

DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0761

HCAI Special Seismic Certification Preapproval (OSP)

Type: X New

Renewal

Manufacturer Information

Manufacturer: Trane Technologies

Manufacturer's Technical Representative: Corin Davey

Mailing Address: Building 12-1, 3600 Pammel Creek Road, La Crosse, WI 54601

Telephone: (608) 787-2857 Email: Corin.Davey@tranetechnologies.com

at Type: Air Conditioning United Inline Fon and Terminal

Product Information

Product Name: Air Conditioning Units

Floudet Type.		g Units - Itiline Fan a			
			000-070		
Product Model	Number: BCH	E (Ho <mark>rizon</mark> tal) Sizes 1	2 to 120 & BCVE	(Vertical) Sizes 24 to 1	20

 General Description:
 Cataloged Air Handling Units manufactured in sizes 12-120 in horizontal and sizes 24-120 in vertical configurations. Units are offered with single & three phase fan motors and electric heat.

 Mounting Description:
 BCHEs can be suspended with spring isolators and seismic cable restraints, BCVEs with legs are rigidly

base mounted with or without neoprene pads.

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

 Applicant Company Name:
 VMC Group

 Contact Person:
 John Giuliano

 Mailing Address:
 113 Main Street, Bloomingdale, NJ 07403

 Telephone:
 (973) 838-1780

 Title:
 President

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

STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY





DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION FACILITIES DEVELOPMENT DIVISION

alifornia Licensed Structural Engineer Responsible for the Engineering and Test Report(s)
ompany Name: THE VMC GROUP
ame: Kenneth Tarlow California License Number: S2851
ailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814
elephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com
ertification Method
GR-63-Core X ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
Other (Please Specify):
FOR CODE CO
esting Laboratory
ompany Name: DYNAMIC CERTIFICATION LABORATORY (DCL)
ontact Person: Kelly Laplace
ailing Address: 1315 Greg St., Ste 109, Sparks NV 89431
elephone: (775) 358-5085 Email: Kelly@shaketest.com
DATE: 05/01/2023
DATE: 05/01/2023
PVI
BUILDING

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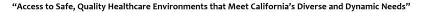


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Seismic Parameters

Design Basis of Equipment or Components	(Fp/Wp) = See attached Table 1a
SDS (Design spectral response accele	eration at short period, g) = See attached Table 1a
ap (Amplification factor) =	2.5
R _p (Response modification factor) =	2.5 (Suspended Isolated); 6.0 (Floor mounted); 2.5 (Floor mounted with neoprene pads)
Ω_0 (System overstrength factor) =	2.0
Ip (Importance factor) =	1.5
z/h (Height ratio factor) =	1 and 0
Natural frequencies (Hz) =	See Attachment
Overall dimensions and weight =	See Attachment ODE
	NED MBL

HCAI A	pproval (For Office L	Jse Only) - Ap	proval Expires on 05/01/202	29 2	
Date:	5/1/2023	A A	OSP-0761	M	
Name:	Mohammad Karim		BY: Mohammad Karim	Title:	Supervisor, Health Facilities
Special	Seismic Certification Va	lid <mark>Up to:</mark> SDS (g	g) = See Above	z/h =	See Above
Conditio	on of Approval (if applica	ble): C	DATE: 05/01/2023	Na	
		LIFOR.	VIA BUILDING CO	54.1	



HCAi

STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

	Unit	S	tandard	Basic Un	it	U	<mark>nits with</mark>	Accessor	ies	S	hake Te	sted Unit	s ⁸	Mounting Co	onfiguration
Model	Size	Weight ²	Max D	Dimensio	ns [in]	Weight ⁴	Max	Dimension	1s [in]	Weight	Din	nensions	[in]	Suspended	Rigid Base
	Size	[lb]	Width ⁷	Height⁵	Length	[lb]	Width ⁷	Height ⁵	Length ³	[lb]	Width ⁷	Height ⁵	Length	w/ Isolators	Mounted ¹
	12	180	32	17	44	274	32	17	92	230	37	18	57	UUT-2	
	12	100	02			2/7	02	17	52	320	31	17	69	UUT-3	
	18	192	34	17	44	296	34	17	92						
	24	204	36	17	44	318	36	17	92						
BCHE	36	275	48	17	48	430	48	17	106					Interpolated	
DONE	54	337	52	18	51	531	52	U18F	121					Interpolated	
	72	394	64	18	50	631	64	18	132						
	90	443	54	26	54	695	54	26	131						
	120	517	64	26	54	807	64	26	143	440	58	26	65	UUT-1	
	120	517	04	20	54	007	04	20	143	920	70	26	120	UUT-4	
	24	242	33	61	22		00			6					
	36	298	33	65	26		05	P-0761		1 mil					Extrapolated
	48	380	38	72	27										
	60	418	38	74	30	BV	• Moha	mmad K	arim	450	35	72	35		UUT-9
BCVE	72	494	64	68	37	731	64	68	88	320	65	69	34		UUT-5
	12	494	04	00	57	/31	04	00	00	720	68	68	63		UUT-6
	90	549	54	81	37	801	54	5/(81/20	2389						Interpolated
	120	630	64	81	37	920	64	81	95	410	69	80	34		UUT-7
	120	030	04	01	3/	920	04	01	CE	930	68	80	72		UUT-8

Table 1 - Certified BCxE Cabinet Sizes

Notes:

¹Rigid base mounted units permitted to be installed with or without neoprene pads and must be installed with legs.

²Maximum weight includes basic unit, largest wet coil, motor, control box./

³Maximum Length includes basic unit, angle filter section, return attenuator, and discharge attenuator.

⁴Maximum weight includes basic unit, largest wet coil, motor, control box, bottom filter access section, mixing box, and discharge attenuator.

⁵Height includes legs for vertical units.

⁶All dimensions and weights are nominal and rounded to the nearest whole number.

⁷Width includes header and lug stickout

⁸Tested weights and dimensions include mounting hardware and couplings.

