Engineering Catalog

RZ Series

Packaged Rooftop Units and Outdoor Air Handling Units

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- Airside Economizer
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- Double Wall Rigid Polyurethane Foam Panel Construction, R-13 Insulation
- Modulating Natural Gas Heaters
- Modulating/SCR Electric Heaters
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Indoor Air Quality

- 100% Outside Air
- Outside Airflow Monitoring
- Economizer CO2 Override
- High Efficiency Filtration
- Final Filters, including Gas Heat Systems
- UV Lights for Single Pass 90% Air Disinfection
- Double Wall Rigid Polyurethane Foam Panel Construction, R-13 Insulation
- Interior Corrosion Protection

Humidity Control

- High-Capacity Cooling Coils
- Variable Speed Compressors
- Factory-Installed AAONAIRE Total Energy Recovery Wheels
- Modulating Hot Gas Reheat

Safety

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System Integration

- Chilled Water Cooling Coils
- Electric/Natural Gas/LP Heating
- Hot Water/Steam Heating Coil
- Non-Compressorized DX Coils

Environmentally Friendly

- Airside Economizers
- Factory-Installed AAONAIRE Energy Recovery Wheels
- R-410A Refrigerant
- R-454B Refrigerant

Extended Life

- 5-Year Compressor Warranty

- 25-Year Stainless Steel Heat Exchanger Warranty
- Interior Corrosion Protection
- Polymer E-Coated Coils - 5-Year Coating Warranty
- Stainless Steel Coil Casing
- Stainless Steel Drain Pans

2. RZ SERIES FEATURE STRING NOMENCLATURE

The following is an example of the RZ series Feature String

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

2.1. RZ Series Feature String Description

2.1.1. RZ Model Options Breakdown

Series	MJRev	Unit Size	
RZ	A	- 145 -	D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Series And Generation

RZ

Major Revision

A

Unit Size

Air-Cooled

045 = 45-ton Capacity
055 = 55-ton Capacity
065 = 65-ton Capacity
075 = 75-ton Capacity
090 = 90-ton Capacity
105 = 105-ton Capacity
120 = 120-ton Capacity
130 = 130-ton Capacity
140 = 140-ton Capacity
145 = 145-ton Capacity
160 = 160-ton Capacity
180 = 180-ton Capacity
200 = 200-ton Capacity
220 = 220-ton Capacity
240 = 240-ton Capacity

Evaporative Condenser

051 = 51-ton Capacity
066 = 66-ton Capacity
073 = 73-ton Capacity
079 = 79-ton Capacity
101 = 101-ton Capacity
109 = 109-ton Capacity
124 = 124-ton Capacity
136 = 136-ton Capacity
148 = 148-ton Capacity
161 = 161-ton Capacity
172 = 172-ton Capacity
197 = 197-ton Capacity
221 = 221-ton Capacity
241 = 241-ton Capacity
261 = 261-ton Capacity

2.1.2. Model Options Breakdown

		SERIES	MNREV		VLT		
RZA-145	-	D	0	-	3	-	CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Series

Air-Cooled

A = 45-75-ton units
B = 90-105-ton units
C = 120-140-ton units
D = 145-180-ton units
E = 200-240-ton units

Evaporative Condenser

A = 51-79-ton units
B = 101-109-ton units
C = 124-148-ton units
D = 161-197-ton units
E = 221-261-ton units

Minor Revision

0 = RZ-075 and higher
A = only for RZ-045,055,065 changing to 2-circuits

Voltage

2 = 230V/3Φ/60Hz
3 = 460V/3Φ/60Hz
4 = 575V/3Φ/60Hz
8 = 208V/3Φ/60Hz

2.1.3. Model Options Breakdown

		A1	A2	A3	A4	A5	
RZA-145-D0-3	-	C	A	B	0	A	A-000000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Model Option A: Cooling/Heat Pump

A1: Compressor Style

0 = No Compressor
C = R-410A Variable Speed Scroll Compressor
H = R-454B Variable Speed Scroll Compressor

A2: Condenser Style

0 = No Condenser
A = Microchannel Air-Cooled Condenser
H = Evaporative Condenser
N = DX Air Handling Unit

A3: Indoor Coil Configuration

0 = No Cooling Coil
A = Std Row Std Size Evaporator
B = 6 Row Std Size Evaporator
C = Std Row Large Size Evaporator
D = 6 Row Large Size Evaporator
E = 4 Row Chilled Water Coil Std Size
F = 6 Row Chilled Water Coil Std Size
G = 8 Row Chilled Water Coil Std Size
H = 4 Row Chilled Water Coil Large Size
J = 6 Row Chilled Water Coil Large Size
K = 8 Row Chilled Water Coil Large Size

A4: Cooling Heat Exchanger Construction

0 = Standard
A = Polymer E-Coated Cooling Coil
B = Stainless Steel Cooling Coil Casing
D = Stainless Steel Cooling Coil Casing + Polymer E-Coated Cooling Coil
E = Polymer E-Coated Cond. Coil
J = Polymer E-Coated Evap. And Cond. Coil
T = Stainless Steel Cooling Coil Casing + Polymer E-Coated Evap. And Cond. Coil

A5: Cooling Staging

0 = No Cooling
A = Full Face Variable Capacity + Tandem On/Off Refrigeration Systems
E = All Variable Capacity Refrigeration Systems
F = Single Serpentine 8 FPI
G = Half Serpentine 8 FPI
H = Single Serpentine 10 FPI
J = Half Serpentine 10 FPI
K = Single Serpentine 12 FPI
L = Half Serpentine 12 FPI
M = DX Air Handling Unit with 4 Refrigeration Circuits
N = DX Air Handling Unit with 8 Refrigeration Circuits

2.1.4. Model Options Breakdown

		B1	B2	B3	B4	B5		
RZA-145-D0-3-CAB0A	-	0	0	0	0	0	:	N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Model Option B: Heating

B1: Heat Type

0 = No Heat
B = Electric Heat
D = Natural Gas Single Rack
E = Natural Gas Double Rack
K = Hot Water Coil
M = Steam Distributing Coil

B2: Heat Construction

0 = Standard
B = Stainless Steel Heat Exchanger
D = High-Altitude Stainless-Steel Heat Exchanger
G = Polymer E-Coated Heating Coil

B3: Heat Designation

0 = No Heat
1 = Heat 1
2 = Heat 2
3 = Heat 3
4 = Heat 4
5 = Heat 5
6 = Heat 6
7 = Heat 7
8 = Heat 8
A = 1 Row Size A
B = 1 Row Size B
C = 1 Row Size C
D = 1 Row Size D
E = 2 Row Size A
F = 2 Row Size B
G = 2 Row Size C
H = 2 Row Size D

B4: Heat Staging

0 = No Heat
A = 1 Stage
B = 2 Stage
C = 3 Stage
D = 4 Stage
E = 5 Stage
F = 6 Stage
G = 7 Stage
H = 8 Stage
V = 10 Stage
J = 12 Stage
K = Modulating Gas Heat Temp Control
L = High Turndown Modulating Gas Heat – Temperature Control
M = Modulating SCR Electric with Potentiometer Control
N = Modulating SCR Electric with External 0-10 VDC
R = Single Serpentine 10 FPI
S = Half Serpentine 10 FPI

B5: Heat Pump Aux Heating

0 = No Heat Pump

2.1.5. Model Options Breakdown

	1	
RZA-145-D0-3-CAB0A-00000:	N	0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

1: Unit Orientation

E = Draw Through SA Fan, Walk-in Vestibule, Left-Side Access
F = Draw Through SA Fan, Walk-in Vestibule, Right-Side Access
G = Draw Through Supply Fan, Non-compressorized, End Control Panel, Left-Access
H = Draw Through Supply Fan, Non-compressorized, End Control Panel, Right-Access
J = Draw Thru Supply Fan, Non-compressorized, Left Control Panel, Left-Access
K = Draw Thru Supply Fan, Non-compressorized, Right Control Panel, Right-Access
L = Draw Through SA Fan, Non-compressorized, Walk-in Vestibule, Left-Access
M = Draw Through SA Fan, Non-compressorized, Walk-in Vestibule, Right-Access
N = Blow Through SA Fan, Walk-in Vestibule, Left-Side Access
P = Blow Through SA Fan, Walk-in Vestibule, Right-Side Access
Q = Blow Through Supply Fan, Non-compressorized, End Control Panel, Left-Access
R = Blow Through Supply Fan, Non-compressorized, End Control Panel, Right-Access
S = Blow Thru Supply Fan, Non-compressorized, Left Control Panel, Left-Access
T = Blow Thru Supply Fan, Non-compressorized, Right Control Panel, Right-Access
U = Blow Through SA Fan, Non-compressorized, Walk-in Vestibule, Left-Access
V = Blow Through SA, Fan Non-compressorized, Walk-in Vestibule, Right-Access
W = Draw Thru Supply Fan, End Control Panel, Left-Side Air Tunnel Access
Y = Draw Thru Supply Fan, End Control Panel, Right-Side Air Tunnel Access
Z = Blow Thru Supply Fan. End Control Panel, Left-Side Air Tunnel Access
1 = Blow Thru Supply Fan. End Control Panel, Right-Side Air Tunnel Access

