OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0255-10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: YORK Unitary Engineering / Johnson Controls Incorporated

Manufacturer's Technical Representative: Jason Carter, LEED AP, Commercial Product Manager

Mailing Address: 5005 York Drive, Norman, OK 73069

Telephone: (405) 628-9058 Email: jason.m.carter@jci.com

Product Information

Product Name: UPG Packaged Rooftop Units

Product Type: Air handling equipment

Product Model Number: See attachment
(List all unique product identification numbers and/or part numbers)

General Description: The York large Sunline/JCI series 20 family consists of air cooled, outdoor mounted packaged cooling only, MagnaDRY reheat, and heat pump units, ranging from 15 to 25 tons of cooling capacity. The units are factory-available as reheat or cooling only (CO), CO with electric heat, CO with gas heat, and heat pump models with or without electric heat. Seismic enhancement made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Mounted to rigid roof curb or isolated roof curb

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano

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, 2016.

Signature of Applicant: _____ Date: 1/6/17

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: Ken Tarlow California License Number: SE-2851

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

Telephone: (973) 838-1780 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: Dynamic Certification Laboratories

Contact Name: Kelly Laplace, Project Manager

Mailing Address: 1315 Greg Street, Suite 109, Sparks, NV 89431

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

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.5 (on rigid curbs); 4.5 (on spring isolated curbs)

S_{DS} (Design spectral response acceleration at short period, g) = 2.0

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

R_p (Equipment or component response modification factor) = 6.0 (on rigid curbs); 2.0 (on spring isolated curbs

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See attachments

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

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, 2015: ☒ 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, 2022

Signature: _____ Date: 1/24/17

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.0 z/h = 1.0

Condition of Approval (if applicable): _____

Special Seismic Certification
Certified Components

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group (York, Johnson Controls, Coleman, Luxaire, Evcon, Fraser-Johnston, Champion and TempMaster)

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Certified Product Construction:

Cabinet is constructed of G90 galvanized 1,000 hour salt spray (per ASTM-B117) rated powder-coated 20 gage carbon steel wrapper and duct panel with integral corner posts, all attached at the base to four (4) full perimeter 14 gage base rails with #10 sheet metal screws.

Certified Options:

230-575 V, economizer, power exhaust, electric or gas heater, variable frequency drive

Mounting Description:

Mounted to rigid roof curb or isolated roof curb

Product Line	Model Number	Size	Dimensions (inches)				Operating Weight (lb)	Nominal Cooling Capacity (Tons)	Sds (g), z/h=1	Unit
			Top Length	Base Length	Width	Height				
York Small Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus	ZF/ZS/J15ZF/T15	180	125	125	92	48	2,100	15	2.0	UUT6a, b
	XP/XA/J15XP/T15	180	136	136	92	53	2,190			UUT3a, b
	ZJ/ZW/J15ZJ/T15	180	181	136	92	53	2,609-3,340			Interpolated
	ZR/ZK/J15ZR/T15	180	181	136	92	53	2,850			UUT1a, b
	ZF/ZS/J18ZF/T18	210	136	136	92	53	2,006-2,751	17.5		Interpolated
	ZJ/ZW/J18ZJ/T18	210	181	136	92	53	2,665-3,410			Interpolated
	ZF/ZS/J20ZF/T20	240	136	136	92	53	2,533-3,278	20		Interpolated
	XP/XA/J20XP/T20	240	181	136	92	53	2,690			UUT4a, b
	ZJ/ZW/J20ZJ/T20	240	181	136	92	53	2,697-3,442			Interpolated
	ZR/ZK/J20ZR/T20	240	181	136	92	53	2,660-3,405			Interpolated
	ZF/ZS/J25ZF/T25	300	136	136	92	53	2,597-3,342	25		Interpolated
	ZJ/ZW/J25ZJ/T25	300	181	136	92	53	3,320			UUT5a, b
	ZR/ZK/J25ZR/T25	300	181	136	92	53	3,340			UUT2a, b
Predator Air Handling Unit (Standard) [1]	XP078E09A2BAC5	78	89	n/a	59	42	970	6.5	2.5	UUT7a, b

Note:

1. Predator unit listed here for inclusion of Bristol Compressors.

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Subcomponent: Compressors

Compressors				
Model Number	Manufacturer	Description	Material	Unit
HLJ072T 3	Danfoss	Refrigerant Compressor Sys. #1, 200/230V - 3ph	Carbon Steel	6
HLJ072T 4	Danfoss	Refrigerant Compressor Sys. #1, 460V - 3ph	Carbon Steel	Interpolated
HLJ072T 7	Danfoss	Refrigerant Compressor Sys. #1, 575V - 3ph	Carbon Steel	Interpolated
HLJ083T 3	Danfoss	Refrigerant Compressor Sys. #2, 200/230V - 3ph	Carbon Steel	3, 6
HLJ083T 4	Danfoss	Refrigerant Compressor Sys. #2, 460V - 3ph	Carbon Steel	Interpolated
HLJ083T 7	Danfoss	Refrigerant Compressor Sys. #2, 575V - 3ph	Carbon Steel	Interpolated
SH090A 3	Danfoss	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
SH090A 4	Danfoss	Refrigerant Compressor, 460 - 3ph	Carbon Steel	Interpolated
SH090A 7	Danfoss	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
SH120A 3	Danfoss	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
SH120A 4	Danfoss	Refrigerant Compressor, 460 - 3ph	Carbon Steel	Interpolated
SH120A 7	Danfoss	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
SH140A 3	Danfoss	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
SH140A 4	Danfoss	Refrigerant Compressor, 460 - 3ph	Carbon Steel	Interpolated
SH140A 7	Danfoss	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
H83C363DB D	Bristol	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	7
H83C383DB D	Bristol	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
H83C383DB V	Bristol	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
H83C383DB F	Bristol	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
H83R443DB D	Bristol	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
H83R443DB V	Bristol	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
H83R443DB F	Bristol	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
H83R513DB D	Bristol	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
H83R513DB V	Bristol	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
H83R513DB F	Bristol	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
H83R683DB D	Bristol	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
H83R683DB V	Bristol	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
H83R683DB F	Bristol	Refrigerant Compressor, 575V - 3ph	Carbon Steel	5
ZP83KCE TF5	Copeland	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	1
ZP83KCE TFD	Copeland	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
ZP83KCE TFE	Copeland	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
ZP103KCE TF5	Copeland	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
ZP103KCE TFD	Copeland	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
ZP103KCE TFE	Copeland	Refrigerant Compressor, 575V - 3ph	Carbon Steel	Interpolated
ZP137KCE TF5	Copeland	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
ZP137KCE TFD	Copeland	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
ZP137KCE TFE	Copeland	Refrigerant Compressor, 575V - 3ph	Carbon Steel	2
ZP120KCE TF5	Copeland	Refrigerant Compressor, 200/230V - 3ph	Carbon Steel	Interpolated
ZP120KCE TFD	Copeland	Refrigerant Compressor, 460V - 3ph	Carbon Steel	Interpolated
ZP120KCE TFE	Copeland	Refrigerant Compressor, 575V - 3ph	Carbon Steel	4

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Subcomponent: Outdoor fan motors

Outdoor Fan Motors				
Model Number	Manufacturer	Description	Material	Unit
71	Fasco	1/3 HP (208/30V)	Rolled Steel/Cast Iron	Interpolated
71	Fasco	1/3 HP (460V)	Rolled Steel/Cast Iron	Interpolated
71	Fasco	1/3 HP (575V)	Rolled Steel/Cast Iron	2,5
F48R	AO Smith	1/3 HP (208/230V)	Rolled Steel/Cast Iron	1
F48R	AO Smith	1/3 HP (460V)	Rolled Steel/Cast Iron	Interpolated
F48R	AO Smith	1/3 HP (575V)	Rolled Steel/Cast Iron	Interpolated
F48AE	AO Smith	1/2 HP (208/230V)	Rolled Steel/Cast Iron	Interpolated
F48AE	AO Smith	1/2 HP (460V)	Rolled Steel/Cast Iron	Interpolated
F48AE	AO Smith	1/2 HP (575V)	Rolled Steel/Cast Iron	4
#1935	AO Smith	1-1/4 HP (208/230V)	Rolled Steel/Cast Iron	3,6
#1935	AO Smith	1-1/4 HP (460V)	Rolled Steel/Cast Iron	Interpolated
#1935	AO Smith	1-1/4 HP (575V)	Rolled Steel/Cast Iron	Interpolated

