



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY
APPLICATION #: OSP - 0213

OSHPD Special Seismic Certification Preapproval (OSP)

Type: [] New [X] Renewal

Manufacturer Information

Manufacturer: Johnson Controls Inc. (JCI)

Manufacturer's Technical Representative: Cameron Boyce, Engineer II

Mailing Address: 5005 Interstate Drive, Norman, OK, 73069

Telephone: (405) 419-6830 Email: cameron.w.boyce@jci.com

Product Information

Product Name: Predator Rooftop Air Conditioning Units

Product Type: Packaged Air Conditioning Units

Product Model Number: See attached

(List all unique product identification numbers and/or part numbers)

General Description: The units are enclosures with the following subcomponents: refrigerant compressors, outdoor fan motors, indoor coils, outdoor coils, reversing valve with coil, thermostatic expansion valves, standard indoor blower motor, Variable frequency drive indoor blower motor, exhaust fan motor, variable frequency drive, economizer, electric heater, heat cells, filters, and other miscellaneous items included in the subcomponent tables.

Mounting Description: Units are rigid curb and isolated curb base mounted

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano

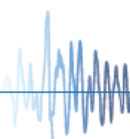
Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

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: [Signature] Date: 8/28/19
Title: President Company Name: The VMC Group

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





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

Company Name: The VMC Group

Name: Kenneth Tarlow California License Number: SE-2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

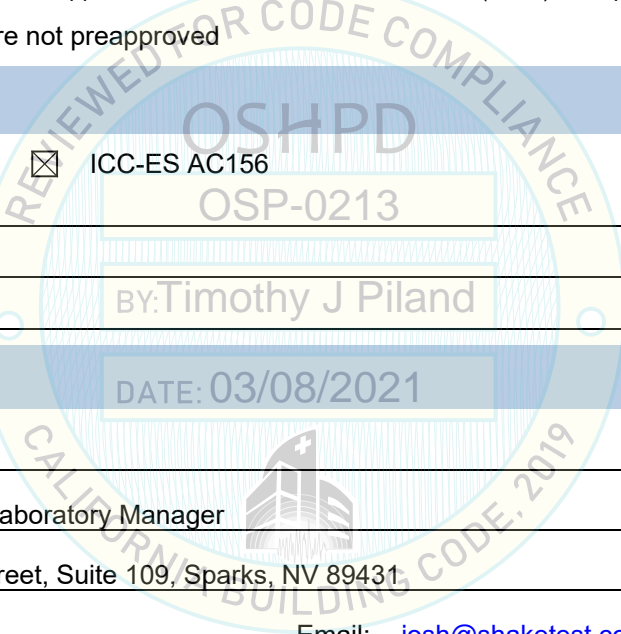
Telephone: (973) 838-1780 Email: ken.tarlow@thevmcgroup.com

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): _____



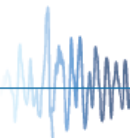
Testing Laboratory

Company Name: DCL Labs

Contact Name: Josh Sailer, Laboratory Manager

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

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





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Seismic Parameters

Design in accordance with ASCE 7-16 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = Rigid Curb = 1.5; Spring Isolated Curb = 4.5

S_{DS} (Design spectral response acceleration at short period, g) = 2.00

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

R_p (Equipment or component response modification factor) = Rigid Curb = 6.0; Spring Isolated Curb = 2.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See attachment

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

Equipment or Components @ grade designed in accordance with ASCE 7-16 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, 2025

Signature: Date: March 8, 2021

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.00 z/h = 1

Condition of Approval (if applicable): _____

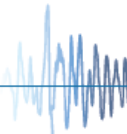


Table 1 - Certified Components

Manufacturer: Johnson Controls and other Unitary Product Group brands (York, Coleman, Luxaire, Evcon, Fraser-Johnston and Ready Ship)

Product Line: JCI Packaged Rooftop Units

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.

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

Mounting Description: Rigid or Flexible Curb Mounting

Product Line	Model Number ²	Dimensions (inches)			Operating Weight (lb)	Nominal Cooling Capacity (Tons)	Sds (g), z/h=1	Unit
		Depth	Width	Height				
Predator Air Handling Units (Short)	ZH/ZU/JA3 037	89	59	42	860 ¹	3	2.0	3
	ZI/ZW/JA3 037	89	59	42	740	3		Interpolated
	ZR/ZK/JA3 037	89	59	42	980 ¹	3		1
	ZT/ZV/JA3 037	89	59	42	922	3		Interpolated
	ZH/ZU/JA4 049	89	59	42	763	4		Interpolated
	ZI/ZW/JA4 049	89	59	42	762	4		Interpolated
	ZR/ZK/JA4 049	89	59	42	880	4		Interpolated
	ZT/ZV/JA4 049	89	59	42	960	4		Interpolated
	ZH/ZU/JA5 061	89	59	42	772	5		Interpolated
	ZI/ZW/JA5 061	89	59	42	1,070 ¹	5		4
ZR/ZK/JA5 061	89	59	42	1,070 ¹	5	2		
ZT/ZV/JA5 061	89	59	42	968	5	Extrapolated		
Predator Air Handling Units (Standard)	XP/XA/J06 078	89	59	42	970 ¹	6.5	2.0	7
	ZF/ZS/J06 078	89	59	42	1,090 ¹	6.5		10
	ZH/ZU/J06 078	89	59	42	910	6.5		Interpolated
	ZI/ZW/J06 078	89	59	51	1030	6.5		Interpolated
	ZR/ZK/J06 078	89	59	51	1,060 ¹	6.5		5
	ZF/ZS/J07 090	89	59	42	860	7.5		Interpolated
	ZH/ZU/J07 090	89	59	42	910	7.5		Interpolated
	ZI/ZW/J07 090	89	59	51	1,081	7.5		Interpolated
	XP/XA/J07 090	89	59	42	920	7.5		Interpolated
	ZR/ZK/J07 090	89	59	42	965	7.5		Interpolated
	ZF/ZS/J08 102	89	59	51	1,020	8.5		Interpolated
	ZH/ZU/J08 102	89	59	51	1,030	8.5		Interpolated
	ZI/ZW/J08 102	89	59	51	1,060	8.5		Interpolated
	XP/XA/J08 102	89	59	51	1,135	8.5		Interpolated
	ZR/ZK/J08 102	89	59	51	1,200	8.5		Interpolated
	ZF/ZS/J10 120	89	59	51	1,060	10		Interpolated
	ZH/ZU/J10 120	89	59	51	1,090	10		Interpolated
	ZI/ZW/J10 120	89	59	51	1,070	10		Interpolated
	XP/XA/J10 120	89	59	51	1,135	10		Interpolated
	ZR/ZK/J10 120	89	59	51	1,200	10		Interpolated
ZF/ZS/J12 150	119.5	59	51	1,253	12.5	Interpolated		
ZH/ZU/J12 150	119.5	59	51	1,250 ¹	12.5	11		
XP/XA/J12 150	119.5	59	51	1,510 ¹	12.5	8		
ZI/ZW/J12 150	119.5	59	51	1,570 ¹	12.5	9		
ZR/ZK/J12 150	119.5	59	51	1,600 ¹	12.5	6		
Predator Air Handling Units (Ultra High Efficiency)	ZT/ZV 120	119.5	59	51	1,470 ¹	10	2.0	12
	ZT/ZV 078	119.5	59	51	1,550	6.5		Interpolated
	ZT/ZV 090	119.5	59	51	1,550	7.5		Interpolated
	ZT/ZV 102	119.5	59	51	1,575	8.5		Interpolated
	ZT/ZV 150	119.5	59	51	1,680 ¹	12.5		13

1. Weights listed for tested units are actual, not approximate weights. The weights listed for interpolated units are maximum weights, assuming all optional features are included. Optional features are summarized in the table below.

2. Model numbers are generalized for each type of unit and the associated BTU tonnage that the unit can output.

Unit Accessory	Operating Weight (lbs.)
Economizer	85
Power Exhaust	35
Electric Heat	49
Gas Heat	110
Variable Frequency Drive	30

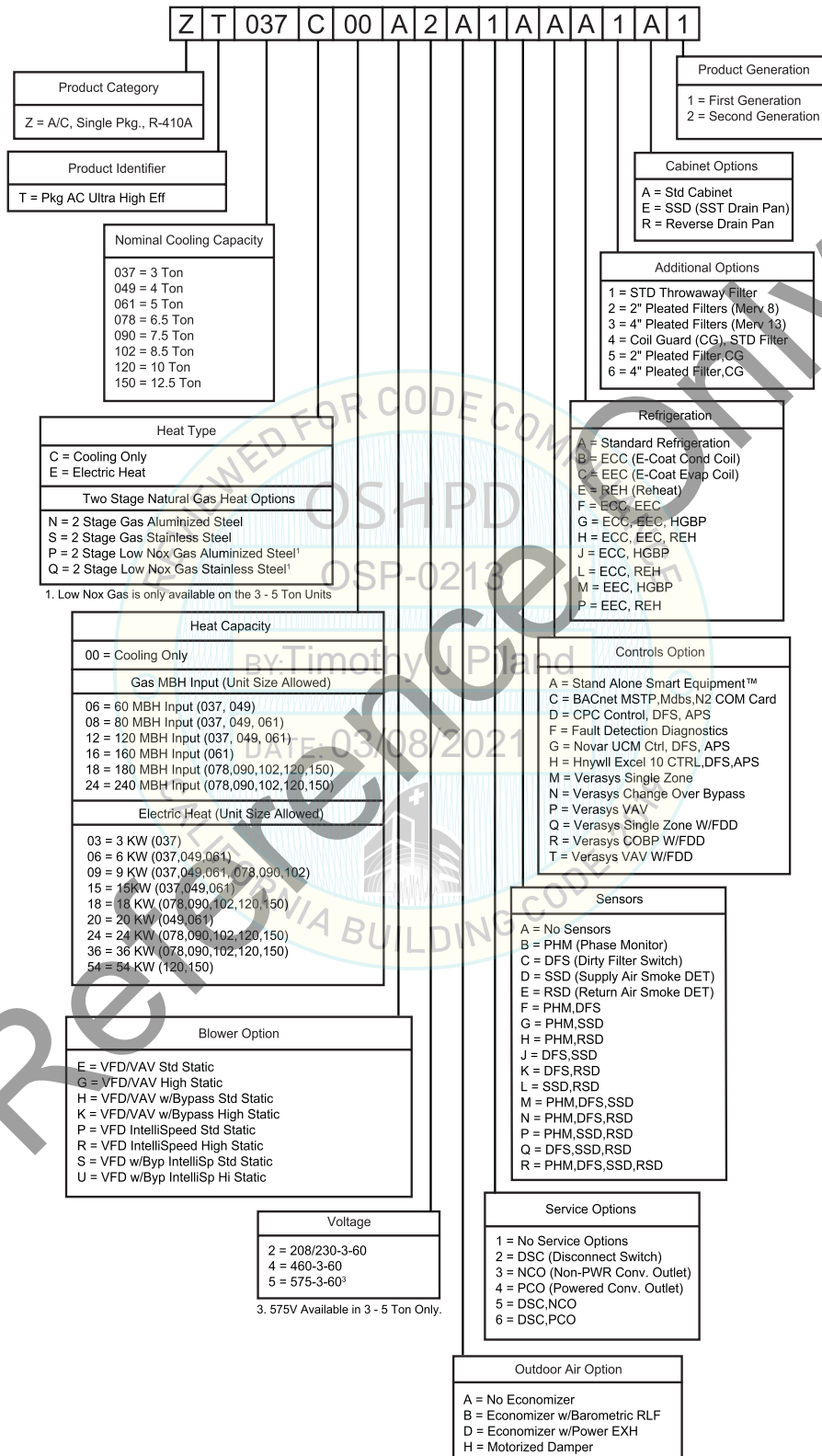
1. Weight given is for the maximum electric heater size available.

