



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

APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION
PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: **OSP – 0344 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Generac Power Systems Inc.

Manufacturer's Technical Representative: Richard Lincoln

Mailing Address: S45 W29290 Hwy 59, Waukesha, WI 53189

Telephone: (262) 544-4811 Email: Richard.Lincoln@generac.com

Product Information

Product Name: Generac Diesel / Bi-Fuel Generators

Product Type: Generator sets

Product Model Number: See Table 1

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

400-600kw Diesel / Bi-Fuel Generator sets with or without factory supplied sounds enclosures and UL142 base fuel tanks. Seismic enhancements made to the test units and modifications required to

General Description: address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid floor mounted and internally isolated generators.

Applicant Information

Applicant Company Name: Generac Power Systems Inc.

Contact Person: Richard Lincoln

Mailing Address: S45 W29290 Hwy 59, Waukesha, WI 53189

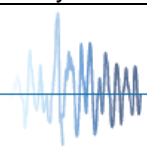
Telephone: (262) 544-4811 Email: Richard.Lincoln@generac.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: 05/23/13

Title: Director of Engineering Company Name: Generac Power Systems Inc.

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





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

Company Name: Buehler & Buehler Structural Engineers Inc.
Name: Scott R. Hooker California License Number: 3937 / Structural
Mailing Address: 600 Q Street, Suite 200, Sacramento CA 95811
Telephone: (916)443-0303 Email: shooker@bbse.com

Supports and Attachments Preapproval

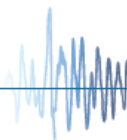
- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

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

Testing Laboratory

Company Name: U.S. Army Construction Engineering Research Laboratory
Contact Name: Jim Wilcoski
Mailing Address: P.O. Box 9005 Champaign, IL 61826
Telephone: (217)373-6763 Email: James.Wilcoski@usace.army.mil





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Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.88

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

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 2.0

Ω_0 (System overstrength factor) = 2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 0.0

Equipment or Component Natural Frequencies (Hz) = See Table 3

Overall dimensions and weight (or range thereof) = See Table 1

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, 2010: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): Operability Test Letters

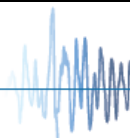
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019

Signature:  Date: 7/15/2013

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.5 z/h = 0

Condition of Approval (if applicable): _____





Special Seismic Certification
OSHPD Preapproval
Generac Generators



Table 1. Certified Product Table

Generac Industrial Generators

	Model Number	Kw Rating	Radiator	Engine	Engine Disp (L)	Engine Speed (rpm)	Alternator	Fuel Tank Capacity (gal)	Tested/ Interpolated	All Dimensions in mm					Max Unit Operating Weight (lbs)
										Max Height	Max Width	Length (Open)	Length (STD,L2A)	Length (L1A)	
Diesel Generators	SD400*†	400	Generac	Perkins	12.5L	1800	WEG	-	UUT-5A	1,651	1,473	3,454	-	-	7,250
	SD400*†	400	Generac	Perkins	12.5L	1800	WEG	183	UUT-5B, 5C	3,048	1,473	3,454	4,445	5,080	11,600
	SD400*†	400	Generac	Perkins	12.5L	1800	WEG	438	Interpolated	3,353	1,473	3,454	4,445	5,080	14,238
	SD400*†	400	Generac	Perkins	12.5L	1800	WEG	693	Interpolated	3,658	1,473	3,454	4,445	5,080	16,334
	SD400*†	400	Generac	Perkins	12.5L	1800	WEG	946	Interpolated	3,734	1,473	5,283	5,283	5,944	19,894
	SD400*†	400	Generac	Perkins	12.5L	1800	WEG	1,325	Interpolated	3,734	1,473	7,061	7,061	7,722	23,494
	SD500*†	500	Generac	Perkins	15.2L	1800	WEG	-	Interpolated	1,758	1,804	3,937	-	-	8,152
	SD500*†	500	Generac	Perkins	15.2L	1800	WEG	334	Interpolated	3,226	1,804	3,937	5,258	6,274	15,895
	SD500*†	500	Generac	Perkins	15.2L	1800	WEG	1,001	Interpolated	3,785	1,804	3,937	5,258	6,274	21,689
	SD500*†	500	Generac	Perkins	15.2L	1800	WEG	1,001	Interpolated	3,708	1,804	5,791	5,791	6,833	22,257
	SD500*†	500	Generac	Perkins	15.2L	1800	WEG	2,002	Interpolated	3,785	1,804	7,366	7,366	8,382	31,247
	SD600*†	600	Generac	Perkins	18.1L	1800	WEG	-	UUT-6A	2,083	1,804	3,937	-	-	10,200
	SD600*†	600	Generac	Perkins	18.1L	1800	WEG	334	Interpolated	3,226	1,804	3,937	5,258	6,274	16,438
	SD600*†	600	Generac	Perkins	18.1L	1800	WEG	1,001	Interpolated	3,785	1,804	3,937	5,258	6,274	22,142
SD600*†	600	Generac	Perkins	18.1L	1800	WEG	1,001	Interpolated	3,708	1,804	5,791	5,791	6,833	22,710	
SD600*†	600	Generac	Perkins	18.1L	1800	WEG	2,002	UUT-6B, 6C	3,785	1,804	7,366	7,366	8,382	31,700	