Table 2 - Certified BCxE Base Frame Construction

Model	Size	Base Construction	Material	MFR	UUT
	12	12 Gauge Lifting Lugs,	22		UUT-2, UUT-3
BCHE	18-90	Base Panel with Hat Channels	Gauge	Trane	Interpolated
	120	Dase Parler with Hat Charmers	Galv CS		UUT-1, UUT-4
	24-48	10 Gauge Legs			Extrapolated
	60	To Gauge Legs	22		UUT-9
BCVE	72		Gauge	Trane	UUT-5, UUT-6
	90	10 Gauge Legs, Base Panel with Hat Channels	Galv CS		Interpolated
05/01	/2 0<u>2</u>3)	Dase Fallel Will Hat Charlines			OSP UUUT-8

Table 1a - Certified Levels

Model	Max Fp/Wp	S _{DS} (z/h=0)	S _{DS} (z/h=1)
Suspended BCHE	4.09	2.27	2.27
Rigid Base Mounted BCVE	1.5	2.27	2.00
Neoprene Mounted BCVE	3.6	2.21	2.00

Skin	Insulation	Panel Nominal	Panel	Panel	Unit	MFR		UUT
Экш	Insulation	Thickness	Material	Туре	Size		Suspended	Base Mounted
Top Panel							UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
Top Faller							UUT-3, UUT-4	UUT-8, UUT-9
Top Panel with Damper							UUT-3, UUT-4	UUT-6, UUT-8
Top Panel with Plug Plate							UUT-2, UUT-4	Interpolated
Bottom Panel							UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
Dottom Fanel							UUT-3, UUT-4	UUT-8, UUT-9
BAF Bottom Panel with Hinged		OR	UDE (UUT-3, UUT-4	UUT-6, UUT-8
Door		OFU.	WWWWWWW					
Bottom Panel with Plug Plate							UUT-2, UUT-4	Interpolated
Motor Access Panel							UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
	Matte Faced	YANNI AA					UUT-3, UUT-4	UUT-8, UUT-9
Coil Access Panel	Fiberglass 4		22 Gauge	Single or	5		UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7, UUT-
	T Ibergiass	1" 03	Galv. CS	Double	12-120	Trane	UUT-3, UUT-4	8, UUT-9
Filter Access Panel			Carv. CC	Wall			UUT-3, UUT-4	UUT-6, UUT-8
Side Panel		BY: Moha	mmad K	arim			UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
		DTimona		C.			UUT-3, UUT-4	UUT-8, UUT-9
Side Panel with Plug Plate							UUT-2, UUT-4	Interpolated
Fan Discharge Panel	\cap	DATE: 0	5/01/20	23			UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
Tan Discharge Faher	T T			an Constantinen	\sim		UUT-3, UUT-4	UUT-8, UUT-9
End Panel	Ţ.			ALLER V	\sim		UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
				and L			UUT-3, UUT-4	UUT-8, UUT-9
End Panel with Damper					/		UUT-3, UUT-4	UUT-6, UUT-8
End Panel with Plug Plate				(0)			UUT-2, UUT-4	Interpolated
Back Corner Posts	None	BII	I DIN	3			UUT-1, UUT-2,	UUT-5, UUT-6, UUT-7,
Back Corrier Posts	NOTE	-01	LUII				UUT-3, UUT-4	UUT-8, UUT-9

Table 3a - Certified BCxE Enclosure Construction: Wall/Roof Exterior Panels

Table 3b - Certified BCxE Drain Pans

Description	Availability	MED	Matorial	UUT	
Description	Availability	WIFK	MFR Material Base Mounted Suspended		
Polymer Drain Pan	All models	Trane	Polymer	UUT-5, UUT-7	UUT-1, UUT-2
Stainless Steel Drain Pan	Airmodels	Traile	Stainless Steel	UUT-6, UUT-8, UUT-9	UUT-3, UUT-4

Table 4a - Certified BCxE Hydronic Coils

Model	Height				Width [in]				MFR	Tested Coil		UUT
Woder	[in]	16	20	25	32	38	40	50		Weight [Ib]	Base Mounted	Suspended
	8	Size 12	Size 18							22		UUT-2
BCHE	12		Size 24		Size 36				Trane	N/A		Interpolated
BOHE	14					Size 54		Size 72	Traffe	N/A		Interpolated
	22						Size 90	Size 120		174		UUT-4
	12		Size 24							N/A	Extrapolated	
	14							Size 72		112	UUT-6	
BCVE	18		Size 36			ORCU	DEC		Trane	N/A	Interpolated	
BOVE	20			Size 48			IXXXX C	10	Traffe	N/A	Interpolated	
	22					NATION OF A	Size 90	Size 120		174	UUT-7, UUT-8	
	24			Size 60	S					22	UUT-9	

Table 4b - Certified BCxE Hydronic Coil Options

				MFR
		Base Mounted	Suspended	
Casing Material	16 Gauge Galv Steel BY: Moham	nad Karim 🚺 💿		
Tube Material	Copper			
Tube Outer Diameter	0.375		UUT-2, UUT-4	
Tube Wall Thickness	0.012 O DAIE: 05/	01097-6, 00T-7, 00T-8, 00T-9	001-2, 001-4	
Permitted Fin Material	Aluminum			
Permitted Fin Pitch	12			Trane
	1 (Heating)	Interpolated	UUT-2	Traile
	2 (Heating)	UUT-8, UUT-9	UUT-4	
Permitted Tube Rows	4 (Heating/Cooling)	UUT-7	UUT-2	
	6 (Heating/Cooling)	Interpolated	UUT-4	
	8 (Heating/Cooling)	UUT-6	Extrapolated	
Header Type	Copper	UUT-6, UUT-7, UUT-8, UUT-9	UUT-2, UUT-4	

1. 8 row coils are either an 8 row coil or a 2 row coil and 6 row coil fastened together. 2 row coil and 6 row coil fastened together are heavier than an 8 row coil.

Tested Coil UUT Height Width [in] Model MFR [in] 16 20 25 32 38 40 50 Weight [Ib] **Base Mounted** Suspended UUT-3 Size 12 Size 18 8 13 12 Size 24 Size 36 N/A Interpolated BCHE Trane 14 Size 54 Size 72 N/A Interpolated 22 UUT-1 Size 90 Size 120 118 N/A Extrapolated 12 Size 24 UUT-5 14 Size 72 48 ORI Interpolated 18 Size 36 N/A BCVE Trane 20 Size 48 N/A Interpolated 22 Size 90 Size 120 118 UUT-8 24 61 UUT-9 Size 60

Table 4c - Certified BCxE Direct Expansion/Heat Pump Coils

Table 4d - Certified BCxE Direct Expansion/Heat Pump Coil Options

				м
		Base Mounted	Suspended	
Casing Material	16 Gauge Galv Steel BY	Mohammad Karim		
Tube Material	Copper			
Tube Outer Diameter	0.375		UUT-1, UUT-3	
Tube Wall Thickness	0.012 O DA	E: 05/01/2093-5, 00T-8, 00T-9	001-1, 001-3	
Permitted Fin Material	Aluminum			Tr
Permitted Fin Pitch	12			
	3	UUT-5	UUT-3	
Permitted Tube Rows	4	Interpolated	Interpolated	
	6	UUT-8, UUT-9	UUT-1	
Header Type	Copper	BI 11 11 UUT-5, UUT-8, UUT-9	UUT-1, UUT-3	

Table 5 - Certified BCxE Fan Motor

Model	Phase	Rating	Voltage Beting	Tested	Weight ¹	MFR		UUT
Woder	FlidSe	[HP]	Voltage Rating	Voltage	[lb]	MIER	Base Mounted	Suspended
	1-Phase	0.5	115~277	115	14	Headline	Extrapolated	UUT-3
	I-FIIdSe	1	115~277	277	19	Headline	UUT-5	Interpolated
		0.5	208~460		13		Interpolated	Interpolated
Variable Speed Motor		0.5	575		14	Broad Ocean Motor	Interpolated	Interpolated
	3-Phase	1	208~460	460	17	Company	Interpolated	UUT-2
		1	575		18	Company	Interpolated	Interpolated
		2.3	575 R C C	D575	29		UUT-9	Interpolated
		1.5	208~460	460	38		UUT-7	UUT-1
Variable Speed Motor and	3-Phase	3	208~460	460	54	Broad Ocean Motor	UUT-6	Interpolated
Driver	J-F HdSC	3.5	575		54	Company	Interpolated	Interpolated
		5	208~575	460, 208	56		UUT-8	UUT-4

OSP-0761

¹All weights are nominal and rounded to the nearest whole number.