2. Weight given for the gas heater is for the maximum number of tube heat exchangers available (8 tube).

3. Weight includes mounting hardware, controls and manual bypass option.

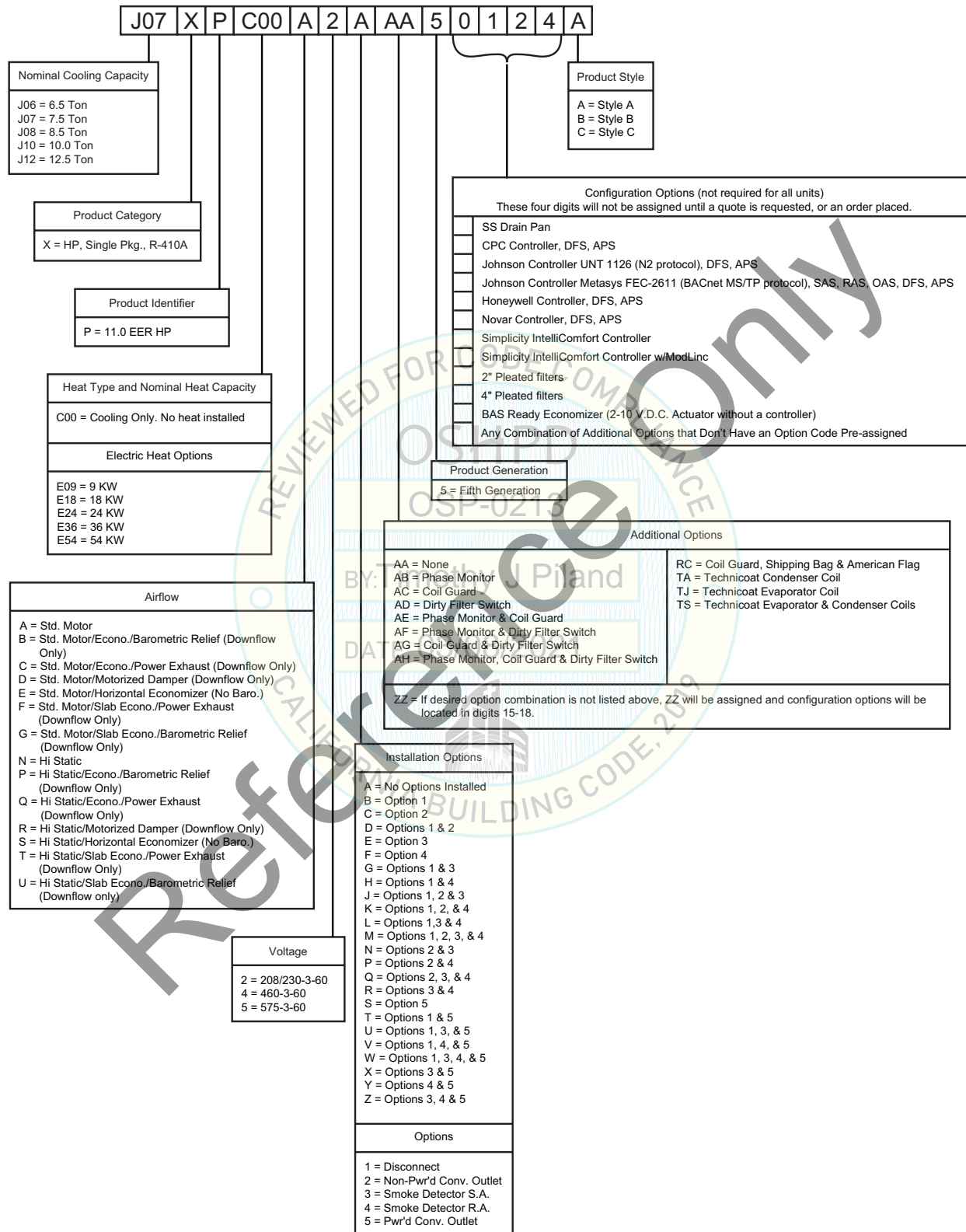
Nomenclature

3-12.5 Ton York® Model Number Nomenclature



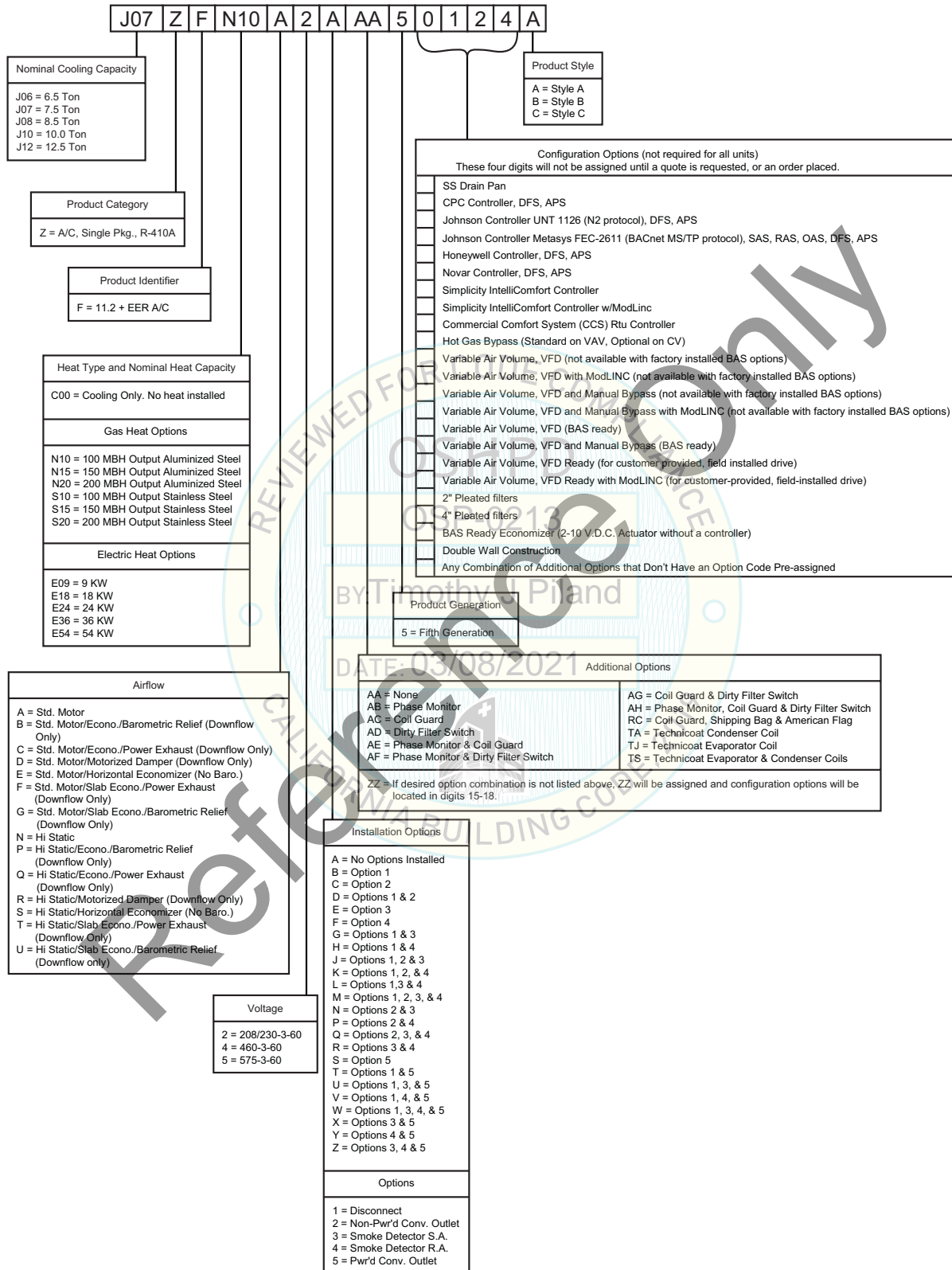
Nomenclature

6.5-12.5 Ton Series 10 Model Number Nomenclature



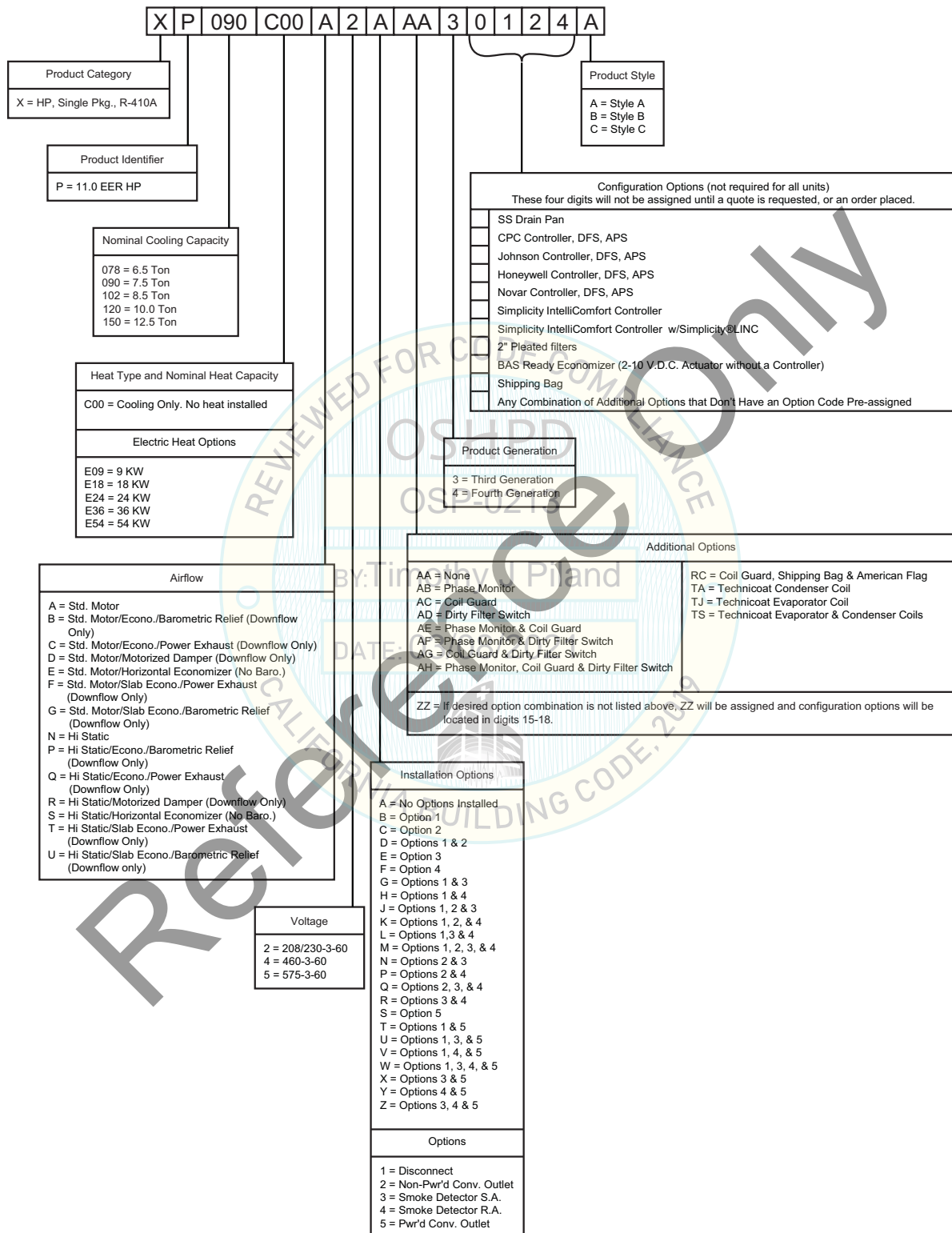
Nomenclature

6.5-12.5 Ton Series 10 Model Number Nomenclature



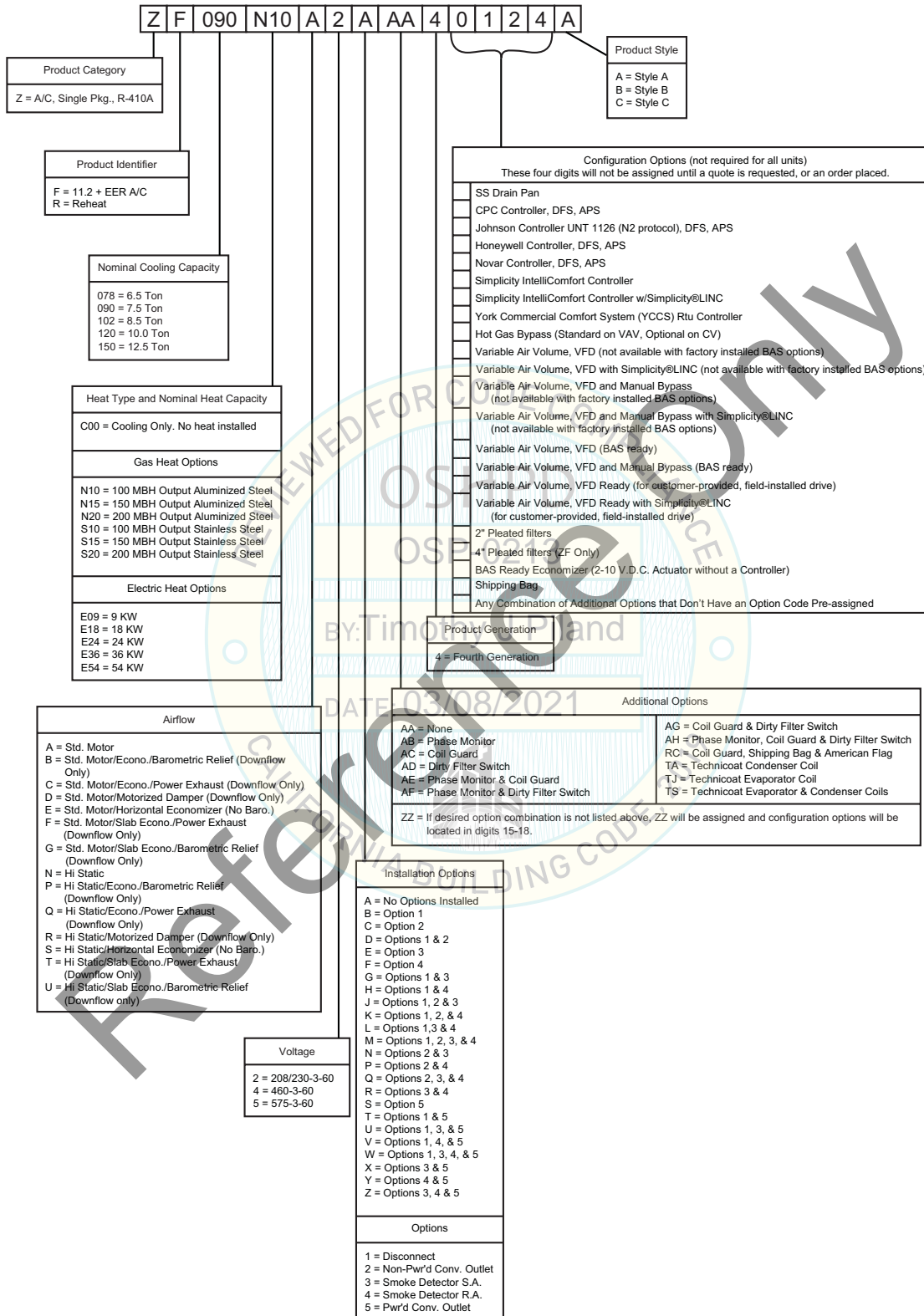
Nomenclature

6.5-12.5 Ton York® Model Number Nomenclature



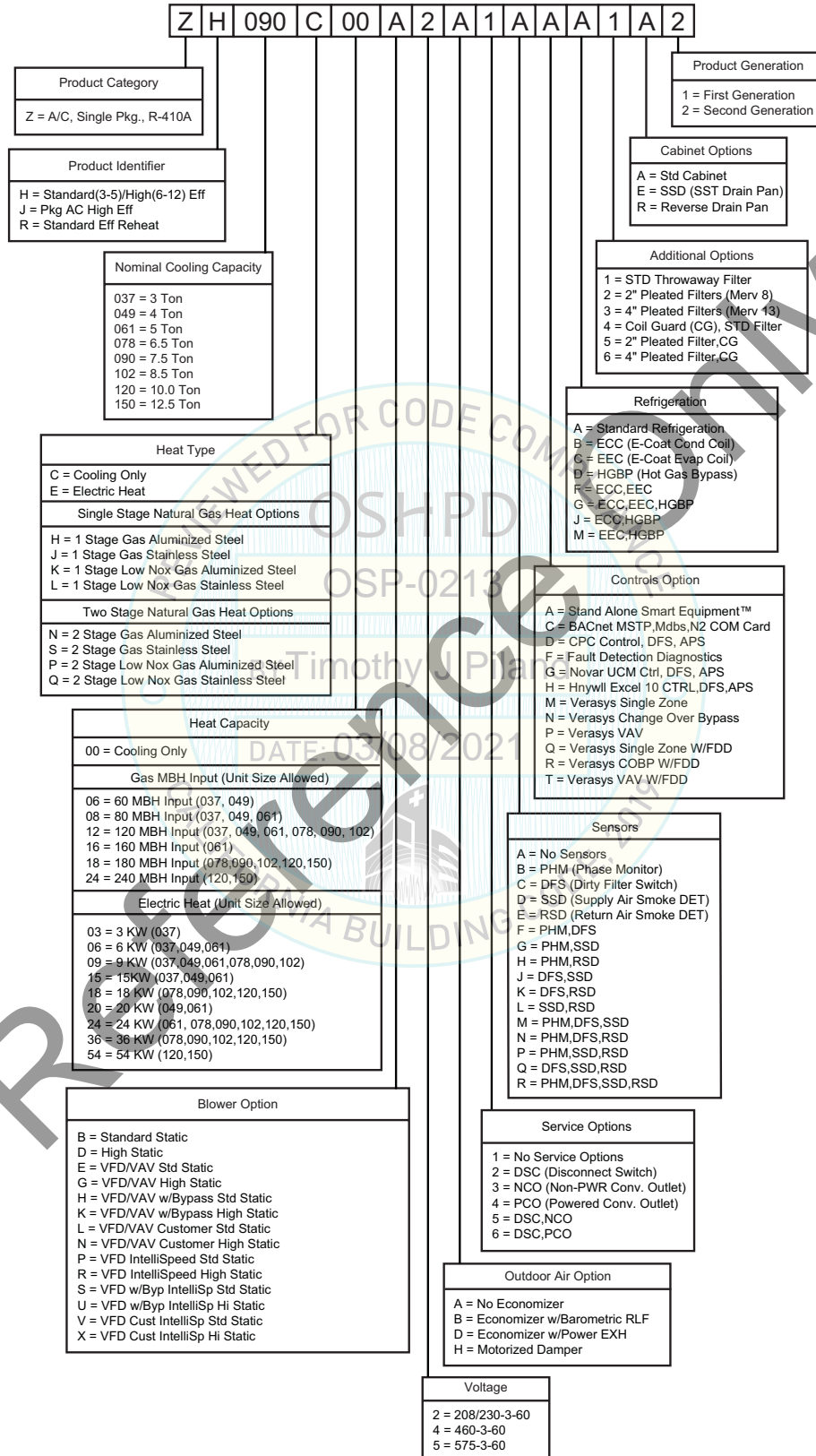
Nomenclature

6.5-12.5 Ton York® Model Number Nomenclature



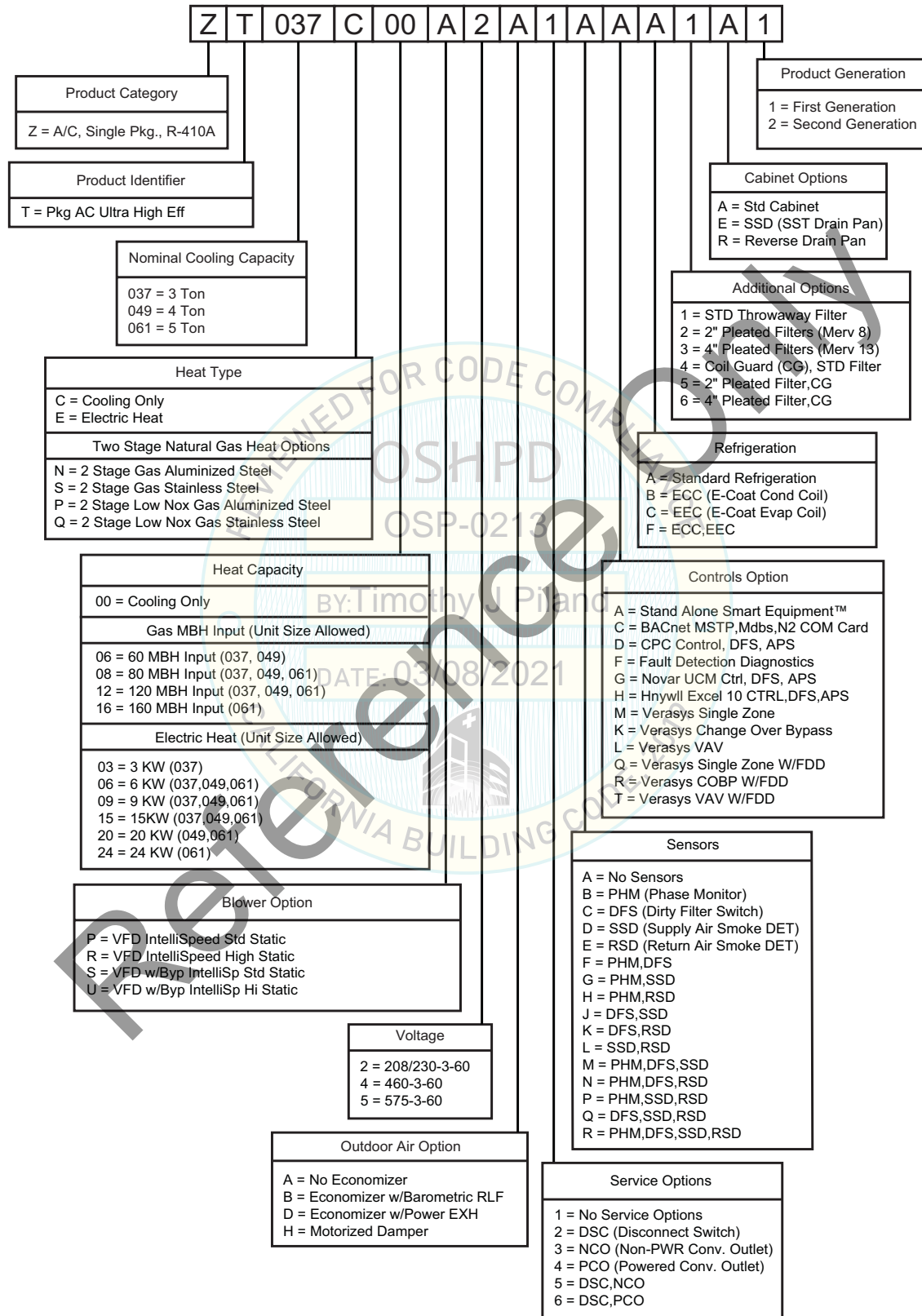
Nomenclature

3-12.5 Ton York® Model Number Nomenclature



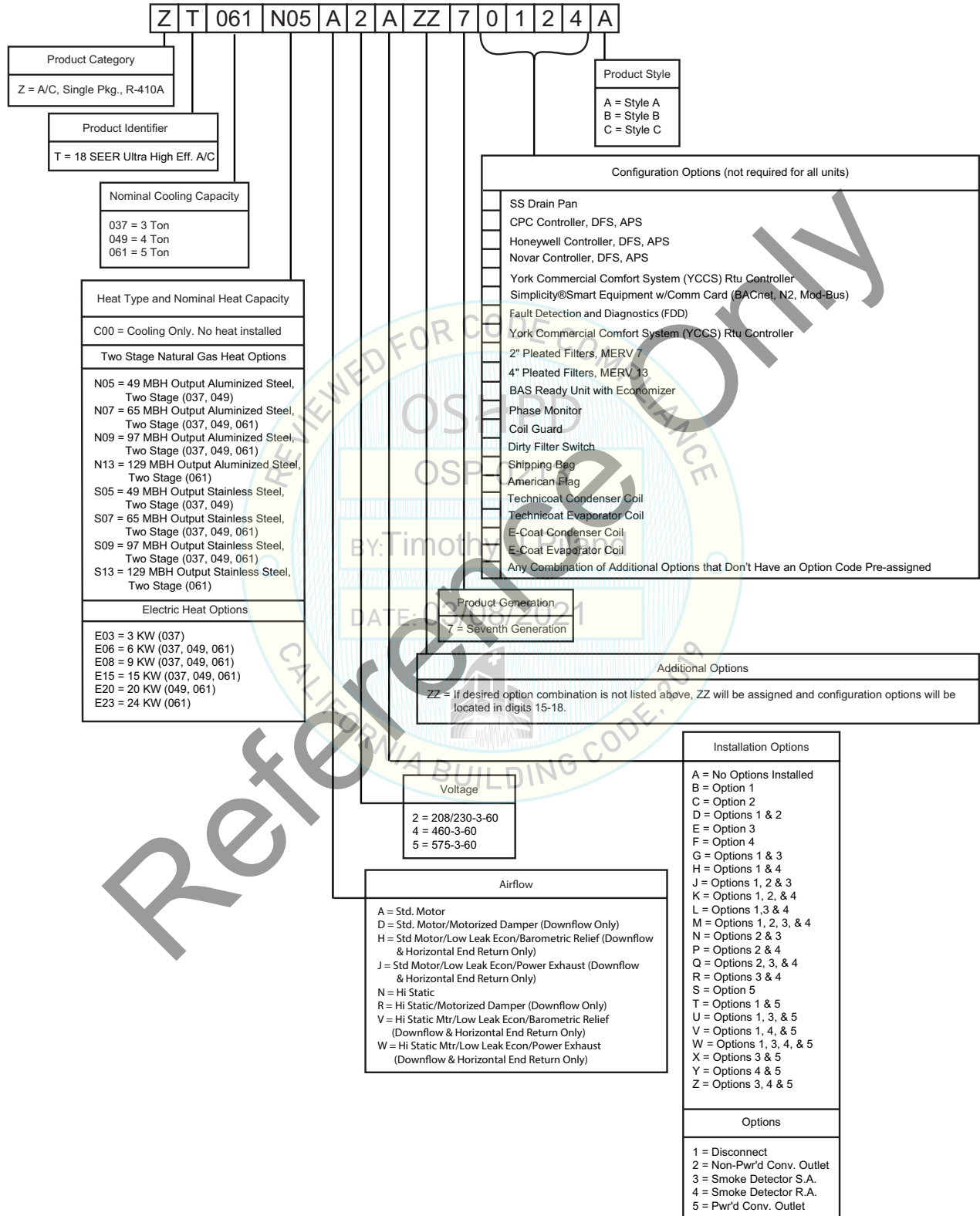
Nomenclature

3-5 Ton York® Model Number Nomenclature



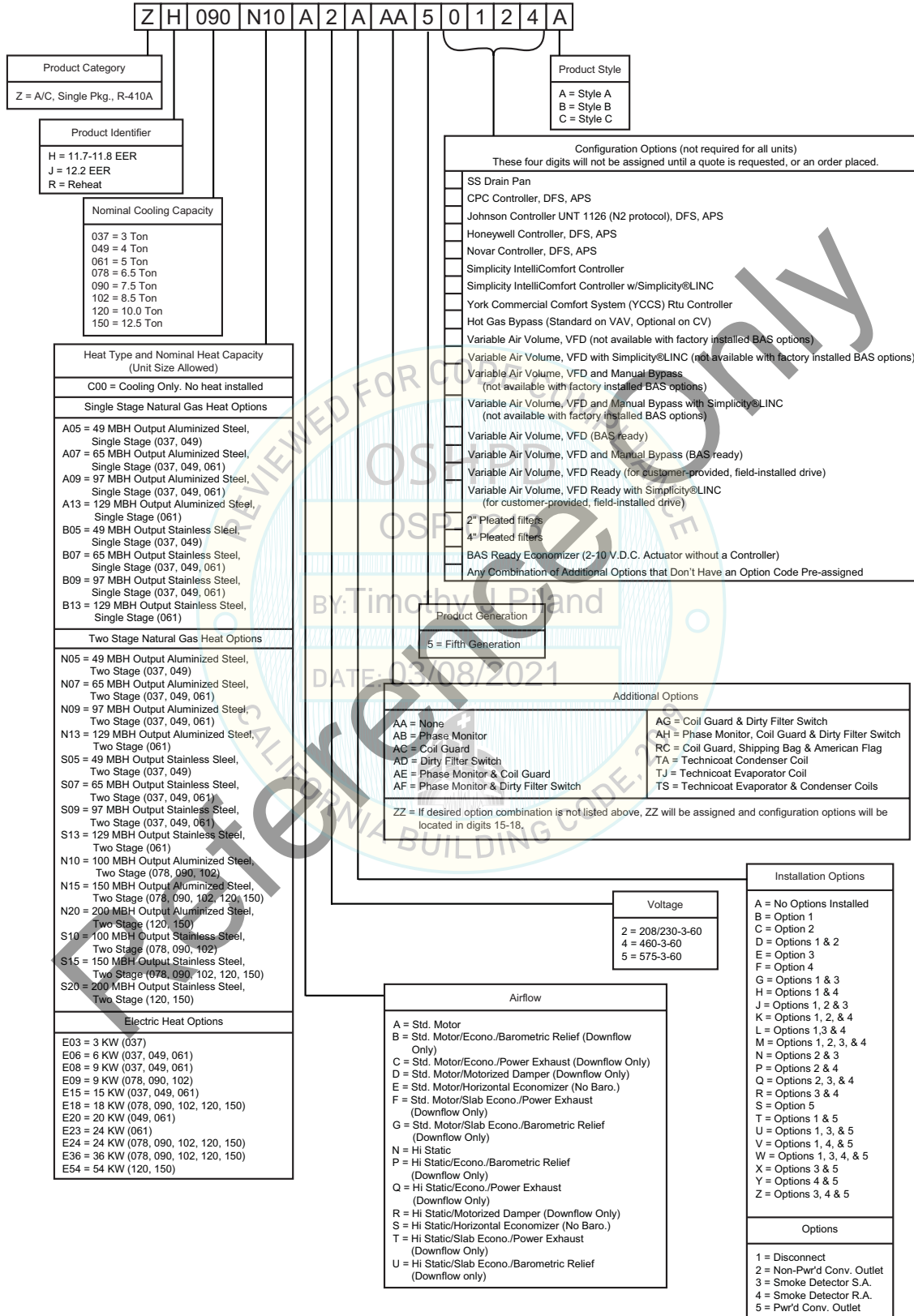
Prior Nomenclature

3-5 Ton York® Model Number Nomenclature
For Units Produced Before 2-01-2016



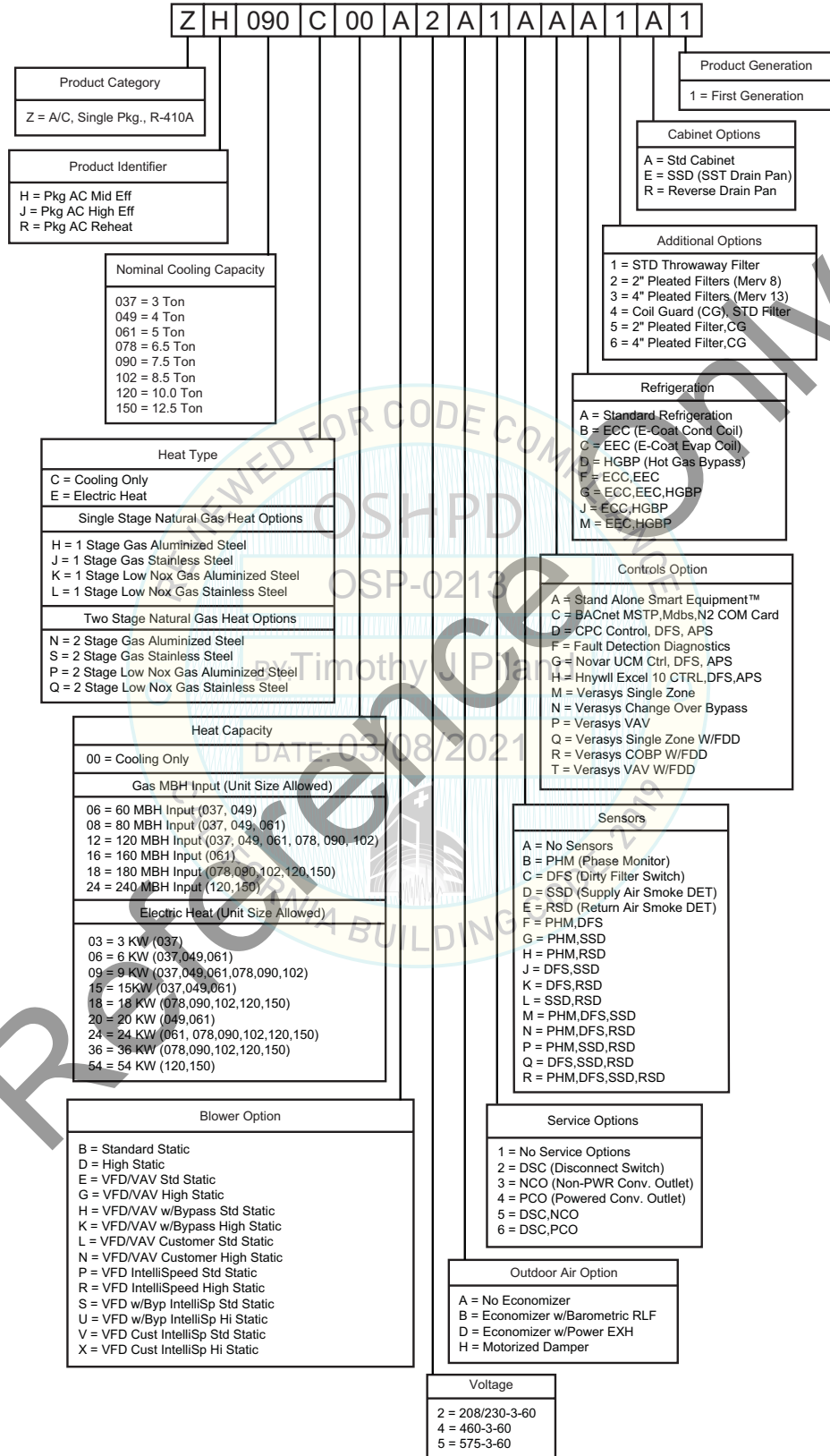
Nomenclature

3-12.5 Ton York® Model Number Nomenclature



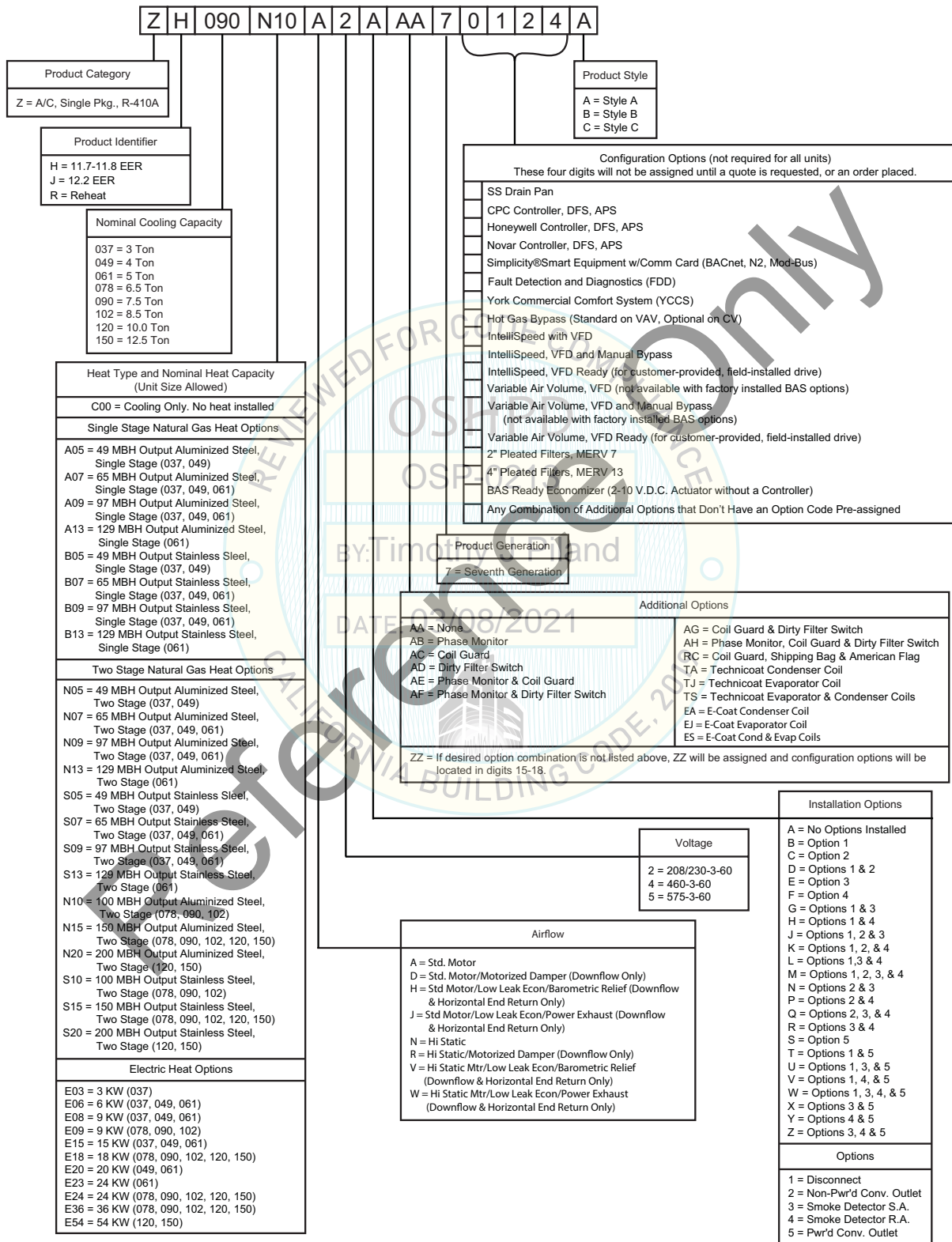
