APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0385

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Johnson Controls Inc.

Manufacturer's Technical Representative: Tyler Williams

Mailing Address: 8575 Largo Lakes BLVD, Largo, FL 33773

Telephone: (727) 560-9400 Email: tyler.j.williams@jci.com

Product Information

Product Name: Blower Coils: ACB, ACR, AHI, AVI, AVM, AHM, AVD, AVDM, AHD, AHDM; See Attachment

Product Model Number(s): Blower Coils: ACB, ACR, AHI, AVI, AVM, AHM, AVD, AVDM, AHD, AHDM; See Attachment

Product Category: Air Conditioning Units

Product Sub-Category: Fan Coil Units

General Description: Blower coil units containing coils, fans, motors, filters, dampers, electric heat and controls.

Mounting Description: Combination rigidly base and wall mounted, rigidly base mounted, or ceiling suspended

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: Petra Seismic Design

Contact Person: Robert Simmons

Mailing Address: 17832 Mound Rd, Suite E, Cypress, TX 77433

Telephone: (281) 656-1439 Email: rsimmons@petraseismicdesign.com

Title: CEO

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

Company Name: RESPONSE STRUCTURAL ENGINEERS

Name: Todd Kemen California License Number: S5409

Mailing Address: 5441 Fair Oaks Blvd, STE G2, Carmichael, CA 95608

Telephone: (530) 200-4022 Email: toddk@response-eng.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431

Telephone: (775) 358-5085 Email: Kelly@shaketest.com

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44

S_{DS} (Design spectral response acceleration at short period, g) = 1.92

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachments

Overall dimensions and weight = See Attachments

HCAI Approval (For Office Use Only) - Approval Expires on 07/01/2031

Date: 7/1/2025

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: S_{DS} (g) = 1.92 z/h = 1

Condition of Approval (if applicable):

Table 1
Certified Components - Combination Rigid Base and Wall Mount
ACB and ACR Product Families
Manufacturer: Johnson Controls
Certified Product Description: 18 gauge galvanized steel cabinet construction with 1/2" thick fiberglass insulation.
Mounting Description: Combination rigid base and wall mount.

Product Family	UNIT SIZE	Model Number					Dimension (in)					Max Weight (lb)	Mounting	UUT
		JCI	Enviro-Tec	Titus	Krueger	Superior-RX	Base Unit Length	Width	Base Unit Height[a]	Additional Height w/ Inlet Damper	Additional Height w/ Return Plenum			
Blower Coils, ACB (Bottom Return)	8	ACB-08	VB-08	TBL-08	KSL-08	SSL-08	19	26	51	N/A	16	300	Combination rigid base and wall mount	UUT1
	12	ACB-12	VB-12	TBL-12	KSL-12	SSL-12	21	26	51	N/A	16	300-600		Interpolated
	16	ACB-16	VB-16	TBL-16	KSL-16	SSL-16	25	29	59	N/A	16			Interpolated
	20	ACB-20	VB-20	TBL-20	KSL-20	SSL-20	28	29	59	N/A	16			Interpolated
	25	ACB-25	VB-25	TBL-25	KSL-25	SSL-25	28	39	65	N/A	16			Interpolated
	30	ACB-30	VB-30	TBL-30	KSL-30	SSL-30	28	39	65	N/A	16			Interpolated
Blower Coils, ACR (Rear Return)	8	ACR-08	VR-08	TBS-08	KSB-08	SBS-08	23	26	47	14.5	N/A	300-600	Combination rigid base and wall mount	Interpolated
	12	ACR-12	VR-12	TBS-12	KSB-12	SBS-12	25	26	47	17.5	N/A			Interpolated
	16	ACR-16	VR-16	TBS-16	KSB-16	SBS-16	29	29	55	17.5	N/A			Interpolated
	20	ACR-20	VR-20	TBS-20	KSB-20	SBS-20	32	29	55	20.5	N/A			Interpolated
	25	ACR-25	VR-25	TBS-25	KSB-25	SBS-25	32	39	61	20.5	N/A			Interpolated
	30	ACR-30	VR-30	TBS-30	KSB-30	SBS-30	32	39	61	20.5	N/A	600		UUT2

Notes:
a. All units may be installed with an electric heat module, which adds 22 inches to the overall height.

Table 3
Certified Components - Base Mounted Blower Coils
AVI/AVM and AHI/AHM Product Families
Manufacturer: Johnson Controls
Certified Product Description: 18 gauge galvanized steel cabinet construction with 1" thick fiberglass insulation.
Mounting Description: Rigid base mount