*Available in MPS configuration (MD vs SD)

†Available in bifuel configuration (SB vs SD, MB vs MD)

S indicates Standby B indicates Bifuel

M indicates Modular D indicates Diesel



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OSHPD Preapproval
Generac Generators



Table 2. Certified Sub-Component Tables

Motors						
Engine Size	Material	Manufacturer	Eng. Dry Weight (lbs)	Tested/Interpolated	kW range	max HP
12.5L	Cast Iron	Perkins	2513.3 lbs	UUT-5A, 5B, 5C	400	619.1
15.2L	Cast Iron	Perkins	3240.8 lbs	Interpolated	500	761.7
18.1L	Cast Iron	Perkins	3681.7 lbs	UUT-6A, 6B, 6C	600	909.5

Alternator				
KW	Voltage	Manufacturer	Material	Tested/Interpolated
400	120/208 3PH	WEG	Steel Laminations & Copper windings	UUT-5A, 5B, 5C
400	120/240 3PH	WEG	Steel Laminations & Copper windings	Interpolated
400	277/480 3PH	WEG	Steel Laminations & Copper windings	Interpolated
500	120/208 3PH	WEG	Steel Laminations & Copper windings	Interpolated
500	120/240 3PH	WEG	Steel Laminations & Copper windings	Interpolated
500	277/480 3PH	WEG	Steel Laminations & Copper windings	Interpolated
600	120/208 3PH	WEG	Steel Laminations & Copper windings	Interpolated
600	120/240 3PH	WEG	Steel Laminations & Copper windings	Interpolated
600	277/480 3PH	WEG	Steel Laminations & Copper windings	UUT-6A, 6B, 6C

Radiator				
Type	Material	Part Number	Manufacturer	Tested/Interpolated
400	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	0J9050010R	Generac	UUT-5A, 5B, 5C
500	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	0J9855010R	Generac	Interpolated
600	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	0J7984010R	Generac	UUT-6A, 6B, 6C

Enclosures				
ID	Description	Material	Manufacturer	Tested/Interpolated
-	No Enclosure	-	-	UUT-5A, 6A
Y	Standard	Aluminum	Generac	Interpolated
Y	Standard	Carbon Steel	Generac	Interpolated
S	Level 1 Sound attenuated	Aluminum	Generac	Interpolated
S	Level 1 Sound attenuated	Carbon Steel	Generac	UUT-5B, 5C
L	Level 2 Sound attenuated	Carbon Steel	Generac	Interpolated
L	Level 2 Sound attenuated	Aluminum	Generac	UUT- 6B, 6C

Control Panels			
ID	Description	Manufacturer	Tested/Interpolated
H	Generac Digital H-Panel	Generac	UUT-5A, 5B, 5C
G	Generac Digital G-Panel	Generac	UUT-6A, 6B, 6C