Nomenclature

3-12.5 Ton York® Model Number Nomenclature



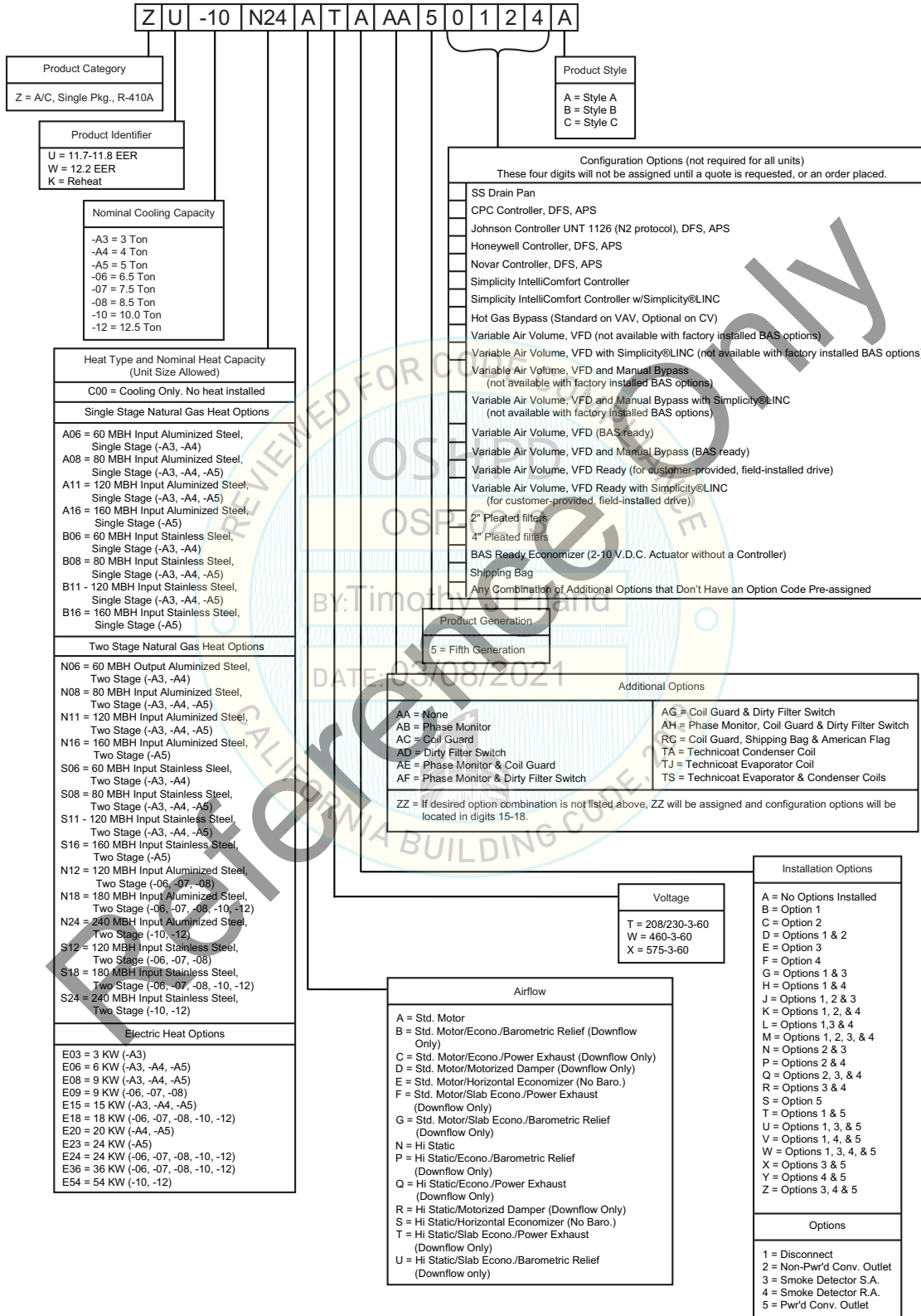
Prior Nomenclature

3-12.5 Ton York® Model Number Nomenclature
For Units Produced Before 2-01-2016



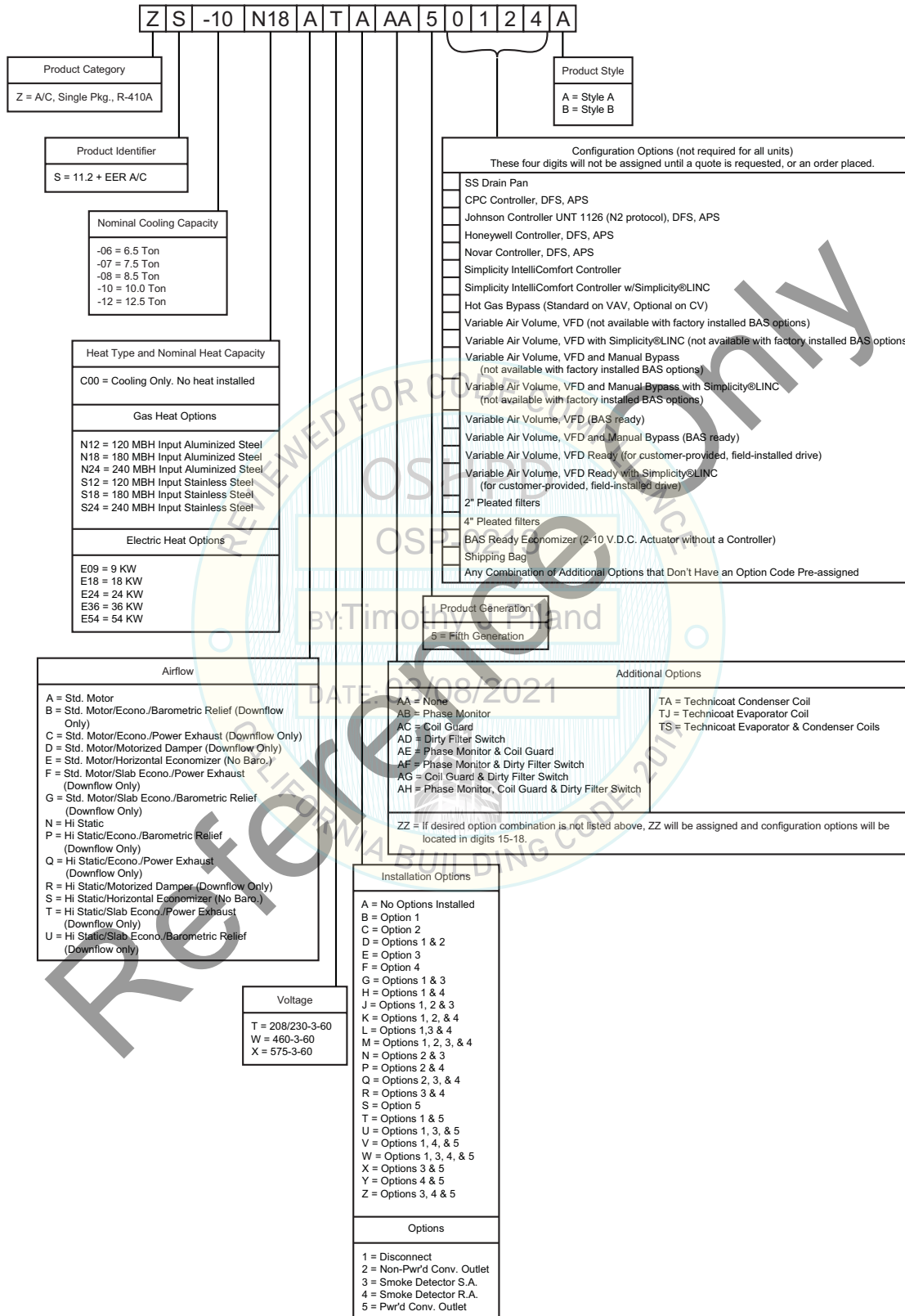
Nomenclature

3-12.5 Ton Model Number Nomenclature



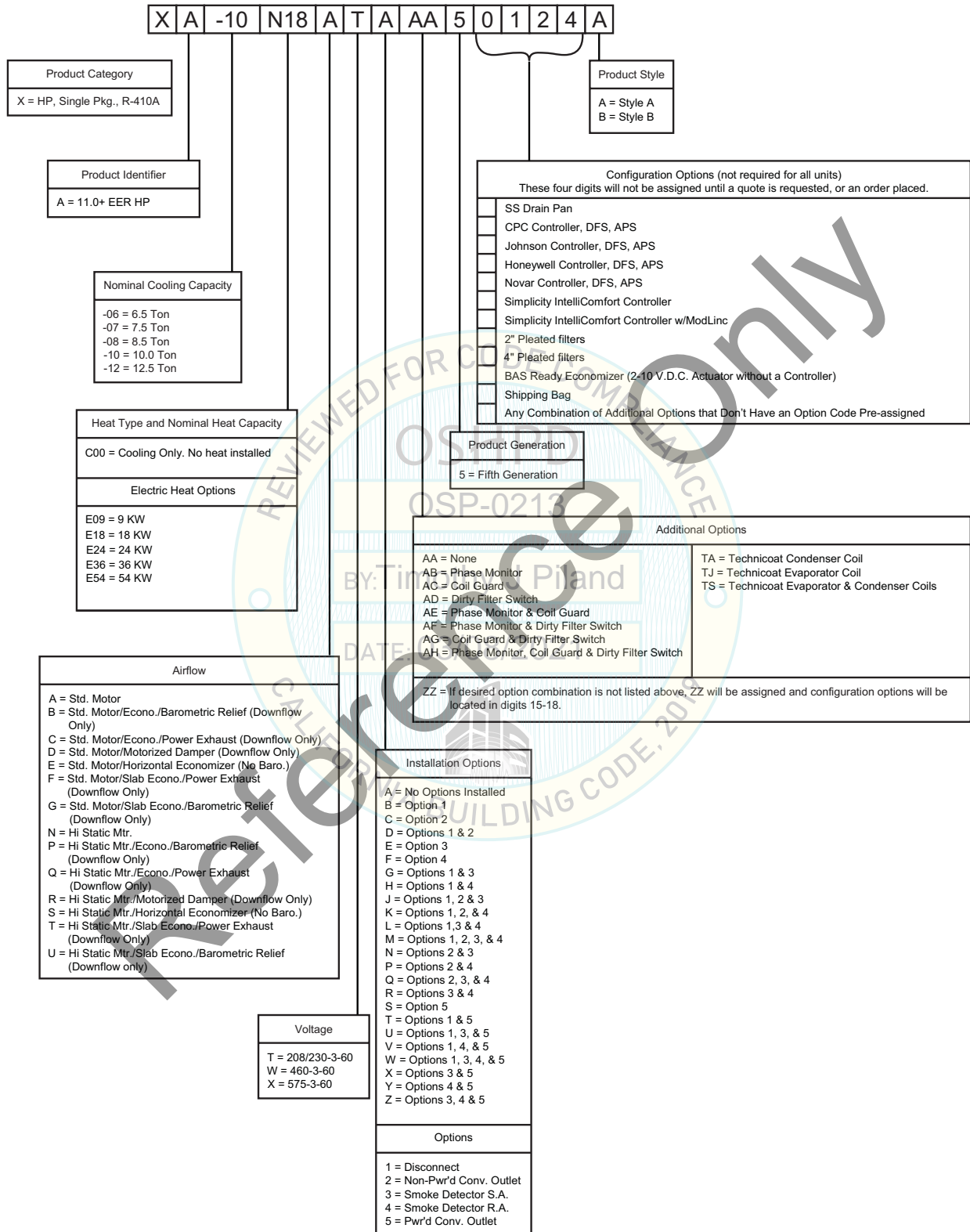
Nomenclature

6.5-12.5 Ton Single Package Model Number Nomenclature



Nomenclature

6.5-12.5 Ton Single Package Model Number Nomenclature



Nomenclature

3-12.5 Ton JCI Series 10 Model Number Nomenclature

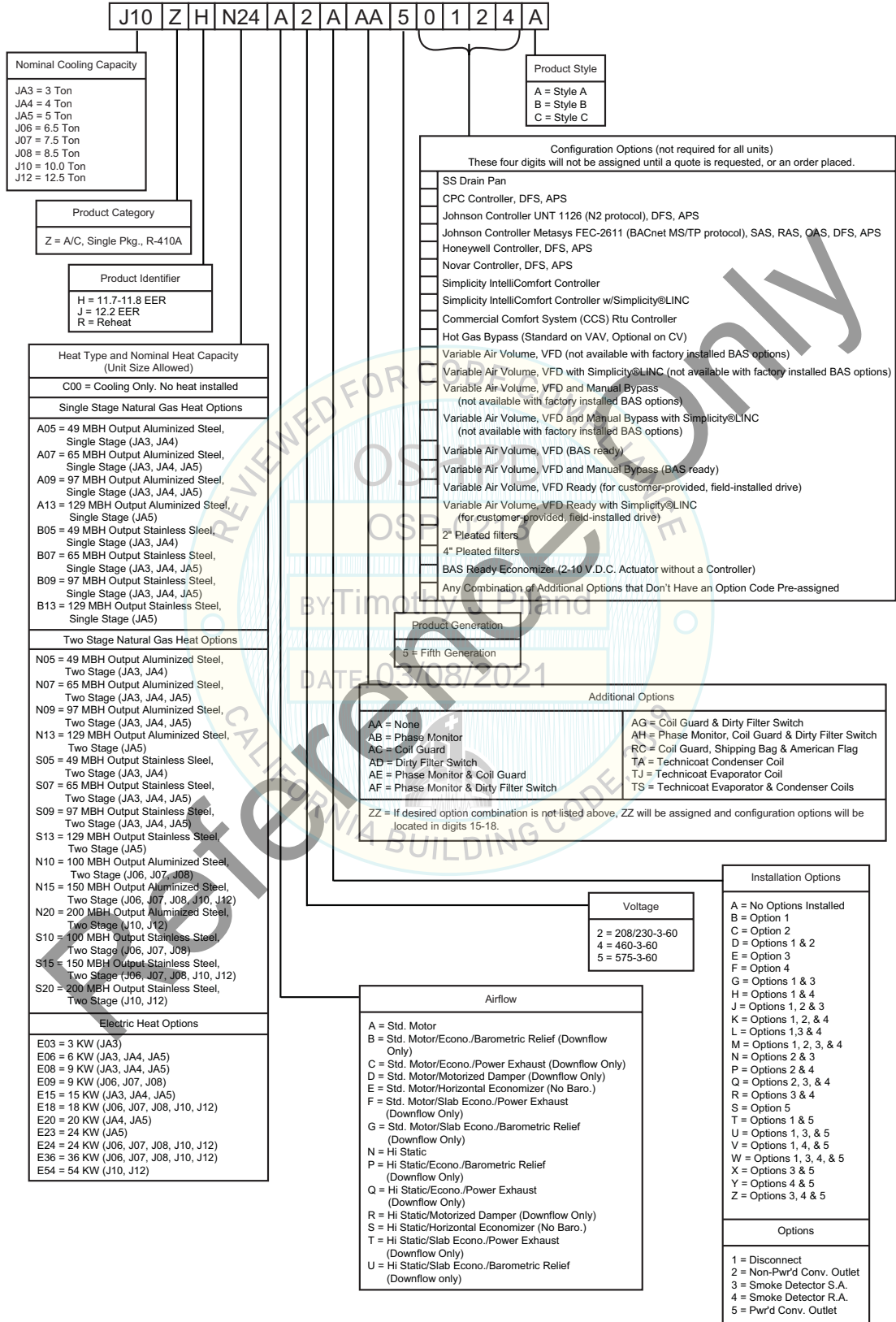


Table 2 - Certified Subcomponents - Refrigerant Compressor

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Refrigerant Compressor				
Model Number	Manufacturer	Material of Construction	Unit	
H82J263	Bristol	Carbon Steel	1	
H82J283		Carbon Steel	3	
H82J293		Carbon Steel	Interpolated	
H82J303		Carbon Steel	10	
H82J353		Carbon Steel	Interpolated	
H82J373		Carbon Steel	Interpolated	
H82J403		Carbon Steel	Interpolated	
H82J483		Carbon Steel	2, 4	
H83C363		Carbon Steel	7	
H83R443		Carbon Steel	Interpolated	
H83R513		Carbon Steel	Interpolated	
H83R683		Carbon Steel	8	
HLH068		Danfoss	Carbon Steel	6,11