Product Family	UNIT SIZE	Belt Drive		Direct Drive					Cabinet Dimensions (in)			Standard Mixing Box Dimensions (in)			Max Weight (lb)	Mounting	UUT
		Model Number[a]		Model Number[a]													
		JCI	Enviro-Tec	JCI	Enviro-Tec	Titus	Krueger	Superior RX	Length[b]	Width	Height	Max Length	Width	Height			
Blower Coils, AVI/AVM	8	AVI/AVM-08	V/VM-08	AVD/AVDM-08	VDD/VDDM-08	TBVD/TBVDM-08	KBVD/KBVDM-08	SBVD/SBVDM-08	28 1/2	30	45	19	30	22	380	Rigid Base	UUT3
	12	AVI/AVM-12	V/VM-12	AVD/AVDM-12	VDD/VDDM-12	TBVD/TBVDM-12	KBVD/KBVDM-12	SBVD/SBVDM-12	28 1/2	36	45	19	36	22	380-950		Interpolated
	16	AVI/AVM-16	V/VM-16	AVD/AVDM-16	VDD/VDDM-16	TBVD/TBVDM-16	KBVD/KBVDM-16	SBVD/SBVDM-16	28 1/2	44	45	19	44	22			Interpolated
	20	AVI/AVM-20	V/VM-20	AVD/AVDM-20	VDD/VDDM-20	TBVD/TBVDM-20	KBVD/KBVDM-20	SBVD/SBVDM-20	34 1/2	50	51	22	50	22			Interpolated
	30	AVI/AVM-30	V/VM-30	AVD/AVDM-30	VDD/VDDM-30	TBVD/TBVDM-30	KBVD/KBVDM-30	SBVD/SBVDM-30	34 1/2	59	57	22	59	31			Interpolated
	40	AVI/AVM-40	V/VM-40	AVD/AVDM-40	VDD/VDDM-40	TBVD/TBVDM-40	KBVD/KBVDM-40	SBVD/SBVDM-40	34 1/2	68	60	24	68	31	950/950		UUT4[c]/UUT44[d]
Blower Coils, AHI/AHM	8	AHI/AHM-08	H/HM-08	N/A	N/A	N/A	N/A	N/A	52 1/2	30	21	19	30	22	390	Rigid Base	UUT31
	12	AHI/AHM-12	H/HM-12	N/A	N/A	N/A	N/A	N/A	52 1/2	36	21	19	36	22	390-970		Interpolated
	16	AHI/AHM-16	H/HM-16	N/A	N/A	N/A	N/A	N/A	52 1/2	44	21	19	44	22			Interpolated
	20	AHI/AHM-20	H/HM-20	N/A	N/A	N/A	N/A	N/A	52 1/2	50	21	22	50	22			Interpolated
	30	AHI/AHM-30	H/HM-30	N/A	N/A	N/A	N/A	N/A	58 1/2	59	30	22	59	31			Interpolated
	40	AHI/AHM-40	H/HM-40	N/A	N/A	N/A	N/A	N/A	58 1/2	68	30	24	68	31	970		UUT32

Notes:
a. M in model number designates a mixing box.
b. All units may be installed with an electric heat module, which adds 22 inches to the overall length.
c. UUT4 corresponds to Model AVM-40.
d. UUT44 corresponds Model AVDM-40. Test was conducted with main cabinet to bookend direct drive fan/motor option.

Table 5
Certified Components - Ceiling Suspended Blower Coils, AHI/AHM Product Families
Manufacturer: Johnson Controls
Certified Product Description: 18 gauge galvanized steel cabinet construction with 1" thick fiberglass insulation.
Mounting Description: Ceiling Suspended

Product Family	Unit SIZE	Belt Drive		Direct Drive					Cabinet Dimension (in)			Standard Mixing box Dimension (in)			Max. Weight (lb)	Mounting	UUT
		Model Number[a]		Model Number[a]													
		JCI	ENVIRO-TEC	JCI	ENVIRO-TEC	TITUS	KRUEGER	SUPERIOR-RX	Length[b]	Width	Height	Max Length	Width	Height			
Blower Coils, AHI/AHM	8	AHI/AHM-08	H/HM-08	AHD/AHDM-08	HDD/HDDM-08	TBHD/TBHDM-08	KBHD/KBHDM-08	SBHD/SBHDM-08	52 1/2	30	21	19	30	22	390	Ceiling Suspended	UUT27
	12	AHI/AHM-12	H/HM-12	AHD/AHDM-12	HDD/HDDM-12	TBHD/TBHDM-12	KBHD/KBHDM-12	SBHD/SBHDM-12	52 1/2	36	21	19	36	22	390-970		Interpolated
	16	AHI/AHM-16	H/HM-16	AHD/AHDM-16	HDD/HDDM-16	TBHD/TBHDM-16	KBHD/KBHDM-16	SBHD/SBHDM-16	52 1/2	44	21	19	44	22			Interpolated
	20	AHI/AHM-20	H/HM-20	AHD/AHDM-20	HDD/HDDM-20	TBHD/TBHDM-20	KBHD/KBHDM-20	SBHD/SBHDM-20	52 1/2	50	21	22	50	22			Interpolated
	30	AHI/AHM-30	H/HM-30	AHD/AHDM-30	HDD/HDDM-30	TBHD/TBHDM-30	KBHD/KBHDM-30	SBHD/SBHDM-30	58 1/2	59	30	22	59	31			Interpolated
	40	AHI/AHM-40	H/HM-40	AHD/AHDM-40	HDD/HDDM-40	TBHD/TBHDM-40	KBHD/KBHDM-40	SBHD/SBHDM-40	58 1/2	68	30	24	68	31	970		UUT28/UUT45[c]

Notes:
a. M in model number designates a mixing box.
b. All units may be installed with an electric heat module, which adds 22 inches to the overall length.
c. Test of UUT45 conducted with main cabinet to bookend direct drive fan/motor option.