Special Seismic Certification
OSHPD Preapproval
Generac Generators



Table 2. Certified Sub-Component Tables

Batteries				
ID	Description	Part Number	Manufacturer	Tested/Interpolated
24V	8D	082951051R	Exide p/n COM8D-P	UUT-5A, 5B, 5C UUT-6A, 6B, 6C

Fuel Tanks						
Type	Description	Gallons	Material	Tank#	Manufacturer	Tested/Interpolated
400	No Tank Option	-	-	-	-	UUT-5A
400	Empty/Full - 1ft Tall	183	Carbon Steel	0J1155076R	Generac	UUT-5B, 5C
400	2ft Tall	438	Carbon Steel	0J1156078R	Generac	Interpolated
400	3ft Tall	679	Carbon Steel	0J1157080R	Generac	Interpolated
400	3ft Tall Extended	946	Carbon Steel	0J0490080R	Generac	Interpolated
400	3ft Tall Extended	1,325	Carbon Steel	0J0615080R	Generac	Interpolated
500	No Tank Option	-	-	-	-	Interpolated
500	1ft Tall	334	Carbon Steel	0J8132076R	United Alloy	Interpolated
500	3ft Tall	1,001	Carbon Steel	0K0184080R	United Alloy	Interpolated
500	3ft Tall	1,001	Carbon Steel	0K0187080R	United Alloy	Interpolated
500	3ft Tall Extended	2,002	Carbon Steel	0K0188080R	United Alloy	Interpolated
600	1ft Tall	334	Carbon Steel	0J8132076R	United Alloy	Interpolated
600	3ft Tall	1,001	Carbon Steel	0K0184080R	United Alloy	Interpolated
600	3ft Tall	1,001	Carbon Steel	0K0187080R	United Alloy	Interpolated
600	No Tank Option	-	-	-	-	UUT-6A
600	Empty/Full 3ft Tall Extended	2,002	Carbon Steel	0K0188080R	United Alloy	UUT-6B, 6C

Mufflers				
KW	Material	Part Number	Manufacturer	Tested/Interpolated
400	None	-	Generac	UUT-5A
400 Bi-fuel	Steel	0K1646024R	Generac	Interpolated
400	Steel	0J9844024R	Generac	UUT-5B, 5C
500	None	-	Generac	Interpolated
500 Bi-fuel	Steel	0K1645024R	Generac	Interpolated
500	Steel	0K0294024R	Generac	Interpolated
600	None	-	-	UUT-6A
600	Steel	0J8005024R	Generac	Interpolated
600 Bi-Fuel	Steel	0K0629024R	Generac	UUT-6B, 6C

Fuel Systems				
KW	Material	System #	Manufacturer	Tested/Interpolated
400	Steel / Aluminum	0K1643020R	Generac	UUT-5B-5C
500	Steel / Aluminum	0K1644020R	Generac	Interpolated
600	Steel / Aluminum	0J8127020R	Generac	UUT-6B, 6C

Controllers			
ID	Description	Manufacturer	Tested/Interpolated
004975	PM-SC (Nema 1)	Generac	UUT-6A, 6B, 6C
005047	PM-SC (Nema 3)	Generac	UUT-6A, 6B, 6C