Table 6 - Certified BCxE Fans

					BY: Mohammad Ka	arim 🔍 🤇	Weight ¹			UUT
HP	0.5	1	1.5	2.3	3 3.5 5	Diameter	[lb]	Fan MFR	Base Mounted	Suspended
	UUT-3	UUT-2			DATE: 05/01/20	23 9 <mark>" - 4"</mark>	11	Lau, Morrison	Extrapolated	UUT-2, UUT-3
Size (Dia -						9" - 6"	15	Lau, Morrison	Extrapolated	Interpolated
Width)		UUT-5			UUT-6	9" - 9"	15	Lau	UUT-5, UUT-6	Interpolated
Impeller Weight				UUT-9		12" - 8"	29	Morrison	UUT-9	Interpolated
Weight					BUILDING	12" - 9"	30	Lau	Interpolated	Interpolated
			UUT-1, UUT-7			· · · · · · · · · · · · · · · · · · ·	35	Lau	UUT-7, UUT-8	UUT-1, UUT-4

¹All weights are nominal and rounded to the nearest whole number.

Motor Mount Configuration	HP Range	Material	UU	T
Motor Mount Configuration	HF Kallye	Wateria	Base Mounted	Suspended
	0.5		Extrapolated	UUT-3
	1		UUT-5	UUT-2
	1.5 Galvanized		UUT-7	UUT-1
Horizontal Shaft	2.3	Steel	UUT-9	Interpolated
	3	Sleel	UUT-6	Interpolated
	3.5		Interpolated	Interpolated
	5		UUT-8	UUT-4

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Note: This table is part of Table 6. Refer to previous table for manufacturer information.

Table 7 - Certified BCxE Flat Filter Rack

(1" TA, 2" MERV 8, 2" MERV 13, or 2" MERV 8 & 2" MERV 13 Combination)

Unit Size	Model	Frame Material	Filter Qty ²	Nominal Filt	er Size [in]	Maxim	um Frame S	ize [in]	Max Weight ¹	MFR	UUT	
Unit Size	woder	Frame Material	Filter Qty	Height	Width	Height	Width	Length ¹	[lb]		Base Mounted	Suspended
12	BCHE		1	12	20	17	22	5	9			UUT-2
18	BCHE		1	12	24	17	26	5	9			Interpolated
24	BCHE		1	12	24	17	27	5	10			Interpolated
24	BCVE		1	12	24	10	11	28	6		Extrapolated	
36	BCHE		1	12	2012	25700	40	5	14			Interpolated
50	DONE		1	12	24		40	5	14			Interpolated
36	BCVE		1	18	24	14	15	28	7		Extrapolated	
48	BCVE		1	20	12	15	16	33	8		Extrapolated	
40	DOVL	Galvanized Steel	1	20	18		IU /	- 55	0	Trane	Extrapolated	
54	BCHE		1	16	16SP	07181	43	5	16			Interpolated
54	DONE		1	Q16	25	07001			10			Interpolated
60	BCVE		1	24	12	18	19	33	9		UUT-9	
00			1	24	Y: M8hami	nad Kari	m		J			
72	BCHE, BCVE		2	16	25	18	56	5	18		UUT-5	Interpolated
90	BCHE, BCVE		1	24	20	01/26022	46	5	20		Interpolated	Interpolated
50	DONE, DOVE		1	24	A 24 05/	01/2023			20		interpolated	Interpolated
120	BCHE, BCVE		3	24	18	26	56	5	25		UUT-7	UUT-1 ²

¹Maximum length and weight is for the 2" MERV 8 & 2" MERV 13 combination filter rack.

²Multiply filter qty by 2 for the 2" MERV 8 & 2" MERV 13 combination filter rack.

³All weights and dimensions are nominal and rounded to the nearest whole number.

PAVIA BUTI DING CODE

				Nominal Filt	ter Size [in]	Maxim	um Frame S	ize [in]	Max Weight ¹		UUT	
Unit Size	Model	Frame Material	Filter Qty	Height	Width	Height ³	Width ⁴	Length	[lb]	MFR	Base Mounted	Suspended
12	BCHE		2	12	20		24		54			
18	BCHE		2	12	24	1	28	1	59			
24	BCHE		2	12	24	17	30	24	61			
36	BCHE		2	12	12		42		79			
50	BOIL		2	12	24		42		19			
54	BCHE	Galvanized Steel	2	12	20	DECA	46		80	Trane		Interpolated
54	BOIL	Galvanized Steel	2	12	24	18	40	24	00	Traffe		Interpolated
72	BCHE, BCVE		2	12	12		58	24	99			
12	DONE, DOVE		4	12	20		50		33			
90	BCHE, BCVE		2	20	20		48		111		Interpolated	
30	DONE, DOVE		2	20	25	26	40	30				
120	BCHE, BCVE		6	20	1852-	0761	58	1	131			

Table 8 - Certified BCxE Angle Filter Section (2" MERV 8 or 2" MERV 13)

¹Double wall cabinet construction.

²All weights and dimensions are nominal and rounded to the nearest whole number.

BY: Mohammad Karim

³Add 6" to the height for size 72-120 BCVE units for the mounting legs. ⁴Add 5" to the width for lug stickout.

*Covered by mix box with angle filter UUT's as shown in Table 10. Angle filter box, mix box, and mix box with angle filters have the same cabinet. Mix box with angle filter has all components from other two modules.

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Table 9 - Certified BCxE Mix Box

				Damper S	Size [in]	F	rame Size [in]	Max Weight ¹		UUT	
Unit Size	Model	Frame Material	Damper Qty	Height	Width	Height ³	Width⁴	Length	[lb]	MFR	Base Mounted	Suspended
12	BCHE		2	8	C 64 JI I	DING	24		64			
18	BCHE		2	8	14	17	28	24	69			
24	BCHE		2	8	20		30	24	75			
36	BCHE	Galvanized Steel	2	8	20		42]	91	Trane		Interpolated
54	BCHE	Galvanizeu Sleer	2	11	36	18	46	- 24	113	Traffe		Interpolated
72	BCHE, BCVE		2	11	36		58	24	129			
90	BCHE, BCVE		2	16	38	26	48	- 30	157		Interpolated	
120	BCHE, BCVE		2	16	38	20	58		175			

¹Double wall cabinet construction.

