APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0378 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Price Industries Limited

Manufacturer's Technical Representative: Bogna Gryc P.Eng, Product Development Manager

Mailing Address: 638 Raleigh Street, Winnipeg, Manitoba , R2K 3Z9, Canada

Telephone: 204-661-7867 Email: bognag@price-hvac.com

Product Information

Product Name: Horizontal Fan Coils, Horizontal High Performance Fan Coils, Horizontal Blower Coils

Product Type: Fan Coils

Product Model Number: FCHCB, FCHCP, FCHE, FCHG, FCHGQ, BCH, BCHQ
(List all unique product identification numbers and/or part numbers)

General Description: Catalogued Fan Coil Units in standardized sizes with coil configurations in several optional types. Seismic enhancements made to the test units and modifications required to address anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Ceiling suspended, rigidly on hanger rods or Spring Vibration Isolated on Hanger Rods. With cable sway bracing.

Applicant Information

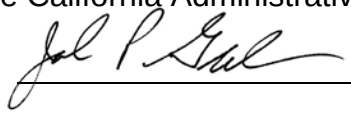
Applicant Company Name: The VMC Group

Contact Person: John P. Giuliano, PE

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: 973-838-1780 Email: john.giuliano@thevmcgroup.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: 12/27/13

Title: President Company Name: The VMC Group

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: The VMC Group

Name: Kenneth Tarlow California License Number: SE2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: 916-449-9918 Email: ken.tarlow@thevmcgroup.com

Supports and Attachments Preapproval

☐ Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)

☒ Supports and attachments are not preapproved

Certification Method

☒ Testing in accordance with: ☒ ICC-ES AC156

☐ Other (Please Specify): _____

Testing Laboratory

Company Name: UC Berkeley

Contact Name: Wesley Neighbour

Mailing Address: 1301 South 46th Street, Building 420, Richmond, CA 94804

Telephone: 510-665-3409 Email: wdn@berkeley.com

Testing Laboratory

Company Name: _____

Contact Name: _____

Mailing Address: _____

Telephone: _____ Email: _____

Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 4.5 (S_{DS}=2, z/h = 1, R_p=2), 1.5 (S_{DS}=2, z/h = 1, R_p=6), 1.88 (S_{DS}= 2.5, z/h = 0, Rp=2), 0.63 (S_{DS}=2.5, z/h = 0, R_p=6)

S_{DS} (Design spectral response acceleration at short period, g) = 2.5 @ z/h = 0, 2.0 @ z/h = 1.0

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

R_p (Equipment or component response modification factor) = 2.0 (Isolated) & 6.0 (Non-Isolated)

Ω_0 (System overstrength factor) = 1.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0 & 0.0

Equipment or Component Natural Frequencies (Hz) = See Attached Matrix

Overall dimensions and weight (or range thereof) = See Attached Matrix

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: ☐ Yes ☒ No

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

S_{DS} (Design spectral response acceleration at short period, g) =

S_{D1} (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Ω_0 (System overstrength factor) =

C_d (Deflection amplification factor) =

I_p (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component Natural Frequencies (Hz) =

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2010: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☒ Drawings ☐ Calculations ☒ Manufacturer's Catalog

☐ Other(s) (Please Specify):

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019

Signature: Date: 3/5/2014

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = See Above

Condition of Approval (if applicable):

Price Fan Coils
OSHPD OSP Certified Product Matrix

Table 1 - Cabinet Sizes

							Permitted Support Conditions			
Product Family	**Model**	**Size**	**Height (in)**	**Width (in)**	**Max Depth (in)**	**Max Weight (lbs)**	**Suspended Rigidly**	**Suspended w/ Isolators**	**Sds**	**z/h**
Horizontal Fan Coils	FCHCB	2	10.6	28.1	22.5	30	interpolated	interpolated		
		3	10.6	37.4	22.5	55	UUT#1A	UUT#1B		
		6	10.6	42.1	22.5	68	interpolated	interpolated		
		8	10.6	42.1	22.5	80	interpolated	interpolated		
		10	10.6	62.1	22.5	100	interpolated	interpolated		
		12	10.6	71.8	22.5	120	interpolated	interpolated		
	FCHCP	2	10.6	28.1	24.8	48	interpolated	interpolated		
		3	10.6	37.4	24.8	65	interpolated	interpolated		
		6	10.6	42.1	24.8	80	interpolated	interpolated		
		8	10.6	42.1	24.8	95	interpolated	interpolated		
		10	10.6	62.1	24.8	120	interpolated	interpolated		
		12	10.6	71.8	24.8	140	UUT#2A	UUT#2B		
	FCHE	10	12	36	30	105	interpolated	interpolated		
		20	12	45	30	135	interpolated	interpolated		
		30	12	50	30	160	interpolated	interpolated		
		40	12	70	30	215	UUT#3A	UUT#3B		
		50	12	80	30	255	interpolated	interpolated		
Horizontal High Performance Fan Coils	FCHG	20	13.5	35	97.69	100	interpolated	interpolated	S_{DS} = 2.0 @ z/h = 1.0 & S_{DS} = 2.5 @ z/h = 0.0	
		30	13.5	35	97.69	100	UUT#4A	UUT#4B		
		40	15.5	40	97.69	120	interpolated	interpolated		
		50	13.5	56	100.19	170	interpolated	interpolated		
		60	15.5	62	100.19	200	interpolated	interpolated		
		70	15.5	74	121.19	250	interpolated	interpolated		
	FCHGQ	20	13.5	35	133.69	135	UUT#5A	UUT#5B		
		30	13.5	35	133.69	135	interpolated	n/a		
		40	15.5	40	133.69	160	interpolated	n/a		
		50	13.5	56	136.19	230	interpolated	n/a		
		60	15.5	62	136.19	275	interpolated	n/a		
		70	15.5	74	157.19	340	UUT#6A	n/a		
Horizontal Blower Coils	BCH	8	15.5	30	82	285	UUT#7A	UUT#7B		
		12	15.5	38	82	338	interpolated	interpolated		
		16	18	44	84.5	421	interpolated	interpolated		
		20	18	50	84.5	451	interpolated	interpolated		
		30	25	52	98.5	633	interpolated	interpolated		
		40	25	65	98.5	796	interpolated	interpolated		
	BCHQ	8	15.5	30	118	305	interpolated	interpolated		
		12	15.5	38	118	359	interpolated	interpolated		
		16	18	44	120.5	441	interpolated	interpolated		
		20	18	50	120.5	473	interpolated	interpolated		
		30	25	52	134.5	661	interpolated	interpolated		
		40	25	65	134.5	827	UUT#8A	UUT#8B		

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Table 2 - External Sheeting

EXTERIOR Wall/Roof/Floor Panel Material	Thickness	UUT
Galvanized Carbon Steel	18 ga	3, 7, 8
Galvanized Carbon Steel	20 ga	1, 2, 4, 5, 6

Table 3 - Insulation

Material	Thickness	MFR	UUT
Fiberglass	0.500	Johns Manville	2, 4
	1.000	Johns Manville	extrapolated*
Fiberfree	0.500	Nomaco	3
	1.000	Nomaco	extrapolated*
Fiberboard	0.625	Johns Manville	extrapolated
	1.000	Johns Manville	7
FG with Solid Metal	0.500	Johns Manville	5
	1.000	Johns Manville	8
FG with Perforated Metal	0.500	Johns Manville	6

*1" Insulation is only offered on types BCH and BCHQ. Both of these UUT's (7 & 8) were tested with 1" thick insulation.