Options: ODF Blades - Lau A15 & A18, ODF Grilles - Premier

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Subcomponent: Outdoor coils

Outdoor Coils				
Model Number	Manufacturer	Description (Total Sq Ft x Rows x Qty)	Material	Unit
339316	JCI	Outdoor Coil, 19 x 3 x 1	Copper and Aluminum	6
339617	JCI	Outdoor Coil, 19 x 3 x 1	Copper and Aluminum	6
68631	JCI	Outdoor Coil, 21.6 x 3 x 1	Copper and Aluminum	Interpolated
68630	JCI	Outdoor Coil, 21.6 x 3 x 1	Copper and Aluminum	Interpolated
445398	JCI	Outdoor Coil, 21.6 x 3 x 1	Copper and Aluminum	Interpolated
445399	JCI	Outdoor Coil, 21.6 x 3 x 1	Copper and Aluminum	Interpolated
1664402	JCI	Outdoor Coil, 15.9 x 2 x 2	Copper and Aluminum	5
1664403	JCI	Outdoor Coil, 15.9 x 2 x 2	Copper and Aluminum	5
84568	JCI	Outdoor Coil, 15.9 x 2 x 2	Copper and Aluminum	1, 2
84569	JCI	Outdoor Coil, 15.9 x 2 x 2	Copper and Aluminum	1, 2
544235	JCI	Outdoor Coil, 31.9 x 2 x 1	Copper and Aluminum	3
544239	JCI	Outdoor Coil, 31.9 x 2 x 1	Copper and Aluminum	3
85049	JCI	Outdoor Coil, 15.9 x 2 x 4	Copper and Aluminum	4

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Subcomponent: Indoor coils

Indoor Coils				
Model Number	Manufacturer	Description	Material	Unit
340735	JCI	15.5 Total Square feet-4 Row JCI #340735 fin/tube	Copper and Aluminum	6
335371	JCI	20 Total Square feet- 4 Row JCI #335371 fin/tube	Copper and Aluminum	Interpolated
271576	JCI	20 Total Square feet - 3 row JCI #271576 fin/tube	Copper and Aluminum	1
84680	JCI	20 Total square feet - 4 Row JCI #84680 fin/tube	Copper and Aluminum	Interpolated
546534	JCI	20 Total Suare feet - 4 Row JCI #546534 fin/tube	Copper and Aluminum	3
84660	JCI	20.52 Total Square - 4 Row JCI #84660 fin/tube	Copper and Aluminum	2
83318, 83322	JCI	25 Total Square feet - 4 Row Upper - JCI #83318 fin/tube Lower - JCI #83322 fin/tube	Copper and Aluminum	Interpolated
335373, 335374	JCI	25 Total Square feet - 4 Row Upper - JCI #335373 fin/tube Lower - JCI #335374 fin/tube	Copper and Aluminum	Interpolated
166299, 166298	JCI	25 Total Square feet - 4 Row Upper - JCI #166299fin/tube Lower - JCI #166298 fin/tube	Copper and Aluminum	Interpolated
168192, 168191	JCI	25 Total Square feet - 4 Row Upper - JCI #168192 fin/tube Lower - JCI #168191 fin/tube	Copper and Aluminum	Interpolated
168180, 168179	JCI	25 Total Square feet - 4 Row Upper JCI #168180 fin/tube Lower - JCI #168179 fin/tube	Copper and Aluminum	Interpolated
163917, 163918	JCI	25 Total Square feet - 4 Row Upper - JCI #163917 fin/tube Lower - JCI #163918 fin/tube	Copper and Aluminum	5
84967, 84983	JCI	25 Total Square feet - 4 Row Upper JCI #84967 fin/tube Lower JCI #84983 fin/tube	Copper and Aluminum	4

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Subcomponent: Thermostatic expansion valves, indoor blower motor, VAV, economizer, electric heater, heat cells

Thermostatic Expansion Valves				
Model Number	Manufacturer	Description	Material	Unit
BBIZE	Sporlan	1/2"	Brass	1, 2, 3, 4, 5
BBIZE	Sporlan	3/8"	Brass	Interpolated
#22-7-3/16" caps	Parker Hannifin	3/8"	Brass	6

