Facilities Development Division www.oshpd.ca.gov/fdd
400 R Street. Suite 200, Sacramento, California 95811-6213 Phone (916) 440-8300 Fax (916) 654-2973

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP -0211-10

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

1.0

International Environmental Corp	Mr. John Szymanski
Manufacturer	*Manufacturer's Technical Representative*

P.O. Box 2598, Oklahoma City, OK 73101
Mailing Address

405-605-5000	szymanski@iecokc.com
Telephone	*E-mail Address*

2.0

IEC Fan Coils	Hydronic Fan Coils
Product Name	*Product Type*

Horizontal Series 200-1200 CFM, Hi-Performance Series 600-2000 CFM, Belt Drive Series 600-4000 CFM
Product model No (List all unique product identification numbers and/or serial numbers)

*General Description: These are hydronic fan coil air handling units. Pre-approved installations are: Horizontal Series, Hi-Performance Series H*Y, and Belt Drive Series HB*: Suspended with external isolation and seismic cable kits; Hi-Performance VEY and Belt Drive VBA: floor mounted with rigid mount or external isolation with steel base. Approval is limited to configurations tested and shall include modification to the units required to address the anomalies observed during the shake table tests and other changes incorporated into the units in preparation for the tests.*

3.0

The VMC Group	John P. Giuliano, PE
Applicant Company Name	*Contact Person*

113 Main St, Bloomingdale NJ, 07403
Mailing Address

973-838-1780	john.giuliano@thevmcgroup.com
Telephone	*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.

	9/16/11
Signature of Applicant	*Date*
President	The VMC Group
Title	*Company Name*

Registered Design Professional Preparing the Report

4.0

The VMC Group
Company Name

Mr. Ken Tarlow | SE2851
Contact Name | *California License Number*

113 Main St, Bloomingdale, NJ 07403
Mailing Address

973-838-1780 | ken.tarlow@thevmcgroup.com
Telephone | *E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

The VMC Group
Company Name

Mr. Ken Tarlow | SE2851
Contact Name | *California License Number*

113 Main St, Bloomingdale, NJ 07403
Mailing Address

973-838-1780 | ken.tarlow@thevmcgroup.com
Telephone | *E-mail Address*

Anchorage Pre-Approval

6.0

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

☒ Anchorage is not Pre-approved

Certification Method

7.0

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

☐ *Analysis*

☐ *Experience data*

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

Testing Laboratory (if applicable)

8.0

Clark Testing Laboratory | JR Antenucci
Company Name | *Contact Name*

1801 Route 51, Jefferson Hills, PA 15025
Mailing Address

412-382-7173 | jantenucci@clarkdynamics.com
Telephone | E-mail:

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Testing Laboratory (Continued)

8.0

Environ Laboratories	Bradley Czech
Company Name	*Contact Name*

9725 Girard ave South, Minneapolis, MN 55431

Mailing Address

952-888-7795	BCC@environlab.com
Telephone	E-mail:

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Approval Parameters

9.0

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

Design Basis of Equipment or Components (F_p/W_p) = 4.34

S_{DS} (Spectral response acceleration at short period) = 1.93 g

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

R_p (Equipment or component response modification factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio)= 1.0

Equipment or Component fundamental period(s) = See attachment

Building period limits (if any) = N/A

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

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)*

Signature & Date **10/12/2011**	**December 31, 2016** *Approval Expiration Date*
M. R. Karim, SHFR *Name & Title*	S_{DS} (g) = **1.93** z/h = **1.0** *Special Seismic Certification Valid Up to*

Condition of Approval (if any):

1/8

IEC (International Environmental Corporation)

Design level: 1.93 roof top

SHAKE TEST MATRIX

SUSPENDED UNITS UNDER TEST (HRS HANGER)

UNIT MODEL	UNIT WEIGHT MEASURED(LBS)	UNIT SIZE (IN)			COIL	Component Manufacturers						UUT
		L	W	H		Motor (s)	Blower Hsg	Blower Whl	Elec Heat	Filter	Damper	
CBY02	134	37	26	14	Copper Fin 2 Pipe, 4 Rows	Eastwest (208-1-60, 0.03HP)	IEC	Beckett	Nova	Filtertech OCK, 1" Flat	IEC Motorized	Env-UUT #1
CBY12	296	77	26	14	Aluminum Fin 2 Pipe, 4 Rows	Eastwest (277-1-60, 0.17HP) & GE (0.17HP)	IEC	Beckett	Nova	Filtertech OCK, 1" MERV	IEC Automatic	Clk-UUT #1
HLY06	217	31	32	18	Copper Fin 2 Pipe, 6 Rows	GE (208-1-60, 0.1HP)	IEC	Morrison	Nova	Filtertech OCK, 1" Flat	NA	Env-UUT #3
HLY20	375	64	32	18	Copper Fin 2 Pipe, 6 Rows	Eastwest (208-1-60, 0.25HP)	IEC	Morrison	Nova	Filtertech OCK, 1" Flat	NA	Env-UUT #4
HBC06 + Mixing Box	345	28	36-1/8	18-1/2	Copper Fin 2 Pipe, 8 Rows	Marathon (208-3-60, 1HP)	Morrison	Morrison	Warren	Filtertech OCK, 1" Flat	NA	Env-UUT #7
HBD40 (Double Wall)	690	62	43-1/2	31	Aluminum Fin 2 Pipe, 6 Rows	Baldor (460-3-60, 1 & 5HP)	Morrison	Morrison	Warren	Filtertech OCK, 2" Pleated+2" MERV	NA	Clk-UUT #2