Special Seismic Certification
OSHPD Preapproval
Generac Generators



Table 3. UUT Summary Table^{1,5,6}
 Generac Industrial Generators

Model Number	Function/Size	UUT Mark	Enclosure (Material)	Mounting	Excitation Direction ³	Frequency ⁴ (Hz)	Width (mm)	Length (mm)	Base Height (mm)	Tank Height (mm)	Overall Height (mm)	Operating Weight ² (lbs)
SD0400GG2212.5D18HPNN3	400kW Diesel w/ bi-fuel option Generator	UUT-5A	None	Base - Hard Mount	X	7.0	1,473	3,454	243	N/A	1,651	7,250
					Y	5.1						
					Z	13.0						
SD0400GG2212.5D18HPSY3	400kW Diesel Generator w/ bi-fuel option Generator	UUT-5B	Level 1A (Mild Carbon Steel)	Fuel Tank 1ft - Hard Mount - Empty	X	5.8	1,473	5,080	243	330	3,048	10,100
					Y	4.7						
					Z	12.0						
SD0400GG2212.5D18HPSY3	400kW Diesel Generator w/ bi-fuel option Generator	UUT-5C	Level 1A (Mild Carbon Steel)	Fuel Tank 1ft - Hard Mount - Full	X	5.8	1,473	5,080	243	330	3,048	11,600
					Y	4.7						
					Z	12.0						
MB0600KG2218.1B18GPNN2	600kW Diesel Generator w/ bi-fuel option Generator	UUT-6A	None	Base - Hard Mount	X	6.4	1,804	3,937	249	N/A	2,083	10,200
					Y	5.1						
					Z	13.0						
MB0600KG2218.1B18GPLY2	600kW Diesel Generator w/ bi-fuel option Generator	UUT-6B	Level 2A (Aluminum)	Fuel Tank 3ft - Hard Mount - Empty	X	5.7	1,804	7,366	249	914	3,785	17,350
					Y	5.1						
					Z	12.0						
MB0600KG2218.1B18GPLY2	600kW Diesel Generator w/ bi-fuel option Generator	UUT-6C	Level 2A (Aluminum)	Fuel Tank 3ft - Hard Mount - Full	X	5.2	1,804	7,366	249	914	3,785	31,700
					Y	4.7						
					Z	11.0						

1. Tested at US Army Corp Lab, Report No. 2012-0262.00
2. Weight as tested
3. Excitation Direction: X = front to back; Y = side to side; Z = vertical
4. Unit frequencies were measured prior to AC156 testing.
5. All units were tested, retained structural integrity and satisfied the operability tests before and after the shake table tests.
6. All units were pressurized and charged prior to AC156 testing.

Test Parameters for all units

S_{DS} = 2.5
 z/h = 0.0 for all units

A_{FLEX-H} = 2.50 (g) A_{RIG-H} = 1.00 (g)
 A_{FLEX-V} = 1.67 (g) A_{RIG-V} = 0.67 (g)

Test Setup Photos

Generac Industrial Generators



Figure 1: UUT-5A 400kW Generator on shake table
 Anchorage: Base bolted to plates w/ (10) 5/8" dia Grade 8 bolts



Figure 2: UUT-5B/5C 400kW Generator w/ enclosure and fuel tank
 Anchorage: Unit Base bolted to tank w/ (10) 5/8" dia Grade 8 bolts
 Tank bolted to plates w/ (10) 5/8" dia Grade 8 bolts



Figure 3: UUT-6A 600kW Generator on shake table
 Anchorage: Base bolted to plates w/ (12) 5/8" dia Grade 8 bolts



Figure 4: UUT-6B/6C 600kW Generator w/ enclosure and fuel tank
 Anchorage: Unit Base bolted to tank w/ (12) 5/8" dia Grade 8 bolts
 Tank bolted to fixture w/ (18) 3/4" dia Grade 8 bolts