²All weights and dimensions are nominal and rounded to the nearest whole number.

³Add 6" to the height for size 72-120 BCVE units for the mounting legs.

⁴Add 5" to the width for lug stickout.

*Covered by mix box with angle filter UUT's as shown in Table 10. Angle filter box, mix box, and mix box with angle filters have the same cabinet. Mix box with angle filter has all components from other two modules.

Table 10 - Certified BCxE Mix Box w/Angle Filter Section (2" MERV 8 or 2" MERV 13)

			Nominal Filt	ter Size [in]		Damper Siz	ze [in]	F	rame Size ²	[in]	Max		U	JT
Unit Size	Model	Filter Qty	Height	Width	Damper Qty	Height	Width	Height⁴	Width⁵	Length	Weight ¹ [lb]	MFR	Base Mounted	Suspended
12	BCHE	2	12	20	2	8	14		24		72			UUT-3
18	BCHE	2	12	24	2	8	14		28		77			
24	BCHE	2	12	24	2	8	20	17	30	24	84			
36	BCHE	2	12	12	2	0	20		42		104			
30	BOILE	2	12	24	2	0	20		42		104			
54	BCHE	2	12	20	2	RCC	D_{36}		46		126	Trane		Interpolated
54	BOILE	2	12	24	2 _	FOR	-90	18	40	24	120	Traffe		Interpolated
72	BCHE, BCVE	2	12	12	2	11	36	N O	58	24	146		UUT-6	
12	DCHE, DCVE	4	12	20			30		50		140		001-0	
90	BCHE, BCVE	2	20	20	2	16	38	CONTRACTOR	48		175		Interpolated	
90		2	20	25	2		0704	26	40	30	175		interpolated	
120	BCHE, BCVE	6	20	18	2	16SP-	0738	1	58		196		UUT-8	UUT-4

¹Double wall cabinet construction.

²Frame material is galvanized steel.

³All weights and dimensions are nominal and rounded to the nearest whole number.

⁴Add 6" to the height for size 72-120 BCVE units for the mounting legs.

⁵Add 5" to the width for lug stickout.

BY: Mohammad Karim

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DATE: 05/01/2023

Table 11 - Certified BCxE Top or Bottom Filter Access Section (2" MERV 8 or 2" MERV 13)

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				Nominal Filt	er Size [in]		rame Size [in]	Max Weight ¹		UUT	
Unit Size	Model	Frame Material	Filter Qty	Height	Width	Height ³	Width⁴	Length	[lb]	MFR	Base Mounted	Suspended
12	BCHE	Galvanized Steel	1	12	20 /11	DIMAS	24		22			UUT-3
18	BCHE		1	12	24	17	28		24			Interpolated
24	BCHE		1	12	24	17	30		25			Interpolated
36	BCHE	Galvanized Steel	1	12	12	17	42		32			Interpolated
30	BOILE	Galvanizeu Steel	1	12	24	17	42		52			Interpolated
54	BCHE		1	16	16	18	46	8	35	Trane		Interpolated
54	BOHE		1	16	25	10	40					Interpolated
72	BCHE, BCVE	Galvanized Steel	2	16	25	18	58		43		UUT-6	Interpolated
90	BCHE, BCVE	Galvanized Steel	1	24	20	26	48		41		Interpolated	Interpolated
90		Galvanizeu Steel	1	24	24	20	40		41		Interpolated	Interpolated
120	BCHE, BCVE	Galvanized Steel	3	24	18	26	58		46		UUT-8	UUT-4

¹Double wall cabinet construction.

²All weights and dimensions are nominal and rounded to the nearest whole number.

³Add 6" to the height for size 72-120 BCVE units for the mounting legs.

⁴Add 5" to the width for lug stickout. 05/01/2023

Table 12 - Certified BCxE Flat Media Options

Туре	Filter Material	MFR	l	JUT
Туре			Base Mounted	Suspended
1" Standard Efficiency Throw Away	Fiberglass or Polyester		UUT-7	UUT-2
2" MERV 8	Pleated	Clarcor	UUT-5, UUT-8	UUT-1, UUT-3
2" MERV 13	Pleated		UUT-6, UUT-9	UUT-1, UUT-4

Table 13 - Certified BCxE Attenuators

			Fra	me Size [in]	Max			UUT
Model	Location	Frame Material	Height ³	Width ⁴	Length	Weight ¹ [lb]	MFR	Base Mounted	Suspended
	Return	AL AL	17	24	14	26			Extrapolated
	Discharge		17	17	23	29			UUT-2
	Return		17-17-	28	14	28			
	Discharge		MCP_	0.721	23	31			
	Return		17	30	14 17	29			
	Discharge	and a second	17	21	23	31			
	Return		Y: Mohami	mac 42 (ari	m 19 (42			
POUE	Discharge	Calvenized Steel	17	31	28	44	Tropo		
DCHE	Return	Galvariized Steel	18	46	25	54	Traffe		Interpolated
	Discharge		DAT 18 05/	01/35023	34	60			
	Return	Z	18	58	31	73			
	Discharge		18	47	40	81			
	Return		26	48	25	65			
	Discharge		26	37	34	72			
	Return		26	58	31	84			
	Discharge		26 /11	DIMO	40	93			UUT-4
	Model	BCHE Return Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return Discharge Return	Return Discharge Return Discharge	ModelLocationFrame MaterialReturn17Discharge17Return17Discharge17Return17Discharge17Return17Discharge17Return17Discharge17Return18Discharge18Return18Discharge18Return26Discharge26Return26Return26	ModelLocationFrame MaterialHeight ³ Width ⁴ Return1724Discharge1717Return1728Discharge1721Return1721Return1721Return1721Discharge1721Return1730Discharge1731BCHEDischarge1731BCHEDischarge1835Return1858Discharge1847Return2637Return2658	Return 17 24 14 Discharge 17 17 23 Return 17 24 14 Discharge 17 17 23 Return 17 24 14 Discharge 17 17 23 Return 17 21 23 17 30 14 Discharge 17 21 23 Return 17 21 23 17 30 14 14 Discharge 17 42 19 Discharge 17 31 28 Return 18 35 34 Return 18 58 31 Discharge 18 47 40 Return 26 48 25 Discharge 26 37 34 Return 26 58 31	Model Location Frame Material Height ³ Width ⁴ Length Weight ¹ [1b] Return 17 24 14 26 Discharge 17 17 23 29 Return 17 28 14 28 Discharge 17 21 23 31 Return 17 30 14 29 Discharge 17 21 23 31 Return 17 30 14 29 Discharge 17 21 23 31 Return 17 31 28 44 Discharge 17 31 28 44 Return 6alvanized Steel 17 31 28 44 Discharge 18 35 34 60 Return 18 58 31 73 Discharge 18 47 40 81 Return 26	Model Location Frame Material Height ³ Width ⁴ Length Weight ¹ MFR Return 17 24 14 26 17 17 28 14 28 17 28 14 28 17 21 23 31 17 17 28 14 28 17 21 23 31 17 17 21 23 31 17 17 21 23 31 17 17 21 23 31 17 17 21 23 31 17 17 21 23 31 17 17 17 17 21 23 31 17 17 17 17 17 12 23 31 17	Model Location Frame Material Height ³ Width ⁴ Length Weight ¹ [1b] MFR Base Mounted Return Discharge 17 24 14 26 17 21 23 29 17 28 14 28 17 28 14 28 17 21 23 31 17 21 23 31 17 21 23 31 17 21 23 31 17 17 24 14 28 14 28 14 28 14 28 17 17 21 23 31 17 17 30 14 29 17 17 121 23 31 17 13 18 44 17 17 121 23 31 17 13 18 17 13 18 18 17 31 28 44 17 18 18 17 33 18 17 18