Table 2
Certified Subcomponents - Base Mounted Blower Coils
ACB and ACR Product Families
Manufacturer: Johnson Controls, Inc.
Mounting: Combination rigid base and wall mount.

Subcomponent [MFR]	Unit Size	Description	Unit
Coils [JCI] for ACB/VB/TBL/KSL/SSL and ACR/VR/TBS/KSB/SBS Units Notes: 1 Fin Material: Aluminum 2. Coil Casing : Galvanized Carbon Steel 3: Fin Shape: Corrugated 4. Tube Diameter: 0.5" 5. Tube Thickness: 0.016", 0.025" 6. Fins Per Inch: 8-14	8	18"H x 13"W, 4 row water, 1 row steam	UUT1
	12-25	18"H x 13-41"W, 4-6 row water, 1-2 row steam	Interpolated
	30	18"H x 41"W, 6 row water, 2 row steam	UUT 2
Fans [Revcor] for ACB/VB/TBL/KSL/SSL and ACR/VR/TBS/KSB/SBS Units Type: DWDI, Forward Curve Blade Material: Galvanized Carbon Steel Shaft Material: Stainless Steel	8	9" Wheel Diameter	UUT1
	12-25	9" Wheel Diameter	Interpolated
	30	9" Wheel Diameter	UUT 2
Motors [Weg] Belt Drive Material: Powder-coated steel Certified Voltage: 115/208-380 or 460	8	Tested Voltage, 208V; 1HP	UUT1
	12-25	Tested Voltage, N/A; 1 1/2HP	Interpolated
	30	Tested Voltage, 460V; 1 1/2HP	UUT 2
Filters [AAF / Koch] Material: Cotton-based Filter Type: 2" Throwaway	8	Filter Face Area (sq.ft.): 2.2	UUT1
	12	Filter Face Area (sq.ft.): 2.8	Interpolated
	16	Filter Face Area (sq.ft.): 4.0	Interpolated
	20	Filter Face Area (sq.ft.): 4.0	Interpolated
	25	Filter Face Area (sq.ft.): 6.0	Interpolated
	30	Filter Face Area (sq.ft.): 6.0	UUT 2
Dampers [JCI] Material: 14 gage, Galvanized Carbon Steel	8	6"H x 22"W	UUT1
	12	9"H x 22"W	Interpolated
	16	9"H x 25"W	Interpolated
	20	12"H x 25"W	Interpolated
	25	12"H x 35"W	Interpolated
	30	12"H x 35"W	UUT2
Electric Heat [JCI] Certified Voltage: 208 - 460 Material: Stainless Steel frame, Glavanized Steel plates, Internal Wiring rated at 105 degC	8	Tested Voltage, 208V; 5 kW output	UUT1
	12-25	Tested Voltage, N/A; 5-18 kW output	Interpolated
	30	Tested Voltage, 460V;18 kW output	UUT2
Disconnect Switch [ABB] Material: Plastic Cover	OT40[a]	Disconnect switch, 3P 40A 600V	UUT1/UUT2

Notes:
a. Model Number

Table 4
Certified Subcomponents - Base Mounted Blower Coils
AVI/AVM and AHI/AHM Product Families
Manufacturer: Johnson Controls, Inc.
Mounting: Rigid base mount.