Table 4a - Hydronic Coils

Dimensions			MFR	UUT	
Height [in.]	Width [in.]	UUT Coil Height & Width [in.]		Non-Isolated	Isolated
8.75	16, 25, 30, 40, 50, 60	8.75 x 25	Great American Coil	1	1
		8.75 x 60		2	2
		8.75 x 50		3	3
10, 12.5	21, 26, 42, 48, 60	10 x 21		4	4
		10 x 21		5	5
		12.5 x 60		6	Interpolated
12.5, 15, 21.25	22, 30, 36, 42, 43, 56	12.5 x 22		7	7
		21.25 x 56		8	8

Table 4b - Hydronic Coils

		UUT	
		Non-Isolated	Isolated
Casing Material	Galvanized Steel	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Tube Material	Copper	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Tube Outer Diameter	0.5"	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Tube Wall Thickness	0.016"	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Fin Material	Aluminum	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Fin Thickness	0.0045"	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Fin Pitch [FPI]	12 or 16	1, 2, 3	1, 2, 3
	10	4, 5, 6, 7, 8	4, 5,7, 8
Header Material	Copper	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8

Coil Pipes/Tubes	Pipe Qty			
	2	4	2	4
Rows	Non-Isolated		Isolated	
1	UUT5	Extrapolated	UUT5	Extrapolated
2	UUT1	Extrapolated	UUT1	Extrapolated
3	Interpolated	Extrapolated	Interpolated	Extrapolated
4	UUT2	UUT3	UUT2	UUT3
6	UUT4	UUT6	UUT4	Interpolated
8	UUT7	UUT8	UUT7	UUT8

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Table 5 - Fan Motor

Type	HP	Voltage Rating & Phase			Speeds	MFR	UUT	
							Non-Isolated	Isolated
PSC	1/30	115/1	208/240 - 1	277/1	3	Genteq	1	1
	1/10	115/1	208/240 - 1	277/1	3		2	2
	1/8	115/1	208/240 - 1	277/1	3		5	5
	1/4	115/1	208/240 - 1	277/1	3		Interpolated	Extrapolated
	1/2	115/1	208/240 - 1	277/1	3		6	Extrapolated
ECM	1/15	115/1	208/240 - 1	277/1	3		3	3
	1/8	115/1	208/240 - 1	277/1	3		3	3
	1/3	115/1	208/240 - 1	277/1	3		4	4
	1/2	115/1	208/240 - 1	277/1	3		Interpolated	Extrapolated
	3/4	115/1	208/240 - 1	277/1	3		6	Extrapolated
PSC	1/2	115/1	208/230 - 1	277/1	1	Marathon	Extrapolated	Extrapolated
	3/4	115/1	208/230 - 1	277/1	1		7	7
	1.0	115/1	208/230 - 1	277/1	1		Interpolated	Interpolated
	1.5	115/1	208/230 - 1	277/1	1		Interpolated	Interpolated
	3/4	208/230 - 3	460/3	575/3	1		Interpolated	Interpolated
	1.0	208/230 - 3	460/3	575/3	1		Interpolated	Interpolated
	1.5	208/230 - 3	460/3	575/3	1		Interpolated	Interpolated
	2.0	208/230 - 3	460/3	575/3	1		Interpolated	Interpolated
	3.0	208/230 - 3	460/3	575/3	1		Interpolated	Interpolated
	5.0	208/230 - 3	460/3	575/3	1		8	8

Table 6a - Housed Fans (Direct Drive)

Fan Size (Dia x Width)	Fan Weight	Motor HP	Motor Weight	Fan MFR	UUT	
					Non-Isolated	Isolated
6" x 6"	7 lbs	1/30	7 lbs	Yilida	1	1
6" x 6"	7 lbs	1/10	10 lbs		2	2
6" x 6"	7 lbs	1/15 & 1/8	10 lbs		3	3
10" x 4"	15 lbs	1/2	15 lbs	Morrison	4	4
9" x 4"	12 lbs	1/8	10 lbs		5	5
12" x 6"	25 lbs	3/4	17 lbs		6	Extrapolated

Wheel Material	UUT
Galvanized Carbon Steel	1, 2, 3, 4, 5, 6

Fan Class	UUT
Class 1	1, 2, 3, 4, 5, 6

Housing Material	UUT
Galvanized Carbon Steel	1, 2, 3, 4, 5, 6

Table 6b - Housed Fans (Belt Drive)

Model		Fan Size (Dia x Width)	Fan Weight	Motor HP	Motor Weight	Fan MFR	UUT
BCH		9" x 6"	15 lbs	1	30 lbs	Morrison	7
BCHQ		15" x 9"	50 lbs	5	75 lbs		8

Wheel Material	UUT
Galvanized Carbon Steel	7, 8

Fan Class	UUT
Class 1	7, 8

Housing Material	UUT
Galvanized Carbon Steel	7, 8

Fan Base Material	UUT
Galvanized Carbon Steel	7, 8

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Table 7a - Flat Filter Rack

Type	Frame Material Options	Dimensions		MFR	UUT
		Width	Height		
Bottom Slide-In w/ Bend Tabs	Galvanized Carbon Steel	25"	10"	Price	2
Swing-Down Access Panel	Painted Cold Rolled Carbon Steel	60"	10"		3
Side Access Slide-In	Galvanized Carbon Steel	21"	10"		4
Side Access Slide-In	Galvanized Carbon Steel	21"	10"		5
Side Access Slide-In	Galvanized Carbon Steel	60"	12"		6
Side Access Slide-In	Galvanized Carbon Steel	22"	15"		7
Side Access Slide-In	Galvanized Carbon Steel	55"	24"		8

Table 7b - Flat Filter Media Options

Size	Quantity	Filter Material	MFR	UUT
1"	2	Non Woven Synthetic	AAF	2, 3
1"	1	Non Woven Synthetic	Camfil Farr	4
2"	2	Non Woven Synthetic	AAF	5, 6
2"	2	Non Woven Synthetic	Camfil Farr	7,8

Table 8 - Electric Heat

kW	Voltage and Phase						MFR	UUT	
								Non-Isolated	Isolated
0.5	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3	Price	4	4
1	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3		7	7
1.5 - 12	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3		Interpolated	Interpolated
13	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3		6	Interpolated
14 - 35	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3		Interpolated	Interpolated
40	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3		8	8
50	115/1	208/240 - 1	277/1	208/240 - 3	480/3	600/3		Extrapolated	Extrapolated

kW Ratings greater than 5.0 are rounded up.

Table 9 - Controls

Type	Weight	Voltage Rating	Amperage Rating	MFR	UUT	
					Non-Isolated	Isolated
FC-PCS3 3 Speed Controller(250000-450)	< 1 lb			Price Electronics	1, 2, 5	1, 2, 5
PIC DDC Controller (250000-110)	< 1 lb				4, 6	4
PIC-FC DDC Controller (250000-210)	< 1 lb				1, 2, 3, 5, 7, 8	1, 2, 3, 5, 7, 8
VAV Module (250000-160)	< 1 lb				4	4
BACnet Module (250000-360)	< 1 lb				7, 8	7, 8
SCR-DAT, 1 Phase	< 1 lb	480V	45A/10A		4, 6	4
SCR-DAT, 3 Phase	< 1 lb	480V	25A/45A/10A		7	7

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Table 10 - Disconnect

Type	Weight	Voltage Rating	Amperage Rating	MFR	UUT	
					Non-Isolated	Isolated
Toggle Switch, Single Pole	< 1 lb	115V, 277V	15A	Legrand	1, 3, 5	1, 3, 5
Toggle Switch, Double Pole	< 1 lb	208V, 240V	30A	Legrand	2	2
Door Interlock Disconnect Switch	< 1 lb	600V	40A/60A/25A	Eaton	4, 6, 7, 8	4, 7, 8

