



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0805

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: EVAC North America Inc.

Manufacturer's Technical Representative: Chris Hardwick

Mailing Address: 1445 Huntwood Drive, Cherry Valley, IL 61016-9560

Telephone: (815) 639-7721

Email: chris.hardwick@evac.com

Product Information

Product Name: Industrial Control Panels

Product Type: Pump Control Panels

Product Model Number: 2801309

General Description: Vacuum Tank Control Panel

Mounting Description: Several – See UUT Sheets, Wall Mounted

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

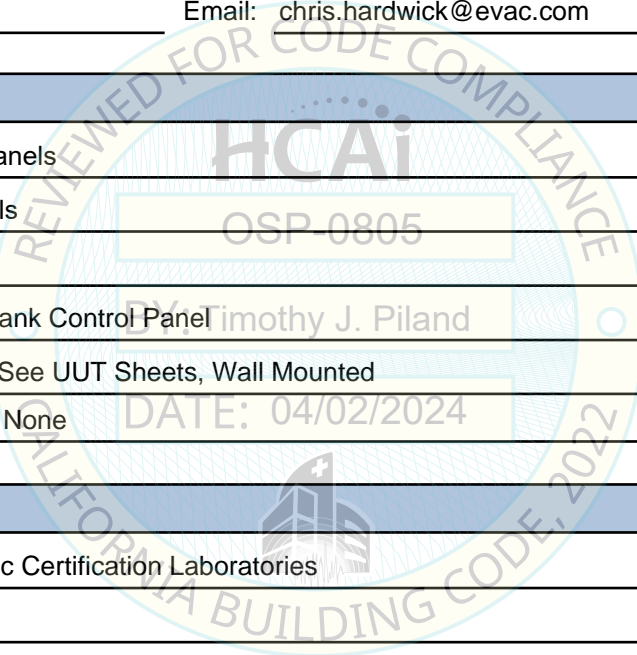
Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Street, Sparks, OR 994316098

Telephone: (775) 358-5085

Email: kelly@shaketest.com

Title: Business Manager





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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): _____

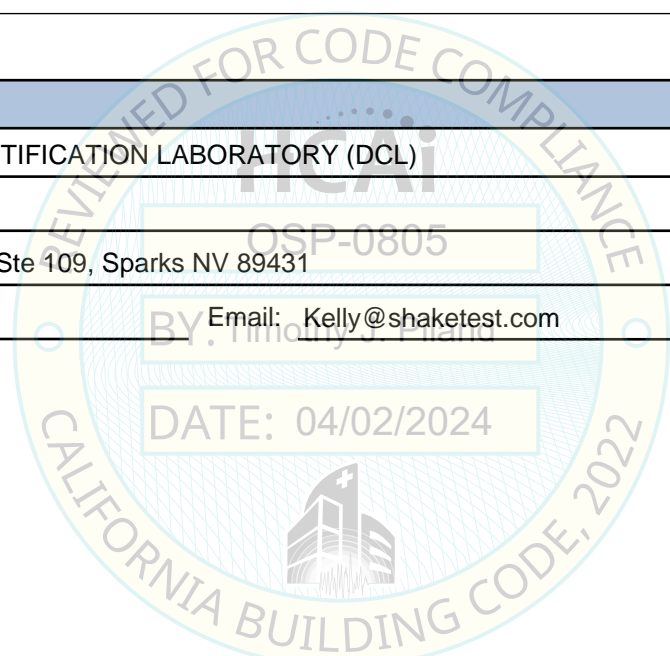
Testing Laboratory

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)

Contact Person: Kelly Laplace

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

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





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50 (Sds=2.00, z/h=1); 1.13 (Sds=2.50, z/h=0)

SDS (Design spectral response acceleration at short period, g) = Sds 2.00, z/h=1; Sds 2.50, z/h=0