Indoor Blower Motor				
Model Number	Manufacturer	Description	Material	Unit
184T	AO Smith	5 HP (208/230/460/575V)	Rolled Steel/Cast Iron	1, 3, 6
213T	AO Smith	7.5 HP (208/230/460/575V)	Rolled Steel/Cast Iron	Interpolated
215T	Baldor	10 HP (208/230/460/575V)	Rolled Steel/Cast Iron	4
254T	AO Smith	15 HP (208/230/460/575V)	Rolled Steel/Cast Iron	2, 5

VAV for Indoor Blower Motor				
Model Number	Manufacturer	Description	Material	Unit
GVX005A1-2	Eaton	5 HP 208/230V 3 phase	Plastic	1
GVX005A1-4	Eaton	5 HP 460V 3 phase	Plastic	Interpolated
GVX005A1-5	Eaton	5 HP 575V 3 phase	Plastic	Interpolated
GVX0075A1-2	Eaton	7.5 HP 208/230V 3 phase	Plastic	Interpolated
GVX0075A1-4	Eaton	7.5 HP 460V 3 phase	Plastic	Interpolated
GVX0075A1-5	Eaton	7.5 HP 575V 3 phase	Plastic	Interpolated
GVX010A1-2	Eaton	10 HP 208/230V 3 phase	Plastic	Interpolated
GVX010A1-4	Eaton	10 HP 460V 3 phase	Plastic	Interpolated
GVX010A1-5	Eaton	10 HP 575V 3 phase	Plastic	Interpolated
GVX015A1-2	Eaton	15 HP 208/230V 3 phase	Plastic	Interpolated
GVX015A1-4	Eaton	15 HP 460V 3 phase	Plastic	Interpolated
GVX015A1-5	Eaton	15 HP 575V 3 phase	Plastic	2

Economizer				
Model Number	Manufacturer	Description	Material	Unit
JCI 2EE04703924	JCI	Horizontal Economizer	Galvanized Steel	6
JCI 2EE04703824	JCI	Horizontal Economizer	Galvanized Steel	1, 2, 3, 4, 5
JCI 2MD04702824	JCI	2-Position Economizer	Galvanized Steel	6
JCI 2MD04702624	JCI	2-Position Economizer	Galvanized Steel	1, 2, 3, 4, 5

Electric Heater				
Model Number	Manufacturer	Description	Material	Unit
E18 kW	Tutco	18 kW (208/230V, 460V, or 575V -3ph)	Nickel Chrome Alloy With Galvanized Steel	3
E24 kW	Tutco	24 kW (208/230V, 460V, or 575V -3ph)		Interpolated
E36 kW	Tutco	36 kW (208/230V, 460V, or 575V -3ph)		Interpolated
E54 kW	Tutco	54 kW (208/230V, 460V, or 575V -3ph)		4

Heat Cells (Heat Type and Nominal Heat Capacity)				
Model Number	Manufacturer	Description	Material	Unit
N24	JCI	240 MBH Output, Aluminized Steel, Dual Stage	Aluminized Steel	1
N32	JCI	320 MBH Output, Aluminized Steel, Dual Stage	Aluminized Steel	2
S24	JCI	240 MBH Output, Stainless Steel, Dual Stage	Stainless Steel	5
S32	JCI	320 MBH Output, Stainless Steel, Dual Stage	Stainless Steel	6

Special Seismic Certification
Certified Subcomponents

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Subcomponent: Filters and miscellaneous items

Filters				
Model Number	Manufacturer	Description	Material	Unit
198, 12" x 24"	AAF	2" Fiberglass TA Filter	Fiberglass	4, 5
198, 16" x 20"	AAF	2" Fiberglass TA Filter	Fiberglass	1, 2, 3
198, 16" x 25"	AAF	2" Fiberglass TA Filter	Fiberglass	1, 2, 3
198, 18" x 24"	AAF	2" Fiberglass TA Filter	Fiberglass	6
AmAir 300X, 12" x 24"	AAF	2" Pleated TA Filter	Cotton/polyester	4, 5
AmAir 300X, 16" x 20"	AAF	2" Pleated TA Filter	Cotton/polyester	1, 2, 3
AmAir 300X, 16" x 25"	AAF	2" Pleated TA Filter	Cotton/polyester	1, 2, 3
AmAir 300X, 18" x 24"	AAF	2" Pleated TA Filter	Cotton/polyester	6
AmAir 1300, 12" x 24"	AAF	4" Pleated TA Filter	Cotton/polyester	4, 5
AmAir 1300, 16" x 20"	AAF	4" Pleated TA Filter	Cotton/polyester	1, 2, 3
AmAir 1300, 16" x 25"	AAF	4" Pleated TA Filter	Cotton/polyester	1, 2, 3
AmAir 1300, 18" x 24"	AAF	4" Pleated TA Filter	Cotton/polyester	6

