APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP – 0269-10

Check whether application is: NEW [X] RENEWAL [ ]

1.0

Engineering Dynamics LTD.
Manufacturer

Ben Kaeppner
Manufacturer's Technical Representative

137 Pick Road, RR1, Carleton Place, ON, Canada K7C 3P1
Mailing Address

(613) 257 - 5450
Telephone

ben@dynamicaqs.com
E-mail Address

2.0

V8 High Efficiency Air Cleaner
Product Name

Air Cleaner
Product Type

See Table 1 of Attachment
Product model No (List all unique product identification numbers and/or serial numbers)

General Description: A base mounted High efficiency electronic air cleaner used in rigid base mounted commercial HVAC applications.

3.0

Dynamic Air Quality Solutions
Applicant Company Name

Duke Wiser
Contact Person

5 Crescent Avenue Building B-3, Rocky Hill, NJ 08553
Mailing Address

(609) 924 - 4489
Telephone

dwiser@dynamicaqs.com
E-mail Address

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant

April 9, 2012
Date

Eng. Dir.
Title

Dynamic Air Quality Solutions
Company Name

☑

4.0 ***Registered Design Professional Preparing the Report***

RICE Engineering Inc.
Company Name

Bradley J. Kuehl — C66394
Contact Name — *California License Number*

105 School Creek Trail, Luxemburg, WI 54217
Mailing Address

(920) 845-1042 — bradkuehl@rice-inc.com
Telephone — *E-mail Address*

5.0 ***California Licensed Structural Engineer Review and Acceptance of the Report***

Arches Engineering, LLC
Company Name

Ruth Miller — S4657
Contact Name — *California License Number*

P.O. Box 3852, Grand Junction, CO 81502
Mailing Address

(970) 255-6788 — ruth@archesengineering.com
Telephone — *E-mail Address*

6.0 ***Anchorage Pre-Approval***

☐ *Anchorage is pre-approved under OPA-*
(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

70. ***Certification Method***

☒ *Testing in accordance with:* ☒ *ICC-ES AC-156* ☐ *Other (Please Specify):*

☐ *Analysis*
☐ *Experience data*
☐ *Combination of Testing, Analysis, and/or Experience Data (Please Specify):*

8.0 ***Testing Laboratory (if applicable)***

Versatile Measuring Instruments Inc. — Sherwin Jamisola
Company Name — *Contact Name*

165 Pony Drive Newmarket, Ontario L3Y 7B5
Mailing Address

(905) 954 - 0841 — sjamisola@amidyne.com
Telephone — E-mail:

9.0 ***Approval Parameters***

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ No

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

S_{DS} (Spectral response acceleration at short period) =2.49g

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

R_p (Equipment or component response modification factor) =6.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio)=1.0

Equipment or Component fundamental period(s) =See Attachments

Building period limits (if any) =None

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

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient)=1.0

Ω_0 (System overstrength factor) =1.0

C_d (Deflection amplification factor) =1.0

I_p (Importance factor) =1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No

10.0 ***List of attachments supporting the special seismic certification of equipment or components:***

☒ *Test Report* ☐ *Drawings* ☐ *Manufacturer's Catalog*

☐ *Calculations* ☒ *Others (Please Specify):*

11.0 ***OSHPD Approval*** *(For Office Use Only)*

4/11/12	**December 31, 2016**
Signature & Date	*Approval Expiration Date*
M. R. Karim, SHFR	S_{DS} (g) = **2.50** z/h = **1.0**
Name & Title	*Special Seismic Certification Valid Up to*

Condition of Approval (if any):