Subcomponent [MFR]	Unit Size / Model Number	Description	Unit
Coils [JCI] for AVI/AVM/V/VM/AVD/AVDM/VD/VDDM/TBVD/TBVDM/KBVD/KBVDM/SBVD/SBVDM and AHI/AHM/H/HM Units Notes: 1 Fin Material: Aluminum 2. Coil Casing : Galvanized Carbon Steel 3: Fin Shape: Corrugated 4. Tube Diameter: 0.5" 5. Tube Thickness: 0.016", 0.025" 6. Fin Per Inch: 8-14	8	16"H x 30"W, 2 row max heat. 6 row max cool	UUT3/UUT31
	12-30	16-25"H x 30-68"W, 2 row max heat. 6 row max cool	Interpolated
	40	25"H x 68"W, 2 row max heat. 6 row max cool	UUT4/UUT32/UUT44
Fans [Morrison] forAVD/AVDM/VD/VDDM/TBVD/TBVDM/KBVD/KBVDM/SBVD/SBVDM Units Type: Belt Drive, Double width/Double Inlet, Forward curve Blade Material: Galvanized Carbon Steel Shaft Material: Stainless Steel	8	9" Wheel Diameter	UUT3/UUT31
	12-30	9-13" Wheel Diameter	Interpolated
	40	13" Wheel Diameter	UUT4/UUT32
Fans [Morrison] for AVI/AVM/V/VM/AVD/AVDM/VD/VDDM/TBVD/TBVDM/KBVD/KBVDM/SBVD/SBVDM and AHI/AHM/H/HM Units Type: Direct Drive, Double width/Double Inlet, Forward curve Blade Material: Galvanized Carbon Steel Shaft Material: N/A	8	9" Wheel Diameter	UUT44
	12-30	9"-10" Wheel Diameter	Interpolated
	40	9" & 10" Wheel Diameter	UUT44
Motors [Weg] Belt Drive Material: Powder-coated steel Certified Voltage: 115/208-380 or 460	8	Tested Voltage, 208V; 3/4HP	UUT31
	8	Tested Voltage, 208V; 1HP	UUT3
	12-30	Tested Voltage, N/A; 3/4-5 HP	Interpolated
	40	Tested Voltage, 460V; 5HP	UUT32
Motors [Weg] Direct Drive Material: Painted carbon steel Certified Voltage: 460	8	Tested Voltage, 460V; 1/2-1HP	UUT44
	12-25	Tested Voltage, N/A; 1/2-1 1/2 HP	Interpolated
	40	Tested Voltage, 460V; 1 1/2HP	UUT44
Filters [AAF / Koch] Material: Cotton-based Filter Type: 2" Throwaway	8	Filter Face Area (sq.ft.): 2.2	UUT3/UUT31
	12	Filter Face Area (sq.ft.): 2.8	Interpolated
	16	Filter Face Area (sq.ft.): 4.4	Interpolated
	20	Filter Face Area (sq.ft.): 5.0	Interpolated
	30	Filter Face Area (sq.ft.): 9.0	Interpolated
	40	Filter Face Area (sq.ft.): 10.4	UUT4/UUT32/UUT44
Dampers [JCI] Material: 14 gage, Galvanized Carbon Steel	8	9"H x18"W	UUT3, UUT31
	12	9"H x 24"W	Interpolated
	16	9"H x 30"W	Interpolated
	20	12"H x 36"W	Interpolated
	30	12"H x 45"W	Interpolated
	40	15"H x 48"W	UUT4/UUT32/UUT44
Electric Heat [JCI] Certified Voltage: 208 - 460 Material: Stainless Steel frame, Glavanized Steel plates, Internal Wiring rated at 105 degC	8	Tested Voltage, 208V; 5 kW output	UUT3/UUT31
	12-30	Tested Voltage, N/A; 5-26 kW output	Interpolated
	40	Tested Voltage, 460V;26 kW output	UUT4/UUT32
Airflow Switch [Cleveland Controls] Material: Stainless Steel Housing	DFS-221-198	Airflow Switch	UUT31/UUT32
Switch [Square D] Material: Plastic Cover	PE-01-0025	3POS, CAM 480V 10A KS46B	UUT31/UUT32
Switch [Square D] Material: Plastic Cover	PE-01-0026	NONC CONTACT KA1	UUT31/UUT32
Disconnect Switch [ABB] Material: Plastic Cover	OT40	Disconnect Switch, 3P 40A 600V	UUT31
Disconnect Switch [ABB] Material: Plastic Cover	OT80	Disconnect Switch, 3P 80A 600V	UUT4/UUT32
Starter [Sprecher & Schuh] Material: Plastic Cover	PE-03-3091	Starter, 9A 3POLE 24V	UUT4/UUT32
Contractor [Hartland] Material: Silver cadmium oxide contacts	PE-05-1501	Contractor, 1P 50A 24VAC 9VA 1HP	UUT4/UUT32
Contractor [Hartland] Material: Silver cadmium oxide contacts	PE-05-3351	Contractor, 3P 35A 24VAC 11VA 5HP	UUT4/UUT32
Transformer [Hartland] Material: 130degC class B Insulation	PE-10-6107	Transformer (208/240)/24VAC 75 VA	UUT3/UUT31
Transformer [Hartland] Material: 130degC class B Insulation	PE-10-7107	Transformer 480/24VAC 75VA	UUT4/UUT32
Pilot Tube [Honeywell] Material: Stainless Steel	PH-05-0012	2 1/2" Tube	UUT3/UUT32
Controller, ECM PWM [ICM] Material: aluminum plate/circuit board	PC-01-0142	ECM PWM Controller, Select Speed	UUT44
	PC-01-0165	ECM PWM Controller, Sync Speed	UUT44
3 Phase Line Reactor [MTE] Material: Copper/Painted Carbon Steel	PE-12-0019	3 Phase Line Reactor	UUT44

Table 6
Certified Subcomponents - Ceiling Suspended Blower Coils
AHI and AHM Product Families
Manufacturer: Johnson Controls, Inc.
Mounting: Ceiling Suspended