¹Return and discharge attenuators are always single wall cabinet construction.

²All weights and dimensions are nominal and rounded to the nearest whole number.

³Add 6" to the height for size 72-120 BCVE units for the mounting legs.

⁴Add 5" to the width for lug stickout.

Table 14a - Certified BCxE Electric Heat

Model	Unit Size	Stage	Output [kW]	Dim	ensions [i	n]	Weight	MFR		UUT
WOder	Unit Size	Slaye		Height	Width	Depth ¹	[lb]		Base Mounted	Suspended
	12		1.0 - 5.0	15	18	8	23			UUT-3
	18		1.0 - 5.0	15	20	8	25			Interpolated
	24		1.0 - 5.0	15	20	8	25			Interpolated
BCHE	36	1, 2,	1.0 - 10.0	18	25	8	30	Tutco		Interpolated
вспе	54	SCR	1.0 - 15.0	19	21	8	28	TUICO		Interpolated
	72		1.0 - 20.0	19	21	8	28			Interpolated
	90		1.0 - 30.0	19 ((D 27	8	32			Interpolated
	120		1.0 - 30.0	19	31	8	34			UUT-1
	24		1.0 - 5.0	15	25	09	28		Interpolated	
	36		1.0 - 10.0	15	25	9	29		Interpolated	
	48	1, 2,	1.0 - 15.0	15	29	9	33		Interpolated	
BCVE	60		1.0 - 20.0	15	29	9	35	Tutco	Interpolated	
	72	SCR	1.0 - 20.0	195P-	0721	8	28		UUT-5	
	90		1.0 - 30.0	19	27	8	32		Interpolated	
	120		1.0 - 30.0	V. Moham	31	8	34		UUT-7	

¹Stickout from end of unit. Includes disconnect handle.

²All weights and dimensions are nominal and rounded to the nearest whole number.

Table 14b - Certified BCxE Electric Heat

DATE: 05/01/2023

						Voltage							Ul	JT
kW	115/60/1	208/60/1	220/50/1	230/60/1	240/50/1	277/60/1	208/60/3	230/60/3	380/50/3	415/50/3	460/60/3	575/60/3	Base Mounted	Suspended
1	UUT-3	X	Х	Х	X	X	X	X	Х	Х	X	Х	Extrapolated	UUT-3
5		Х	Х	Х	Х		DING	X	Х	Х	Х	Х	Interpolated	Interpolated
10						UUT-5	X	Х	Х	Х	Х	Х	UUT-5	Interpolated
15									Х	Х	Х	Х	Interpolated	Interpolated
20									Х	Х	UUT-7	Х	UUT-7	Interpolated
24									Х	Х	Х	Х	Interpolated	Interpolated
30										Х	UUT-1	Х	Interpolated	UUT-1

Note: This table is an extension of Table 14a for describing the voltages of the electric heaters. Refer to previous table for manufacturer information.

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Table 15 - Certified BCxE Control Panel

Controller		Dimensions [in]	MFR	Weight	l	JUT
Controller	Height	Width	Depth		[lb]	Base Mounted	Suspended
Thermostat						UUT-9	UUT-2
CSTI	13	7	4	Trane	< 7	UUT-5, UUT-7, UUT-8	UUT-3, UUT-4
UC400B	15	1	4	Traffe	~ /	UUT-6	UUT-1
Symbio 400B						Interpolated	Interpolated

¹All weights and dimensions are nominal and rounded to the nearest whole number.

Table 16 - Certified BCxE Dampers

Unit Size	Model	Height	Width	Qty	MFR	UUT		
Unit Size	wodel	[in]	[in]	aly	IVIT'R	Base Mounted	Suspended	
12	BCHE	8	14				UUT-3	
18	BCHE	8	14				Interpolated	
24	BCHE	8	20		OSP-	0761	Interpolated	
36	BCHE	8	20		Ruskin	μ, μ	Interpolated	
54	BCHE	11	36	2	Ruskin		Interpolated	
72	BCHE, BCVE	11	36		Y: Mohami	nad Kalluti-6	Interpolated	
90	BCHE, BCVE	16	38			Interpolated	Interpolated	
120	BCHE, BCVE	16	38			UUT-8	UUT-4	
All weights and	dimensions are nominal and	rounded to the	nearest whole r	number.)ATE: 05/	01/2023	1	
		er Material			Plada Oria	ntation MFR		
	Frame		Blades		Blade Orie			

				Blade Orientation	MFR	UUT
Frame		Blades		Blade Orientation		001
Galvanized Steel	(Galvanized Steel		Parallel	Ruskin	UUT-3, UUT-4, UUT-6, UUT-8
Actuator Type	MFR		UUT		00	
Modulating NO/NC Spring Return	Belimo	UUT-3,	, UUT-4, U	UT-6, UUT-8 DING		

Note: This table is an extension of Table 16 for describing the blade and actuator information. Refer to previous table for manufacturer information.