Table 11 - Fusing

Type	Weight	Voltage Rating	Amperage Rating	MFR	UUT	
					Non-Isolated	Isolated
Fuse Block, 1 Pole	< 1 lb	600V	30A	Little Fuse	1, 2, 3, 4, 5, 6, 7, 8	1, 2, 3, 4, 5, 7, 8
Motor Fuse	< 1 lb	500V	1A - 20A		1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5
Motor Fuse	< 1 lb	600V	7A - 30A		7, 8	7, 8

Table 12 - Contactors

Type	Weight	Voltage Rating	Amperage Rating	MFR	UUT	
					Non-Isolated	Isolated
Magnetic Contactor, 1 Pole	< 1 lb	24V	30A	Hartland Controls	4, 6	4
Magnetic Contactor, 3 Pole	< 1 lb	24V	30A		7	7

Table 13 - Transformer

Type	Weight	Voltage Rating	Amperage Rating	MFR/Model Number		UUT	
						Non-Isolated	Isolated
120/24V Transformer	2 lb	120/24V	40VA/50VA	Hartland Controls	HCT-01E/HCT-01D	1, 5, 7	1, 5, 7
277/24V Transformer	2 lb	277/24V	40VA/50VA		HCT-03E/HCT-03D	3, 5, 6	3, 5
120,277/24V Transformer	2 lb	120,277/24V	50VA		HCT-05D	interpolated	interpolated
208,240/24V Transformer	2 lb	208,240/24V	50VA		HCT-09D	2, 4	2, 4
347/24V Transformer	2 lb	347/24V	50VA		HCT-51D	interpolated	interpolated
480/24V Transformer	2 lb	480/24V	50VA		HCT-76D	interpolated	interpolated
480,575/24V Transformer	2 lb	480,575/24V	50VA		HCT-78D	8	8

Table 14 - Relay

Type	Weight	Voltage Rating	Amperage Rating	MFR	UUT	
					Non-Isolated	Isolated
General Purpose Switching Relay	< 1 lb	24V - 277V	12A	Hartland Controls	1, 2, 5, 6	1, 2, 5, 6

Table 15 - Airflow Switch

Type	Weight	Pressure Setting Range	Voltage Rating	Amperage Rating	MFR	UUT	
						Non-Isolated	Isolated
Airflow Switch, SPDT	< 1 lb	0.05 in. WC	115V - 277V	15A, 300VA	Cleveland Controls	7, 8	7, 8

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Table 16 - Dampers

Height	Width	Diameter	Qty	MFR	UUT	
					Non-Isolated	Isolated
-	-	9"	2	Price	extrapolated	extrapolated
-	-	9"	2		4	4
-	-	10"	2		interpolated	interpolated
8"	16"	-	2		interpolated	interpolated
8"	21"	-	2		interpolated	interpolated
9"	28"	-	2		6	interpolated
9.25"	16.25"	-	2		7	7
9.25"	24.25"	-	2		interpolated	interpolated
11.25"	30.25"	-	2		interpolated	interpolated
11.25"	36.25"	-	2		interpolated	interpolated
16.25"	37.25"	-	2		interpolated	interpolated
16.25"	48"	-	2		8	8

Damper Material		UUT
Frame	Blades	
Galvanized Carbon Steel	Galvanized Carbon Steel	4, 6, 7, 8

Actuator MFR	UUT
Bellimo	4, 6, 7, 8

Blade Orientation	UUT
Horizontal	4, 6, 7, 8

Table 17 - Non-Active Components

Description	Manufacturer	Materials	UUT
Mixing Box	Price	Galv Carbon Steel	4,6,7,8
Primary/Fresh Air Inlet	Price	Galv Carbon Steel	5
Inlet Silencer	Price	Galv Carbon Steel	5,6
Discharge Silencer	Price	Galv Carbon Steel	5,6,8
Drain Pan	Price	Galv Carbon Steel	1, 2, 3, 4, 5, 6, 7, 8
Access Panel	Price	Galv Carbon Steel	3,4,5,6,7,8

UUT #1A

Manufacturer: Price

Model Series: FCHCB Size 03

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

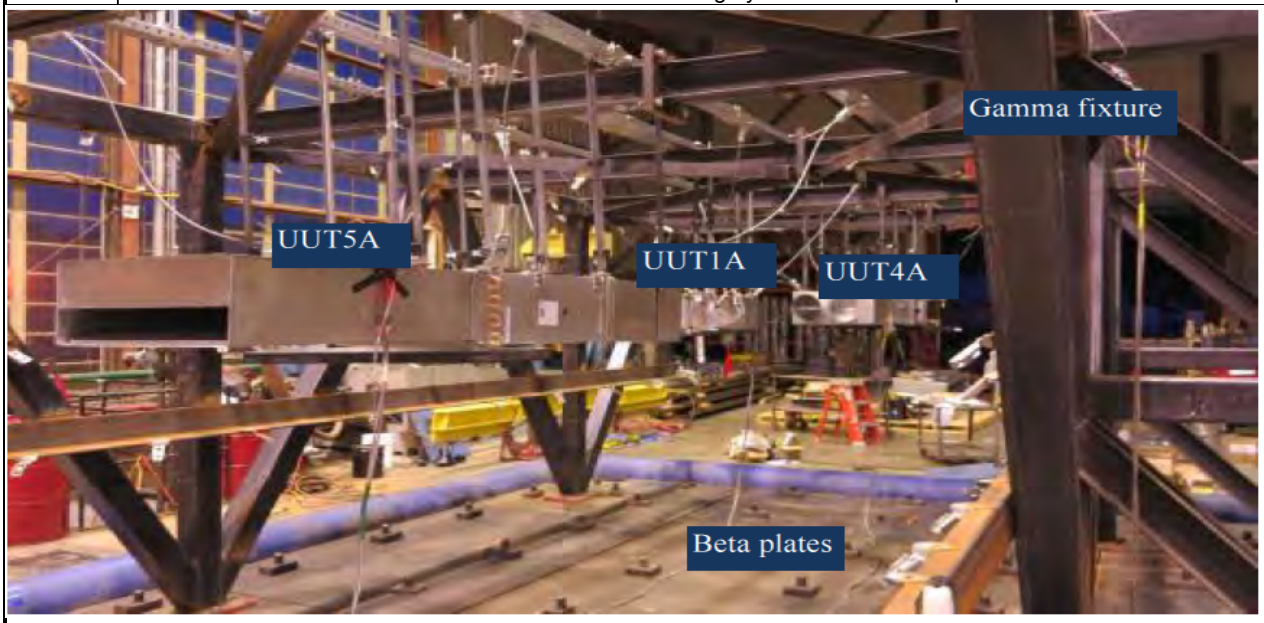
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	38"	24"	10"	55 lbs	na	na	na
Housed Fan							
Coil							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (4) 3/8" A307 rods, (4) L1x1x1/4 Angle Rod Stiffeners, (12) VMC SRBC-1 Rod Clamps, (4) VMC SB-125 Cable Brackets, (4) 1/8" Cables