Subcomponent [MFR]	Unit Size / Model Number	Description	Unit
Coils [JCI] for AHI/AHM/H/HM/AHD/AHDM/HDD/HDDM/TBHD/TBHDM/KBHD/KBHDM/SBHD/SBHDM Units Notes: 1 Fin Material: Aluminum 2. Coil Casing : Galvanized Carbon Steel 3: Fin Shape: Corrugated 4. Tube Diameter: 0.5" 5. Tube Thickness: 0.016", 0.025" 6. Fin Per Inch: 12	8	16"H x 30"W, 2 row max heat. 6 row max cool	UUT27
	12-30	16-25"H x 30-68"W, 2 row max heat. 6 row max cool	Interpolated
	40	25"H x 68"W, 2 row max heat. 6 row max cool	UUT28/UUT45
Fans [Morrison] for AHI/AHM/H/HM Units Type: Belt Drive, Double width/Double Inlet, Forward curve Blade Material: Galvanized Carbon Steel Shaft Material: Stainless Steel	8	9" Wheel Diameter	UUT27
	12-30	9-13" Wheel Diameter	Interpolated
	40	13" Wheel Diameter	UUT28/UUT45
Fans [Morrison] for AHD/AHDM/HDD/HDDM/TBHD/TBHDM/KBHD/KBHDM/SBHD/SBHDM Units Type: Direct Drive, Double width/Double Inlet, Forward curve Blade Material: Galvanized Carbon Steel Shaft Material: N/A	8	9" Wheel Diameter	UUT45
	12-30	9-10" Wheel Diameter	Interpolated
	40	10" Wheel Diameter	UUT45
Motors [Weg] Belt Drive Material: Powder-coated steel Certified Voltage: 115/208-380 or 460	8	Tested Voltage, 208V; 1 HP	UUT27
	12-30	Tested Voltage, N/A; 3/4-5 HP	Interpolated
	40	Tested Voltage, 460V; 5 HP	UUT28
Motors [Broad Ocean] Direct Drive Material: Painted carbon steel Certified Voltage: 208-230 or 460	8	Tested Voltage, 460V; 1/2-1 HP	UUT45
	12-40	Tested Voltage, N/A; 1/2-1 1/2 HP	Interpolated
	40	Tested Voltage, 460V; 1 1/2HP	UUT45
Filters [AAF / Koch] Material: Cotton-based Filter Type: 2" Throwaway	8	Filter Face Area (sq.ft.): 2.2	UUT27
	12	Filter Face Area (sq.ft.): 2.8	Interpolated
	16	Filter Face Area (sq.ft.): 4.4	Interpolated
	20	Filter Face Area (sq.ft.): 5.0	Interpolated
	30	Filter Face Area (sq.ft.): 9.0	Interpolated
	40	Filter Face Area (sq.ft.): 10.4	UUT28/UUT45
Dampers [JCI] Material: 14 gage, Galvanized Carbon Steel	8	9"H x18"W	UUT27
	12	9"H x 24"W	Interpolated
	16	9"H x 30"W	Interpolated
	20	12"H x 36"W	Interpolated
	30	12"H x 45"W	Interpolated
	40	15"H x 48"W	UUT28
Electric Heat [JCI] Certified Voltage: 208 - 460 Material: Stainless Steel frame, Glavanized Steel plates, Internal Wiring rated at 105 degC	8	Tested Voltage, 208V; 5 kW output	UUT27
	12-30	Tested Voltage, N/A; 5-26 kW output	Interpolated
	40	Tested Voltage, 460V;26 kW output	UUT28
Disconnect Switch [ABB] Material: Plastic Cover	OT80	Disconnect Switch, 3P 80A 600V	UUT28
Starter [Sprecher & Schuh] Material: Plastic Cover	PE-03-3091	Starter, 9A 3POLE 24V	UUT28
Contractor [Hartland] Material: Silver cadmium oxide contacts	PE-05-1501	Contractor, 1P 50A 24VAC 9VA 1HP	UUT28
Contractor [Hartland] Material: Silver cadmium oxide contacts	PE-05-3351	Contractor, 3P 35A 24VAC 11VA 5HP	UUT28
Transformer [Hartland] Material: 130degC class B Insulation	PE-10-7107	Transformer 480/24VAC 75 VA	UUT28
Controller, ECM PWM [ICM] Material: aluminum plate/circuit board	PC-01-0165	ECM PWM Controller, Select Speed	UUT45
	PC-01-0141	ECM PWM Controller, Sync Speed	UUT45
3 Phase Line Reactor [MTE] Material: Copper/Painted Carbon Steel	PE-12-0019	3 Phase Line Reactor	UUT45

Table 7
Tested Components - Blower Coils
Manufacturer: Johnson Controls
Tested Product Description: 18 gauge galvanized steel cabinet construction.

Model	Unit SIZE	Dimensions (in)									Weight (lb)	Mounting	UUT	Test		
		Main Cabinet			Electric Heat Module			Standard Mixing Box						Lab[c]	Report	Date
		Length	Width	Height	Length	Width	Height	Length	Width	Height						
ACB-08	8	19	26	67[a]	18 7/8	26	22	N/A	N/A	N/A	300	Combination rigid base and wall mount	UUT1	DCL	90300-1009	12/15/2011
ACR-30	30	52 1/2[b]	39	61	25 5/8	39	22	N/A	N/A	N/A	600	Combination rigid base and wall mount	UUT2	DCL	90300-1009	12/15/2011
AVM-08	8	28 1/2	30	45	22	8 7/8	11 7/8	19	30	22	380	Rigid Base	UUT3	DCL	90300-1009	12/15/2011
AVM-40	40	34 1/2	68	60	22	15 5/8	16 5/8	24	68	31	950	Rigid Base	UUT4	DCL	90300-1009	12/15/2011
AHM-08	8	52 1/2	30	21	22	8 7/8	11 7/8	19	30	22	390	Ceiling Suspended	UUT27	DCL	90300-1009	12/15/2011
AHM-40	40	58 1/2	68	30	22	15 5/8	16 5/8	24	68	31	970	Ceiling Suspended	UUT28	DCL	90300-1009	12/15/2011
AHM-08	8	52 1/2	30	21	22	8 7/8	11 7/8	19	30	22	390	Rigid Base	UUT31	DCL	13001-1303	4/9/2013
AHM-40	40	58 1/2	68	30	22	15 5/8	16 5/8	24	68	31	970	Rigid Base	UUT32	DCL	13001-1303	4/9/2013
AVDM-40	40	34 1/2	68	60	N/A	N/A	N/A	N/A	N/A	N/A	610	Rigid Base	UUT44	DCL	11141-1701	5/7/2019
AHDM-40	40	58 1/2	68	30	N/A	N/A	N/A	N/A	N/A	N/A	640	Ceiling Suspended	UUT45	DCL	11141-1701	5/7/2019