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

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

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

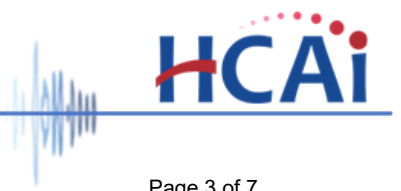
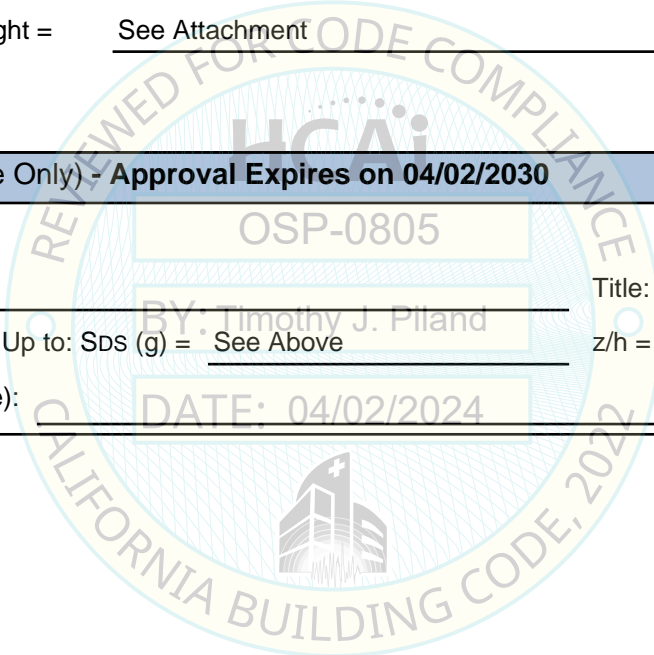
HCAI Approval (For Office Use Only) - Approval Expires on 04/02/2030

Date: 4/2/2024

Name: Timothy Piland Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 04/02/2024



Special Seismic Certification
Table 1- Certified Components



DCL Project Number: 92823-2301

Manufacturer: EVAC North America Inc.

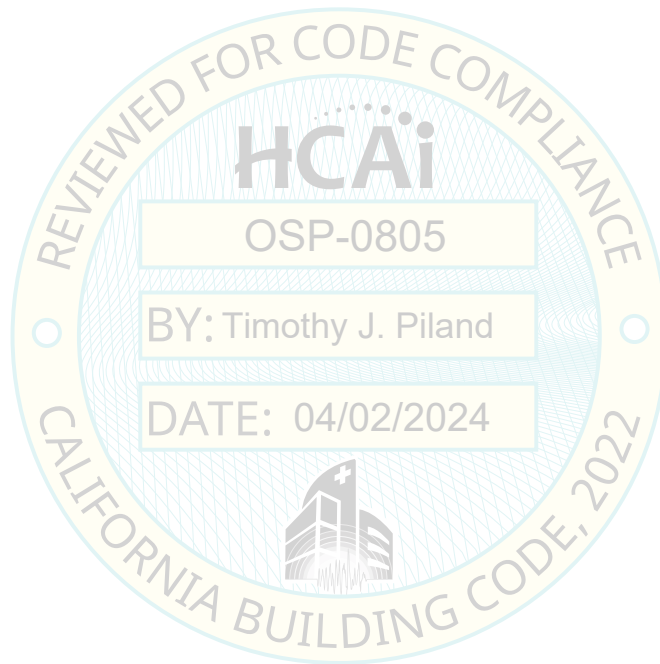
Product Line: EcoVac

Mounting: Rigid and flexible wall mount

Certified Seismic Levels: Sds 2.0 g at z/h = 1 and Sds 2.5 at z/h = 0

Model Number	Description	Dimensions [in.]			Weight [lb]	Unit
		Length	Width	Height		
2801309	Surface-mounted vacuum tank control panel	20	13	30	92	UUT-01a,b