UUT #1B

Manufacturer: Price

Model Series: FCHCB Size 03

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	38"	24"	10"	55 lbs	na	na	na
Housed Fan							
Coil							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
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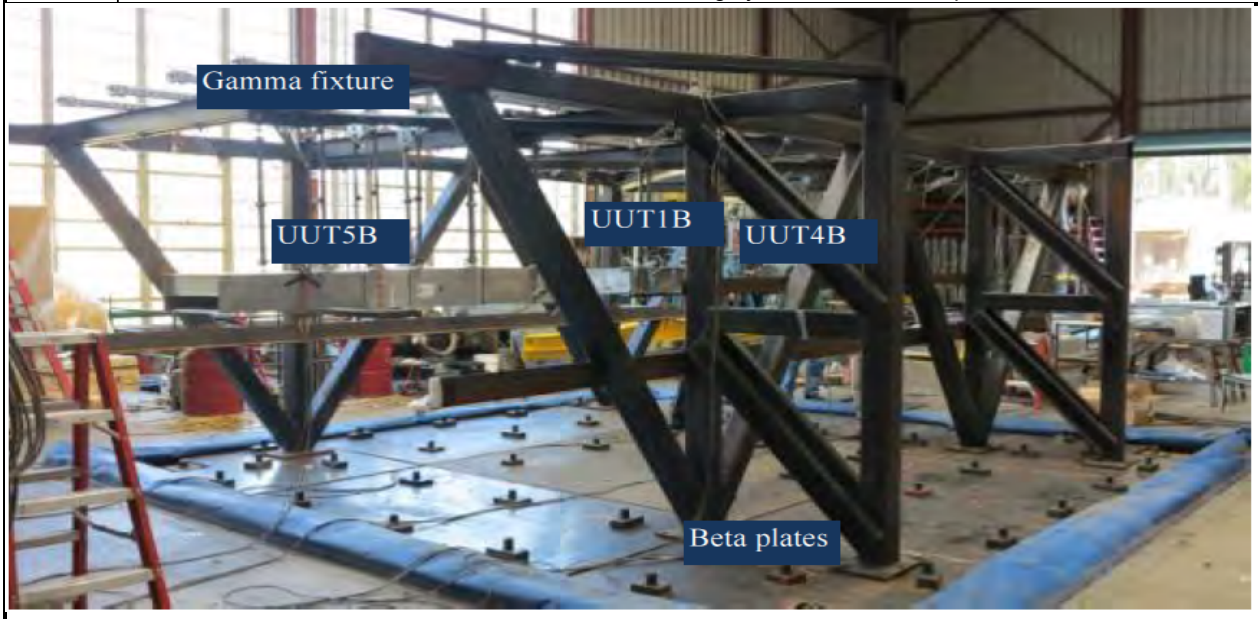


UUT Mounting Description:

Ceiling suspended unit, (4) 3/8" A307 rods, (4) L1x1x1/4 Angle Rod Stiffeners, (12) VMC SRBC-1 Rod Clamps, (4) VMC SB-125 Cable Brackets, (4) 1/8" Cables, (4) VMC HRSA-1B-20 Hanger Box Vibration Isolators

UUT #2A

Manufacturer: Price

Model Series: FCHCP Size 12

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

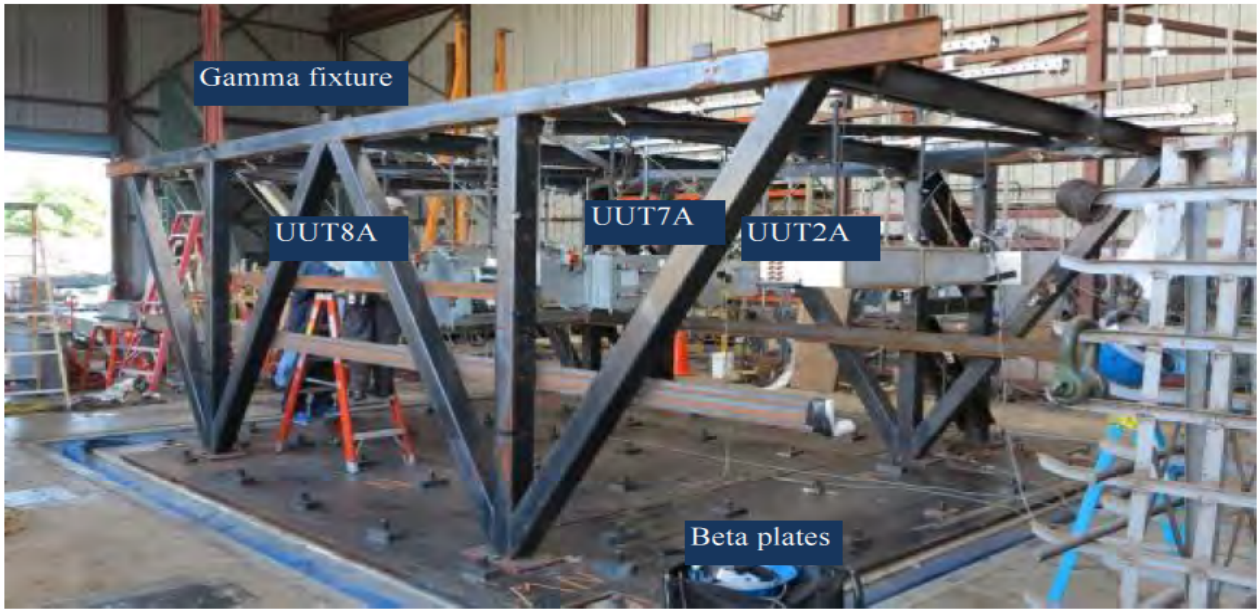
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	73"	31"	10"	140 lbs	na	na	na
Housed Fan							
Coil							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (4) 3/8" A307 rods, (4) L1x1x1/4 Angle Rod Stiffeners, (12) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables

UUT #2B

Manufacturer: Price

Model Series: FCHCP Size 12

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

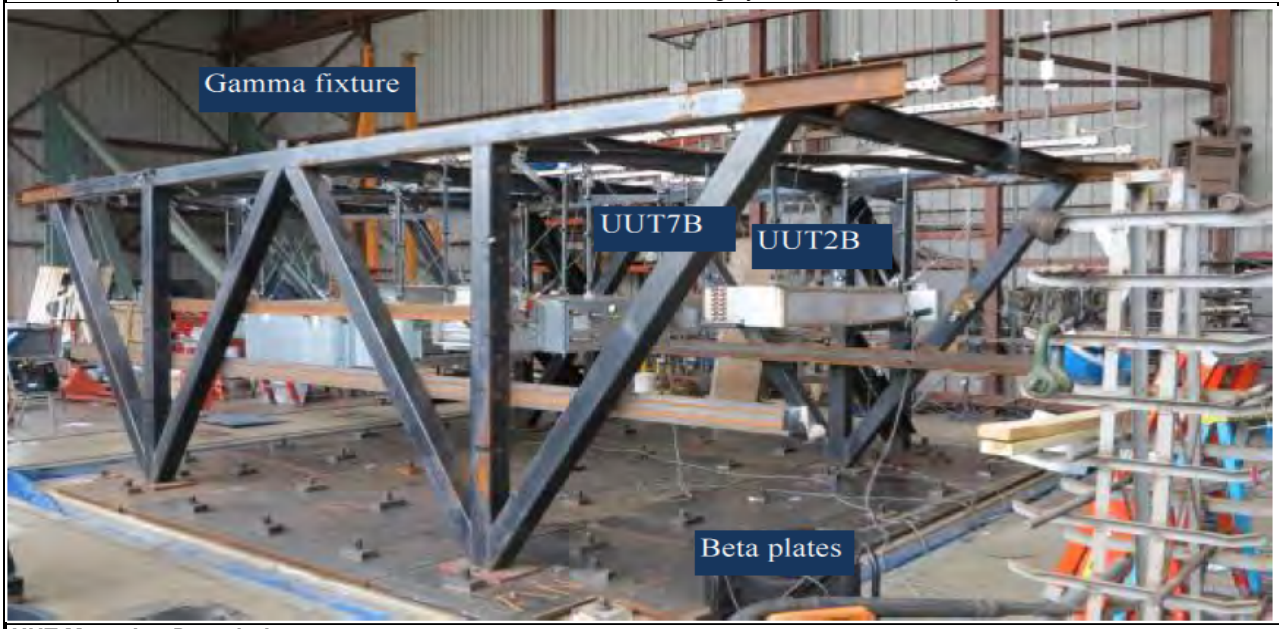
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	73"	31"	10"	140 lbs	na	na	na
Housed Fan							
Coil							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (4) 3/8" A307 rods, (4) L1x1x1/4 Angle Rod Stiffeners, (12) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables, (4) VMC HRSA-1B-50 Hanger Box Vibration Isolators