2.1.6. Model Options Breakdown

RZA-145-D0-3-CAB0A-00000:N 0 2 - AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

2: Supply & Return Locations

0 = Bottom Supply - Bottom Return
A = Bottom Supply - No Return
B = Bottom Supply - Left Return
C = Bottom Supply - Right Return
D = Bottom Supply - End Return
E = Left Supply - No Return
F = Left Supply - Bottom Return
G = Left Supply - Left Return
H = Left Supply - Right Return
J = Left Supply - End Return
K = Right Supply - No Return
L = Right Supply -.Bottom Return
M = Right Supply - Left Return
N = Right Supply - Right Return
P = Right Supply - End Return
Q = Top Supply - No Return
R = Top Supply - Bottom Return
S = Top Supply - Left Return
T = Top Supply - Right Return
U = Top Supply - End Return
V = End Supply + No Return
W = End Supply + Bottom Return
Y = End Supply + Left Return
Z = End Supply + Right Return
1 = End Supply + End Return

2.1.7. Model Options Breakdown

		3A	3B	
RZA-145-D0-3-CAB0A-00000:N0	-	A	A	KAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 3: Supply Fan Options

3A: Supply Fan Quantity

0 = 1 Fan
A = 2 Fans
B = 3 Fans
C = 4 Fans
D = 5 Fans
E = 6 Fans
F = 7 Fans
G = 8 Fans
H = 9 Fans
J = 10 Fans
K = 11 Fans
L = 12 Fans

3B: Supply Fan Configuration

0 = No VFDs + Full Width Fan
A = 1 Fan per VFD + Full Width Fan
B = 2 Fans per VFD + Full Width Fan
C = 3 Fans per VFD + Full Width Fan
D = 4 Fans per VFD + Full Width Fan
E = No VFDs + Narrow Width Fan
F = 1 Fan per VFD + Narrow Width Fan
G = 2 Fans per VFD + Narrow Width Fan
H = 3 Fans per VFD + Narrow Width Fan
J = 4 Fans per VFD + Narrow Width Fan
K = Option 0 + Inlet Backdraft Dampers
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N = Option C + Inlet Backdraft Dampers
P = Option D + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers
U = Option J + Inlet Backdraft Dampers

2.1.8. Model Options Breakdown

	3C	3D	3E		
RZA-145-D0-3-CAB0A-00000:N0-AA	K	A	Q	-	J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

3C: Supply Fan Size

G = 27” Direct Drive Backward Curved Plenum Aluminum
J = 30” Direct Drive Backward Curved Plenum Steel
K = 33” Direct Drive Backward Curved Plenum Steel
L = 36.5” Direct Drive Backward Curved Plenum Aluminum
M = 42.5” Direct Drive Backward Curved Plenum Aluminum
N = 18.5” Direct Drive Airfoil Plenum Aluminum
P = 22” Direct Drive Airfoil Plenum Aluminum
Q = 24” Direct Drive Airfoil Plenum Aluminum
R = 27” Direct Drive Airfoil Plenum Aluminum

3D: Supply Fan Motor Type

0 = High Efficiency Open Motor (1170 nominal rpm)
A = High Efficiency Open Motor (1760 nominal rpm)
K = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1760 nominal rpm)
P = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)

3E: Supply Fan Motor Size

G = 3 hp
H = 5 hp
J = 7.5 hp
K = 10 hp
L = 15 hp
M = 20 hp
N = 25 hp
P = 30 hp
Q = 40 hp
R = 50 hp

2.1.9. Model Options Breakdown

		4A	4B	4C		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ	-	J	0	0	-	BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 4: Return/Outside Air Options

4A: Outside Air Section

0 = 100% Outside Air
A = 100% Outside Air with Motorized Dampers
B = Manual Outside Air + Return Air Opening
C = Motorized Outside Air Dampers + Return Air Opening
D = 100% Return Air
E = Economizer
G = Econ + Power Exhaust (Plenum Fans)
J = Econ + Power Return (Plenum Fans)
Q = Econ + Energy Recovery + Bypass Damper
R = Econ + Energy Recovery + Bypass Damper + Power Return (Plenum Fans)

4B: Energy Recovery Type

0 = No Energy Recovery
A = Polymer Energy Recovery Wheel
B = Polymer Energy Recovery Wheel + 1% Purge
C = Aluminum Energy Recovery Wheel
D = Aluminum Energy Recovery Wheel + 1% Purge

4C: Energy Recovery Size

0 = No Energy Recovery
A = Small Enthalpy
B = Medium Enthalpy
C = Large Enthalpy
D = Extra Large Enthalpy
E = Small Sensible
F = Medium Sensible
G = Large Sensible
H = Extra Large Sensible
J = Small Enthalpy + Exhaust Filters
K = Medium Enthalpy + Exhaust Filters
L = Large Enthalpy + Exhaust Filters
M = Extra Large Enthalpy + Exhaust Filters
N = Small Sensible + Exhaust Filters
P = Medium Sensible + Exhaust Filters
Q = Large Sensible + Exhaust Filters
R = Extra Large Sensible + Exhaust Filters

2.1.10. Model Options Breakdown

	5A	5B	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-	B	F	T0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 5: Return Fan Options

5A: Return Fan Quantity

0 = No Return Fan
A = 1 Fan
B = 2 Fans
C = 3 Fans
D = 4 Fans

5B Return Fan Configuration

0 = No Return Fan
A = No VFDs + Full Width Fan
B = 1 Fan per VFD + Full Width Fan
C = 2 Fans per VFD + Full Width Fan
D = 3 Fans per VFD + Full Width Fan
E = 4 Fans per VFD + Full Width Fan
F = No VFDs + Narrow Width Fan
G = 1 Fan per VFD + Narrow Width Fan
H = 2 Fans per VFD + Narrow Width Fan
J = 3 Fans per VFD + Narrow Width Fan
K = 4 Fans per VFD + Narrow Width Fan
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N= Option C + Inlet Backdraft Dampers
P = Option D + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers
U = Option J + Inlet Backdraft Dampers
V = Option K + Inlet Backdraft Dampers

2.1.11. Model Options Breakdown

	5C	5D	5E		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BF	T	0	M	-	00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

5C: Return Fan Size

0 = No Return Fan
N = 27” Direct Drive Backward Curved Plenum Aluminum
Q = 30” Direct Drive Backward Curved Plenum Steel
R = 33” Direct Drive Backward Curved Plenum Steel
S = 36.5” Direct Drive Backward Curved Plenum Aluminum
T = 42.5” Direct Drive Backward Curved Plenum Aluminum
U = 18.5” Direct Drive Airfoil Plenum Aluminum
V = 22” Direct Drive Airfoil Plenum Aluminum
W = 24” Direct Drive Airfoil Plenum Aluminum
Y = 27” Direct Drive Airfoil Plenum Aluminum

5D: Return Fan Motor Type

0 = No Return Fan
A = High Efficiency Open Motor (1170 nominal rpm)
B = High Efficiency Open Motor (1760 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)
P = Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)
Q = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)

5E: Return Motor Size

0 = No Return Fan
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp
P = 25 hp
Q = 30 hp
R = 40 hp

2.1.12. Model Options Breakdown

	6A	6B	6C	6D	6E		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-	0	0	0	0	0	-	00-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 6: Exhaust Fan Options