ZP29K6E		Copeland	Carbon Steel	Extrapolated ¹
ZPS30K5E			Carbon Steel	Extrapolated ¹
ZP36K5E	Carbon Steel		5	
ZP38K6E	Carbon Steel		Interpolated	
ZP39K5E	Carbon Steel		Interpolated	
ZP40K6E	Carbon Steel		Interpolated	
ZPS40K5E	Carbon Steel		12	
ZP42K5E	Carbon Steel		Interpolated	
ZP44K5E	Carbon Steel		Interpolated	
ZP34K6E	Carbon Steel		Interpolated	
ZP51K5E	Carbon Steel		9	
ZPS51K5E	Carbon Steel		Interpolated	
ZP54K6E	Carbon Steel		Interpolated	
ZP49K6E	Carbon Steel		Interpolated	
ZPS49K5E	Carbon Steel		12	
ZPS60K5E	Carbon Steel		13	
ZP61K5E	Carbon Steel		Interpolated	
ZP67KCE	Carbon Steel	Interpolated		
ZP72KCE	Carbon Steel	13		

Note:

1. Tested Copeland compressors weigh between 63 and 88 lb. Extrapolated Copeland compressors weigh 48 and 49 lb.

Table 3 - Certified Subcomponents - Outdoor Fan Motors

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Outdoor Fan Motors					
Model Number	Manufacturer	Voltage [V]	Power [Horsepower]	Material of Construction	Unit
F48T	AO Smith ¹	230/460/575	1/3	Carbon Steel	1,2,3,4
F48N		230/460/576	1/3 to 3/4 (2-4 Quantity)	Carbon Steel	5, 6, 7, 8, 9, 10, 11
1041518	Genteq ¹	230	1/3	Carbon Steel	Extrapolated