Miscellaneous				
Model Number	Manufacturer	Description	Material	Unit
JCI P226	JCI	Outdoor Fan Speed Controller	Plastic	1, 2
JCI P32AF-2C	JCI	Dirty Filter Switch	Plastic	1, 2, 3, 4, 5, 6
CY017/032/040	Advanced Control	VFDManual Bypass Switch	Plastic	1, 2, 3, 4, 5, 6
FAL/KAL/KDL	Square D	Electrical Disconnect Switch	Plastic	1, 2, 3, 4, 5, 6
AE 00401	Ayrshire	Simplicity 1A G/E Board Controller	Plastic	1, 2, 5, 6
AE 00501	Ayrshire	Simplicity 1A HP Board Controller	Plastic	3, 4
AE 00601	Ayrshire	ZJ/ZW - Four compressor expansion board	Plastic	5
UT 1084-900	United Technologies	Defrost Control Board	Plastic	3, 4
UT 1160-1	United Technologies	Reheat Control Board	Plastic	1, 2
STF-04U	Saginomiya	Reversing Heat Valve	Plastic	3
STF-07U	Saginomiya	Reversing Heat Valve	Plastic	4
PA5083	Parker Hannifin	Suction Line Accumulator	Plastic	3,4
1159-10	United Technologies	ItelliComfort Board	Plastic	3, 4, 5, 6
AE 01206	Ayrshire	VAV Board	Plastic	1, 2
JCI #433716	JCI	Smoke Detector, Supply	Plastic	1, 2, 3, 4, 5, 6
JCI #433717	JCI	Smoke Detector, Return	Plastic	1, 2, 3, 4, 5, 6

Special Seismic Certification
Tested Components

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group (York, Johnson Controls, Coleman, Luxaire, Evcon, Fraser-Johnston, Champion and TempMaster)

Product Line: York Large Sunline / JCI Series 20 Family / FJ ReliaPlus / TempMaster OmniPlus

Tested Product Construction:

Cabinet is constructed of G90 galvanized 1,000 hour salt spray (per ASTM-B117) rated powder-coated 20 gage carbon steel wrapper and duct panel with integral corner posts, all attached at the base to four (4) full perimeter 14 gage base rails with #10 sheet metal screws.

Tested Options:

230-575 V, motor, coils, fans, compressors, refrigeration units

Tested Mounting Description:

Mounted to rigid roof curb or isolated roof curb

Product Line	Model Number	Dimensions (inches)				Operating Weight (lb)	Nominal Cooling Capacity (Tons)	Mount	Sds (g), z/h=1	Unit
		Top Length	Base Length	Width	Height					
York Large Sunline/JCI Series 20 Family	ZR180N24C2DZZ1	181	136	92	53	2,850	15	Rigid Roof Curb	2.0	UUT1a
								Isolated Roof Curb		UUT1b
	ZR300N32N5GZZ1	181	136	92	53	3,340	25	Rigid Roof Curb		UUT2a
								Isolated Roof Curb		UUT2b
	XP180E18A2BAC1	136	136	92	53	2,190	15	Rigid Roof Curb		UUT3a
								Isolated Roof Curb		UUT3b
	XP240E72N5HZZ1	181	136	92	53	2,690	20	Rigid Roof Curb		UUT4a
								Isolated Roof Curb		UUT4b
	ZJ300S32R5BAC1	181	136	92	53	3,320	25	Rigid Roof Curb		UUT5a
								Isolated Roof Curb		UUT5b
	ZF180S24A2BZZ1	125	125	92	48	2,100	15	Rigid Roof Curb		UUT6a
								Isolated Roof Curb		UUT6b
Predator Air Handling Unit (Standard)	XP078E09A2BAC5	89	n/a	59	42	970	6.5	Rigid Roof Curb	2.5	UUT7a
								Isolated Roof Curb		UUT7b