Notes:
a. Includes 16" for return plenum (UUT1).
b. Inludes 20 1/2" for inlet damper (UUT2).
c. Dynamic Certification Laboratories, LLC

UUT - 1 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: ACB-08

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 6"Hx22"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (4 row cold water, 1 row steam)	· 5 kW electric heat
· 9" diameter fan	· Switches
· 208V 1HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	19	26	67*	300 lb
Electric Heat Module	18 7/8	26	22	

* Length includes 16" for return plenum

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
Test Parameters	1.93	1.0	1.5	3.09	2.32	1.29	0.51
Lowest Natural Frequency (Hz)	Front-Back	N/A		Side-Side	N/A	Vertical	N/A

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was attached at the base and the top of the unit, at a vertical distance of approximately 114 inches; therefore, for field installation the unit must have lateral bracing in both orthogonal directions at 114 inches. At its base, the unit was mounted to the shake table interface fixture with 1/2-inch threaded rod through the unit base rail. The rod was threaded into the shake table interface plate at each of the four corners; approximately 29 inches and 19 inches on-center in the long and short directions, respectively, with a standard 1/2-inch nut and washer at each connection to secure the rod to the bottom of the base rail. A 2-foot tall, 9-inch x 12-inch 20-gauge sheet metal duct was attached to the ducted discharge on top of the electric heater with 8 #10 sheet metal screws (two on each side, 7-inches apart on the short side, 10-inches apart on the long side). The sheet metal duct was attached to the DCL fixture frame at the top of the UUT with 4, #14 sheet metal screws (two each on the front and back, spaced 1-inch from the corners).

Test Lab: Dynamic Certification Laboratories, LLC
Report: #90300-1009 (UUT1)
Report Date: 12/15/2011

UUT - 2 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: ACR 30

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 12"Hx35"W, 14 gauge galvanized steel

Options/Component Summary:

- Coils (6 row cold water, 2 row steam)
- 9" diameter fan
- 460V 1.5HP fan motor
- 2" throwaway filter
- Dampers
- 18 kW electric heat
- Switches
- Transformer
- Pitot tube

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	52 1/2*	39	61	600 lb
Electric Heat Module	25 5/8	39	22	

*Length includes 20.5" for inlet damper

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	1.92	1.0	1.5	3.07	2.3	1.28	0.51
Lowest Natural Frequency (Hz)		Front-Back	N/A	Side-Side	N/A	Vertical	N/A

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was attached at the base and the top of the unit, at a vertical distance of approximately 114-inches; therefore, for field installation the unit must have lateral bracing in both orthogonal directions at 114-inches. At its base, the unit was mounted to the shake table interface fixture with 1/2-inch threaded rod through the unit base rail. The rod was threaded into the shake table interface plate at each of the four corners; approximately 52-inches and 43-inches on-center in the long and short directions, respectively, with a standard 1/2-inch nut and washer at each connection to secure the rod to the bottom of the base rail. A 2-foot tall, 16-inch x17-inch 20 gauge sheet metal duct was attached to the ducted discharge on top of the electric heater with 8 #10 metal screws (2 on each side, 7 inches apart on the short side, 10-inches apart on the long side). The sheet metal duct was attached to the DCL fixture frame at the top of the UUT with 4 #14 sheet metal screws (2 each on the front and back, spaced 1-inch from the corners).

Test Lab: Dynamic Certification Laboratories, LLC
Report: #90300-1009 (UUT2)
Report Date: 12/15/2011

UUT - 3 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AVM 08

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 9"Hx18"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (2 rowheating, 6 row cooling)	· 5 kW electric heat
· 9" diameter fan	· Switches
· 208V 1HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

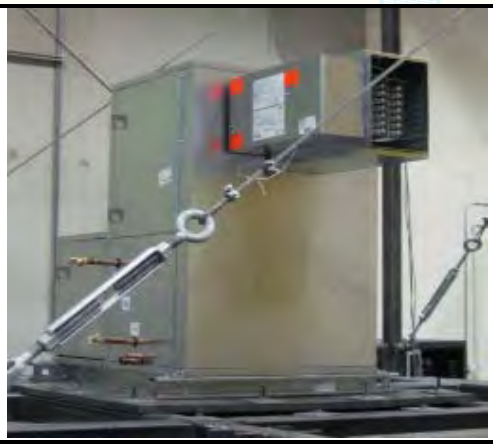
Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	28 1/2	30	45	380 lb
Electric Heat Module	22	8 7/8	11 7/8	
Standard Mixing Box	19	30	22	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	2.5	1.0	1.5	4	3	1.67	0.67
Lowest Natural Frequency (Hz)	Front-Back	10.9		Side-Side	11.9	Vertical	16.5

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.