5271257		230	1/3	Carbon Steel	Extrapolated
5271258		460	1/3	Carbon Steel	Extrapolated
5400378		230	1/3	Carbon Steel	Extrapolated
5400379		460	1/3	Carbon Steel	13
5400376		230	1/3	Carbon Steel	12
5400377		460	1/3	Carbon Steel	Extrapolated
5411939		230	1/3	Carbon Steel	Extrapolated
5411940		460	1/3	Carbon Steel	Extrapolated

Options: ODF Blades - Lau T10, ODF Grilles - Premier

1. Owned by Regal Beloit.

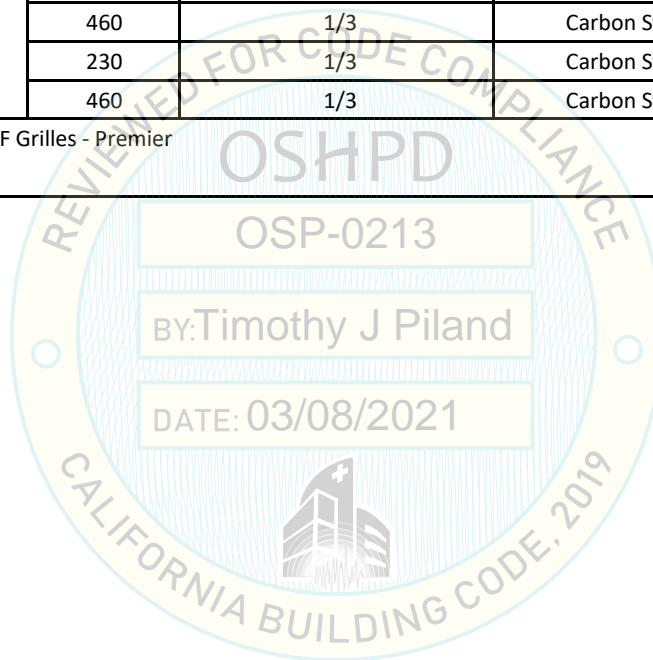


Table 4 - Certified Subcomponents - Indoor Coils

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Indoor Coils					
Model Number	Manufacturer	Description	Dimensions [total ft^2]	Material of Construction	Unit
84978	JCI	Evaporating Coils	7.8	Copper	5
84974	JCI	Evaporating Coils	10.0	Copper	13
5522860	JCI	Evaporating Coils	10.0	Copper	13
83725	JCI	Evaporating Coils	8.0	Aluminum and Copper	3
74105	JCI	Evaporating Coils	10.6	Aluminum and Copper	2
83730	JCI	Evaporating Coils	10.6	Aluminum and Copper	1, 4, 5, 7, 10
83694	JCI	Evaporating Coils	13.2	Aluminum and Copper	Interpolated
83748	JCI	Evaporating Coils	13.2	Aluminum and Copper	6, 8, 9, 11
286479	JCI	Reheat Coil	6.6	Aluminum and Copper	5
635816	JCI	Reheat Coil	10.0	Aluminum and Copper	6