UUT1a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZR180N24C2DZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Reheat MagnaDRY, 230V, 15-ton, W-shaped outdoor coil, four OD fans, two scroll compressors, two refrigeration circuits, 5HP IDB motor, VFD with hot gas bypass, 15"x15" blower wheel, six-tube aluminized gas fired heat exchanger (300MBH, two-stage).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,850	181	136	92	53	6.0	7.5	10.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT1a was tested on a rigid roof curb by Ruskin. The curb had twelve 1/8-inch thick anchoring pockets, four on each side of the long direction of the curb and two on each short side. The unit was attached to each of the pockets using two 1/4-20 x 5-inch self-drilling screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with ten 1/2-inch diameter Grade 5 bolts, one-foot in from each corner and one centered on each of the long sides.

UUT1b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZR180N24C2DZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Reheat MagnaDRY, 230V, 15-ton, W-shaped outdoor coil, four OD fans, two scroll compressors, two refrigeration circuits, 5HP IDB motor, VFD with hot gas bypass, 15"x15" blower wheel, six-tube aluminized gas fired heat exchanger (300MBH, two-stage).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,850	181	136	92	53	4.8	4.5	8.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Isolated roof curb mount

UUT1b was tested on a spring-isolated roof curb by MicroMetl. The curb had eight 10-gage anchoring pockets, four on each long side of the curb. The unit was attached to each of the pockets using seven #12x1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with twelve 1/2-inch diameter Grade 5 bolts, four on each long side of the curb and two on each short side.

UUT2a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZR300N32N5GZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Reheat MagnaDRY, 575V, 25-ton, W-shaped outdoor coil, four OD fans, two scroll compressors, two refrigeration circuits, 15HP IDB motor, VFD with hot gas bypass, VFD manual bypass switch, stainless steel drain pan, 18"x15" blower wheel, eight-tube aluminized gas fired heat exchanger (400MBH).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
3,340	181	136	92	53	5.5	6.5	9.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT2a was tested on a rigid roof curb by MicroMetl. The curb had eight 10-gage anchoring pockets, four on each long side of the curb. The unit was attached to each of the pockets using ten #12x1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with sixteen 3/8-inch diameter Grade 5 bolts, six on each long side of the curb and four on each short side, with each side sharing a bolt on the corners. The bolts were evenly spaced.

UUT2b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZR300N32N5GZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Reheat MagnaDRY, 575V, 25-ton, W-shaped outdoor coil, four OD fans, two scroll compressors, two refrigeration circuits, 15HP IDB motor, VFD with hot gas bypass, VFD manual bypass switch, stainless steel drain pan, 18"x15" blower wheel, eight-tube aluminized gas fired heat exchanger (400MBH).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
3,340	181	136	92	53	4.0	4.3	7.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Isolated roof curb mount

UUT2b was tested on a spring-isolated roof curb by ProVent. The curb had ten 10-gage anchoring pockets, four on each long side of the curb and one on each short side. The unit was attached to each of the pockets using five #14x1-1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with twelve 1/2-inch diameter Grade 5 bolts, four on each long side of the curb and two on each short side. The bolts were evenly spaced.

UUT3a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: XP180E18A2BAC1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Heat pump, 230V, 15-ton, reversing valve assemblies, defrost circuit boards, 18kW 2-stage electric heat section, two OD fans, two scroll compressors, vertical flat fin-tube type OD coils, two refrigeration circuits, 5HP IDB motor, 18"x15" blower wheel, TXVs.

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,190	136	136	92	53	6.3	6.0	9.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT3a was tested on a rigid roof curb by MicroMetl. The curb had eight 10-gage anchoring pockets, four on each long side of the curb. The unit was attached to each of the pockets using ten #12x1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with sixteen 3/8-inch diameter Grade 5 bolts, six on each long side of the curb and four on each short side, with each side sharing a bolt on the corners. The bolts were evenly spaced.

UUT3b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: XP180E18A2BAC1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Heat pump, 230V, 15-ton, reversing valve assemblies, defrost circuit boards, 18kW 2-stage electric heat section, two OD fans, two scroll compressors, vertical flat fin-tube type OD coils, two refrigeration circuits, 5HP IDB motor, 18"x15" blower wheel, TXVs.