6A: Exhaust Fan Quantity

0 = No Exhaust Fan
A = 1 Fan
B = 2 Fans

6B: Exhaust Fan Configuration

0 = No Exhaust Fan
A = No VFDs + Full Width Fan
B = 1 Fan per VFD + Full Width Fan
C = 2 Fans per VFD + Full Width Fan
D = 3 Fans per VFD + Full Width Fan
E = 4 Fans per VFD + Full Width Fan
F = No VFDs + Narrow Width Fan
G = 1 Fan per VFD + Narrow Width Fan
H = 2 Fans per VFD + Narrow Width Fan
J = 3 Fans per VFD + Narrow Width Fan
K = 4 Fans per VFD + Narrow Width Fan
L = Option A + Inlet Backdraft Dampers
M = Option B + Inlet Backdraft Dampers
N= Option C + Inlet Backdraft Dampers
P = Option D + Inlet Backdraft Dampers
Q = Option E + Inlet Backdraft Dampers
R = Option F + Inlet Backdraft Dampers
S = Option G + Inlet Backdraft Dampers
T = Option H + Inlet Backdraft Dampers
U = Option J + Inlet Backdraft Dampers
V = Option K + Inlet Backdraft Dampers

6C: Exhaust Fan Size

0 = No Exhaust Fan
N = 27” Direct Drive Backward Curved Plenum Aluminum
Q = 30” Direct Drive Backward Curved Plenum Steel
R = 33” Direct Drive Backward Curved Plenum Steel

6C: Exhaust Fan Size Continued

S = 36.5” Direct Drive Backward Curved Plenum Aluminum
T = 42.5” Direct Drive Backward Curved Plenum Aluminum
U = 18.5” Direct Drive Airfoil Plenum Aluminum
V = 22” Direct Drive Airfoil Plenum Aluminum
W = 24” Direct Drive Airfoil Plenum Aluminum
Y = 27” Direct Drive Airfoil Plenum Aluminum

6D: Exhaust Fan Motor Types

0 = No Exhaust Fan
A = High Efficiency Open Motor (1170 nominal rpm)
B = High Efficiency Open Motor (1760 nominal rpm)
L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)
M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)
P = Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)
Q = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)

6E: Exhaust Motor Size

0 = No Exhaust Fan
H = 3 hp
J = 5 hp
K = 7.5 hp
L = 10 hp
M = 15 hp
N = 20 hp
P = 25 hp
Q = 30 hp
R = 40 hp

2.1.13. Model Options Breakdown

7 8

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000 - Q F - A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

7: O/A Control

0 = Standard (No Actuator)
C = Fully Modulating Actuator - Sensible Limit
D = Fully Modulating Actuator - Enthalpy Limit
E = DDC Actuator
P = Option C + CO_2 Override
Q = Option D + CO_2 Override
R = Option E + CO_2 Override
U = 2 Position Actuator
V = Fault Detection and Diagnostics Controller (FDD) Sensible Limit
W = FDD Enthalpy Limit
Y = Option V + CO_2 Override
Z = Option W + CO_2 Override

8: Return & Exhaust Options

0 = No Return Opening
A = Standard Return Opening without EA Dampers
B = Large Return Opening without EA Dampers
C = Standard Return Opening + Barometric Relief EA Dampers
D = Large Return Opening + Barometric Relief EA Dampers
E = Standard Return Opening + Motorized EA Dampers
F = Large Return Opening + Motorized EA Dampers
G = Standard Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
H = Large Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
J = Standard Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
K = Large Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
L = Standard Return Opening + Motorized EA Dampers + Standard RA Bypass (Field Bypass Filter Required
M = Large Return Opening + Motorized EA Dampers + Standard RA Bypass (Field Bypass Filter Required)
N = Standard Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)
P = Large Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)
Q = Standard Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required)
R = Large Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required)
S = Standard Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required)
T = Large Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required)

2.1.14. Model Options Breakdown

	9A	9B	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-	A	0	AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 9: Filter Options

9A: Unit Filter Type

0 = 2" Pleated MERV 8
A = 4" Pleated MERV 8
B = 2" Pleated MERV 8 + 4" Pleated MERV 11
C = 2" Pleated MERV 8 + 4" Pleated MERV 13
D = 2" Pleated MERV 8 + 4" Pleated MERV 14
E = 4" Pleated MERV 8 + 4" Pleated MERV 11
F = 4" Pleated MERV 8 + 4" Pleated MERV 13
G = 4" Pleated MERV 8 + 4" Pleated MERV 14
H = 2" Pleated MERV 8 + 12" Cartridge MERV 11
J = 2" Pleated MERV 8 + 12" Cartridge MERV 13
K = 2" Pleated MERV 8 + 12" Cartridge MERV 14
L = 4" Pleated MERV 8 + 12" Cartridge MERV 11
M = 4" Pleated MERV 8 + 12" Cartridge MERV 13
N = 4" Pleated MERV 8 + 12" Cartridge MERV 14
P = 2" Pleated MERV 8 + 30" Bag MERV 13
Q = 2" Pleated MERV 8 + 30" Bag MERV 14
R = 4" Pleated MERV 8 + 30" Bag MERV 13
S = 4" Pleated MERV 8 + 30" Bag MERV 14
W = 4” MERV 8 + 12” 99.97 HEPA

9B: Unit filter Box Size/Location

0 = Standard Filters in Standard Position
A = Standard Filters in Pre-position
B = High Eff Filters Box A in Standard Position
C = High Eff Filters Box B in Standard Position
D = High Eff Filters Box C in Standard Position
E = High Eff Filters Box A in Pre-Position
F = High Eff Filters Box B in Pre-Position
G = High Eff Filters Box C in Pre-Position
H = Dual Angled Filter Racks Box A in Standard Position
J = Dual Angled Filter Racks Box B in Standard Position
K = Dual Angled Filter Racks Box A in Pre-Position
L = Dual Angled Filter Racks Box B in Pre-Position
N = HEPA Filters Box A in Standard Position
P = HEPA Filters Box B in Standard Position
Q = HEPA Filters Box A in Pre-position
R = HEPA Filters Box B in Pre-position

2.1.15. Model Options Breakdown

	9C	9D	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0	A	A	-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

9C: Final Filter Type

0 = No Final Filters
A = 12" Cartridge MERV 13 - Filter Box A
B = 12" Cartridge MERV 13 - Filter Box B
C = 12" Cartridge MERV 13 - Filter Box C
D = 12" Cartridge MERV 14 - Filter Box
E = 12" Cartridge MERV 14 - Filter Box B
F = 12" Cartridge MERV 14 - Filter Box C
G = 30" Bag MERV 13 - Filter Box A
H = 30" Bag MERV 13 - Filter Box B
J = 30" Bag MERV 13 - Filter Box C
K = 30" Bag MERV 14 - Filter Box A
L = 30" Bag MERV 14 - Filter Box B
M = 30" Bag MERV 14 - Filter Box C
N = HEPA Frame (No Filter) - Filter Box A
P = HEPA Frame (No Filter) - Filter Box B
Q = 12" 99.97 HEPA - Filter Box A
R = 12" 99.97 HEPA - Filter Box B

9D: Filter Options

0 = None
A = Clogged Filter Switch - Unit Filters
B = Clogged Filter Switch - Unit + Energy Recovery Filters
C = Clogged Filter Switch - Unit + Final Filters
D = Clogged Filter Switch - Unit + Energy Recovery + Final Filters
E = Magnehelic Gauge - Unit Filters
F = Magnehelic Gauge - Unit + Energy Recovery Filters
G = Magnehelic Gauge - Unit + Final Filters
H = Magnehelic Gauge - Unit + Energy Recovery + Final Filters
J = CFS + Magnehelic Gauge - Unit Filters
K = CFS + Magnehelic Gauge - Unit + Energy Recovery Filters
L = CFS + Magnehelic Gauge - Unit + Final Filters
M = CFS + Magnehelic Gauge - Unit + Energy Recovery + Final Filter

2.1.16. Model Options Breakdown

	10A	10B		11A	11B		12		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-	0	0	-	M	0	-	C	-	000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 10: Refrigeration Control

10A: Refrigeration Control A

0 = Standard
E = Freeze Stats (each circuit)

10B: Refrigeration Control B

0 = Standard

Feature 11: Refrigeration Options

11A: Refrigeration Options A

0 = Standard
D = Hot Gas Bypass Non-Variable Compressor Circuits (HGBNV)
E = Modulating Hot Gas Reheat [MHGR]
M = HGBNV + MHGR
Q = Polymer E-Coated MHGR
W = HGBNV + Polymer E-Coated MHGR

