



# APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP -0229-10

Check whether application is: NEW  RENEWAL

1.0 Carrier Corp Ms. Christie Carlson  
*Manufacturer* *Manufacturer's Technical Representative*  
9300 Harris Corners Parkway, Charlotte, NC 28269  
*Mailing Address*

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704-494-2588 christie.carlson@carrier.utc.com  
*Telephone* *E-mail Address*

2.0 Carrier 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 42DE/F and Belt Drive Series 42BHD/E: Suspended with external isolation and seismic cable kits; Hi-Performance 42DD\* and Belt Drive 42BV\*: floor mounted with rigid mount or external isolation with steel base. Approval is limited to configurations tested and shall include modifications 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*

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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.

10/28/11

Signature of Applicant

Date

President  
Title

The VMC Group  
Company Name

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**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@thvmcgroup.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@thvmcgroup.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)**

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Environ Laboratories

Bradley Czech

*Company Name*

*Contact Name*

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9725 Girard ave South, Minneapolis, MN 55431

*Mailing Address*

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952-888-7795

[BCC@environlab.com](mailto: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
- $\Omega_0$  (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 OSHRPD Approval (For Office Use Only)**

<p style="text-align: center; margin: 0;">Signature &amp; Date <b>M. R. Karim, SHFR</b></p> <p style="text-align: center; margin: 0;">Name &amp; Title</p>	<p>11/1/11</p>	<p><b>December 31, 2016</b></p> <p style="font-size: small;">Approval Expiration Date</p> <p><math>S_{DS}</math> (g) = <b>1.93</b>      <math>z/h</math> = <b>1.0</b></p> <p style="font-size: small;">Special Seismic Certification Valid Up to</p>
Condition of Approval (if any):		

**SHAKE TEST MATRIX**  
SUSPENDED UNITS UNDER TEST (HRS HANGER)

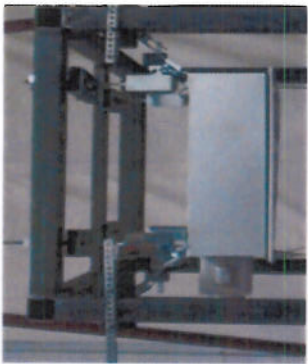
UNIT MODEL	UNIT WEIGHT MEASURED(LBS)	UNIT SIZE (IN)			COIL	Motor (s)	Component Manufacturers			Filter	Damper	UUT
		L	W	H			Blower Hsg	Blower WHI	Elec Heat			
42CKA02	134	37	26	14	Copper Fin 2 Pipe, 4 Rows	Eastwest (208-1-60, 0.03HP)	IEC	Beckett	Nova	Filtertech OCK, 1" Flat	IEC Motorized	Env-UUT #1
42CKA12	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
42DFA06	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
42DFA20	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
42BHD06 + 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
428HE40 (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	Motor (s)	Component Manufacturers			Filter	Damper	UUT	LOWEST NATURAL FREQUENCIES			
		L	W	H			Blower Hsg	Blower WHI	Elec Heat				Isolated	X	Y	Z
42DDA06 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
42DDA06 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
42DDA20 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
42DDA20 Non-Isolated	342	56	18	34	Copper Fin 2 Pipe, 8 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
42BVD06 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
42BVD06 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
42BVD40 Isolated	790	62	28	57-5/8	Aluminum Fin 2 Pipe, 8 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
42BVD40 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

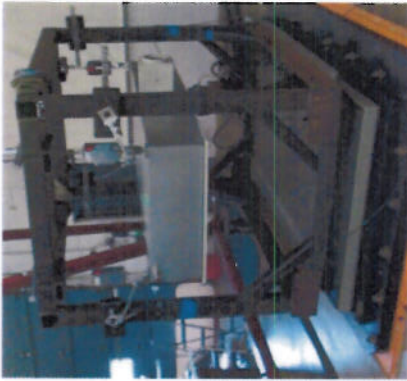
All coils are Thermacore  
All UUT Construction, Blower Housing, Blower wheel, Damper are galvanized carbon Steel