Table 5 - Certified Subcomponents - Outdoor Coils

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Outdoor Coils					
Model Number	Manufacturer	Description	Dimensions [total ft^2]	Material of Construction	Unit
JCI#449602	Delphi	Condenser Coil	11.9	Aluminum	3
JCI#666492	Delphi	Condenser Coil	11.9	Aluminum	1
JCI#670762	Delphi	Condenser Coil	11.9	Aluminum	2
JCI#449598	Delphi	Condenser Coil	18.5	Aluminum	10
JCI#513695	Delphi	Condenser Coil	18.5	Aluminum	Interpolated
JCI#449600	Delphi	Condenser Coil	23.8	Aluminum	4
JCI#519832	Delphi	Condenser Coil	23.8	Aluminum	Interpolated
JCI#520526	Delphi	Condenser Coil	23.8	Aluminum	Interpolated
JCI#551643	Delphi	Condenser Coil	23.8	Aluminum	Interpolated
JCI#579297	Delphi	Condenser Coil	23.8	Aluminum	5
JCI#579313	Delphi	Condenser Coil	23.8	Aluminum	Interpolated
JCI#519833	Delphi	Condenser Coil	29.0	Aluminum	Interpolated
JCI#519834	Delphi	Condenser Coil	29.0	Aluminum	11
JCI#513697	Delphi	Condenser Coil	29.0	Aluminum	Interpolated
JCI#519833	Delphi	Condenser Coil	29.0	Aluminum	Interpolated
JCI#579319	Delphi	Condenser Coil	29.0	Aluminum	Interpolated
JCI#520697	Delphi	Condenser Coil	47.5	Aluminum	9
JCI#85075	Delphi	Condenser Coil	47.5	Aluminum	6
256903	JCI	Fin/Tube	23.8	Aluminum and Copper	7
260544	JCI	Fin/Tube	23.8	Aluminum and Copper	Interpolated
176560	JCI	Fin/Tube	29.0	Aluminum and Copper	Interpolated
177201	JCI	Fin/Tube	29.0	Aluminum and Copper	Interpolated
253771	JCI	Fin/Tube	47.5	Aluminum and Copper	8
5410631	Sanhua	Condenser Coil	9.4	Aluminum	Extrapolated
5399396	Sanhua	Condenser Coil	12.1	Aluminum	12
5444909	Sanhua	Condenser Coil	12.1	Aluminum	Interpolated
5399395	Sanhua	Condenser Coil	12.1	Aluminum	13
5444910	Sanhua	Condenser Coil	14.8	Aluminum	13
5399399	Sanhua	Condenser Coil	14.8	Aluminum	13
5399400	Sanhua	Condenser Coil	14.8	Aluminum	13
5399400	Sanhua	Condenser Coil	14.8	Aluminum	Interpolated
5410632	Sanhua	Condenser Coil	11.8	Aluminum	Interpolated
5399402	Sanhua	Condenser Coil	14.4	Aluminum	12

Table 6 - Certified Subcomponents - Reversing Valve with Coil

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Reversing Valve with Coil				
Model Number	Manufacturer	Description	Material of Construction	Unit
STF04U23G	Danfoss	Reversing Valve with Coil	Brass, Copper	7
STF07U21G	Danfoss	Reversing Valve with Coil	Brass, Copper	8



Table 7 - Certified Subcomponents - Thermostatic Expansion Valves

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Thermostatic Expansion Valves				
Model Number	Manufacturer	Description	Material of Construction	Unit
BBIZE-3	Sporlan	3/8"	Brass, Copper	5, 7, 10
BBIZE-4	Sporlan	3/8"	Brass, Copper	Interpolated
BBIZE-5	Sporlan	3/8"	Brass, Copper	Interpolated
BBIZE-6	Sporlan	3/8"	Brass, Copper	5, 8, 9, 11

Note: 2 valves per UUT.



Table 8 - Certified Subcomponents - Indoor Blower Motor, Standard

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Indoor Blower Motor, Standard				
Model Number	Manufacturer	Description	Material of Construction	Unit
P63PYC	Emerson	1.5 to 2.0 HP	Carbon Steel	1, 2, 3, 4, 5, 7, 10
U56T	Marathon	1.5 to 3.0 HP/575V	Carbon Steel	5, 6, 7, 8, 9, 10, 11
Q56T	Marathon	3.0 HP/230-460V	Carbon Steel	6, 8, 9, 11
8-158756PP	AO Smith	2.0 HP/230-460V	Carbon Steel	5, 7, 10
36J448	Baldor	5.0 HP/230-460V	Carbon Steel	6, 8, 9, 11
36B106	Baldor	5.0 HP/575V	Carbon Steel	6, 8, 9, 11



Table 9 - Certified Subcomponents - Indoor Blower Motor, Variable Frequency Drive

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Indoor Blower Motor, Variable Frequency Drive				
Model Number	Manufacturer	Description	Material of Construction	Unit
35Y377S	Baldor	1.5 HP 230/460V	Carbon Steel	10
35Y041P	Baldor	2.0 HP 230/460V	Carbon Steel	10
35Y041M	Baldor	1.5 HP 575V	Carbon Steel	10
35Y377S	Baldor	2.0 HP 575V	Carbon Steel	10
35Y041T	Baldor	3.0 HP 230/460V	Carbon Steel	9, 11
35Y041S	Baldor	3.0 HP 575V	Carbon Steel	9, 11
36M381	Baldor	5.0 HP/230-460V	Carbon Steel	9, 11
36M382	Baldor	5.0 HP/575V	Carbon Steel	9, 11



Table 10 - Certified Subcomponents - Exhaust Fan Motor

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Exhaust Fan Motor				
Model Number	Manufacturer	Description	Material of Construction	Unit
F48X26	A.O. Smith	230V Motor	Carbon Steel	4
F48X06	A.O. Smith	460V Motor	Carbon Steel	Interpolated
F48W97	A.O. Smith	575V Motor	Carbon Steel	10



Table 11 - Certified Subcomponents - Variable Frequency Drive

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Variable Frequency Drive				
Model Number	Manufacturer	Description	Material of Construction	Unit
MVX002A0-2	Eaton	1.5 to 2.0 HP, 230V	Plastic, Aluminum	10
MVX002A0-4	Eaton	1.5 to 2.0 HP, 460V	Plastic, Aluminum	10
MVX002A0-5	Eaton	1.5 to 2.0 HP, 575V	Plastic, Aluminum	10
MVX003A0-2	Eaton	3.0 HP, 230V	Plastic, Aluminum	9, 11
MVX003A0-4	Eaton	3.0 HP, 460V	Plastic, Aluminum	9, 11
MVX003A0-5	Eaton	3.0 HP, 575V	Plastic, Aluminum	9, 11
MVX005A0-2	Eaton	5.0 HP, 230V	Plastic, Aluminum	9, 11
MVX005A0-4	Eaton	5.0 HP, 460V	Plastic, Aluminum	9, 11
MVX005A0-5	Eaton	5.0 HP, 575V	Plastic, Aluminum	9, 11
FR-D720-070-NA	Mitsubishi	2 HP, 230V	Plastic, Aluminum	Extrapolated
FR-D740-036-NA	Mitsubishi	2 HP, 480V	Plastic, Aluminum	Extrapolated
FR-E560-1.5K-NA	Mitsubishi	2 HP, 575V	Plastic, Aluminum	Extrapolated
FR-D720-100-NA	Mitsubishi	3 HP, 230V	Plastic, Aluminum	12
FR-D740-050-NA	Mitsubishi	3 HP, 480V	Plastic, Aluminum	Interpolated
FR-E560-2.2K-NA	Mitsubishi	3 HP, 575V	Plastic, Aluminum	Interpolated
FR-D720-165-NA	Mitsubishi	5 HP, 230V	Plastic, Aluminum	Interpolated
FR-D740-080-NA	Mitsubishi	5 HP, 480V	Plastic, Aluminum	Interpolated
FR-E560-3.7K-NA	Mitsubishi	5 HP, 575V	Plastic, Aluminum	13

DATE: 03/08/2021



Table 12 - Certified Subcomponents - Economizer

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Economizer				
Model Number	Manufacturer	Description	Material of Construction	Unit
2EE04706024	JCI	Horizontal Economizer	Carbon Steel	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
2EE04705824	JCI	Slab Economizer	Carbon Steel	1, 2, 3, 4, 5, 7, 10
2EE04705724	JCI	Slab Economizer	Carbon Steel	6, 8, 9, 11
2MD04703724	JCI	2-Position Economizer	Carbon Steel	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
2EE04706924	RRS	Econ, Fact, Down, SSE w/Belimo actuator, Tall	Carbon Steel	12
2EE04706924	RRS	Econ, Fact, Down, SSE w/JCI actuator, w/PE, Tall	Carbon Steel	13

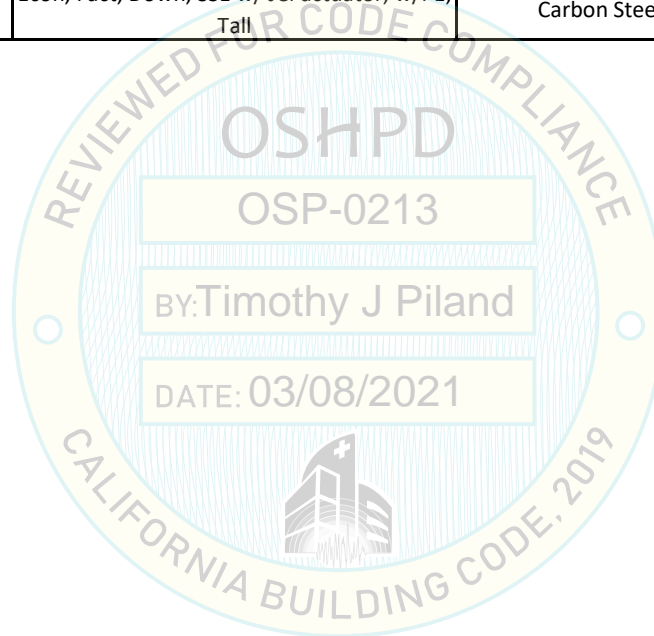


Table 13 - Certified Subcomponents - Electric Heater**Manufacturer:** Johnson Controls and other Unitary Product Group brands**Product Line:** JCI Packaged Rooftop Units**Mounting Description:** Rigid or Flexible Curb Mounting

Electric Heater				
Model Number	Manufacturer	Description	Material of Construction	Unit
2TP04540925	Tutco	9kW, 230V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	7
2TP04540946	Tutco	9kW, 460V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04540958	Tutco	9kW, 575V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04541825	Tutco	18kW, 230V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04541846	Tutco	18kW, 460V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04541858	Tutco	18kW, 575V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04542425	Tutco	24kW, 230V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04542446	Tutco	24kW, 460V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04542458	Tutco	24kW, 575V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04543625	Tutco	36kW, 230V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04543646	Tutco	36kW, 460V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04543658	Tutco	36kW, 575V, Standard Predator, 42" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04520925	Tutco	9kW, 230V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04520946	Tutco	9kW, 460V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04520958	Tutco	9kW, 575V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04531825	Tutco	18kW, 230V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04531846	Tutco	18kW, 460V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04521858	Tutco	18kW, 575V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04532425	Tutco	24kW, 230V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04532446	Tutco	24kW, 460V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04522458	Tutco	24kW, 575V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04533625	Tutco	36kW, 230V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04533646	Tutco	36kW, 460V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2TP04523658	Tutco	36kW, 575V, Standard Predator, 50" cabinet, AC and HP	Carbon Steel	Interpolated
2HP04535425	Tutco	54kW, 230V, Standard Predator, 50" cabinet, heat pump	Carbon Steel	Interpolated
2HP04535446	Tutco	54kW, 460V, Standard Predator, 50" cabinet, heat pump	Carbon Steel	Interpolated
2TP04525425	Tutco	54kW, 230V, Standard Predator, 50" cabinet, AC only	Carbon Steel	Interpolated
2TP04525446	Tutco	54kW, 460V, Standard Predator, 50" cabinet, AC only	Carbon Steel	Interpolated
2TP04525458	Tutco	54kW, 575V, Standard Predator, 50" cabinet, AC only	Carbon Steel	Interpolated
2HP04535458	Tutco	54kW, 575V, Standard Predator, 50" cabinet, heat pump	Carbon Steel	8

Table 14 - Certified Subcomponents - Heat Cells

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Heat Cells (Heat Type and Nominal Heat Capacity)				
Model Number	Manufacturer	Description [MBH Output]	Material of Construction	Unit
Single Stage Natural Gas Heat Options				
A05	JCI	49 MBH Output Aluminized Steel, Single Stage	Carbon Steel	1
A07	JCI	65 MBH Output Aluminized Steel, Single Stage	Carbon Steel	Interpolated
A09	JCI	97 MBH Output Aluminized Steel, Single Stage	Carbon Steel	Interpolated
A13	JCI	129 MBH Output Aluminized Steel, Single Stage	Carbon Steel	2
B05	JCI	49 MBH Output Stainless Steel, Single Stage	Stainless Steel	Interpolated ¹
B07	JCI	65 MBH Output Stainless Steel, Single Stage	Stainless Steel	Interpolated ¹
B09	JCI	97 MBH Output Stainless Steel, Single Stage	Stainless Steel	Interpolated ¹
B13	JCI	129 MBH Output Stainless Steel, Single Stage	Stainless Steel	Interpolated ¹
Two Stage Natural Gas Heat Options				
N05	JCI	49 MBH Output Aluminized Steel, Two Stage	Carbon Steel	Interpolated
N07	JCI	65 MBH Output Aluminized Steel, Two Stage	Carbon Steel	Interpolated
N09	JCI	97 MBH Output Aluminized Steel, Two Stage	Carbon Steel	Interpolated
N10	JCI	100 MBH Output Aluminized Steel, Two Stage	Carbon Steel	5
N13	JCI	129 MBH Output Aluminized Steel, Two Stage	Carbon Steel	Interpolated
N15	JCI	150 MBH Output Aluminized Steel, Two Stage	Carbon Steel	Interpolated
N20	JCI	200 MBH Output Aluminized Steel, Two Stage	Carbon Steel	6
S05	JCI	49 MBH Output Stainless Steel, Two Stage	Stainless Steel	3
S07	JCI	65 MBH Output Stainless Steel, Two Stage	Stainless Steel	Interpolated
S09	JCI	97 MBH Output Stainless Steel, Two Stage	Stainless Steel	Interpolated
S10	JCI	100 MBH Output Stainless Steel, Two Stage	Stainless Steel	10
S13	JCI	129 MBH Output Stainless Steel, Two Stage	Stainless Steel	4
S15	JCI	150 MBH Output Stainless Steel, Two Stage	Stainless Steel	Interpolated
S20	JCI	200 MBH Output Stainless Steel, Two Stage	Stainless Steel	9

All heat cells are both stainless and aluminized.