11B: Refrigeration Options B

0 = Standard Packaged Unit

12: Refrigeration Accessories

0 = Standard
B = Compressor Isolation Valves
C = Sight Glass + Compressor Isolation Valves
F = Option B + Variable Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
F = Option B + Lead Circuit -20°F Low Ambient [Size 045, 055, & 065]
G = Option C + Variable Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
G = Option C + Lead Circuit -20°F Low Ambient [Size 045, 055, & 065]
K = Option B + Tandem Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
K = Option B + Lag Circuit -20°F Low Ambient [Size 045, 055, & 065]
L = Option C + Tandem Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]
L = Option C + Lag Circuit -20°F Low Ambient [Size 045, 055, & 065]
P = Option B + All Circuits -20°F Low Ambient
Q = Option C + All Circuits -20°F Low Ambient

2.1.17. Model Options Breakdown

	13A	13B	13C		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-	0	0	0	-	00-80-DA0B-00-000-ABEQ0A-E00000-00000DB

Feature 13: Power Options

13A: Unit Disconnect Type

0 = Single Point Power - Standard Power Block
A = Single Point Power - Non-fused Disconnect Power Switch
B = Single Point Power - Circuit Breaker
C = Dual Point Power - Standard Power Block - Method #1
D = Dual Point Power - Non-Fused Disconnect Power Switch - Method #1
E = Dual Point Power - Circuit Breaker - Method #1
F = Dual Point Power - Standard Power Block - Method #2
G = Dual Point Power - Non-Fused Disconnect Power Switch - Method #2
H = Dual Point Power - Circuit Breaker - Method #2
J = Dual Point Power - Standard Power Block - Method #3
K = Dual Point Power - Non-Fused Disconnect Power Switch - Method #3
L = Dual Point Power - Circuit Breaker - Method #3
M = Dual Point Power - Standard Power Block - Method #4
N = Dual Point Power - Non-Fused Disconnect Power Switch - Method #1
P = Dual Point Power - Circuit Breaker - Method #1

13B: Disconnect 1 Size / 13C: Disconnect 2 Size

0 = Power Block
A = 15 amps
B = 20 amps
C = 25 amps
D = 30 amps
E = 35 amps
F = 40 amps
G = 45 amps
H = 50 amps
J = 60 amps
K = 70 amps
L = 80 amps
M = 90 amps
N = 100 amps
P = 110 amps
Q = 125 amps
R = 150 amps
S = 175 amps
T = 200 amps
U = 225 amps
V = 250 amps
W = 300 amps
Y = 350 amps
Z = 400 amps
1 = 450 amps
2 = 500 amps
3 = 600 amps
4 = 700 amps
5 = 800 amps
6 = 1000 amps
7 = 1200 amps

2.1.18. Model Options Breakdown

	14	15		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-	8	0	-	DA0B-00-000-ABEQ0A-E00000-00000DB

14: Safety Options

0 = Standard
A = RA & SA Firestat
B = RA Smoke Detector
C = SA Smoke Detector
D = High Supply Air Static Pressure Switch
E = Remote Safety Shutdown Terminals
F = Option A + B
G = Option A + C
H = Option A + D
J = Option A + E
K = Option B + C
L = Option B + D
M = Option B + E
N = Option C + D
P = Option C + E
Q = Option D + E
R = Option A + B + C
S = Option A + B + D
T = Option A + B + E
U = Option A + C + D
V = Option A + C + E
W = Option A + D + E
Y = Option B + C + D
Z = Option B + C + E
1 = Option B + D + E
2 = Option C + D + E
3 = Option A + B + C + D
4 = Option A + B + C + E
5 = Option A + B + D + E
6 = Option A + C + D + E
7 = Option B + C + D + E
8 = Option A + B + C + D + E

15: Electrical Accessories

0 = Standard
B = Phase and Brown Out Protection
C = Air Disinfection UV Lights
E = Compressor Sound Blankets
K = Option B + C
M = Option B + E
P = Option C + E
Z = Option B + C + E

2.1.19. Model Options Breakdown

	16A	16B	16C	16D	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-	D	A	0	B	-00-000-ABEQ0A-E00000-00000DB

Feature 16: Unit Controls

16A: Control Sequence

0 = Standard Terminal Block for Thermostat
A = Terminal Block for Thermostat + Isolation Relays
B = Single Zone VAV Unit Controller - VAV Cool + CAV Heat
C = Single Zone VAV Unit Controller - VAV Cool + VAV Heat
D = VAV Unit Controller - VAV Cool + CAV Heat
E = Constant Air Volume Unit Controller - CAV Cool + CAV Heat
F = Makeup Air Unit Controller
M = Field Installed DDC Controls by Others
N = Field Installed DDC Controls + Installation Relays
P = Factory Installed DDC Controls by Others + Installation Relays (Requires SPA)

16B: Control Supplier

0 = Standard
A = AAON Controls
C = AAON Controls Supervisory

16C: Control Supplier Options

0 = Standard

16D: BMS Connection & Diagnostics

0 = None
B = BACnet MSTP
K = BACnet MSTP with Diagnostics

2.1.20. Model Options Breakdown

	17A		17B		
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B	- 0		0	-	000-ABEQ0A-E00000-00000DB

Feature 17: Preheat Options

17A: Preheat Configuration

0 = No Preheat
F = Hot Water Coil Preheat in Option Box
G = Steam Distributing Coil Preheat in Option Box
M = Polymer Coated Hot Water Coil Preheat in Option Box
N = Polymer Coated Steam Distributing Coil Preheat in Option Box
P = Direct Fired Heat 100% OA Nat Gas (CAV)

Hot Water Preheat Coil [17A = F, M]

A = Size A 1 Row Half Serpentine 10 FPI
B = Size B 1 Row Half Serpentine 10 FPI
C = Size C 1 Row Half Serpentine 10 FPI
D = Size D 1 Row Half Serpentine 10 FPI
E = Size A 1 Row Quarter Serpentine 10 FPI
F = Size B 1 Row Quarter Serpentine 10 FPI
G = Size C 1 Row Quarter Serpentine 10 FPI
H = Size D 1 Row Quarter Serpentine 10 FPI
J = Size A 2 Row Full Serpentine 10 FPI
K = Size B 2 Row Full Serpentine 10 FPI
L = Size C 2 Row Full Serpentine 10 FPI
M = Size D 2 Row Full Serpentine 10 FPI
N = Size A 2 Row Half Serpentine 10 FPI
P = Size B 2 Row Half Serpentine 10 FPI
Q = Size C 2 Row Half Serpentine 10 FPI
R = Size D 2 Row Half Serpentine 10 FPI

Steam Distributing Preheat Coil [17A = G, N]

A = Size A 1 Row Full Serpentine 10 FPI
B = Size B 1 Row Full Serpentine 10 FPI
C = Size C 1 Row Full Serpentine 10 FPI
D = Size D 1 Row Full Serpentine 10 FPI
J = Size A 2 Row Full Serpentine 10 FPI
K = Size B 2 Row Full Serpentine 10 FPI
L = Size C 2 Row Full Serpentine 10 FPI
M = Size D 2 Row Full Serpentine 10 FPI

Direct Fired Heat [17A = P]

A = 1' Burner
B = 1.5' Burner
C = 2' Burner
D = 2.5' Burner
E = 3' Burner
F = 4' Burner
G = 4.5' Burner
H = 5.5' Burner
J = 6' Burner
K = 7' Burner
L = 7.5' Burner
M = 8.5' Burner

17B: Preheat Sizing

0 = No Preheat

2.1.21. Model Options Breakdown

		18A	18B	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00	-	0	0	0-ABEQ0A-E00000-00000DB