Unit Mounting Description:

The unit was rigidly base mounted to the shake table interface fixture with 1/2-inch threaded rod through the unit base rail. The rod was threaded into the shake table interface plate at each of the four corners; approximately 47-inches and 34-inches on-center in the long and short directions, respectively, with a standard 1/2-inch nut and washer at each connection to secure the rod to the bottom of the base rail.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #90300-1009 (UUT3)
Report Date: 12/15/2011

UUT - 4 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AVM 40

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 15"Hx48"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (2 row heating, 6 row cooling)	· 26 kW electric heat
· 13" diameter fan	· Switches
· 460V 5HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	34 1/2	68	60	950 lb
Electric Heat Module	22	15 5/8	16 5/8	
Standard Mixing Box	24	68	31	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	1.93	1.0	1.5	3.09	2.32	1.29	0.51
Lowest Natural Frequency (Hz)	Front-Back		6.1	Side-Side	12.1	Vertical	12

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was rigidly base mounted to the shake table interface fixture with 1/2-inch threaded rod through the unit base rail. The rod was threaded into the shake table interface plate at each of the four corners; approximately 72-inches and 58-inches on-center in the long and short directions, respectively, with a standard 1/2-inch nut and washer at each connection to secure the rod to the bottom of the base rail.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #90300-1009 (UUT4)
Report Date: 12/15/2011

UUT - 27 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AHM 08

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 9"Hx18"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (2 row heating, 6 row cooling)	· 5kW electric heat
· 9" diameter fan	· Switches
· 208V 1HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	52 1/2	30	21	390 lb
Electric Heat Module	22	8 7/8	11 7/8	
Standard Mixing Box	19	30	22	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	1.93	1.0	1.5	3.09	2.32	1.29	0.51
Lowest Natural Frequency (Hz)	Front-Back	N/A		Side-Side	N/A	Vertical	N/A

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was ceiling suspended using strut screwed to the top and bottom of the unit (front and back) using #12 sheet metal screws, spaced apprxoimately 6-inches on center. On the top of each of the four corners, (4) 90º, 16 gauge galvanized steel brackets were attached on the side and 4 flat, 16 gauge galvanized steel plates on the top of each corner. Each flat plate overlapped the 90º bracket, and a 1/2-inch threaded rod was attached through each and up into the fixture frame. The threaded rod was spaced at 52-inches and 40-inches in the long and short directions, respectively. Each threaded rod was stiffened using a length of unistrut and B-line 1/2-inch clips, spaced no more than 22-inches on center. Lateral bracing was accomplished using 14 gauge, 45º brackets provded by JCI, 3/16-inch cable with 4 saddle clamps per cable (2 saddle clamps at each connection).

Test Lab: Dynamic Certification Laboratories, LLC
Report: #90300-1009 (UUT27)
Report Date: 12/15/2011

UUT - 28 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AHM 40

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 15"Hx48"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (2 row heating, 6 row cooling)	· 26kW electric heat
· 13" diameter fan	· Switches
· 460V 5HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	58 1/2	68	30	970 lb
Electric Heat Module	22	15 7/8	16 7/8	
Standard Mixing Box	24	68	31	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	1.93	1.0	1.5	3.09	2.32	1.29	0.51
Lowest Natural Frequency (Hz)		Front-Back	N/A	Side-Side	N/A	Vertical	N/A

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

(See next page for seismic kit description and mounting description.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #90300-1009 (UUT28)
Report Date: 12/15/2011

UUT - 28 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AHM 40

Seismic Deisgn Kit:

The mixing box to coil section connection was reinforced using solid 12 gauge, 1-5/8-inch strut bolted to each section using three 1/4-inch hex cap bolts per section per length of strut. Two 14-inch lengths of strut were used per top side for a total of four lengths of strut.

Mounting Descripotion:

Unit was ceiling suspended using solid 12 gauge 1-5/8-inch strut screwed to the top of the unit with #14 sheet metal screws, spaced approximately 3-inches on center. 5/8-inch Grade 2 threaded rod was attached through the manufacturer-provided gauge steel channel on the bottom of the unit and the solid strut screwed to the top of the unit (see bottom-left photo). The approximate length of the threaded rod between the unit and the DCL steel fixture frame was 10-1/2-inches (nut to nut) as shown in the bottom right photo. The unit was braced using 45º 1/4-inch thick galvanized steel angle brackets for strut channel and 3/8-inch diameter general purpose cable (6x19 Class IWRC) with 4 saddle clips per cable (2 clips at each connection). Each bracket was attached to the DCL steel fixture frame using 1/2-inch Grade 5 bolt. The brackets attached to the solid strut at the top of the unit were sandwiched between one 3-inch square 1/4-inch thick plate washer on the bottom and two 4-inch square 1/4-inch thick plate washers on the top as shown in the photo on the bottom right.