FLOOR MOUNTED UNITS UNDER TEST (ISOLATED & NON-ISOLATED)

UNIT MODEL	UNIT WEIGHT MEASURED(LBS)	UNIT SIZE (IN)			COIL	Component Manufacturers						UUT	Isolated	LOWEST NATURAL FREQUENCIES		
		L	W	H		Motor (s)	Blower Hsg	Blower Whl	Elec Heat	Filter	Damper			X	Y	Z
VEY06 Isolated	195	23	18	34	Copper Fin 2 Pipe, 6 Rows	GE (208-1-60, 0.1HP)	IEC	Morrison	Nova	Filtertech OCK, 1" Flat	NA	Env-UUT #5	Yes	2.1	5.1	6.6
VEY06 Non-Isolated	195	23	18	34	Copper Fin 2 Pipe, 6 Rows	GE (208-1-60, 0.1HP)	IEC	Morrison	Nova	Filtertech OCK, 1" Flat	NA	Env-UUT #5	No	26.9	24.5	2.3
VEY20 Isolated	342	56	18	34	Copper Fin 2 Pipe, 6 Rows	Eastwest (208-1-60, 0.25HP)	IEC	Morrison	Nova	Filtertech OCK, 1" Flat	NA	Env-UUT #6	Yes	4.2	2.7	15.4
VEY20 Non-Isolated	342	56	18	34	Copper Fin 2 Pipe, 6 Rows	Eastwest (208-1-60, 0.25HP)	IEC	Morrison	Nova	Filtertech OCK, 1" Flat	NA	Env-UUT #6	No	8.2	2.7	13.5
VBY06 Isolated	291	28	20	36-1/2	Copper Fin 2 Pipe, 8 Rows	Marathon (208-3-60, 1HP)	Morrison	Morrison	Warren	Filtertech OCK, 1" Flat	NA	Env-UUT #9	Yes	6.0	1.9	10.3
VBY06 Non-Isolated	291	28	20	36-1/2	Copper Fin 2 Pipe, 8 Rows	Marathon (208-3-60, 1HP)	Morrison	Morrison	Warren	Filtertech OCK, 1" Flat	NA	Env-UUT #9	No	10.4	10.5	19.9
VBY40 Isolated	790	62	28	57-5/8	Aluminum Fin 2 Pipe, 6 Rows	Baldor (460-3-60, 1HP) & Marathon (460-3-60, 3HP)	Morrison	Morrison	Warren	Filtertech OCK, 2" Pleated+2" MERV	NA	Clk-UUT #3	Yes	2.0	4.3	7.2
VBY40 Non-Isolated	790	62	28	57-5/8	Copper Fin 2 Pipe, 8 Rows	Baldor (208-1-60, 5HP)	Morrison	Morrison	Warren	Filtertech OCK, 1" Flat	NA	Env-UUT #10	No	8.4	5.6	13.6

All coils are Thermaclime

All UUT Construction, Blower Housing, Blower wheel, Damper are galvanized carbon Steel

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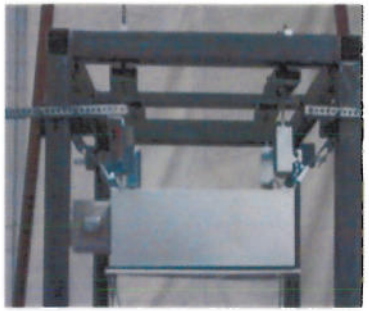
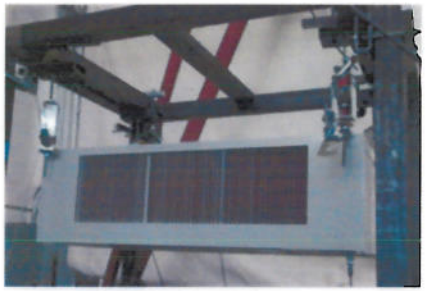