Feature 18: Option Boxes

18A: Box Location

0 = No Option Box
A = One Option Box after Return
B = One Option Box after Pre-Filter
C = One Option Box after Cooling
D = One Option Box after Supply Fan
E = One Option Box after Heat
F = One Option Box after Return + One after Pre-Filter
G = One Option Box after Return + One after Cooling
H = One Option Box after Return + One after Supply Fan
J = One Option Box after Return + One after Heat
K = One Option Box after Pre-Filter + One after Cooling
L = One Option Box after Pre-Filter + One after Supply Fan
M = One Option Box after Pre-Filter + One after Heat
N = One Option Box after Cooling + One after Supply Fan
P = One Option Box after Cooling + One after Heat
Q = One Option Box after Supply Fan + One after Heat
R = Additional Vestibule
S = 2 ft First Box
T = 2 ft First Box + 2ft Second Box
U = 2 ft First Box + 4ft Second Box
V = 2 ft First Box + 6ft Second Box
W = 2 ft First Box + 8ft Second Box
Y = 2 ft First Box + 8ft Second Box

18B: Box Size

0 = No Option Box
A = 2 ft First Box
B = 2 ft First Box + 2ft Second Box
C = 2 ft First Box + 4ft Second Box
D = 2 ft First Box + 6ft Second Box
E = 2 ft First Box + 8ft Second Box
F = 4 ft First Box
G = 4 ft First Box + 2ft Second Box
H = 4 ft First Box + 4ft Second Box
J = 4 ft First Box + 6ft Second Box
K = 4 ft First Box + 8ft Second Box
L = 6 ft First Box
M = 6 ft First Box + 2ft Second Box
N = 6 ft First Box + 4ft Second Box
P = 6 ft First Box + 6ft Second Box
Q = 6 ft First Box + 8ft Second Box
R = 8 ft First Box
S = 8 ft First Box + 2ft Second Box
T = 8 ft First Box + 4ft Second Box
U = 8 ft First Box + 6ft Second Box
V = 8 ft First Box + 8ft Second Box

2.1.22. Model Options Breakdown

	18C		19	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-00	0	-	A	BEQ0A-E00000-00000DB

18C: Box Accessories

0 = None
A = 20” Drain Pan in First Box
B = 20” Drain Pan in First Box + 20” Drain Pan in Second Box
C = 20” Drain Pan in First Box + 44” Drain Pan in Second Box
D = Option A + Sound Attenuator
E = 44” Drain Pan in First Box
F = 44” Drain Pan in First Box + 20” Drain Pan in Second Box
G = 44” Drain Pan in First Box + 44” Drain Pan in Second Box
H = Option E + Sound Attenuator
J = Sound Attenuator in First Box
K = Option J + 20” Dain Pan in Second Box
L =Option J + 44” Drain Pan in Second Box
M = Sound Attenuator in First Box + Sound Attenuator in Second Box
N = Empty First Box + 20” Drain Pan in Second Box
P = Empty First Box + 44” Drain Pan in Second Box
Q =Empty First Box + Sound Attenuator in Second Box
S = Air Mixer in First Box
T = Option S + 20” Drain Pan in Second Box
U =Option S + 44” Drain Pan in Second Box
V =Option S + Sound Attenuator in Second Box

19: Outside Air Accessories

0 = No Outside Air Hood - 100% Return Air
A = Outside Air Hood
B = Outside Air Hood with Metal Mesh Filters
C = Outside Air Hood + Outside Air Flow Measuring Station
G = Option B + C

2.1.23. Model Options Breakdown

	20	21	22	23	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-A	B	E	Q	0	A-E00000-00000DB

20: Cabinet Options

0 = Standard
B = SA & RA Burglar Bars
C = SA & RA Walkable Safety Grates
D = Perforated Line for SA Fans
E = Perforated Liner for RA Fans
L = Option B + D
M = Option B + E
N = Option C + D
P = Option C + E
Q = Option D + E
1 = Option B + D + E
2 = Option C + D + E

21: Accessories

0 = None
B = Motorized Service Vestibule Fresh Air
C = Supply Fan Air Flow Measuring
D = Return Fan Air Flow Measuring
E = Access Door Windows
K = Option B + C
L = Option B + D
M = Option B + E
N = Option C + D
P = Option C + E
Q = Option D + E
Y = Option B + C + D
Z = Option B + C + E
1 = Option B + D + E
2 = Option C + D + E
7 = Option B + C + D + E

22: Maintenance Accessories

0 = Standard
A = Factory Wired 115V Convenience Outlet
B = Field Wired 115V Convenience Outlet
C = Service Lights
D = Remote Start/Stop contacts
E = Supply Fan Auxiliary Contacts
F = Option A + C
G = Option A + D
H = Option A + E
J = Option B + C
K = Option B + D
L = Option B + E
M = Option C + D
N = Option C + E
P = Option D + E
Q = Option A + C + D
R = Option A + C + E
S = Option A + D + E
T = Option B + C + D
U = Option B + C + E
V = Option B + D + E
W = Option C + D + E
Y = Option A + C + D + E
Z = Option B + C + D + E

23: Code Options

0 = Standard - ETL U.S.A. Listing
A = Chicago Code
B = ETL U.S.A. + Canada Listing

2.1.24. Model Options Breakdown

	24	25	26	27	28	29	30	
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0	A -	E	0	0	0	0	0 -	00000DB

24: Shipping Splits

0 = Standard
A = Two Piece Unit
D = Two Piece Unit (Refrigeration Split)

25: Air Cooled Condenser Accessories

0 = Standard
E = VFD Condenser Fan Head Pressure Control
K = Low Sound Condenser Fan Head Pressure Control

26: Evaporative Condenser Accessories

0 = No Evaporative Condenser
A = No sump or vestibule heat
B = Sump & vestibule heaters

27: Water - Cooled Condenser Accessories

0 = No Water-Cooled Condenser

28: Energy Recovery Wheel Accessories

0 = None
A = Energy Recovery Wheel Defrost Start/Stop
B = Energy Recovery Wheel Rotation Detection
D = Powder Coated Energy Recovery Wheel
E =VFD for Heat Wheel Motor (Field Control)
F = Energy Recovery Wheel Defrost Start/Stop + Rotation Detection
M = Option B + E

29: VFD Options

0 = None
A = Shaft grounding on all SA, RA, EA motors
C = BACnet VFD on all motors

30: Miscellaneous Options

0 = None
A = High Condensate Level Switch
S = Additional Vestibule Heater
T = Option A + S

2.1.25. Model Options Breakdown

	31	32	33	34	35	36	37
RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E0000-	0	0	0	0	0	D	B

31: Blank

0 = Standard

32: Blank

0 = Standard

33: Blank

0 = Standard

34: Blank

0 = Standard

35: Warranty

0 = Standard Warranty
A = 2 Year Parts Warranty
B = 5 Year Parts Warranty
C = 10 Year Parts Warranty

36: Cabinet Material

D = Galvanized Cabinet - Double Wall + R-13 Foam Insulation + 6” Base Rail + Double Sloped Roof

37: Specials & Paint

B = Premium AAON Gray Paint Exterior
D = Premium AAON Gray Paint Exterior + Interior Corrosion Protection
G = Premium AAON Gray Paint Exterior + Interior Corrosion Protection + Shrink Wrap
X = SPA + Premium AAON Gray Paint Exterior
Z = SPA + Premium AAON Gray Paint Exterior + Interior Corrosion Protection
3 = SPA + Premium AAON Gray Paint Exterior + Interior Corrosion Protection + Shrink Wrap
4 = SPA + Special Exterior Paint Color
6 = SPA + Special Exterior Paint Color + Interior Corrosion Protection
9 = SPA + Special Exterior Paint Color + Interior Corrosion Protection + Shrink Wrap

3. MODEL OPTIONS

3.1. Model Option: Unit Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

The first number of the model string designates nominal tons of cooling at AHRI conditions for RZ Series units. The actual capacities vary based on the conditions. Refer to AAON's ECat software for more information on performance and cooling capacities at design conditions.

Table 1: Unit Series, Major Revision, Minor Revisions, Series, and Sizes

Unit Series	Major Revision	Air-Cooled Condenser	Evaporative Condenser	Series	Minor Revision	Compressors/Circuits
A	A	045		A	A	2/2
		055				
		065				
			051		0	2/1/3
			066			
			073			
		075	079			
		090	101	B		
		105	109			
		120	124	C		
		130	136			
		140	148			
		145	161	D		4/2/6
		160	172			
		180	197			
		200	221	E		
		220	241			
		240	261			

3.2. Voltage

RZA-145-D0-**3**-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

All units have single-point power blocks with grounding lugs. Compressorized units have 120VAC control circuits, whereas non-compressorized units have 24VAC control circuits.