UUT - 31 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AHM 08

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 9"Hx18"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (2 row heating, 6 row cooling)	·5kW electric heat
· 9" diameter fan	· Switches
· 208V 1HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	52 1/2	30	21	390 lb
Electric Heat Module	22	8 7/8	11 7/8	
Standard Mixing Box	19	30	22	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	2.5	1.0	1.5	4	3	1.67	0.67
Lowest Natural Frequency (Hz)	Front-Back		26.3	Side-Side	28.0	Vertical	27.8

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was rigidly base mounted to the shake table interface fixture with four 1/2-inch Grade 5 bolts through the unit base rail. The bolts were threaded into the shake table interface plate at each of the four corners, spaced approximately 71-inches and 38-inches on-center in the long and short directions, respectively, with a standard 1/2-inch washer at each connection.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #13001-1303 (UUT31)
Report Date: 4/09/2013

UUT - 32 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AHM 40

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: (Qty = 2); 15"Hx48"W, 14 gauge galvanized steel

Options/Component Summary:

· Coils (2 row heating, 6 row cooling)	·26kW electric heat
·13" diameter fan	· Switches
· 460V 5HP fan motor	· Transformer
· 2" throwaway filter	· Pitot tube
· Dampers	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	58 1/2	68	30	970 lb
Electric Heat Module	22	15 5/8	16 5/8	
Standard Mixing Box	24	68	31	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	2.0	1.0	1.5	3.2	2.40	1.33	0.53
Lowest Natural Frequency (Hz)	Front-Back	12.3	Side-Side	18.5	Vertical	15.8	

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was rigidly base mounted to the shake table interface fixture with four 1/2-inch Grade 5 bolts through the unit base rail. The bolts were threaded into the shake table interface plate at each of the four corners, spaced approximately 82-inches and 76-inches on-center in the long and short directions, respectively, with a standard 1/2-inch washer at each connection.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #13001-1303 (UUT32)
Report Date: 4/09/2013

UUT - 44 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AVDM 40

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: N/A

Options/Component Summary:

· Coils (2 row heating, 6 row cooling) · 9" diameter fan & 10" diameter fan · 460V 1HP fan motor & 1 1/2 HP fan motor · 2" throwaway filter ·Select speed ECM PWM controller, 3 phase line reactor	

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	34 1/2	68	30	610 lb
Electric Heat Module	N/A	N/A	NA	
Standard Mixing Box	N/A	N/A	NA	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	2.0	1.0	1.5	3.2	2.4	1.33	0.53
Lowest Natural Frequency (Hz)		Front-Back	6.5	Side-Side	11.5	Vertical	19.5

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

The unit was rigidly base mounted to the shake table interface fixture with four 1/2-inch Grade 5 bolts through the unit base rail. The bolts were threaded into the shake table interface plate at each of the four corners, spaced approximately 82-inches and 76-inches on-center in the long and short directions, respectively, with a 2"x2"x3/16" low carbon steel plate washer at each connection.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #11141-1701a(UUT44)
Report Date: 5/07/2019

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UUT - 45 TEST RESULT SUMMARY

Manufacturer: Johnson Controls Incorporated

Product Line: Blower Coils

Model Number: AHDM 40

Cabinet Construction Summary:
Panel Construction: 18 gauge galvanized steel (exterior), Fiberglass (interior)
Electrical Enclosure: 18 gauge galvanized steel with hinged door
Dampers: N/A

Options/Component Summary:

- Coils (2 row heating, 6 row cooling)
- 9" diameter fan & 10" diameter fan
- 460V 1HP fan motor & 1 1/2 HP fan motor
- 2" throwaway filter
- Select speed ECM PWM controller, 3 phase line reactor

Component Summary

Item	Length (in)	Width(in)	Height (in)	Operating Weight
Main Cabinet	58 1/2	68	30	640 lb
Electric Heat Module	N/A	N/A	NA	
Standard Mixing Box	N/A	N/A	NA	

Seismic Testing

Test Criteria: ICC-ES AC-156 **Building Code:** CBC 2022

Test Parameters	S_{DS} (g)	z/h	I_p	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
	2.0	1.0	1.5	3.2	2.4	1.33	0.53
Lowest Natural Frequency (Hz)	Front-Back	N/A	Side-Side	N/A	Vertical	N/A	

The UUT was operational before and after shaking and was full of operating content during tests.
The structural integrity of the component and attachment system and force-resisting systems was maintained.

Unit Mounting Description:

Two lengths of 1-5/8-inch 12 gauge solid strut were attached to the top long-side of the unit using 1/4-inch sheet metal screws at 3-inch on-center. A 3/4-inch hole was drilled into each end of the strut to accommodate threaded rod for hanging the unit. The unit was suspended with (4) lengths of 5/8-inch diameter ASTM A307 Grade B threaded rod with two nuts each above and below the strut and base rail through-holes, and at the top of the rod where it attached to the shake table interface frame. The rod was spaced at 74-inch in the long direction of the unit, and the duct was spaced 12-inch from the underside of the shake table interface frame. The duct was laterally braced with 45º 1/4-inch thick angle brackets, 3/8-inch diameter steel cable, and 4 saddle clamps per cable. The brackets were provided by the manufacturer. The angle brackets attached to the strut at the top of the UUT were sandwiched between one 3"x3"x1/4" low carbon steel plate washer on the bottom, and two 4"x4"x1/4" plate washers on the top.

Test Lab: Dynamic Certification Laboratories, LLC
Report: #11141-1701a(UUT45)
Report Date: 5/07/2019