Summary Sheet

UUT-1

Test Report: 19561-2201; UUT-01 Model Line Model Number Manufacturer BCHE120GAA0A1J05033000AD0C00000000B0000S **BCxE Blower Coil Air Handlers** Trane (BCHE 120 A) **Product Construction Summary** 22 Gauge Galv CS **Options / Subcomponent Summary** DX Coil: Trane; Fan Motor: Broad Ocean Motor Company; Fan: Lau; Filter Rack: Trane; Flat Media Options: Clarcor; Electric Heat: Tutco; Control Panel: Trane; **UUT Properties** Dimensions [in] Lowest Nat. Freq. [Hz] Weight [lbs] Width Length Height F-B S-S V 440 65.0 58.0 26.0 N/A N/A N/A **UUT Highest Passed Seismic Run Information Building Code** Test Criteria $\mathbf{A}_{\mathsf{RIG-H}}$ S_{DS/} z/h Ip. A_{FLX-H} A_{FLX-V} A_{RIG-V} 1.0 2.72 2.27 1.5 3.63 1.51 0.61 CBC 2022 ICC-ES AC156 Test Mounting Details UUT-1 was ceiling-supspended using (4) VMC HRSP-1D-175 isolators, 5/8" diameter Grade 5 threaded hanger rods, and 1/4" galvanized wire rope sections. Each hangar rod featured (6) Grade 5 and (3) Grade 8 5/8" nuts, (1) 2" diameter, 1/8" thick Grade 5 5/8" flat washer, (1) 3" diameter, 1/4" thick Grade 5 5/8" flat washer, (5) 1.75" diameter, 1/4" thick Grade 5 5/8" flat washers, (1) 2"x2"x1/4" carbon steel plate washer, and (1) VMC SB-250 seismic cable bracket which connects the 1/4" galvanized wire rope to the ceiling fixture. Each VMC HRSP-1D-175 isolator was attached to the ceiling frame with (1) Grade 5 5/8" threaded rod, (2) Grade 8 nuts, (1) 2" diameter, 1/8" thick Grade 5 flat washer, (1) 2.5" diameter, 1/4" thick flat washer, (1) 1.75" diameter, 1/8" thick Grade 5 flat washer, (1) 3"x3"x1/4" carbon steel plate washer, and (1) grade 5 channel nut. There was a 1/8" operating gap between the 2.5" diameter flat washer on top of the isolator and the top-most Grade 8 nut for each isolator. The 1/4" galvanized wire rope was attached to the ceiling fixture using another SB-250 cable bracket and (1) Grade 5 1/2" bolt, flat washer, and channel nut. For the wire used to support the furthest corner rods, (1) 1/2" grade 5 bolt, flat washer, 2"x2"x1/4" carbon steel washer, and channel nut was placed on the inside next to SB-250 bracket. The ceiling fixture was attached to the shake table using M12 threaded rods, 3"x3"x1/4" carbon steel washers, flat washers, and nuts.



Summary Sheet

UUT-2

Test Report: 19561-2201; UUT-02 Model Line **Model Number** Manufacturer BCHE012GAA0A1AB40000000AEGH00G000000B00S **BCxE Blower Coil Air Handlers** Trane (BCHE 12 I) **Product Construction Summary** 22 Gauge Galv CS **Options / Subcomponent Summary** Hydronic Coils: Trane; Fan Motor: Broad Ocean Motor Company; Fan: Lau; Filter Rack: Trane; Flat Media Options: Clarcor; Attenuator: Trane; Control Panel: Trane; **UUT Properties** Dimensions [in] Lowest Nat. Freq. [Hz] Weight [lbs] Width Length Height F-B S-S V 230 57.0 37.0 18.0 N/A N/A N/A **UUT Highest Passed Seismic Run Information Building Code** Test Criteria A_{FLX-V} S_{DS/} z/h Ip. A_{FLX-H} A_{RIG-H} A_{RIG-V} 1.0 2.27 1.5 3.63 2.72 1.51 0.61 CBC 2022 ICC-ES AC156 Test Mounting Details UUT-2 was ceiling-supspended using (6) VMC HRSP-1D-175 isolators, 5/8" diameter Grade 5 threaded hanger rods, and 1/4" galvanized wire rope sections. Each hangar rod featured (6) Grade 5 and (3) Grade 8 5/8" nuts, (1) 2" diameter, 1/8" thick Grade 5 5/8" flat washer, (1) 3" diameter, 1/4" thick Grade 5 5/8" flat washer, (5) 1.75" diameter, 1/4" thick Grade 5 5/8" flat washers, (1) 2"x2"x1/4" carbon steel plate washer, and (1) VMC SB-250 seismic cable bracket which connects the 1/4" galvanized wire rope to the ceiling fixture. Each VMC HRSP-1D-175 isolator was attached to the ceiling frame with (1) Grade 5 5/8" threaded rod, (2) Grade 8 nuts, (1) 2" diameter, 1/8" thick Grade 5 flat washer, (1) 2.5" diameter, 1/4" thick flat washer, (1) 1.75" diameter, 1/8" thick Grade 5 flat washer, (1) 3"x3"x1/4" carbon steel plate washer, and (1) grade 5 channel nut. There was a 1/8" operating gap between the 2.5" diameter flat washer on top of the isolator and the top-most Grade 8 nut for each isolator. The 1/4" galvanized wire rope was

attached to the ceiling fixture using another SB-250 cable bracket and (1) Grade 5 1/2" bolt, flat washer, and channel nut. For the wire used to support the furthest corner rods, (1) 1/2" grade 5 bolt, flat washer, 2"x2"x1/4" carbon steel washer, and channel nut was placed on the inside next to SB-250 bracket. The ceiling fixture was attached to the shake table using M12 threaded rods, 3"x3"x1/4" carbon steel washers, flat washers, and nuts.





Summary Sheet

UUT-3

Test Report: 19561-2201; UUT-03 Model Line Model Number Manufacturer BCHE012ABA0A4G02010100ABDB00000002000000S **BCxE Blower Coil Air Handlers** Trane (BCHE 12 F') **Product Construction Summary** 22 Gauge Galv CS **Options / Subcomponent Summary** DX Coil: Trane; Fan Motor: Headline; Fan: Morrision; Mix Box w/ Angle Filter: Trane; Top/Bottom Filter Access Section: Trane; Flat Media Options: Clarcor; Electric Heat: Tutco; Control Panel: Trane; Damper: Ruskin **UUT Properties** Dimensions [in] Lowest Nat. Freq. [Hz] Weight [lbs] Width Length Height F-B S-S v 69.0 320 31.0 17.0 N/A N/A N/A **UUT Highest Passed Seismic Run Information Building Code** Test Criteria A_{FLX-H} $\mathbf{A}_{\mathsf{RIG-H}}$ A_{FLX-V} S_{DS/} z/h Ip. A_{RIG-V} 2.27 1.0 1.5 3.63 2.72 1.51 0.61 CBC 2022 ICC-ES AC156 _ Test Mounting Details UUT-3 was ceiling-supspended using (6) VMC HRSP-1D-175 isolators, 5/8" diameter Grade 8 threaded hanger rods, and 1/4" galvanized wire rope sections. Each hangar rod featured (6) Grade 5 and (3) Grade 8 5/8" nuts, (1) 2" diameter, 1/8" thick Grade 5 5/8" flat washer, (1) 3" diameter, 1/4" thick Grade 5 5/8" flat washer, (5) 1.75" diameter, 1/4" thick Grade 5 5/8" flat washers, (1) 2"x2"x1/4" carbon steel plate washer, and (1) VMC SB-250 seismic cable bracket which connects the 1/4" galvanized wire rope to the ceiling fixture. Each VMC HRSP-1D-175 isolator was attached to the ceiling frame with (1) Grade 5 5/8" threaded rod, (2) Grade 8 nuts, (1) 2" diameter, 1/8" thick Grade 5 flat washer, (1) 2.5" diameter, 1/4" thick flat washer, (1) 1.75" diameter, 1/8" thick Grade 5 flat washer, (1) 3"x3"x1/4" carbon steel plate washer, and (1) grade 5 channel nut. There was a 1/8" operating gap between the 2.5" diameter flat washer on top of the isolator and the top-most Grade 8 nut for each isolator. The 1/4" galvanized wire rope was attached to the ceiling fixture using another SB-250 cable bracket and (1) Grade 5 1/2" bolt, flat washer, and channel nut. For the wire used to support the furthest corner rods, (1) 1/2" grade 5 bolt, flat washer, 2"x2"x1/4" carbon steel washer, and channel nut was placed on the inside next to SB-250 bracket. The ceiling fixture was attached to the shake table using M12 threaded rods, 3"x3"x1/4" carbon steel washers, flat washers, and nuts.