2 = 230V/3Φ/60Hz
3 = 460V/3Φ/60Hz
4 = 575V/3Φ/60Hz
8 = 208V/3Φ/60Hz

3.3. Model Option: (A1) Compressor Style

RZA-145-D0-3-**C**AB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Compressor* - This selection does not include compressors.

C = *R-410A Variable Speed Scroll Compressors* - This selection offers compressorized DX cooling with R-410A using individually circuited VFD-compatible scroll compressors. See Model Option A5 for the selection of modulation options. A suction pressure sensor is provided with variable-speed compressors. This option enables precise temperature control, improves humidity control, and increases energy savings during part load conditions.

H = *R-454B Variable Speed Scroll Compressor* - This selection offers compressorized DX cooling with R-454B using individually circuited VFD-compatible scroll compressors. See Model Option A5 for the selection of modulation options. A suction pressure sensor is provided with variable-speed compressors. This option enables precise temperature control, improves humidity control, and increases energy savings during part load conditions.

Figure 1: Variable Speed Scroll Compressor Deck

3.4. Model Option: (A2) Condenser Style

RZA-145-D0-3-C**A**B0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Condenser* - This selection does not include a condenser coil.

A = *Microchannel Air-Cooled Condenser* - This selection includes an air-cooled condenser with microchannel coils.

H = *Evaporative Condenser* - This selection includes corrosion-resistant material on all wetted surfaces, a copper evaporative condenser coil, and an AAON de-superheater coil with a polymer e-coating.

N = *DX Air Handling Unit* - This selection includes an air handling unit evaporator coil, but no compressors or condensers. This option is used with a remote condensing unit. The expansion valve is not included; however, the connections for the expansion valve and hot gas bypass are included.

Figure 2: Air-Cooled Condenser

3.5. Model Option: (A3) Indoor Coil Configuration

RZA-145-D0-3-CA**B**0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Cooling Coil*

A = *Standard Evaporator* - This selection is equipped with standard capacity DX evaporator coils made of copper tubes with aluminum fins.

B = *6 Row Evaporator* - This selection is equipped with six-row, high-capacity DX evaporator coils made of copper tubes with aluminum fins. The high-capacity coils improve the unit's energy efficiency and dehumidification capability.

C = *Standard Row Large Size Evaporator* - This selection includes a DX evaporator coil option with a larger face area than the standard evaporator. The larger face area reduces air side pressure drops and increases capacity. The DX evaporator coils are made of copper tubes with aluminum fins.

D = *6 Row Large Size Evaporator* - This selection includes a DX evaporator coil option with a larger face area than the standard evaporator. The larger face area reduces air side pressure drops and increases capacity. The six-row high-capacity coils improve the unit's energy efficiency and dehumidification capability. The DX evaporator coils are made of copper tubes with aluminum fins.

E = *4 Row Chilled Water Coil Standard Size* - This selection is equipped with a four-row chilled water-cooling coil. No valves or valve controls are included with this option. The 45-140-ton units include two coils and two inlet and outlet water connections. The 145-240-ton units include four coils and four inlet and outlet water connections. The chilled water coils are made of copper tubes with aluminum fins.

F = *6 Row Chilled Water Coil Standard Size* - This selection is equipped with a six-row chilled water-cooling coil. No valves or valve controls are included with this option. The 45-140-ton units include two coils and two inlet and outlet water connections. The 145-240-ton units include four coils and four inlet and outlet water connections. The chilled water coils are made of copper tubes with aluminum fins.

G = *8* Row *Chilled Water Coil Standard Size* - This selection is equipped with an eight-row chilled water-cooling coil. No valves or valve controls are included with this option. The 45-140-ton units include two coils and two inlet and outlet water connections. The 145-240-ton units include four coils and four inlet and outlet water connections. The chilled water coils are made of copper tubes with aluminum fins.

H = *4 Row Chilled Water Coil Large Size* - This selection is equipped with a four-row chilled water-cooling coil with a larger face area than the standard chilled water coil. The larger face area reduces air side pressure drops and increases capacity. No valves or valve controls are included with this option. The 45-140-ton units include two coils and two inlet and outlet water connections. The 145-240-ton units include four coils and four inlet and outlet water connections. The chilled water coils are made of copper tubes with aluminum fins.

J = *6 Row Chilled Water Coil Large Size* - This selection is equipped with a six-row chilled water-cooling coil with a larger face area than the standard chilled water coil. The larger face area reduces air side pressure drops and increases capacity. No valves or valve controls are included with this option. The 45-140-ton units include two coils and two inlet and outlet water connections. The 145-240-ton units include four coils and four inlet and outlet water connections. The chilled water coils are made of copper tubes with aluminum fins.

K = *8 Row Chilled Water Coil Large Size* - This selection is equipped with an eight-row chilled water-cooling coil with a larger face area than the standard chilled water coil. The larger face area reduces air side pressure drops and increases capacity. No valves or valve controls are included with this option. The 45-140-ton units include two coils and two inlet and outlet water connections. The 145-240-ton units include four coils and four inlet and outlet water connections. The chilled water coils are copper tubes with aluminum fins.

3.6. Model Option: (A4) Cooling Heat Exchanger Construction

RZA-145-D0-3-CAB**0**A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

A = *Polymer E-Coated Cooling Coil* - This selection includes a polymer e-coating applied to the entirety of the cooling coil and its casing. The coating is capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for specific instructions on coil cleaning, maintenance, and record keeping.

B = *Stainless Steel Cooling Coil Casing* - This selection includes a stainless steel casing applied to the ends of the coil to protect the copper coil tubing from damage. This option protects the coil during shipping and improves the durability of the coil.

D = *Stainless Steel Cooling Coil Casing + Option A* - This selection includes a stainless steel casing applied to the ends of the coil to protect the copper coil tubing from damage. This option protects the coil during shipping and improves the durability of the coil. The condenser will also have a polymer E-coating to protect it against corrosion. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Instructions for coil cleaning, maintenance, and record keeping must be followed.

E = *Polymer E-Coated Condenser Coil* - This selection includes a polymer e-coating applied to the entirety of the condenser coil and its casing. The coating is capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for specific instructions on coil cleaning, maintenance, and record keeping.

J = *Polymer E-Coated Evaporator and Condenser Coils* - This selection includes a polymer e-coating applied to the entirety of the condenser and evaporator coils and their casings. The coating is capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for specific instructions on coil cleaning, maintenance, and record keeping.

T = *Stainless Steel Cooling Coil Casing + Option J* - This selection includes a stainless steel casing applied to the ends of the condenser coil and the evaporator coil. Additionally, a polymer e-coating is also applied to the entirety of the condenser and evaporator coils, as well as their casings. The coating includes a 5-year warranty from the date of original equipment shipment from the factory.

3.7. Model Option: (A5): Cooling Stage

RZA-145-D0-3-CAB0**A**-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Cooling* - This selection is a heating-only air handling unit.

A = *Full Face Variable Speed + Tandem On/Off Comp* - This selection is a modulating DX cooling unit. The 75-140-ton air-cooled condenser and the 51-148-ton evaporative cooled condenser RZ units include two variable speed scroll compressors and one tandem on/off compressor. The air-cooled condenser in the 145-240-ton and 161-261-ton evaporative cooled condenser RZ units include four variable speed scroll compressors and two tandem on/off compressors. With factory-provided controls, the on/off compressors are staged on while the variable capacity compressors modulate their capacity as needed.

E = *All Variable Capacity Refrigeration Systems* - This selection is a modulating DX cooling unit. The 45-65-ton air-cooled condenser RZ units include two variable-speed scroll compressors.

F = *Single Serpentine 8 fpi* - This selection includes a chilled water coil with single serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.

G = *Half Serpentine 8 fpi* - This selection includes a chilled water coil with half serpentine circuitry and 8 fins per inch. No valves or valve controls are included with this option.

H = *Single Serpentine 10 fpi* - This selection includes a standard chilled water coil option with single serpentine circuitry and 10 fins per inch. No valves or valve controls are included with this option.

J = *Half Serpentine 10 fpi* - This selection includes a chilled water coil with half serpentine circuitry and 10 fins per inch. No valves or valve controls are included with this option.

K = *Single Serpentine 12 fpi* - This selection includes a chilled water coil with single serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.

L = *Half Serpentine 12 fpi* - This selection includes a chilled water coil with half serpentine circuitry and 12 fins per inch. No valves or valve controls are included with this option.