*Note the manufacturing process for this product line is ISO 9001 certified



Special Seismic Certification
Table 2 - Certified Subcomponents



DCL Project Number: 92823-2301

Product Line: EcoVac

Certified Seismic Levels: Sds 2.0 g at z/h = 1 and Sds 2.5 at z/h = 0

Model Number	Manufacturer	Description	Material	Weight [lb.]	Unit	
AX 1057.000	Rittal	Enclosure Ip66 500x700x250	Carbon Steel	69	UUT-01a,b	
SZ 2519	Rittal	Door Latch	Stainless Steel	1	UUT-01a,b	
SZ 2508	Rittal	Wall Fixing Clamps	Carbon Steel	3	UUT-01a,b	
6ED1 052-1MD08-0BA1	Siemens	LOGO! 12/24 RC (Logic Module)	Plastic	<1	UUT-01a,b	
6ED1 055-1MB00-0BA2	Siemens	LOGO! DM 8 12/24R (Expansion Module)		<1	UUT-01a,b	
6ED1 055-1MD00-0BA2	Siemens	LOGO! AM2 PT100 (Expansion Module)		<1	UUT-01a,b	
3RH29111HA20, NO+NO	Schneider	Auxiliary Contact	Carbon Steel, Stainless Steel, Bronze, Zamak, Plastic	<1	UUT-01a,b	
XB4BVB1 24VDC	Schneider	Signal Light, White		<1	UUT-01a,b	
XB4BVB3 +2x ZBZG156	Schneider	LED, Green		<1	UUT-01a,b	
XB4BVB5 +2x ZBZG156	Schneider	LED, Yellow		<1	UUT-01a,b	
XB4BVB4 +2x ZBZG156	Schneider	LED, Red		<1	UUT-01a,b	
XB4BVB4 +2x ZBZG156	Schneider	LED, Red		<1	UUT-01a,b	
3RV29011B	Schneider	Auxiliary Block		<1	UUT-01a,b	
C9 - A41 24D + S9-M	Releco	Auxiliary Relay + Base	Plastic	<1	UUT-01a,b	
C7-A20DX/024VDC+S7C	Releco	Auxiliary Relay + Base		<1	UUT-01a,b	
C10 - A10BX24AD + S10	Releco	Auxiliary Relay + Base		<1	UUT-01a,b	
XB4BD33 + ZBE101	Schneider	Control Switch	Mild Steel, Zamak, Plastic	<1	UUT-01a,b	
XB4BD33	Schneider	Control Switch		<1	UUT-01a,b	
XB4BA21	Schneider	Push Button		<1	UUT-01a,b	
XB4BW33B5	Schneider	Push Button with Led		<1	UUT-01a,b	
XB4BA21 + 2xZBE101	Schneider	Push Button		<1	UUT-01a,b	
XB4BS8445	Schneider	Emergency Stop Button		<1	UUT-01a,b	
250 OHM 1/4W 1%	YE OY	Resistor		Aluminum, Stainless Steel, Epoxy, Copper	<1	UUT-01a,b
UT 4	Phoenix	Terminal Block	<1		UUT-01a,b	
UT 4-PE	Phoenix	Terminal Block Ground	Plastic		<1	UUT-01a,b
UT4-HESI	Phoenix	Terminal Fuse + F50ma			<1	UUT-01a,b
UTTB 4	Phoenix	Terminal Block			<1	UUT-01a,b
EB 2/7	Tas	Earthing Bar	Tinned Aluminum		<1	UUT-01a,b
731-0042	Trumeter	Elapsed Time Meter	Plastic		<1	UUT-01a,b
5003-009	Trumeter	NEMA 4X, 12 Gaskets	Neoprene		<1	UUT-01a,b
OT60F3 + OHY65L6	ABB	Main Switch + Handle	Plastic		<1	UUT-01a,b
3RV20214BA10	Schneider	Motor Protection Circuit Breaker			<1	UUT-01a,b
3RV20211GA10	Schneider	Motor Protection Circuit Breaker		<1	UUT-01a,b	
SU203MK10	ABB	Circuit Breaker		<1	UUT-01a,b	
3RT20261BB40	Schneider	Contactora		1	UUT-01a,b	
3RT20251BB40	Schneider	Contactora		1	UUT-01a,b	
Quint-PS/3AC/24DC/5	Phoenix	Power Supply 24vdc 5a		Galvanized Carbon Steel, Aluminum	1	UUT-01a,b
UTTB4	Phoenix	Terminal Block +24v -24v	Plastic	<1	UUT-01a,b	
4700 OHM	YE OY	Resistor	Aluminum, Stainless Steel, Epoxy, Copper	<1	UUT-01a,b	
C10-A10BX24AD+S10	Releco	Aux Relay and Base (Vac Collapse)		<1	UUT-01a,b	
C7-A20DX/024VDC+S7C	Releco	Aux Relay and Base		<1	UUT-01a,b	
3RV19152CB	Schneider	Bus Bar Top Feed		Plastic	<1	UUT-01a,b
3RV29255EB	Schneider	Terminal Block Top Feed			<1	UUT-01a,b
1.209.3200.31	Hummell	Cable Gland M32-1.5 (15-21MM)			<1	UUT-01a,b
1.209.2000.30	Hummell	Cable Gland M20-1.5 (12-16MM)			<1	UUT-01a,b
1.209.1600.30	Hummell	Cable Gland M32-1.5 (15-21MM)			<1	UUT-01a,b