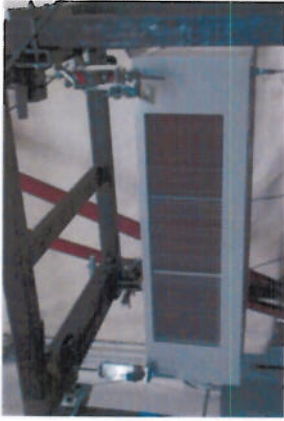
42CKA02, suspended with HRS-1C hanger boxes



42CKA12, suspended with HRS-1C hanger boxes



42DFA06, suspended with HRS-1C hanger boxes



42DFA20, suspended with HRS-1C hanger boxes



42BHD06, suspended with HRS-1C hanger boxes



42BHE40, suspended with HRS-1C hanger boxes



42DDA06, Base Mounted on AMSR-1C Isolators



42DDA06, Rigid Mounted to table



42DDA20, Base Mounted on AMSR-1C Isolators



42DDA20, Rigid Mounted to table



42BVD06, Base Mounted on AMSR-1C Isolators



42BVD06, Rigid Mounted to table



42BVD40, Base Mounted on AMSR-1C Isolators



42BVD40, Rigid Mounted to table

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**CARRIER CORPORATION**  
**Certified Product Matrix**

FAN COIL PRODUCT FAMILY NAME	MODEL (CARRIER)	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	Material	Material	Mfr	Material	Material	Mfr	Material	Mfr	Material	Mfr	Material	Mfr	Material	Mfr	
HORIZONTAL SERIES	42CGB	02-12	12	82	23.5	245	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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			
	42CKA	02-12	14	77	34	243	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42DFA	06-20	18	64	32	235	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
HI-PERFORMANCE SERIES	42DDA	06-20	34	56	18	230	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42DDA	06-20	34	56	18	230	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42BHD	06-40	31	62	43.5	590	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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	Morrison	Galvanized Carbon Steel	Morrison	Galvanized Carbon Steel	Filtertech OKC	1" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
BELT-DRIVE SERIES	42BHE	06-40	32.25	62	43.5	595	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 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	Morrison	Galvanized Carbon Steel	Morrison	Galvanized Carbon Steel	Filtertech OKC	1" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42BVE	06-40	57.62	62	28	559	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 2, 4 Pipe 1.2,4,6,8 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon	208, 230, 460 V 3 Phase, 60 Hz	Morrison	Galvanized Carbon Steel	Morrison	Galvanized Carbon Steel	Filtertech OKC	1" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42BVD	06-40	57.62	62	28	559	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 2, 4 Pipe 1.2,4,6,8 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon	0.25 - 5.0 HP	Morrison	Galvanized Carbon Steel	Morrison	Galvanized Carbon Steel	Filtertech OKC	1" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42BVD	06-40	57.62	62	28	559	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 2, 4 Pipe 1.2,4,6,8 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon	0.25 - 5.0 HP	Morrison	Galvanized Carbon Steel	Morrison	Galvanized Carbon Steel	Filtertech OKC	1" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			
	42BVD	06-40	57.62	62	28	559	Galvanized Carbon Steel	Thermaclime Technologies	Fin 10/10 2, 4 Pipe 1.2,4,6,8 Rows 0.5 OD Tube	Aluminum/Copper Fin Copper Tube	Warren	Baldor & Marathon	0.25 - 5.0 HP	Morrison	Galvanized Carbon Steel	Morrison	Galvanized Carbon Steel	Filtertech OKC	1" Flat 2" Pleated 2" MERV	Non woven synthetic	IEC	Motorized Automatic	Galvanized Carbon Steel	Suspended-Isolated w/cable Restraints			

42BVE unit is the same as the 42BVD unit. Only difference is the model number.  
 42BHE unit is the same as the 42BHD unit. Only difference is the model number and 42BHE cabinet is 1.25" taller than 42BHD.  
 All units are single wall units except 42BHE, which is available as a single OR double wall unit.



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