UUT-4

Summary Sheet

Test Report: 19561-2201; UUT-04

Model Line		Model Number					Manufacturer		
						20000000			
BCxE Blower Coil Air	BCxE Blower Coil Air Handlers		BCHE120GBA0A4FCA0000000CHBJ00J0002000000S (BCHE 120 N')				Trane		
			Product Construction Summary						
22 Gauge Galv CS									
			Ontions / Su	ubcompone	nt Summar	v			
Hydronic Coils: Trane; F	an Motor: B		-	-			ter: Trane: T	op/Bottom F	ilter Access
Section: Trane; Flat Me								1.	
				COD					
			FOR	CODE	CON				
		K		UT Properti	es //				
Weight		L.	Dimensi	M WV7 V - V		4	Lowes	st Nat. Freq	. [Hz]
[lbs]	Len	igth	Wi	dth	Height		F-B	S-S	V
920	12	0.0		<u>99-076</u>		6.0	N/A	N/A	N/A
		💛 ООТ Н	lighest Pas	sed Seismid	Run Inforr	mation			
Building Code	Test C	riteria	SVS _{DS/ob}	am z/h ad	Karlm	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2022		AC156	2.27	1.0	1.5	3.63	2.72	1.51	0.61
000 2022	100-20				002	-	-	-	-
			Test	Mounting D	etails				
galvanized wire rope se 5/8" flat washer, (1) 3" c 2"x2"x1/4" carbon steel the ceiling fixture. Each 8 nuts, (1) 2" diameter, flat washer, (1) 3"x3"x1/ diameter flat washer on attached to the ceiling fi wire used to support the placed on the inside new carbon steel washers, fl	liameter, 1/4 plate washe VMC HRSP 1/8" thick Gr 4" carbon ste top of the is xture using a furthest cor kt to SB-250	" thick Grade r, and (1) VM -1D-175 isola ade 5 flat was eel plate was olator and th another SB-2 ner rods, (1) bracket. The	e 5 5/8" flat y IC SB-250 s ator was atta asher, (1) 2. sher, and (1) e top-most (250 cable br o 1/2" grade	washer, (5) seismic cable ached to the 5" diameter, 9 grade 5 cha Grade 8 nut acket and (1 5 bolt, flat w	1.75" diamet e bracket wh ceiling fram 1/4" thick fla annel nut. Th for each isol) Grade 5 1/ asher, 2"x2"	er, 1/4" thick ich connects e with (1) Gr at washer, (1 here was a 1 lator. The 1/4 (2" bolt, flat v x1/4" carbon	Grade 5 5/8 s the 1/4" ga rade 5 5/8" th) 1.75" diam /8" operating 4" galvanized vasher, and a steel washe	B" flat washe Ivanized win nreaded rod eter, 1/8" thi g gap betwee d wire rope v channel nut. er, and chan	ers, (1) e rope to , (2) Grade ck Grade 5 en the 2.5" was . For the nel nut was
All units	were filled w	ith contents	and maintain	ned structura	al integrity a	nd functiona	lity after AC-	156 test.	



Summary Sheet

UUT-5

Model Line		N	lodel Numb	er		Manufacturer				
BCxE Blower Coil Air	Handlers BCV		04011000AB0B00000000000000S (BCVE 72 A)			Trane				
		Product C	Construction	Summary						
2 Gauge Galv CS										
		Options / S	ubcompone	nt Summar	У					
uno,		OR	CODF	Ca						
ane;				COM			of Not Eron			
Weight	2	Dimens	ions [in]				st Nat. Freq			
Weight [lbs]	Length	Dimens W	ions [in] idth	He	ight	F-B	S-S	V		
Weight	34.0	Dimens Wi	ions [in] idth 5.0 <mark>P-076</mark>	He 1 6	9.0			V		
Weight [lbs]	34.0	Dimens W	ions [in] idth 5.0 <mark>P-076</mark>	He 1 6	9.0	F-B	S-S	V		
Weight [lbs]	34.0	Dimens Wi	ions [in] idth 5.0 <mark>P-076</mark>	He 1 6	9.0	F-B	S-S	∨ >33.		
Weight [Ibs] 320 Building Code	34.0 U Test Criteria	Dimens Wi G UT Highest Pas Sps 2.00	ions [in] idth 5.0 P_076 ssed Seismic	He 6 c Run Infor	9.0 mation	F-B 11.5	S-S 17.5	∨ >33.		
Weight [Ibs] 320	34.0 4	Dimens Wi G UT Highest Pas Sps 2.00	ions [in] idth 5.0P_076 seed Seismic	He 16 Run Infor	9.0 mation A _{FLX-H}	F-В 11.5 А_{RIG-Н}	S-S 17.5			

attached using Grade 5 1/2" bolts. The unit was attached to the I-beams using (4) manufacturer-provided 0.124" 10 gage carbon steel legs, (16) 5/16" diameter Grade 8 bolts, nuts, and (24) Grade 5 flat washers. The unit was attached to the legs using (8) #10 screws per leg. The shake table interface plate was attached to the shake table using M12 threaded rods, 3"x3"x1/4" carbon steel washers, flat washers, and nuts.