UUT #3A

Manufacturer: Price

Model Series: FCHE Size 40

Cabinet Construction Summary:

Base:	18 Gauge galvanized carbon steel
Walls:	18 Gauge galvanized carbon steel
Roof:	18 Gauge galvanized carbon steel

Component Summary:

Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	70"	30"	12"	215 lbs	na	na	na
Housed Fan							
Coil							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.

UUT Mounting Description:

Ceiling suspended unit, (4) 3/8" A307 rods, (4) L1x1x1/4 Angle Rod Stiffeners, (12) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables

UUT #3B

Manufacturer: Price

Model Series: FCHE Size 40

Cabinet Construction Summary:

Base:	18 Gauge galvanized carbon steel
Walls:	18 Gauge galvanized carbon steel
Roof:	18 Gauge galvanized carbon steel

Component Summary:

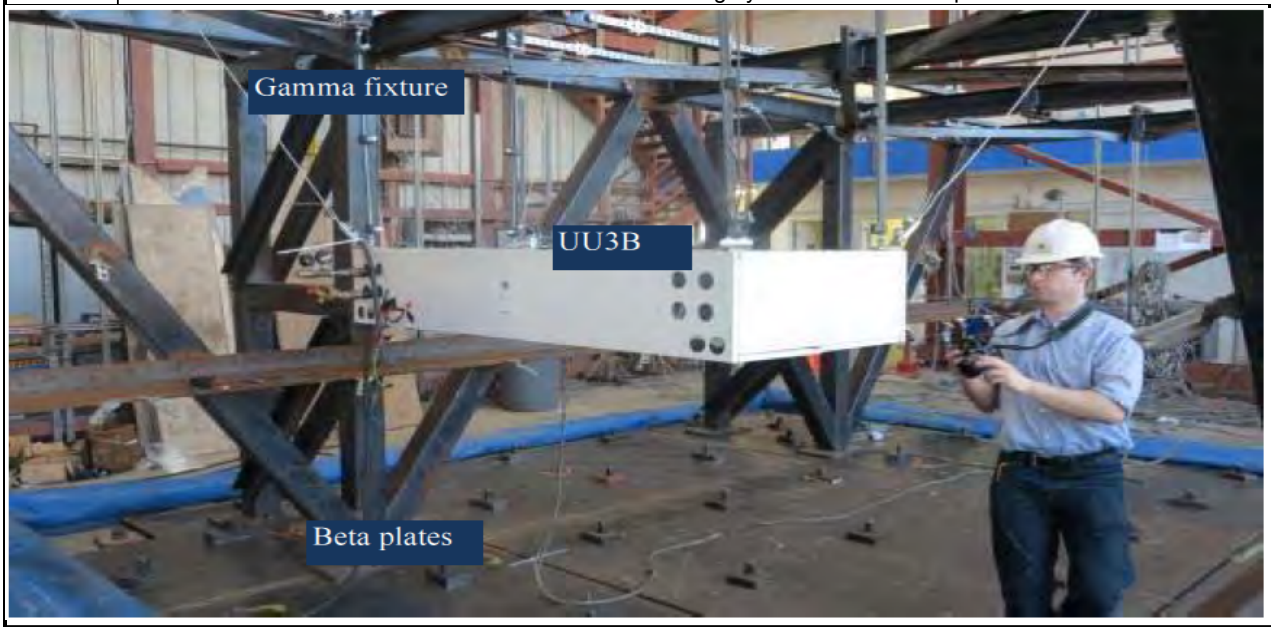
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	70"	30"	12"	215 lbs	na	na	na
Housed Fan							
Coil							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (4) 1/2" A307 rods, (4) L1x1x1/4 Angle Rod Stiffeners, (12) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables, (4) VMC HRSA-1C-100 Hanger Box Vibration Isolators

UUT #4A

Manufacturer: Price

Model Series: FCHG Size 30

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

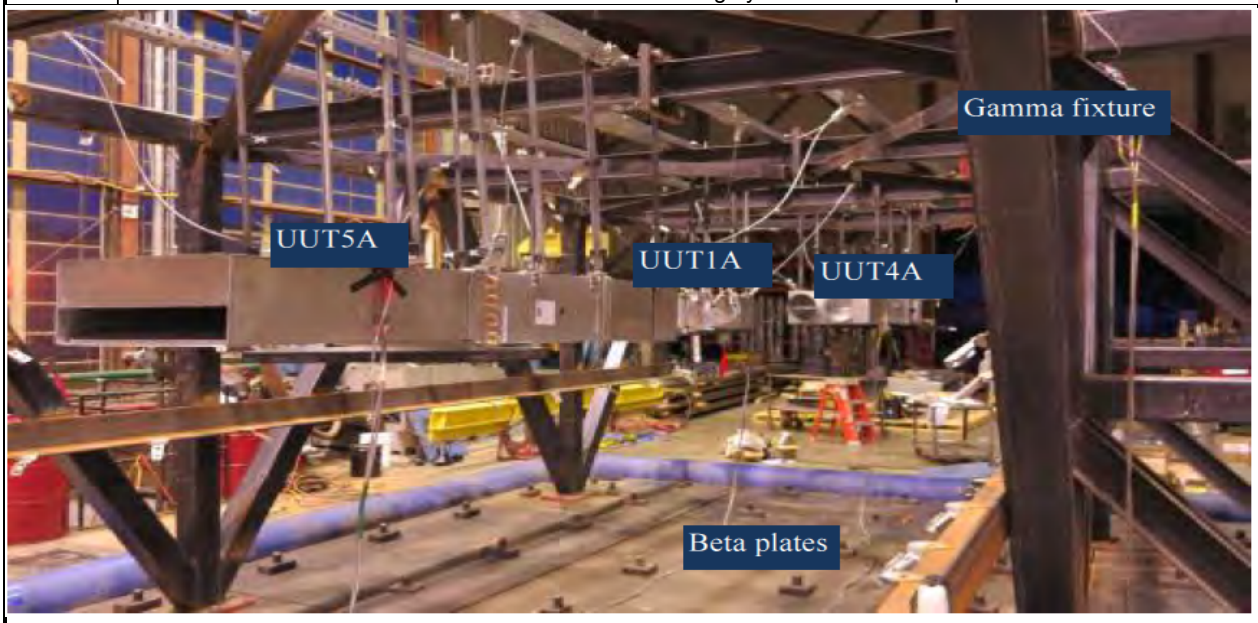
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	39"	66"	10.5"	100 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (6) 3/8" A307 rods, (6) L1x1x1/4 Angle Rod Stiffeners, (18) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables

UUT #4B

Manufacturer: Price

Model Series: FCHG Size 30

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

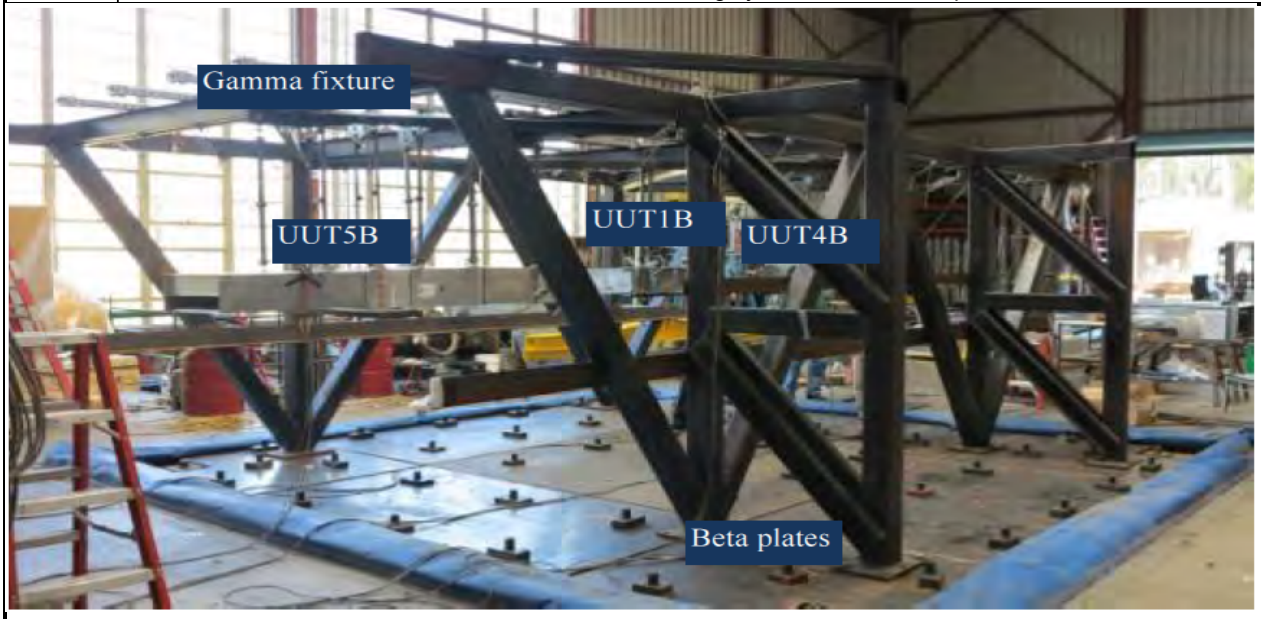
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	39"	66"	10.5"	100 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (6) 3/8" A307 rods, (6) L1x1x1/4 Angle Rod Stiffeners, (18) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables, (6) VMC HRSA-1B-35 Hanger Box Vibration Isolators

UUT #5A

Manufacturer: Price

Model Series: FCHGQ Size 20

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

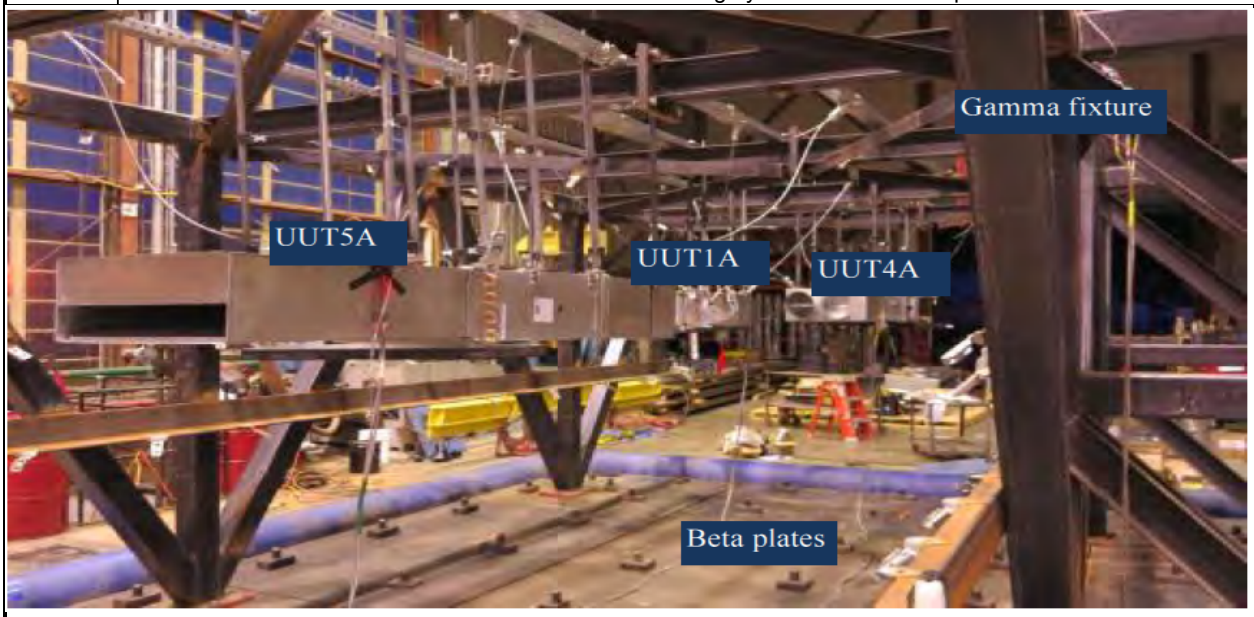
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	39"	91.5"	10.5"	135 lbs	na	na	na
Housed Fan							
Coil							
Discharge Silencer							
Fresh Air Inlet							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (10) 3/8" A307 rods, (10) L1x1x1/4 Angle Rod Stiffeners, (30) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables

UUT #5B

Manufacturer: Price

Model Series: FCHGQ Size 20

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

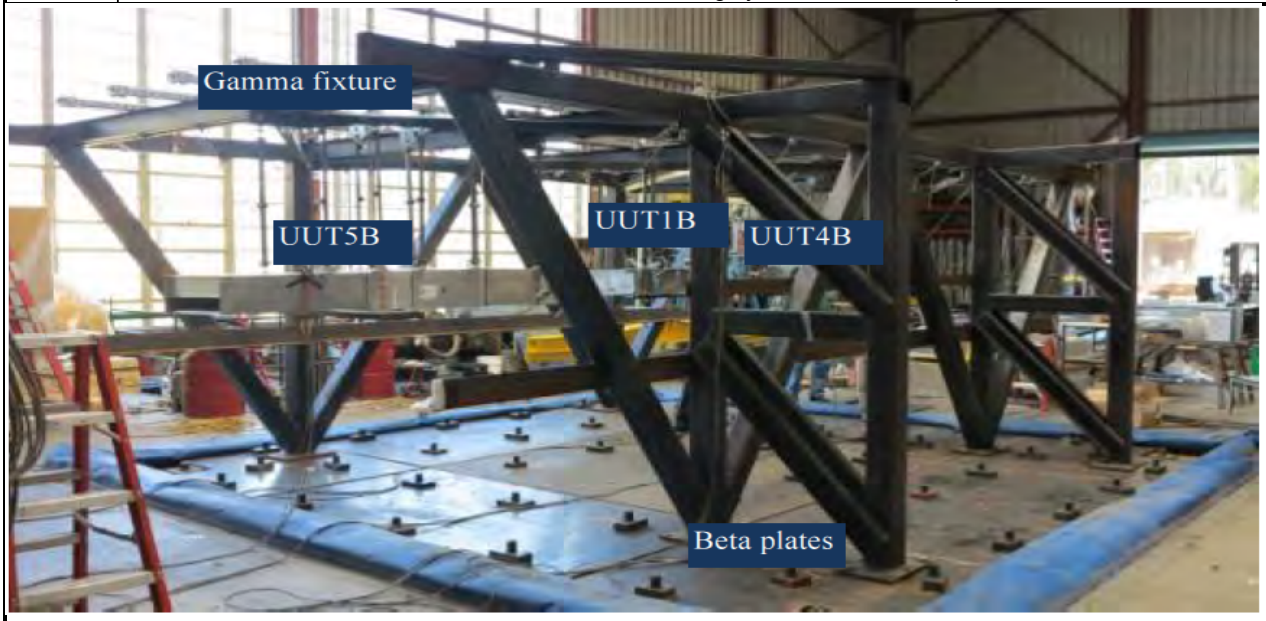
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	39"	91.5"	10.5"	135 lbs	na	na	na
Housed Fan							
Coil							
Discharge Silencer							
Fresh Air Inlet							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (10) 3/8" A307 rods, (10) L1x1x1/4 Angle Rod Stiffeners, (30) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables, (10) VMC HRSA-1B-35 Hanger Box Vibration Isolators