Special Seismic Certification
 OSHPD Preapproval
 Generac Generators



Table 4. UUT Sub-Component Table

	Sub-Component	Description	Material	Manufacturer	Part No.
UUT-5A	Engine	D12.5L	Cast Iron	Perkins	0J9048008R
	Alternator	400kW Alternator 120/208 3ph	Steel Laminations & Copper windings	WEG	0H9457001R
	Radiator	Generac	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	Generac	0J9050010R
	Enclosure	None	-	-	-
	ControlPanel	Generac Digital Controller	Carbon Steel	Generac	0K1053095R
	Muffler	None	-	-	-
	Battery	8D Battery	Exide p/n COM8D-P	Exide	082951051R
UUT-5B	Engine	D12.5L	Cast Iron	Perkins	0J9048008R
	Alternator	400kW Alternator 120/208 3ph	Steel Laminations & Copper windings	WEG	0H9457001R
	Radiator	Generac	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	Generac	0J9050010R
	Enclosure	Level 1 Sound attenuated	Carbon Steel	Generac	0K1114023R
	ControlPanel	Generac Digital Controller	Carbon Steel	Generac	0K1053095R
	Fuel Tank	1 ft Tall (Empty) - 183 Gallons	Mild Steel	Generac	0J1155076R
	Muffler	D12.5L Exhaust	Steel	Generac	0J9844024R
	Battery	8D Battery	Exide p/n COM8D-P	Exide	082951051R
UUT-5C	Engine	D12.5L	Cast Iron	Perkins	0J9048008R
	Alternator	400kW Alternator 120/208 3ph	Steel Laminations & Copper windings	WEG	0H9457001R
	Radiator	Generac	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	Generac	0J9050010R
	Enclosure	Level 1 Sound attenuated	Carbon Steel	Generac	0K1114023R
	ControlPanel	Generac Digital Controller	Carbon Steel	Generac	0K1053095R
	Fuel Tank	1 ft Tall (Full) - 183 Gallons	Mild Steel	Generac	0J1155076R
	Muffler	D12.5L Exhaust	Steel	Generac	0J9844024R
	Battery	8D Battery	Exide p/n COM8D-P	Exide	082951051R



Special Seismic Certification
OSHPD Preapproval
Generac Generators



Table 4. UUT Sub-Component Table

	Sub-Component	Description	Material	Manufacturer	Part No.
UUT-6A	Engine	D18.1L	Cast Iron	Perkins	0J7962008R
	Alternator	600kW Alternator 277/480 3ph	Steel Laminations & Copper windings	WEG	0K0869001R
	Radiator	Generac	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	Generac	0K0478010R
	Enclosure	None	-	-	-
	ControlPanel	Generac Digital Controller	Carbon Steel	Generac	0K1061094R
	Muffler	None	-	-	-
	Fuel	Diesel / Natural Gas	Aluminum & Steel	Generac	0J8127020R
	Battery	8D Battery	Exide p/n COM8D-P	Exide	082951051R

	Sub-Component	Description	Material	Manufacturer	Part No.
UUT-6B	Engine	D18.1L	Cast Iron	Perkins	0J7962008R
	Alternator	600kW Alternator 277/480 3ph	Steel Laminations & Copper windings	WEG	0K0869001R
	Radiator	Generac	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	Generac	0K0478010R
	Enclosure	Level 2 Sound attenuated	Carbon Steel	Generac	0K1208023R
	ControlPanel	Generac Digital Controller	Carbon Steel	Generac	0K1061094R
	Fuel Tank	3 ft Tall (Empty) - 2002 Gallons	Mild Steel	United Alloy	0K0188080R
	Muffler	D18.1L Exhaust	Steel	Generac	0K0629024R
	Fuel	Diesel / Natural Gas	Aluminum & Steel	Generac	0J8127020R
Battery	8D Battery	Exide p/n COM8D-P	Exide	082951051R	

	Sub-Component	Description	Material	Manufacturer	Part No.
UUT-6C	Engine	D18.1L	Cast Iron	Perkins	0J7962008R
	Alternator	600kW Alternator 277/480 3ph	Steel Laminations & Copper windings	WEG	0K0869001R
	Radiator	Generac	Copper(Fins)- Steel(Mounting Flanges)- Brass(Tanks, Support Plate & Tubes)	Generac	0K0478010R
	Enclosure	Level 2 Sound attenuated	Carbon Steel	Generac	0K1208023R
	ControlPanel	Generac Digital Controller	Carbon Steel	Generac	0K1061094R
	Fuel Tank	3 ft Tall (Full) - 2002 Gallons	Mild Steel	United Alloy	0K0188080R
	Muffler	D18.1L Exhaust	Steel	Generac	0K0629024R
	Fuel	Diesel / Natural Gas	Aluminum & Steel	Generac	0J8127020R
Battery	8D Battery	Exide p/n COM8D-P	Exide	082951051R	

GENERAC®

Type Code Legend for Configured Generators - 400-600kW Bi-Fuel/Diesel