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,190	136	136	92	53	5.5	5.3	8.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Isolated roof curb mount

UUT3b was tested on a spring-isolated roof curb by ProVent. The curb had ten 10-gage anchoring pockets, four on each long side of the curb and one on each short side. The unit was attached to each of the pockets using five #14x1-1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with twelve 1/2-inch diameter Grade 5 bolts, four on each long side of the curb and two on each short side. The bolts were evenly spaced.

UUT4a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: XP240E72N5HZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Heat pump, 575V, reversing valve assemblies, defrost circuit boards, Intelli-Comfort BAS communications board, 72kW 2-stage electric heat section, four OD fans, two scroll compressors, W-shaped fin-tube type OD coils, two refrigeration circuits, TXVs, 10HP high static IDB motor.

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,690	181	136	92	53	5.0	5.8	8.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT4a was tested on a rigid roof curb by MicroMetl. The curb had eight 10-gage anchoring pockets, four on each long side of the curb. The unit was attached to each of the pockets using ten #12x1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with sixteen 3/8-inch diameter Grade 5 bolts, six on each long side of the curb and four on each short side, with each side sharing a bolt on the corners. The bolts were evenly spaced.

UUT4b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: XP240E72N5HZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Heat pump, 575V, reversing valve assemblies, defrost circuit boards, Intelli-Comfort BAS communications board, 72kW 2-stage electric heat section, four OD fans, two scroll compressors, W-shaped fin-tube type OD coils, two refrigeration circuits, TXVs, 10HP high static IDB motor.

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,690	181	136	92	53	4.0	4.0	7.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Isolated roof curb mount

UUT4b was tested on a spring-isolated roof curb by ProVent. The curb had ten 10-gage anchoring pockets, four on each long side of the curb and one on each short side. The unit was attached to each of the pockets using five #14x1-1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with twelve 1/2-inch diameter Grade 5 bolts, four on each long side of the curb and two on each short side. The bolts were evenly spaced.

UUT5a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZJ300S32R5BAC1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Cooling only, 25-ton, W-shaped outdoor coil, four OD fans, four scroll compressors, four refrigeration circuits, 15HP IDB motor, 18"x15" blower wheel, stainless steel eight tube gas fired heat exchanger (400MBH).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
3,320	181	136	92	53	5.5	6.8	8.8

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT5a was tested on a rigid roof curb by Ruskin. The curb had twelve 1/8-inch thick anchoring pockets, four on each side of the long direction of the curb and two on each short side. The unit was attached to each of the pockets using two 1/4-20 x 5-inch self-drilling screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with ten 1/2-inch diameter Grade 5 bolts, one-foot in from each corner and one centered on each of the long sides.

UUT5b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZJ300S32R5BAC1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Cooling only, 25-ton, W-shaped outdoor coil, four OD fans, four scroll compressors, four refrigeration circuits, 15HP IDB motor, 18"x15" blower wheel, stainless steel eight tube gas fired heat exchanger (400MBH).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
3,320	181	136	92	53	3.8	3.5	7.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Isolated roof curb mount

UUT5b was tested on a spring-isolated roof curb by MicroMetl. The curb had eight 10-gage anchoring pockets, four on each long side of the curb. The unit was attached to each of the pockets using seven #12x1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with twelve 1/2-inch diameter Grade 5 bolts, four on each long side of the curb and two on each short side.

UUT6a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZF180S24A2BZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Cooling only, 15-ton, 5HP IDB motor, two scroll compressors, two OD fans, two refrigeration units, 15"x15" blower wheel, stainless steel six-tube gas-fired heat exchanger (300MBH).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,100	125	125	92	48	8.8	10.0	11.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT6a was tested on a rigid roof curb by Ruskin. The curb had twelve 1/8-inch thick anchoring pockets, four on each side of the long direction of the curb and two on each short side. The unit was attached to each of the pockets using two 1/4-20 x 5-inch self-drilling screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with ten 1/2-inch diameter Grade 5 bolts, one-foot in from each corner and one centered on each of the long sides.