M = *DX Air Handling Unit with 4 Refrigeration Circuits* - This selection is an air handling unit with an evaporator coil, but no compressors or condensers. This option is used with a remote condensing unit. The expansion valve is not included; however, connections for the expansion valve and hot gas bypass are included. This option is available for 45-140-ton RZ Units.

N = *DX Air Handling Unit with 8 Refrigeration Circuits* - This selection is an air handling unit with an evaporator coil, but no compressors or condenser. This option is used with a remote condensing unit. The expansion valve is not included; however, connections for the expansion valve and hot gas bypass are included. This option is available for 145-240-ton RZ Units.

3.8. Model Option: (B1) Heat Type

RZA-145-D0-3-CAB0A-**0**0000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Heating*

B = *Electric Heat* - This selection is an electric heater with multiple elements.

D = *Natural Gas Single Rack* - This selection is a natural gas heater with a single vertical rack of heat exchangers. The unit allows for one to six heat exchangers, but only requires a single gas connection.

E = *Natural Gas Double Rack* - This selection is a natural gas heater with a double vertical rack of heat exchangers. The unit allows for two to twelve heat exchangers, but only requires a single gas connection.

K = *Hot Water Coil* - This selection is a hot water heating coil. No valves or valve controls are included with this option.

M = *Steam Distributing Coil* - This selection is a steam heating coil. No valves or valve controls are included with this option. The maximum operating pressure for steam coils is 25 psi.

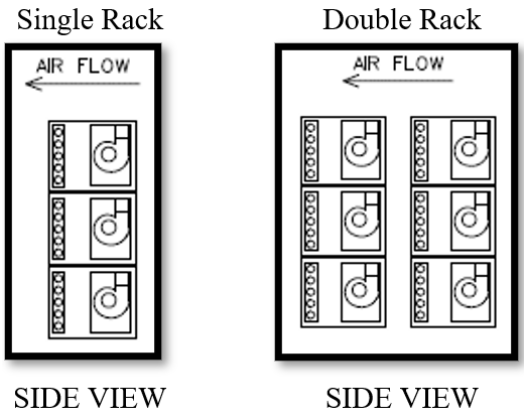

Figure 3: Single Rack vs Double Rack Gas Heater

Figure 4: Natural Gas Single Rack Heater

3.9. Model Option: (B2) Heat Construction

RZA-145-D0-3-CAB0A-0**0**000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Heat*

B = *Stainless Steel Heat Exchanger* - This selection is a natural gas or liquid propane gas heater with a 304 stainless steel heat exchanger and a 25-year non-prorated warranty. Stainless steel heat exchangers are required where the outside air rate is greater than or equal to 50% of the supply cfm or where the temperature rise across the heater exceeds the rating for the aluminized steel option (70°F). The maximum temperature rise for stainless steel heat exchangers is 100°F.

D = *High Altitude Stainless Steel* - This selection is a natural gas or liquid propane gas heater with a 304 stainless steel heat exchanger and a 25-year non-prorated warranty. Burner orifices are chosen based on altitude at or above 2,000 feet as selected in the AAON ECat. Stainless steel heat exchangers are required where the outside air rate is greater than or equal to 50% of the supply cfm or where the temperature rise exceeds the rating for the aluminized steel option (70°F). The maximum temperature rise for stainless steel heat exchangers is 100°F.

G = *Hot Water Polymer E-Coated Coil* - This selection is a hot water coil with a polymer e-coating applied to the entire coil and its casing. The coating exceeds a 10,000-hour salt spray test per ASTM B 117-90 requirements, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. No valves or valve controls are included with this option. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for specific instructions on coil cleaning, maintenance, and record keeping.

3.10. Model Option: (B3) Heat Designation

RZA-145-D0-3-CAB0A-00**0**00:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = No Heat
1 = Heat 1
2 = Heat 2
3 = Heat 3
4 = Heat 4
5 = Heat 5
6 = Heat 6
7 = Heat 7
8 = Heat 8

A = 1 Row Size A
B = 1 Row Size B
C = 1 Row Size C
D = 1 Row Size D
E = 1 Row Size E
F = 1 Row Size F
G = 1 Row Size G
H = 1 Row Size H

1 - 8 = *Gas Heat Input Capacity* - See Table 3 below for more information.

A - D = *1 Row Coil* - This selection features a single row hot water or steam heating coil. No valves or valve controls are included with this option. See Table 2 below for more information.

E - H = *2 Row Coil* - This selection features a two-row hot water or steam heating coil. No valves or valve controls are included with this option. See Table 2 below for more information.

Note: AAON's ECat software selects the correct heating designation option for gas heat or electric heat based on the desired leaving air and entering air temperature conditions. See the General Data section for tonnage-specific heating information.

Table 2: Hot Water & Steam Distributing Coil Sizes

RZ Cabinet Size	Coil Size	Hot Water Coils			Steam Distributing Coils		
		Fin Length x Fin Height	Coil Quantity	Coil Total Face Area (ft^2)	Fin Length x Fin Height	Coil Quantity	Coil Total Face Area (ft^2)
A (45-75 tons)	Size A	59” x 81.25”	1	33.3	36” x 60”	2	30.0
	Size B	59” x 60”	1	24.6	57” x 60”	1	23.8
	Size C	48” x 55”	1	18.3	57” x 39”	1	15.4
	Size D	36” x 45”	1	11.3	36” x 42”	1	10.5
B & C (90-140 tons)	Size A	38” x 81.25”	2	42.9	36” x 39”	4	39.0
	Size B	59” x 81.25”	1	33.3	36” x 60”	2	30.0
	Size C	59” x 60”	1	24.6	57” x 60”	1	23.8
	Size D	48” x 55”	1	18.3	57” x 39”	1	15.4
D & E (145-240 tons)	Size A	59” x 81.25”	2	66.6	57” x 39”	4	61.8
	Size B	59” x 60”	2	49.2	57” x 60”	2	47.5
	Size C	59” x 81.25”	1	33.3	57” x 39”	2	30.9
	Size D	48” x 65”	1	21.7	57” x 60”	1	23.8

Table 3: Gas Heating Capacities

RZ Cabinet Size	Model Option B3	Gas Heat		Electric Heat	
		Input Capacity	Output Capacity	kW (230V, 380V, 460V, 575V)	kW (208V)
		MBH	MBH	kW	kW
A, B, & C (45-140ton)	**1** = *Heat 1*	540	437	80	60.1
	2 = *Heat 2*	810	656	120	90.1
	3 = *Heat 3*	1080	875	160	120.1
	4 = *Heat 4*	1350	1094	200	150.2
	5 = *Heat 5*	1620	1312	240	180.3
	6 = *Heat 6*	2100	1701		
	7 = *Heat 7*	2580	2090		
	8 = *Heat 8*	3060	2479		
D & E (145-240ton)	**1** = *Heat 1*	800	648	80	60.1
	2 = *Heat 2*	1200	972	120	90.1
	3 = *Heat 3*	1600	1296	160	120.1
	4 = *Heat 4*	2000	1620	240	180.3
	5 = *Heat 5*	2400	1944	320	240.4
	6 = *Heat 6*	3100	2511	400	300.4
	7 = *Heat 7*	3800	3078	480	360.5
	8 = *Heat 8*	4500	3645		

3.11. Model Option: (B4) Heat Staging

RZA-145-D0-3-CAB0A-000**0**0:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Heating*
A = *1 stage* - Single-stage heat control.
B = *2 stage* - Two-stage heat control.
C = *3 stage* - Three-stage heat control.
D = *4 stage* - Four-stage heat control.
E = *5 stage* - Five-stage heat control.
F = *6 stage* - Six-stage heat control.
G = *7 stage* - Seven-stage heat control.
H = *8 stage* - Eight-stage heat control.
V = *10 stage* - Ten-stage heat control.
J = *12 stage* - Twelve-stage heat control.