Summary Sheet

UUT-6

WOUGH LINE	Model Line Model Number Manufactur					r		
BCxE Blower Coil Air	Coil Air Handlers BCVE072GBA0A4N07000000CHCJ0000020B0000S (BCVE 72 N')				Trane			
	ł	Product C	onstruction	Summary				
2 Gauge Galv CS								
		Options / Su	ubcompone	nt Summar	У			
/dronic Coils: Trane; F			-		W/ Angle Filt	er: Trane; T	op/Bottom F	liter Acc
ection: Trane; Flat Me	dia Options: Clarcor;	Control Panel:	Trane; Damp	er: Ruskin				
		2D	CODE					
		COK	CODE	C_{0}				
		U V	UT Propertie	es	0.			
Weight		Dimensi	ons [in]			Lowest Nat. Freq. [Hz]		
[lbs]	Length	Wi	dth	He	ight	F-B	S-S	V
720	63.0	68	30P-076	6	8.0	10.5	17.5	>33.
		T Highest Pas	sed Seismic	Run Infor	mation			
	U U	/ / / / / / / / / / / / / / / / / / / /	<u>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>					
Building Code	Test <mark>Criter</mark> ia	BV S _{DS/O}	am ^{z/h} ad	Karlm	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG}
	Test Criteria	<u>, , , , , , , , , , , , , , , , , , , </u>		Karl _e 1.5	A _{FLX-H} 3.20	А_{RIG-H} 2.40	A _{FLX-V}	A _{RIG}
Building Code CBC 2022		BVSpslor	am z/h ad	Панн			Α _{FLX-V} - 1.51	-
	Test Criteria	2.00 2.27	am <mark>z/h</mark> ad 1.0	1.5 1.5		2.40	-	A_{RIG-} - 0.61

washers, flat washers, and nuts.





washers, flat washers, and nuts.

UNIT UNDER TEST (UUT)

Summary Sheet

UUT-7

Test Report: 19561-2201; UUT-07 Model Line **Model Number** Manufacturer BCVE120GAA0A1B05022000BA0BJ00000000000000 **BCxE Blower Coil Air Handlers** Trane (BCVE 120 I) **Product Construction Summary** 22 Gauge Galv CS **Options / Subcomponent Summary** Hydronic Coils: Trane; Fan Motor: Broad Ocean Motor Company; Fan: Lau; Filter Rack: Trane; Flat Media Options: Clarcor; Electric Heat: Tutco; Control Panel: Trane; **UUT Properties** Dimensions [in] Lowest Nat. Freq. [Hz] Weight [lbs] Width Length Height F-B S-S V 410 34.0 69.0 80.0 11.0 23.5 8.5 **UUT Highest Passed Seismic Run Information Building Code** Test Criteria A_{FLX-H} A_{RIG-H} SDS z/h Ip. A_{FLX-V} A_{RIG-V} 2.00 1.0 1.5 3.20 2.40 CBC 2022 ICC-ES AC156 2.27 1.5 0.0 1.51 0.61 Test Mounting Details UUT-7 was isolated using (4) VMC Group 334007 shear-flex elastomeric pads rated for 50 PSI and two I-beams attached to the shake table interface plate. The I-beams were attached using Grade 5 1/2" bolts. The unit was attached to the I-beams using (4) manufacturer-provided 0.124" 10 gage carbon steel legs, (16) 5/16" diameter Grade 8 bolts, nuts, and (24) Grade 5 flat washers. The unit was attached to the legs using (8) #10 screws per leg. The isolator pads were placed in between the l-beams and the base of the leg. The shake table interface plate was attached to the shake table using M12 threaded rods, 3"x3"x1/4" carbon steel





UUT-8

Summary Sheet

Test Report: 19561-2201; UUT-08

							тезстеро	11. 19501-22	01, 001-00
Model Line			М	odel Numbe	N	er			
BCxE Blower Coil Air	Handlers	BCVE120	0EBA0A4JFA (E	40000000B⊢ BCVE 120 F'		2000000S	Trane		
			Product C	onstruction	Summary				
2 Gauge Galv CS									
			Options / Su	-		-			
Hydronic Coils: Trane; E Fop/Bottom Filter Acces									ie;
		rano, riació	ioulu optione			i. Hano, Dai			
			FOR	CODE	CO				
				UT Propertie	es	0.			
Weight		,S	Dimensi				Lowes	st Nat. Freq.	. [Hz]
[lbs]	Len	ngth	Wi	dth	He	ight	F-B S-S		V
930	72	2.04	68	P-076	8	80.0		11.0	18.5
		UUTH	Highest Pase	sed Seismic	Run Infor	mation			
Building Code	Test <mark>C</mark>	Criteria	BVS _{pslob}	am ^{z/h} ad	Karlm	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2022	ICC-ES	AC156	2.00	1.0	1.5	3.20	2.40	-	-
000 2022	100-20	10100	2.27	0.0	1.5	-	-	1.51	0.61
			Test	Mounting D	etails				
nanufacturer-provided (The unit was attached to of the leg. The shake tal washers, flat washers, a	o the legs us ble interface	sing (8) #10	screws per le	eg. The isola	tor pads we	ere placed in	between the	e I-beams an	d the base
All units	were filled w	ith contents	and maintai	ned structura	al integrity a	nd functiona	lity after AC-	156 test.	

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Summary Sheet

UUT-9

Test Report: 19561-2201; UUT-09 Model Line **Model Number** Manufacturer BCVE060NBA0C6JF8000000CNG000G000000B00S **BCxE Blower Coil Air Handlers** Trane (BCVE 60 R) **Product Construction Summary** 22 Gauge Galv CS **Options / Subcomponent Summary** Hydronic Coils: Trane; DX Coil: Trane; Fan Motor: Broad Ocean Motor Company; Fan: Morrison; Filter Rack: Trane; Flat Media Options: Clarcor; Control Panel: Trane; **UUT Properties** Dimensions [in] Lowest Nat. Freq. [Hz] Weight [lbs] Width Length Height F-B S-S V 450 35.0 35.0 72.0 10.5 >33.3 13.5 **UUT Highest Passed Seismic Run Information Building Code** Test Criteria A_{FLX-H} A_{RIG-H} S_{DS} z/h Ip. A_{FLX-V} A_{RIG-V} 2.00 1.0 1.5 3.20 2.40 CBC 2022 ICC-ES AC156 2.27 1.5 0.0 1.51 0.61 Test Mounting Details UUT-9 was isolated using (4) VMC Group 334007 shear-flex elastomeric pads rated for 50 PSI. The unit was attached to the shake table interface plate using (4) manufacturer-provided 0.124" 10 gage carbon steel legs, (15) 1/4" diameter Grade 8 bolts, nuts, and Grade 5 flat washers. The unit was attached to the legs (8) #10 screws per leg. The isolator pads were placed in between the shake table interface plate and the base of the leg. One bolt head was sheared off during test setup and the unit was tested with one less bolt. The shake table interface plate was attached to the shake table using M12 threaded rods, 3"x3"x1/4" carbon steel washers, flat washers, and nuts.