UUT6b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Unitary Product Group

Product Line: York Large Sunline/JCI Series 20

Model Number: ZF180S24A2BZZ1

Product Construction Summary:

Cabinet is constructed of G90 galvanized steel, with powder-coated finish, certified at 1,000 hours salt spray test per ASTMB 117.

Options / Component Summary:

Cooling only, 15-ton, 5HP IDB motor, two scroll compressors, two OD fans, two refrigeration units, 15"x15" blower wheel, stainless steel six-tube gas-fired heat exchanger (300MBH).

UUT Properties

Operating Weight (lb)	Dimensions (inches)				Lowest Natural Frequency (Hz)		
	Top Length	Base Length	Width	Height	Front-Back	Side-Side	Vertical
2,100	125	125	92	48	5.3	5.0	8.0

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.00	1.0	1.5	3.2	2.4	1.33	0.53

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Isolated roof curb mount

UUT6b was tested on a spring-isolated roof curb by MicroMetl. The curb had eight 10-gage anchoring pockets, four on each long side of the curb. The unit was attached to each of the pockets using seven #12x1/2-inch TEK screws. The curb was attached to the 3/4-inch thick steel shake table interface plate with twelve 1/2-inch diameter Grade 5 bolts, four on each long side of the curb and two on each short side.

UUT7a
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: XP078E09A2BAC5

Product Construction Summary:

Cabinet is constructed of G90 galvanized 1,000 hour salt spray (per ASTM-B117) rated powder-coated 20 gage carbon steel wrapper and duct panel with integral corner posts, all attached at the base to four (4) full perimeter 14 gage base rails with #10 sheet metal screws.

Options / Component Summary:

6.5 ton standard heat pump unit with 9kW electric heat section, 230V, finned/tube OD coils, IDB motor, 12”x12“ wide blower wheel, fin/tube OD coils, dual scroll type compressors, and dual refrigeration circuits. The unit uses TXV for modulating refrigerant control on both ID/OD coils. A standard controller, standard plastic drain pan, 2” fiberglass TA air filters and dual outdoor fan (ODF) motor deck arrangement were used.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
970	89	59	42	12.3	8.3	13.8

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.5	1.0	1.5	4	3	1.67	0.67

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Rigid roof curb mount

UUT7a was mounted to a rigid roof curb supplied by Ruskin. The unit rested on the perimeter of the curb. The curb had (12) 12Ga anchoring pockets, (2) on the each of the short sides of the curb and (4) on each of the long sides of the curb. The unit was attached to each of the pockets using (2) # 14 - 5 inch long self tapping screws. The curb was attached to a 3/4" thick steel plate with (8) 3/8"-dia Gr. 2 bolts. There were two bolts on each side of the unit. The bolts were mounted five inches inward from the edge of the curb flange. The steel plate was attached to the shake table with (22) M12 threaded studs.

UUT7b
Summary Sheet

DCL Dynamic Certification Laboratories

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: XP078E09A2BAC5

Product Construction Summary:

Cabinet is constructed of G90 galvanized 1,000 hour salt spray (per ASTM-B117) rated powder-coated 20 gage carbon steel wrapper and duct panel with integral corner posts, all attached at the base to four (4) full perimeter 14 gage base rails with #10 sheet metal screws.

Options / Component Summary:

6.5 ton standard heat pump unit with 9kW electric heat section, 230V, finned/tube OD coils, IDB motor, 12”x12“ wide blower wheel, fin/tube OD coils, dual scroll type compressors, and dual refrigeration circuits. The unit uses TXV for modulating refrigerant control on both ID/OD coils. A standard controller, standard plastic drain pan, 2” fiberglass TA air filters and dual outdoor fan (ODF) motor deck arrangement were used.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
970	89	59	42	2.8	2.5	3.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.5	1.0	1.5	4	3	1.67	0.67

Note: The UUT was filled with operating fluid for the seismic simulation test and was operational before and after shaking. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description: Flexible roof curb mount

UUT7b was mounted to an isolated roof curb supplied by Ruskin. The unit rested on the perimeter of the curb. The curb had (6) 10Ga anchoring pockets, (2) on the each of the long side of the curb and (1) on each short side. The unit was attached to each of the pockets using (4) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (8) 3/8"-dia Gr. 5 bolts. The bolts were spaced 5-inches in from each side of the curb. The steel plate was attached to the shake table with (12) M12 threaded studs.