1. Single stage units are bookended by UUT 3 and UUT 4

Table 15 - Certified Subcomponents - Filters

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Filters				
Model Number	Manufacturer	Description	Material of Construction	Unit
198	American Air Filter	16" x 24" x 2" Fiberglass TA Filter	Cardboard, Fiberglass	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
300X	American Air Filter	16" x 24"x 2" Pleated Filter	Cardboard, Fiberglass	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
AA1300	American Air Filter	16" x 24" x 4" Pleated Filter	Cardboard, Fiberglass	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
102-741-020	Koch ¹	2"x16"x24" Fiberglass TA Filter	Cardboard, Fiberglass	12
141-604-859	Koch	4"x20"x24" Fiberglass TA Filter	Cardboard, Fiberglass	13

Notes:

1. Alternative branding of American Air part number 170-112-782

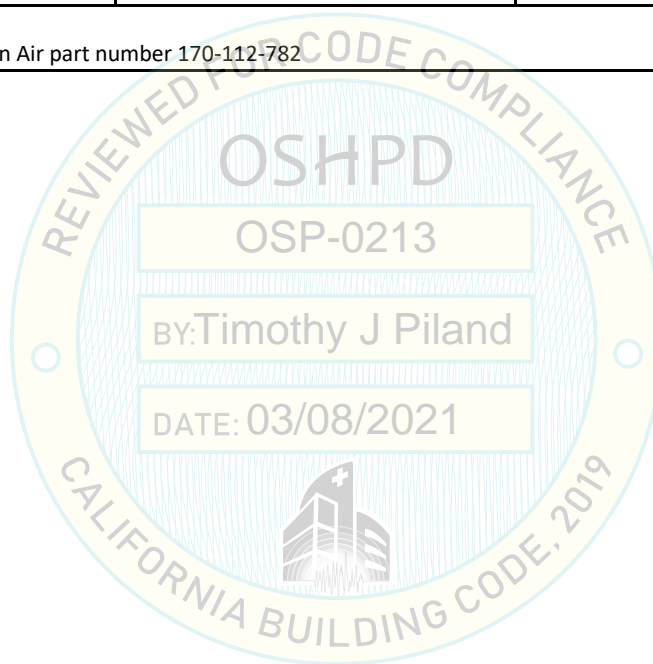


Table 16 - Certified Subcomponents - Miscellaneous

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

Mounting Description: Rigid or Flexible Curb Mounting

Miscellaneous				
Model Number	Manufacturer	Description	Material of Construction	Unit
CY017	Advanced Controls Inc.	VFD Bypass Switch	Carbon Steel, Plastic	9, 10, 11
SKCP39N	GE	230 / 460V Power Exhaust Fan Motor	Carbon Steel	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13
F48P	AO Smith	575V Power Exhaust Fan Motor	Carbon Steel	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
YD4120	System Sensor	Smoke Detector	Plastic	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
FHL/KHL/JGL	Square D	Electrical Disconnect Switch	Plastic	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13
AE 00203	Ayrshire	Controller, Simplicity Lite Board gas/elec	Epoxy Resin, Fiberglass, Copper	1, 2, 3, 4
AE 00401	Ayrshire	Controller, Simplicity 1A Board gas/elec	Epoxy Resin, Fiberglass, Copper	5, 6, 9, 10, 11
AE 00501	Ayrshire	Controller, Simplicity 1A Board heat pump	Epoxy Resin, Fiberglass, Copper	7, 8
5786050	JCI	Controller, Simplicity SE 1-stage	Epoxy Resin, Fiberglass, Copper	Extrapolated
5786051	JCI	Controller, Simplicity SE 1-stage w/ COM	Epoxy Resin, Fiberglass, Copper	Extrapolated
6786052	JCI	Controller, Simplicity SE 2-stage	Epoxy Resin, Fiberglass, Copper	Extrapolated
6786053	JCI	Controller, Simplicity SE 2-stage w/ COM	Epoxy Resin, Fiberglass, Copper	12, 13
6786054	JCI	Controller, Simplicity SE 4-stage board	Epoxy Resin, Fiberglass, Copper	12, 13
6786056	JCI	Controller, Simplicity SE Economizer Board	Epoxy Resin, Fiberglass, Copper, Plastic	12, 13
65674 (026-39484-000A)	JCI	Evap Coil Drain Pan (20 ga 304 Stainless Steel), 56.56"L x 4.13"W x 4"D	Stainless Steel	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
10241 (032-00184-000)	JCI	Evap Coil Drain Pan (Plastic), 56.56"L x 4.13"W x 4"D Polymer, 0.200"THK	Plastic	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
1159-10	United Technologies	Intelli Comfort Board	Epoxy Resin, Fiberglass, Copper	1,2,3,4, 10
1084-900	United Technologies	Defrost Board	Epoxy Resin, Fiberglass, Copper	7, 8
AE 1010044	Ayrshire	VAV Board	Epoxy Resin, Fiberglass, Copper	9, 10

Table 17 - Tested Units

Manufacturer: Johnson Controls and other Unitary Product Group brands

Product Line: JCI Packaged Rooftop Units

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, economizer, power exhaust, electric or gas heater, variable frequency drive

Tested Mounting Description:

Equipment was tested with both rigid (a) or flexible (b) curb mounting

Product Line	Model Number	Dimensions (inches)			Operating Weight (lb)	Nominal Cooling Capacity (Tons)	Mount	Sds level Approved	Unit
		Depth	Width	Height					
Predator Air Handling Units (Short)	ZR037A05D2DAE5	89	59	42	980	3	Rigid Roof Curb Mounted	2.5	1a
							Isolated Roof Curb Mounted		1b
	ZR061A13S5GZZ50001	89	59	42	1,070	5	Rigid Roof Curb Mounted		2a
							Isolated Roof Curb Mounted		2b
	ZH037S05A2HZZ50001	89	59	42	860	3	Rigid Roof Curb Mounted		3a
							Isolated Roof Curb Mounted		3b
	ZI061S13T5BZZ50001	89	59	42	1,070	5	Rigid Roof Curb Mounted		4a
							Isolated Roof Curb Mounted		4b
Predator Air Handling Units (Standard)	ZR078N10D2DZZ5001	89	59	53	1,060	6.5	Rigid Roof Curb Mounted	2.5	5a
							Isolated Roof Curb Mounted		5b
	XP078E09A2BAC5	89	59	42	970	6.5	Rigid Roof Curb Mounted		7a
							Isolated Roof Curb Mounted		7b
	ZF078S10F2BZZ5001	89	59	42	1,090	6.5	Rigid Roof Curb Mounted	2.5	10a
							Isolated Roof Curb Mounted		10b
	ZH150C00A2BAC5	119.5	59	51	1,250	12.5	Rigid Roof Curb Mounted	2.5	11a
							Isolated Roof Curb Mounted		11b
	ZR150N20N5GZZ50001	119.5	59	42	1,600	12.5	Rigid Roof Curb Mounted	2.0	6a
							Isolated Roof Curb Mounted		6b
	XP150E54N5HZZ50001	119.5	59	51	1,510	12.5	Rigid Roof Curb Mounted		8a
							Isolated Roof Curb Mounted		8b
ZI150S20S5BZZ50001	119.5	59	51	1,570	12.5	Rigid Roof Curb Mounted	2.0	9a	
						Isolated Roof Curb Mounted		9b	
Predator Air Handling Units (Ultra High Efficiency)	ZT120N18P2B1LAAKA1	119.5	59	51	1,470	10	Rigid Roof Curb Mounted	2.0	12a
							Isolated Roof Curb Mounted		12b
	ZT150S24R4D5LAE3E1	119.5	59	51	1,680	12.5	Rigid Roof Curb Mounted	2.0	13a
							Isolated Roof Curb Mounted		13b

DATE: 03/08/2021



UUT1a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZR037A05D2DAE5

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:

Aluminized 3-ton natural gas fired heat exchanger, 230V, with solenoid valves and indoor (ID) reheat coil, IDB motor, 12"x9" wide blower wheel, micro channel OD coil, a single reciprocating type compressor, and a single refrigeration circuit. The unit uses TXV for modulating refrigerant control. An optional Motorized economizer/no power exhaust (PE), non-powered convenience outlet, standard controller, phase monitor (PM), no Dirty Filter Switch (DFS), standard plastic drain pan & standard 2" throw-away (TA) fiberglass filters were selected. The ZR/ZK and ZJ/ZW 3 ton series uses a single outdoor fan (ODF) motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
980	89	59	42	7.8	7.5	13.3

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to a rigid roof curb supplied by MicroMetl, part #0564-C14D-0010. The unit rested on the perimeter of the curb. The curb had (4) 12Ga anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (6) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT1b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZR037A05D2DAE5

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:

Aluminized 3-ton natural gas fired heat exchanger, 230V, with solenoid valves and indoor (ID) reheat coil, IDB motor, 12"x9" wide blower wheel, micro channel OD coil, a single reciprocating type compressor, and a single refrigeration circuit. The unit uses TXV for modulating refrigerant control. An optional Motorized economizer/no power exhaust (PE), non-powered convenience outlet, standard controller, phase monitor (PM), no Dirty Filter Switch (DFS), standard plastic drain pan & standard 2" throw-away (TA) fiberglass filters were selected. The ZR/ZK and ZI/ZW 3 ton series uses a single outdoor fan (ODF) motor deck arrangement.

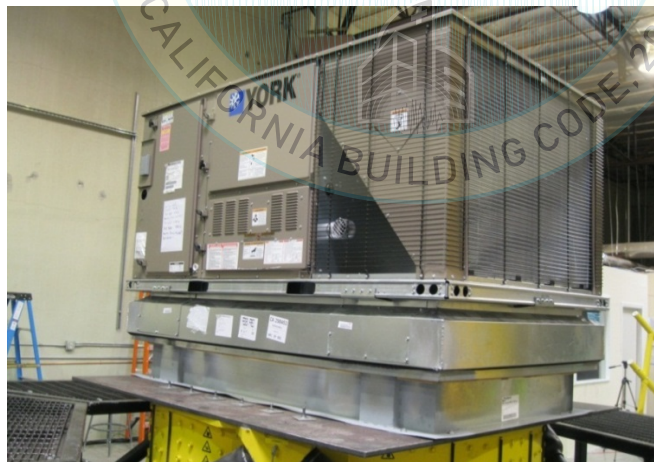
UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
980	89	59	42	3.0	2.5	4.0

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by Ruskin (Provent), part #ISCALPRD371522_104. 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.

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

UUT2a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZR061A13S5GZZ50001

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:

Short 5-ton reheat unit with aluminized gas heat section, 575V, solenoid valves, ID reheat coil, IDB motor, 12"x9" wide blower wheel, micro channel OD coil, a single reciprocating type compressor, and a single refrigeration circuit. The unit uses TXV for modulating refrigerant control. An optional fully modulating horizontal economizer/no power exhaust (PE), no convenience outlet, standard controller, no PM, optional DFS, optional supply air (SA) smoke detector, optional stainless steel drain pan & 2" pleated air filters were selected. The ZR/ZK and ZJ/ZW 4 & 5 ton use a dual outdoor fan (ODF) motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,070	89	59	42	6.8	6.0	6.5

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Afix-H (g)	Arig-H (g)	Afix-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to a rigid roof curb supplied by MicroMetl, part #0564-C14D-0010. The unit rested on the perimeter of the curb. The curb had (4) 12Ga anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (6) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT2b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZR061A13S5GZZ50001

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:

Short 5-ton reheat unit with aluminized gas heat section, 575V, solenoid valves, ID reheat coil, IDB motor, 12"x9" wide blower wheel, micro channel OD coil, a single reciprocating type compressor, and a single refrigeration circuit. The unit uses TXV for modulating refrigerant control. An optional fully modulating horizontal economizer/no power exhaust (PE), no convenience outlet, standard controller, no PM, optional DFS, optional supply air (SA) smoke detector, optional stainless steel drain pan & 2" pleated air filters were selected. The ZR/ZK and ZJ/ZW 4 & 5 ton use a dual outdoor fan (ODF) motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,070	89	59	42	3.0	2.8	5.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	I _p	Afix-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by Ruskin (Provent), part #ISCALPRD371522_102. 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.

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

UUT3a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZH037S05A2HZZ50001

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:

Short 3-ton cooling only unit with single ODF deck construction, stainless steel natural gas fired heat exchanger, 230V, IDB motor, 12"x9" wide blower wheel, a single reciprocating type compressor and a single refrigeration circuit. The unit uses TXV for refrigerant control. Standard controller, standard plastic drain pan, and 4" high efficiency pleated filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
860	89	59	42	6.5	5.8	5.8

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to a rigid roof curb supplied by MicroMetl, part #0564-C14D-0010. The unit rested on the perimeter of the curb. The curb had (4) 12Ga anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (6) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT3b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZH037S05A2HZZ50001

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:

Short 3-ton cooling only unit with single ODF deck construction, stainless steel natural gas fired heat exchanger, 230V, IDB motor, 12"x9" wide blower wheel, a single reciprocating type compressor and a single refrigeration circuit. The unit uses TXV for refrigerant control. Standard controller, standard plastic drain pan, and 4" high efficiency pleated filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
860	89	59	42	3.3	2.8	4.3

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by MicroMetl, part #0405-642D-01. The unit rested on the perimeter of the curb. The curb had (4) 10Ga, 11-inch side anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (8) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT4a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZJ061S13T5BZZ50001

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:

Short 5-ton cooling-only unit with stainless steel natural gas fired heat exchanger, 575V, IDB motor, 12"x9" wide blower wheel, a single reciprocating type compressor and a single refrigeration circuit. The unit uses TXV for refrigerant control. Full modulating slab economizer with PE, optional IntelliComfort controller, standard plastic drain pan & standard 2" TA air filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,070	89	59	42	6.8	5.8	6.0

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to a rigid roof curb supplied by MicroMetl, part #0564-C14D-0010. The unit rested on the perimeter of the curb. The curb had (4) 12Ga anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (6) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT4b

Unit Under Test (UUT) Summary Sheet



Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Short 3-5 Ton)

Model Number: ZJ061S13T5BZZ50001

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:

Short 5-ton cooling-only unit with stainless steel natural gas fired heat exchanger, 575V, IDB motor, 12"x9" wide blower wheel, a single reciprocating type compressor and a single refrigeration circuit. The unit uses TXV for refrigerant control. Full modulating slab economizer with PE, optional IntelliComfort controller, standard plastic drain pan & standard 2" TA air filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,070	89	59	42	3.3	3.3	4.3