CBY02, suspended with HRS-1C hanger boxes

CBY12, suspended with HRS-1C hanger boxes

HLY06, suspended with HRS-1C hanger boxes



HLY20, suspended with HRS-1C hanger boxes

HBC06, suspended with HRS-1C hanger boxes

HBD40, suspended with HRS-1C hanger boxes

VEY06, Base Mounted on AMSR-1C Isolators

VEY06, Rigid Mounted to table

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VEY20, Base Mounted on AMSR-1C Isolators

VEY20, Rigid Mounted to table

VBY40, Base Mounted on AMSR-1C Isolators

VBY40, Rigid Mounted to table

VBY06, Base Mounted on AMSR-1C Isolators

VBY06, Rigid Mounted to table

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IEC (International Environmental Corporation)
Certified Product Matrix

FAN COIL PRODUCT FAMILY NAME	MODEL (IEC)	Sizes	MAX HEIGHT (in)	MAX WIDTH (in)	MAX DEPTH (in)	MAX WEIGHT (lbs)	UNIT MATERIAL	COIL CONFIGURATIONS			ELECTRIC HEAT	MOTOR CONFIGURATIONS		BLOWER HOUSINGS CONFIGURATIONS		BLOWER WHEELS CONFIGURATIONS		FILTER CONFIGURATIONS			DAMPER CONFIGURATIONS			Mounting Method
								Mfr	Size	Material		Mfr	Ratings	Mfr	Material	Mfr	Material	Mfr	Size	Material	Mfr	Type	Material	
HORIZONTAL SERIES	CXB	02-12	12	82	23.5	245	Galvanized ***Carbon*** Steel	Thermaclime Technologies	Fin 10fpi 2, 4 Pipe 1,2,3,4 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Nova	Eastwest & GE	115, 208, 230, 277 V Single Phase, 60 Hz 0.03 - 0.17 HP	IEC	Galvanized ***Carbon*** Steel	Beckett	Galvanized ***Carbon*** Steel	Filtertech OKC	1" Flat 1" Pleated 1" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized ***Carbon*** Steel	Suspended-Isolated w/cable Restraints
	CBY	02-12	14	77	34	243	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Nova	Eastwest & GE		IEC	Galvanized ***Carbon*** Steel	Beckett	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	IEC	Motorized Automatic	Galvanized ***Carbon*** Steel	Suspended-Isolated w/cable Restraints
HI-PERFORMANCE SERIES	HXY	06-20	18	64	32	235	Galvanized ***Carbon*** Steel	Thermaclime Technologies	Fin 10fpi 2, 4 Pipe 1,2,3,4,6 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Nova	Eastwest & GE	115, 208, 230, 277 V Single Phase, 60 Hz 0.1 - 0.25 HP	IEC	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	FiltertecH OKC	1" , 2" Flat 2" Pleated 2" Pleated + 2" MERV	Non woven synthetic	NA	NA	NA	Suspended-Isolated w/cable Restraints
	HLY	06-20	18	64	32	255	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Nova	Eastwest & GE		IEC	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Suspended-Isolated w/cable Restraints
	VEY	06-20	34	56	18	230	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Nova	Eastwest & GE		IEC	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Base Mounted-Rigid
	VEY	06-20	34	56	18	230	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Nova	Eastwest & GE		IEC	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Base Mounted Spring Isolated
BELT-DRIVE SERIES	HBC	06-40	31	62	43.5	590	Galvanized ***Carbon*** Steel	Thermaclime Technologies	Fin 10fpi 2, 4 Pipe 1,2,4,6,8 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon	115, 208, 230, 277 V Single Phase, 60 Hz 208, 230, 460 V 3 Phase, 60 Hz 0.25 - 5.0 HP	Morrison	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC	1" , 2" Flat 2" Pleated 2" Pleated + 2" MERV	Non woven synthetic	NA	NA	NA	Suspended-Isolated w/cable Restraints
	HBD	06-40	32.25	62	43.5	595	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon		Morrison	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Suspended-Isolated w/cable Restraints
	VBA	06-40	57.62	62	28	559	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon		Morrison	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Base Mounted-Rigid
	VBA	06-40	57.62	62	28	559	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon		Morrison	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Base Mounted Spring Isolated
	VBY	06-40	57.62	62	28	559	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon		Morrison	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Base Mounted-Rigid
	VBY	06-40	57.62	62	28	559	Galvanized ***Carbon*** Steel	Thermaclime Technologies		Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon		Morrison	Galvanized ***Carbon*** Steel	Morrison	Galvanized ***Carbon*** Steel	Filtertech OKC		Non woven synthetic	NA	NA	NA	Base Mounted Spring Isolated

VBA unit is the same as the VBY unit. Only difference is the model number.
HBD unit is the same as the HBC unit. Only difference is the model number and HBD cabinet is 1.25" taller than HBC.
All units are single wall units except HBD, which is available as a single OR double wall unit.

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