomponent Summary

Engine: Cummins; Alternator: Cummins; Controller: Cummins; Radiator: Bearward; Enclosure: Cummins; Fuel Tank: Tramont

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
29,504	232.0	90.0	128.0	3.1	4.4	7.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2022	ICC-ES AC156	2.48	0.0	1.5	-	-	1.66	0.67
		2.00	1.0	1.5	3.20	2.40	-	-

Test Mounting Details

Genset secured to a sub-base tank via (4) EBCO 4990-60 duro elastomer isolators. Sub-base tank secured to fixture using (10) 5/8" dia. ASTM 325 bolts.



All units were filled with contents and maintained structural integrity and functionality after AC-156 test.