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by MicroMetl, part #0405-642D-01. The unit rested on the perimeter of the curb. The curb had (4) 10Ga, 11-inch side anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (8) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT5a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Standard 6.5-12.5 Ton)

Model Number: ZR078N10D2DZZ5001

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 reheat unit with aluminized natural gas fired heat exchanger, 230V, solenoid valves, indoor (ID) reheat coil, IDB motor, 12"x12" blower wheel, micro channel OD coils, dual reciprocating type compressors, and dual refrigeration circuits. These units use TXV for modulating refrigerant control. An optional Motorized economizer/no power exhaust (PE), non-powered convenience outlet, standard controller, standard plastic drain pan, & 2" pleated air filters were selected. The ZR/ZK 6.5 ton series uses a dual ODF motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,060	89	59	53	6.0	5.5	5.8

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to a rigid roof curb supplied by MicroMetl, part #0564-C14D-0010. The unit rested on the perimeter of the curb. The curb had (4) 12Ga anchoring pockets, (2) on each of the long side of the curb. The unit was attached to each of the pockets using (6) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT5b

Unit Under Test (UUT) Summary Sheet



Manufacturer: Johnson Controls Incorporated

Product Line: Predator (Standard 6.5-12.5 Ton)

Model Number: ZR078N10D2DZZ5001

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 reheat unit with aluminized natural gas fired heat exchanger, 230V, solenoid valves, indoor (ID) reheat coil, IDB motor, 12"x12" blower wheel, micro channel OD coils, dual reciprocating type compressors, and dual refrigeration circuits. These units use TXV for modulating refrigerant control. An optional Motorized economizer/no power exhaust (PE), non-powered convenience outlet, standard controller, standard plastic drain pan, & 2" pleated air filters were selected. The ZR/ZK 6.5 ton series uses a dual ODF motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,060	89	59	53	2.8	2.8	4.5

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by MicroMetl, part #0405-642D-02. The unit rested on the perimeter of the curb. The curb had (4) 10Ga, 11-inch side anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (8) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT6a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZZR150N20N5GZZ50001

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:

12.5-ton standard reheat unit with aluminized gas heat section, 575V, solenoid valves, ID reheat coil, IDB motor, 12x15" wide blower wheel, micro channel OD coils, dual reciprocating type compressors, and dual refrigeration circuits. The unit uses TXV for modulating refrigerant control. Standard controller was used. An optional supply air (SA) smoke detector, stainless steel drain pan, & 4" pleated air filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,600	119 1/2	59	42	6.8	4.0	5.0

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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.34	0.54

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to a rigid roof curb supplied by MicroMetl, part #0564-C14D-0010. The unit rested on the perimeter of the curb. The curb had (4) 12Ga anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (6) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT6b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZZR150N20N5GZZ50001

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:

12.5-ton standard reheat unit with aluminized gas heat section, 575V, solenoid valves, ID reheat coil, IDB motor, 12x15" wide blower wheel, micro channel OD coils, dual reciprocating type compressors, and dual refrigeration circuits. The unit uses TXV for modulating refrigerant control. Standard controller was used. An optional supply air (SA) smoke detector, stainless steel drain pan, & 4" pleated air filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,600	119 1/2	59	42	2.8	2.5	5.8

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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.34	0.54

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by MicroMetl, part #0405-642D-04. The unit rested on the perimeter of the curb. The curb had (4) 10Ga, 11-inch side anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (8) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT7a



Unit Under Test (UUT) Summary Sheet

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 (X)	Side-Side (Y)	Vertical (Z)
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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to a rigid roof curb supplied by Ruskin, part #80-270-4414. 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.

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

UUT7b



Unit Under Test (UUT) Summary Sheet

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 (X)	Side-Side (Y)	Vertical (Z)
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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by Ruskin (Provent), part #ISCALPRD371522_104. 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.

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

UUT8a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: XP150E54N5HZZ50001

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:

12. 5 ton standard heat pump with 54 kW electric heat section, 575V, finned/tube OD coils, IDB motor, 15x15" wide blower wheel, fin/tube OD coils, dual scroll type compressors, and dual refrigeration circuits. The unit uses TXV for modulating refrigerant control. Optional IntelliComfort controller, optional return air (RA) smoke detector, standard plastic drain pan & standard 2" fiberglass TA air filters were used.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,510	119 1/2	59	51	9.8	6.0	14.8

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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.34	0.54

Unit Mounting Description:



Description: Unit was mounted to a rigid roof curb supplied by Ruskin, part #80-270-4414. 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.

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

UUT8b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: XP150E54N5HZZ50001

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:

12. 5 ton standard heat pump with 54 kW electric heat section, 575V, finned/tube OD coils, IDB motor, 15x15" wide blower wheel, fin/tube OD coils, dual scroll type compressors, and dual refrigeration circuits. The unit uses TXV for modulating refrigerant control. Optional IntelliComfort controller, optional return air (RA) smoke detector, standard plastic drain pan & standard 2" fiberglass TA air filters were used.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,510	119 1/2	59	51	2.0	2.3	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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.34	0.54

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by Ruskin (Provent), part #ISCALPRD371522_103. 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.

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

UUT9a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZJ150S20S5BZZ50001

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:

12. 5 ton standard cooling only unit with stainless steel gas heat section, 575V, IDB motor, 15x15" wide blower wheel, Micro Channel OD coils, dual reciprocating type compressors, dual refrigeration circuits, 4 ODFs, and a "W" shaped OD condenser coil. The unit uses TXV for modulating refrigerant control. An optional VFD w/ manual bypass switch, fully modulating horizontal economizer/no PE, no convenience outlet, standard controller, standard plastic drain pan & standard 2" TA air filters were used.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,570	119 1/2	59	51	7.8	5.5	10.3

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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.34	0.54

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to a rigid roof curb supplied by Ruskin, part #80-270-4414. 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.

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

UUT9b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZJ150S20S5BZZ50001

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:

12. 5 ton standard cooling only unit with stainless steel gas heat section, 575V, IDB motor, 15x15" wide blower wheel, Micro Channel OD coils, dual reciprocating type compressors, dual refrigeration circuits, 4 ODFs, and a "W" shaped OD condenser coil. The unit uses TXV for modulating refrigerant control. An optional VFD w/ manual bypass switch, fully modulating horizontal economizer/no PE, no convenience outlet, standard controller, standard plastic drain pan & standard 2" TA air filters were used.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,570	119 1/2	59	51	2.8	2.5	2.8

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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.34	0.54

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to an isolated roof curb supplied by MicroMetl, part #0405-642D-04. The unit rested on the perimeter of the curb. The curb had (4) 10Ga, 11-inch side anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (8) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT10a



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZF078S10F2BZZ5001

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 cooling only unit with smallest stainless steel natural gas fired heat exchanger, 230V, 12"x12" wide blower wheel, Micro Channel OD coils, dual reciprocating type compressors, and dual refrigeration circuits. TXV used for modulating refrigerant control. Optional VFD used with fully modulating slab economizer with PE, standard controller, standard plastic drain pan & standard 2" TA air filters. Dual outdoor fan (ODF) motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,090	89	59	42	11.3	7.5	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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to a rigid roof curb supplied by Ruskin, part #80-270-4414. 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.

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

UUT10b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZF078S10F2BZZ5001

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 cooling only unit with smallest stainless steel natural gas fired heat exchanger, 230V, 12"x12" wide blower wheel, Micro Channel OD coils, dual reciprocating type compressors, and dual refrigeration circuits. TXV used for modulating refrigerant control. Optional VFD used with fully modulating slab economizer with PE, standard controller, standard plastic drain pan & standard 2" TA air filters. Dual outdoor fan (ODF) motor deck arrangement.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,090	89	59	42	2.8	2.5	4.5

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to an isolated roof curb supplied by MicroMetl, part #0405-642D-02. The unit rested on the perimeter of the curb. The curb had (4) 10Ga, 11-inch side anchoring pockets, (2) on the each of the long side of the curb. The unit was attached to each of the pockets using (8) # 12 self tapping screws. The curb was attached to a 3/4" thick steel plate with (14) 1/2"-dia Gr. 2 bolts. The min spacing for the bolts was 8". The steel plate was attached to the shake table with (22) M12 threaded studs.

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

UUT11a

Unit Under Test (UUT) Summary Sheet



Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZH150C00A2BAC5

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:

12.5 ton standard cooling only unit with single V OD coil design, 230V, 12x12" wide blower wheel, micro channel OD coils, dual scroll type compressors, dual refrigeration circuits, and 4 ODFs. The unit uses TXV for modulating refrigerant control. No heat section (cooling only), VAV, no economizer/no power exhaust (PE), no convenience outlet, standard controller, no phase monitor or dirty filter switch, no smoke detectors, standard plastic drain pan & standard 2" fiberglass air filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,250	119 1/2	59	51.3	7.8	6.3	12.8

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:



Description: Unit was mounted to a rigid roof curb supplied by Ruskin, part #80-270-4414. 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.

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

UUT11b



Unit Under Test (UUT) Summary Sheet

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZH150C00A2BAC5

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:

12.5 ton standard cooling only unit with single V OD coil design, 230V, 12x12" wide blower wheel, micro channel OD coils, dual scroll type compressors, dual refrigeration circuits, and 4 ODFs. The unit uses TXV for modulating refrigerant control. No heat section (cooling only), VAV, no economizer/no power exhaust (PE), no convenience outlet, standard controller, no phase monitor or dirty filter switch, no smoke detectors, standard plastic drain pan & standard 2" fiberglass air filters were selected.

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,250	119 1/2	59	51	2.5	2.3	3.8

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 2019	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Unit Mounting Description:

DATE: 03/08/2021



Description: Unit was mounted to an isolated roof curb supplied by Ruskin (Provent), part #ISCALPRD371522_103. 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.

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

UUT 12a

Unit Under Test (UUT)

Summary Sheet



Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZT120N18P2B1LAAKA1

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:

The UUT is comprised of components including the following: reffridgerant compressor, outdoor fan motor, outdoor and indoor coils, VFD, economizer, Filters, smoke detector, Simplicity SE

UUT Properties

Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,470	119.5	59.0	51.0	6.5	9.5	12.5

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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.33	0.53

Unit Mounting Description:



The unit was mounted to a rigid roof curb supplied by Ruskin part #80270-2914 8" height model. The unit rested on the perimeter of the curb. The unit was attached to the curb via (18) manufacturer provided mounting clips on the curb with (2) #10 TEK screw holes each spaced at 5" on each clip and each clip spaced 8", 20.5", 11", 20.5", and 8" on center respectively on the longer side and 18" on center on the shorter side for a total of (36) #10 TEK self tapping screws. The curb was attached to a steel plate shake table interface plate with (8) 3/8"-diameter grade 5 bolts and washers. The bolts were spaced 38" depthwise and 68" widthwise.

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

UUT 12b	
Unit Under Test (UUT)	
Summary Sheet	

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZT120N18P2B1LAAKA1

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:

The UUT is comprised of components including the following: reffridgerant compressor, outdoor fan motor, outdoor and indoor coils, VFD, economizer, Filters, smoke detector, Simplicity SE 2-stage with COM, Simplicity SE 4-stage board.

UUT Properties						
Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,470	119.5	59.0	51.0	3.5	4.0	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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.33	0.53

Unit Mounting Description:



Unit was mounted to a isolated roof curb supplied by MicroMetl part #CRBV-PRD01FA-081-020. The unit rested on the perimeter of the curb. The unit was attached to the curb via (8) manufacturer provided mounting clips with (6) #10 TEK screw holes each spaced at 1.375" on each clip and each clip spaced 20+1/8" on center for a total of (48) #10 TEK self tapping screws. The curb was attached to a steel plate shake table interface plate with (8) 3/8"-diameter grade 5 bolts and washers. The bolts were spaced 41" depthwise and 71.5" widthwise.

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

UUT 13a	
Unit Under Test (UUT)	
Summary Sheet	

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZT150S24R4D5LAE3E1

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:
 The UUT is comprised of components including the following: reffridgerant compressor, outdoor fan motor, outdoor and indoor coils, VFD, economizer, Filters, smoke detector, Simplicity SE 2-stage with COM, Simplicity SE 4-stage board.


<i>UUT Properties</i>								
Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)				
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)		
1,680	119.5	59.0	51.0	6.0	9.0	13.0		
<i>Seismic Test Parameters</i>								
Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.33	0.53

Unit Mounting Description:



The unit was mounted to a rigid roof curb supplied by Ruskin part #80-270-2914 14" height model. The unit rested on the perimeter of the curb. The unit was attached to the curb via (18) manufacturer provided mounting clips on the curb with (2) #10 TEK screw holes each spaced at 5" on each clip and each clip spaced 8", 20.5", 11", 20.5", and 8" on center respectively on the longer side and 18" on center on the shorter side for a total of (36) #10 TEK self tapping screws. The curb was attached to a steel plate shake table interface plate with (8) 3/8"-diameter grade 5 bolts and washers. The bolts were spaced 38" depthwise and 68" widthwise.

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

UUT 13b	
Unit Under Test (UUT)	
Summary Sheet	

Manufacturer: Johnson Controls Incorporated

Product Line: Predator

Model Number: ZT150S24R4D5LAE3E1

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:

The UUT is comprised of components including the following: reffridgerant compressor, outdoor fan motor, outdoor and indoor coils, VFD, economizer, Filters, smoke detector, Simplicity SE 2-stage with COM, Simplicity SE 4-stage board.

UUT Properties								
Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)				
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)		
1,680	119.5	59.0	51.0	2.5	3.5	6.0		
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 2019	ICC-ES AC156	2.00	1.00	1.50	3.20	2.40	1.33	0.53

Unit Mounting Description:



Unit was mounted to a isolated roof curb supplied by MicroMetl part #CRBV-PRD01FA-1412-P40. The unit rested on the perimeter of the curb. The unit was attached to the curb via (8) manufacturer provided mounting clips with (6) #10 TEK screw holes each spaced at 1.375" on each clip and each clip spaced 20+1/8" on center for a total of (48) #10 TEK self tapping screws. The curb was attached to a steel plate shake table interface plate with (8) 3/8"-diameter grade 5 bolts and washers. The bolts were spaced 41" depthwise and 71.5" widthwise.

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