RICE ENGINEERING

REI No: R10-09-22F

105 School Creek Trail
Luxemburg, WI 54217
Phone: (920)845-1042
Fax: (920)845-1048
www.rice-inc.com

TABLE 1

SEISMICALLY CERTIFIED COMPONENTS

PRODUCT LINE	MODULE SIZE	WEIGHT (LB)	DEPTH (IN)	WIDTH (IN)	HEIGHT (IN)	BASIS
V8 Air Cleaner	1V82612-24-F	21	24	26	12	Interpolated
V8 Air Cleaner	**1V82612-29.5-F**	**26**	**29.5**	**26**	**12**	**UUT1**
V8 Air Cleaner	1V83012-24-F	25	24	30	12	Interpolated
V8 Air Cleaner	1V83012-29.5-F	30	29.5	30	12	Interpolated
V8 Air Cleaner	1V83412-24-F	28	24	34	12	Interpolated
V8 Air Cleaner	1V83412-29.5-F	34	29.5	34	12	Interpolated
V8 Air Cleaner	1V83812-24-F	31	24	38	12	Interpolated
V8 Air Cleaner	1V83812-29.5-F	38	29.5	38	12	Interpolated
V8 Air Cleaner	1V83912-24-F	32	24	39	12	Interpolated
V8 Air Cleaner	1V83912-29.5-F	39	29.5	39	12	Interpolated
V8 Air Cleaner	1V84312-24-F	35	24	43	12	Interpolated
V8 Air Cleaner	1V84312-29.5-F	43	29.5	43	12	Interpolated
V8 Air Cleaner	1V84812-24-F	39	24	48	12	Interpolated
V8 Air Cleaner	1V84812-29.5-F	48	29.5	48	12	Interpolated
V8 Air Cleaner	1V82618-24-F	28	24	26	18	Interpolated
V8 Air Cleaner	1V82618-29.5-F	34	29.5	26	18	Interpolated
V8 Air Cleaner	1V83018-24-F	31	24	30	18	Interpolated
V8 Air Cleaner	1V83018-29.5-F	38	29.5	30	18	Interpolated
V8 Air Cleaner	1V83418-24-F	34	24	34	18	Interpolated
V8 Air Cleaner	1V83418-29.5-F	42	29.5	34	18	Interpolated
V8 Air Cleaner	1V83818-24-F	38	24	38	18	Interpolated
V8 Air Cleaner	1V83818-29.5-F	46	29.5	38	18	Interpolated
V8 Air Cleaner	1V83918-24-F	39	24	39	18	Interpolated
V8 Air Cleaner	1V83918-29.5-F	47	29.5	39	18	Interpolated
V8 Air Cleaner	1V84318-24-F	42	24	43	18	Interpolated
V8 Air Cleaner	1V84318-29.5-F	51	29.5	43	18	Interpolated
V8 Air Cleaner	1V84818-24-F	46	24	48	18	Interpolated
V8 Air Cleaner	**1V84818-29.5-F**	**56**	**29.5**	**48**	**18**	**UUT2**
V8 Air Cleaner	**Control Panel**	**10**	**4.5**	**8.25**	**8.25**	**UUT3**

RICE ENGINEERING REI No: R10-09-22F	105 School Creek Trail Luxemburg, WI 54217 Phone: (920)845-1042 Fax: (920)845-1048 www.rice-inc.com	**UUT # 1** **Unit Under Test (UUT) Summary Sheet**

Manufacturer:	***Dynamic Air Quality Solutions***
Model Line:	***V8 High Efficiency Air Cleaner***
Model Number:	***1V8-2612-29.5-F***

Product Construction Summary:

Filter pads of the air cleaner are a patented combination of medias, bonded together in a frame that seals securely between the hinged aluminum frame of the module. Galvanized steel screens cover each filter pad and filter pads are connected with a galvanized steel frame. The unit has 4 pads per nominal 12" of height. 24Vac is used to polarize fibers in the media and airborne contaminants.

Options/Subcomponent Summary:

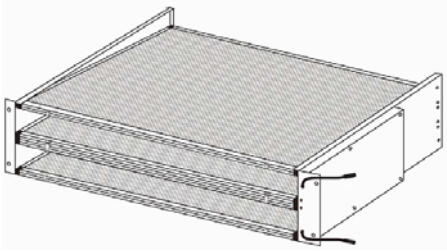
UUT Properties

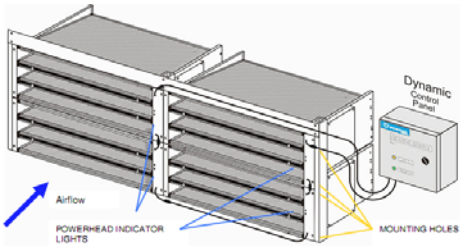
	Dimensions (in)			Lowest Natural Frequency (Hz)		
Weight (lb)	**Depth**	**Width**	**Height**	**Front-Back**	**Side-Side**	**Vertical**
47	29.5	26	12	N/A	N/A	N/A