Special Seismic Certification
Table 3- Tested Units



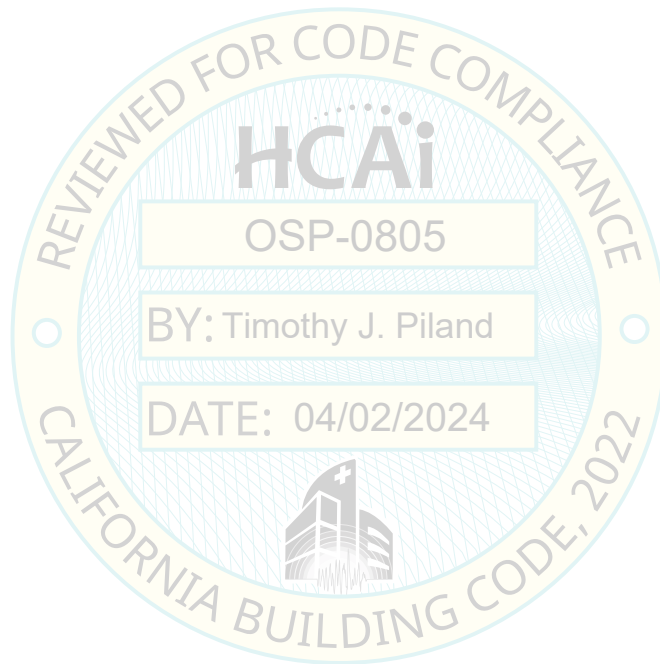
DCL Project Number: 92823-2301

Product Line: EcoVac

Mounting: Rigid and flexible wall mount

Certified Seismic Levels: Sds 2.0 g at z/h = 1 and Sds 2.5 at z/h = 0

Model Number	Description	Manufacturer	Dimensions [in.]			Weight [lb]	Unit
			Length	Width	Height		
2801309	Surface-mounted vacuum tank control panel	EVAC	20	13	30	92	UUT-01a,b



UNIT UNDER TEST (UUT) Summary Sheet



UUT-01a,b

Manufacturer: Evac

Product Line: EcoVac

Model Number: 2801309

Product Construction Summary: Carbon Steel

Options / Component Summary: Carbon steel enclosure. Logic and expansion modules. Control switches, resistor, circuit breaker, contactors and power supply.

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

UUT Properties

Tested Unit	Dimensions (in)				Lowest Natural Frequency (Hz)		
	Operating Weight (lb)	Length	Width	Height	Front-Back	Side-Side	Vertical
UUT-01a,b	92	20	13	30	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Afix-H (g)	Arig-H (g)	Afix-V (g)	Arig-V (g)
CBC 2022	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	N/A	N/A
		2.50	0.0		N/A	N/A	1.67	0.67

Unit Mounting Description:

The UUT-01a,b was wall mounted to the DCL wall fixture using four Rittal SZ 2508 brackets, four 3/8" Grade 5 bolts, four 3"x3"x1/4" carbon steel plate washers, four flat washers, and four channel nuts. The 3/8" bolts were spaced 28.8" apart measured on-center in the z-direction, and 17.5" apart measured on-center in the x-direction.

For UUT-01a the DCL wall fixture was mounted directly to the shake table. For UUT-01b the DCL wall fixture was mounted to the shake table with four VMC MSSH-1E-650 isolators.



UUT-01a overall rigid setup



UUT-01b overall isolated setup