UUT #6A

Manufacturer: Price

Model Series: FCHGQ Size 70

Cabinet Construction Summary:

Base:	20 Gauge galvanized carbon steel
Walls:	20 Gauge galvanized carbon steel
Roof:	20 Gauge galvanized carbon steel

Component Summary:

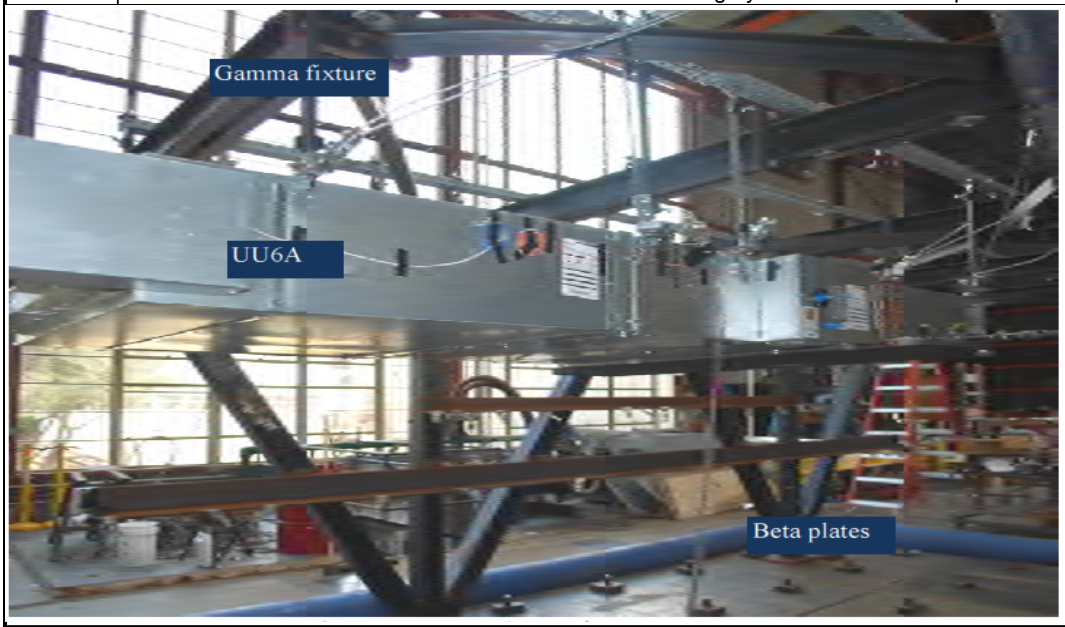
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	77"	148"	12.5"	340 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							
Inlet Silencer							
Discharge Silencer							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (10) 5/8" A307 rods, (10) L1x1x1/4 Angle Rod Stiffeners, (30) VMC SRBC-1 Rod Clamps, (8) VMC SB-250 Cable Brackets, (8) 1/4" Cables

UUT #7A

Manufacturer: Price

Model Series: BCH Size 08

Cabinet Construction Summary:

Base:	18 Gauge galvanized carbon steel
Walls:	18 Gauge galvanized carbon steel
Roof:	18 Gauge galvanized carbon steel

Component Summary:

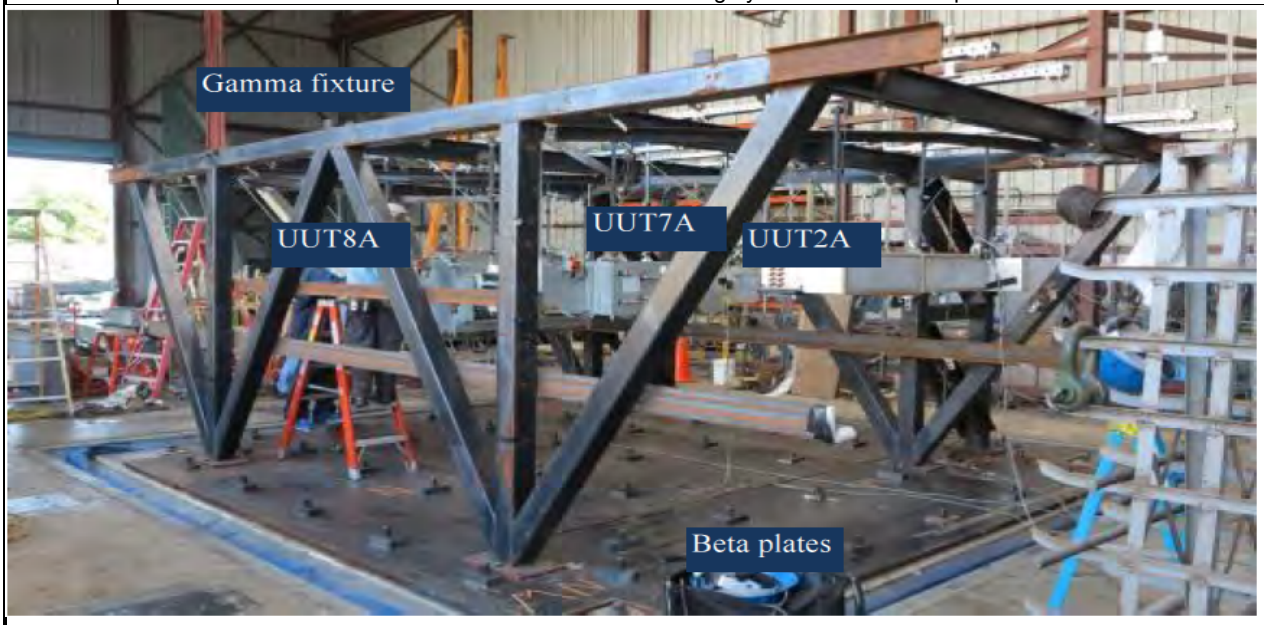
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	30"	88"	15.6"	285 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (8) 3/8" A307 rods, (8) L1x1x1/4 Angle Rod Stiffeners, (24) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables

UUT #7B

Manufacturer: Price

Model Series: BCH Size 08

Cabinet Construction Summary:

Base:	18 Gauge galvanized carbon steel
Walls:	18 Gauge galvanized carbon steel
Roof:	18 Gauge galvanized carbon steel

Component Summary:

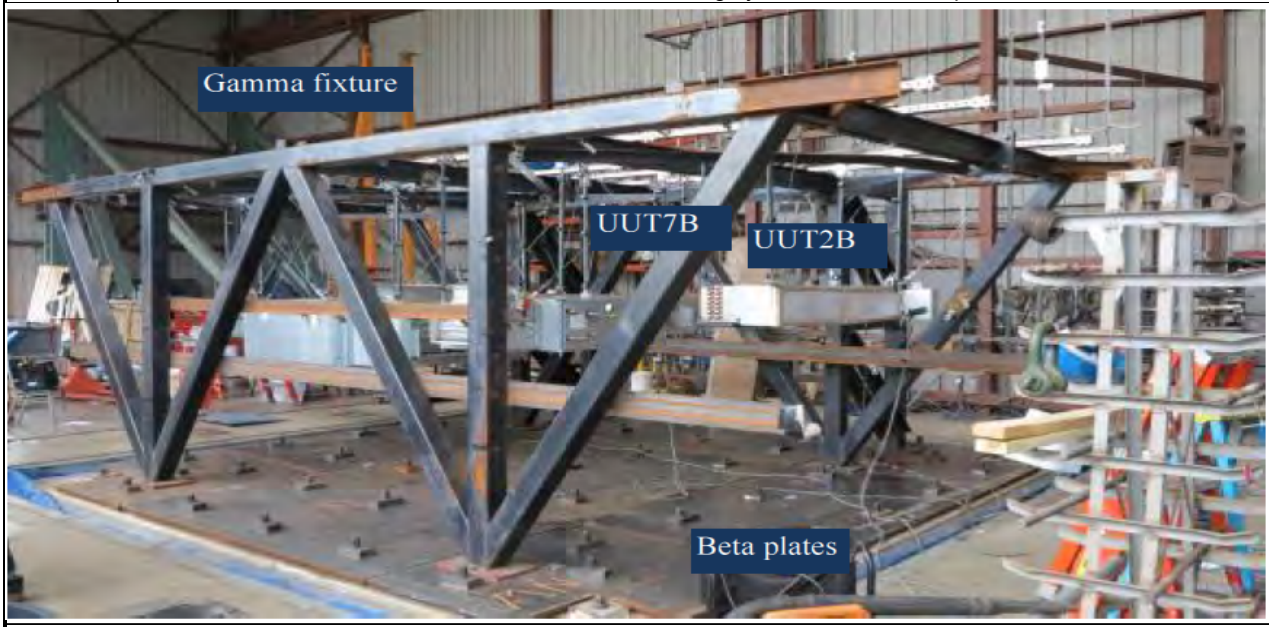
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	30"	88"	15.6"	285 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (6) 5/8" A307 rods, (6) L1x1x1/4 Angle Rod Stiffeners, (18) VMC SRBC-1 Rod Clamps, (4) VMC SB-250 Cable Brackets, (4) 1/4" Cables, (6) VMC HRSA-1B-50 Hanger Box Vibration Isolators

UUT #8A

Manufacturer: Price

Model Series: BCHQ Size 40

Cabinet Construction Summary:

Base:	18 Gauge galvanized carbon steel
Walls:	18 Gauge galvanized carbon steel
Roof:	18 Gauge galvanized carbon steel

Component Summary:

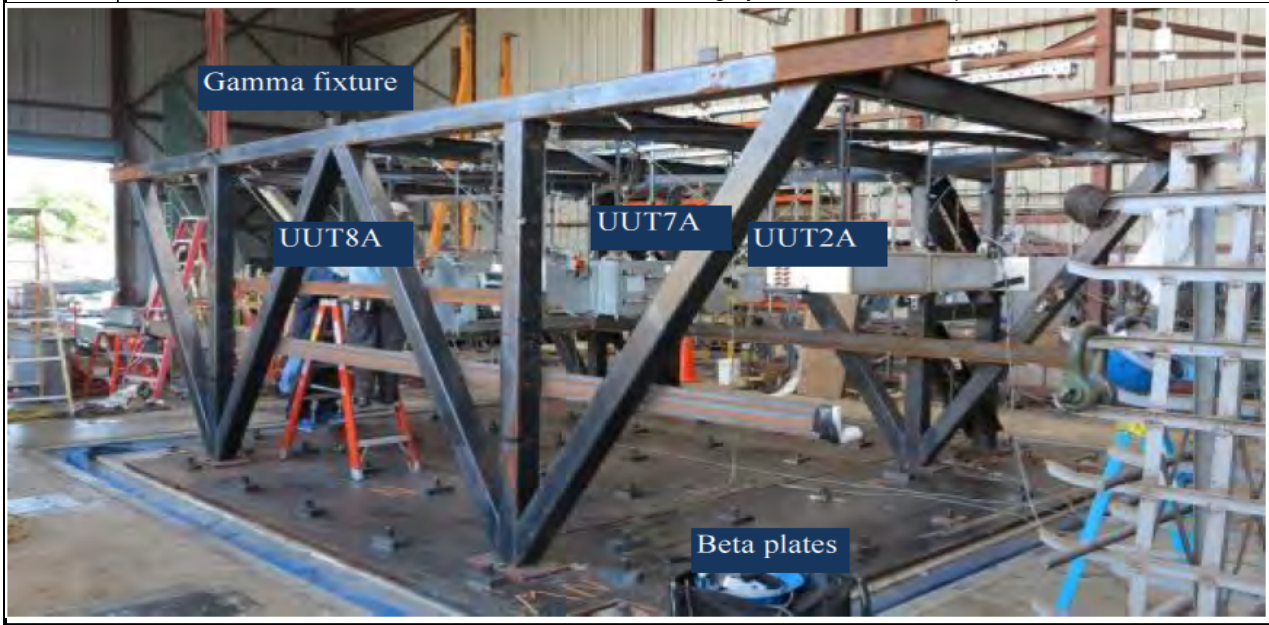
Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	65"	141"	25"	827 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							
Discharge Silencer							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.



UUT Mounting Description:

Ceiling suspended unit, (10) 3/8" A307 rods, (10) L1x1x1/4 Angle Rod Stiffeners, (30) VMC SRBC-1 Rod Clamps, (12) VMC SB-250 Cable Brackets, (12) 1/4" Cables

UUT #8B

Manufacturer: Price

Model Series: BCHQ Size 40

Cabinet Construction Summary:

Base:	18 Gauge galvanized carbon steel
Walls:	18 Gauge galvanized carbon steel
Roof:	18 Gauge galvanized carbon steel

Component Summary:

Item	Dimensions				Lowest Natural Frequency		
	Depth	Width	Height	Weight	F-B	S-S	V
Cabinet	65"	141"	25"	827 lbs	na	na	na
Housed Fan							
Coil							
Electric Heater							
Mixing Box							
Discharge Silencer							

Seismic Test Parameters:

Qualification Method	Sds	z/h	Ip	Aflx-H	Arig-H	Aflx-V	Arig-V
ICC-ES AC156	2.0 / 2.5	1.0 / 0.0	1.5	3.20	2.40	1.68	0.68

Pre/Post Shake Functionality Test Results:

Pre:	PASSED
Post:	All units were full of contents and maintained structural integrity and functional compliance.

UUT Mounting Description:

Ceiling suspended unit, (8) 5/8" A307 rods, (8) L1x1x1/4 Angle Rod Stiffeners, (24) VMC SRBC-1 Rod Clamps, (12) VMC SB-250 Cable Brackets, (12) 1/4" Cables, (8) VMC HRSA-1C-250 Hanger Box Vibration Isolators