UUT Highest Passed Seismic Test Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2010	ICC-ES AC 156	2.49	1	1.5	3.98	2.99	1.67	0.67

Test Mounting Details:





Air cleaner mounting flanges were attached to the test frame with a minimum of 2 columns of 2 screws. Screws were #8x1/2" Tek2 self-drilling screws. Multiple rows of air cleaners were fastened together at the downstream end by installing a #10x1" Tek3 self-drilling screw through each horizontal flange.

RICE ENGINEERING REI No: R10-09-22F	105 School Creek Trail Luxemburg, WI 54217 Phone: (920)845-1042 Fax: (920)845-1048 www.rice-inc.com	**UUT # 2** **Unit Under Test (UUT) Summary Sheet**

Manufacturer:	***Dynamic Air Quality Solutions***
Model Line:	***V8 High Efficiency Air Cleaner***
Model Number:	***1V8-4818-29.5-F***

Product Construction Summary:

Filter pads of the air cleaner are a patented combination of medias, bonded together in a frame that seals securely between the hinged aluminum frame of the module. Galvanized steel screens cover each filter pad and filter pads are connected with a galvanized steel frame. The unit has 4 pads per nominal 12" of height. 24Vac is used to polarize fibers in the media and airborne contaminants.

Options/Subcomponent Summary:

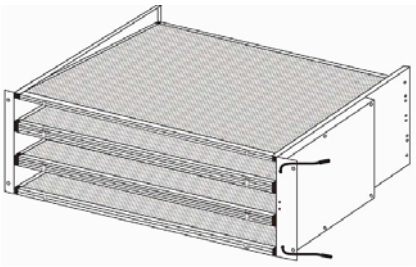
UUT Properties

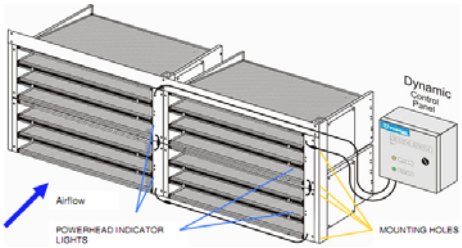
Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
99	29.5	48	18	N/A	N/A	N/A

UUT Highest Passed Seismic Test Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2010	ICC-ES AC 156	2.49	1	1.5	3.98	2.99	1.67	0.67

Test Mounting Details:





Air cleaner mounting flanges were attached to the test frame with a minimum of 2 columns of 3 screws. Screws were #8x1/2" Tek2 self-drilling screws. Multiple rows of air cleaners were fastened together at the downstream end by installing a #10x1" Tek3 self-drilling screw through each horizontal flange.

RICE ENGINEERING REI No: R10-09-22F	105 School Creek Trail Luxemburg, WI 54217 Phone: (920)845-1042 Fax: (920)845-1048 www.rice-inc.com	**UUT # 3** **Unit Under Test (UUT) Summary Sheet**

Manufacturer:	***Dynamic Air Quality Solutions***
Model Line:	***V8 High Efficiency Air Cleaner***
Model Number:	***Control Panel***

Product Construction Summary:
A plastic box with metal power supplies and an indicator light for each power supply, mounted on the exterior of the air cleaner enclosure.

Options/Subcomponent Summary:
(1) 75-120 power supply or (2) 75-120 power supplies.
Use of a pressure drop gauge, transmitter, or switch.

UUT Properties

Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
10	4.50	8.25	8.25	N/A	N/A	N/A

UUT Highest Passed Seismic Test Information

Building Code	Test Criteria	S_{DS}	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2010	ICC-ES AC 156	2.49	1	1.5	3.98	2.99	1.67	0.67

Test Mounting Details:

The Control Panel was anchored with eight #10-16 x 1” self-drilling hex washer head screws.