Table 4: RZ Series Gas Turndown

Model (Nominal Tons)	Rated Input	Number of Stages Available	Modulating Gas	High Turndown Modulating Gas
45-140 tons	540 MBH	2, 4	3:1	9:1
	810 MBH	3, 6	4.5:1	13.5:1
	1080 MBH	4, 8	6:1	18:1
	1350 MBH	5, 10	7.5:1	22.5:1
	1620 MBH	6, 12	9:1	27:1
	2100 MBH	4, 8	11.7: 1	35:1
	2580 MBH	5, 10	14.3:1	43:1
	3060 MBH	6, 12	17:1	51:1
145-240	800 MBH	2, 4	3:1	7.5:1
	1200 MBH	3, 6	4.5:1	11.2:1
	1600 MBH	4, 8	6:1	15:1
	2000 MBH	5, 10	7.5:1	18.7:1
	2400 MBH	6, 12	9:1	22.5:1
	3100 MBH	4, 8	11.6:1	29:1
	3800 MBH	5, 10	14.2:1	35.6:1
	4500 MBH	6, 12	16.8:1	42.1:1

K = *Modulating Gas* - Temperature Control - This selection features a heater gas valve, and the speed of the induced draft fan is modulated by a DDC controller. This option includes a factory-wired supply air temperature sensor, which is field-installed in the supply ductwork. The controller can be used in standalone applications or connected to a VCC-X controller via a modular cable (Feature 16B = A). In standalone applications, calls for heating require the controller to modulate the gas valve and speed of the induced draft blower to maintain a constant supply air temperature setpoint. Use a DIP switch on the controller to set the air temperature set point. The supply air temperature can be reset using a field-provided 0-10 VDC reset input signal and another DIP switch on the controller. When the modulating gas heat controller is connected to a VCC-X controller (Feature 16B = A), the supply air temperature setpoint, supply air temperature sensor offset, and supply air high temperature limit setpoint will be set with the

unit controller's operator interface. The heat enable signal is provided by the unit controller. Modulating gas heat requires a stainless steel natural gas heat exchanger (Model Option B2 = B or D).

L = *High Turndown Modulating Gas Heat* - This selection is similar to Option K. This option adds a split manifold on the modulating heater, which allows the unit to achieve a lower capacity at the lowest setting, resulting in higher turndown.

M = *Modulating SCR with Temperature Control* - This selection includes fully modulating electric heating controlled by a Silicon Controlled Rectifier (SCR) and DDC controller. This option includes a factory-wired supply air temperature sensor, which is field-installed in the supply ductwork, and a factory-wired supply air temperature setpoint adjustment potentiometer, which is field-mounted. The potentiometer dial uses variable resistance to provide simple setpoint control.

N = *Modulating SCR with External 0-10 VDC* - This selection includes fully modulating electric heating controlled by an SCR and DDC controller. Also included is a terminal strip to connect a 0-10 VDC control signal by others. The heating elements' line voltage is modulated linearly via the control signal.

R = *Single Serpentine 10 fpi* - This selection features a hot water or steam heating coil with single serpentine circuitry and 10 fins per inch. Also included is a standard steam coil option and a standard two-row hot water coil option. No valves or valve controls are included with this option.

S = *Half Serpentine 10 fpi* - This selection includes a hot water heating coil with half serpentine circuitry and 10 fins per inch. Also included is a standard one-row hot water coil option. No valves or valve controls are included with this option.

3.12. Model Option: (B5) Heat Pump Aux Heating

RZA-145-D0-3-CAB0A-0000**0**:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Heat Pump*

4. FEATURE OPTIONS

4.1. Feature Option: (1) Unit Orientation

RZA-145-D0-3-CAB0A-00000:**N**0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

E = *Draw Through Supply Fan, Walk-in Vestibule, Left Side Air Tunnel Access* - Figure five depicts the supply fan in the draw-through position with access doors on the left side of the air tunnel. A walk-in service vestibule with an electrical cabinet is also included.

F = *Draw Through Supply Fan, Walk-in Vestibule, Right Side Air Tunnel Access* - Figure six depicts the supply fan in the draw-through position with access doors on the right side of the air tunnel. A walk-in service vestibule with an electrical cabinet is also included.

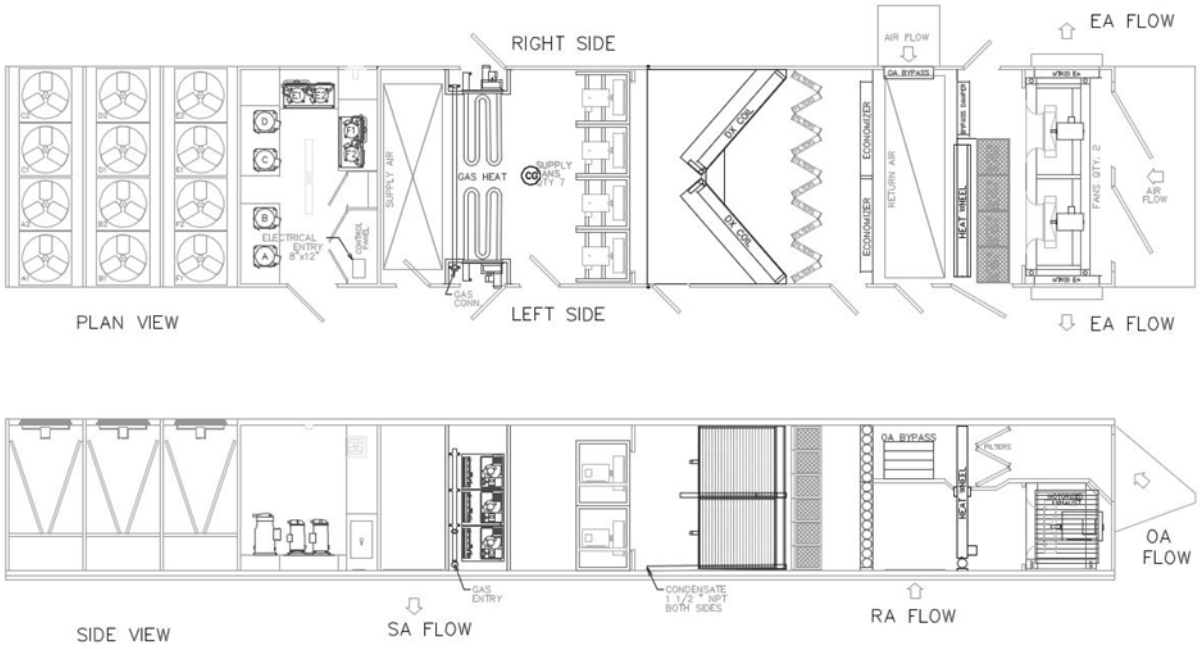

Figure 5: Draw Through Supply Fan, Walk-in Vestibule, Left Side Access

G = *Draw Through Supply Fan, Non-compressorized, End Control Panel, Left Side Air Tunnel Access* - Figure five depicts the supply fan in the draw-through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is located at the end of the unit.

H = *Draw Through Supply Fan, Non-compressorized, End Control Panel, Right Side Air Tunnel Access* - Figure six depicts the supply fan in the draw-through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is located at the end of the unit.

J = *Draw Through Supply Fan, Non-compressorized, Left Control Panel, Left Access* - Figure five depicts the supply fan in the draw through position with access doors on the left side of the air tunnel. This

selection does not include a walk-in compressorized section; instead, access to the control panel is located on the left side of the unit.

K = *Draw Through Supply Fan, Non-compressorized, Right Control Panel, Right Access* - Figure six depicts the supply fan in the draw through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is located on the right side of the unit.

L = *Draw Through Supply Fan, Non-compressorized, Walk-in Vestibule, Left Access* - Figure five depicts the supply fan in the draw through position with access doors on the left side of the air tunnel. A walk-in service vestibule with an electrical cabinet is included. This selection does not include the compressorized section.

M = *Draw Through Supply Fan, Non-compressorized, Walk-in Vestibule, Right Access* - Figure six depicts the supply fan in the draw-through position with access doors on the right side of the air tunnel. A walk-in service vestibule with an electrical cabinet is included. This selection does not include the compressorized section.

N = *Blow Through Supply Fan, Walk-in Vestibule, Left Side Air Tunnel Access* - Figure five depicts the supply fan in the blow-through position with access doors on the left side of the air tunnel. A walk-in service vestibule with an electrical cabinet is included.

P = *Blow Through Supply Fan, Walk-in Vestibule, Right Side Air Tunnel* Access - Figure six depicts the supply fan in the blow-through position with access doors on the right side of the air tunnel. A walk-in service vestibule with an electrical cabinet is included.

Q = *Blow Through Supply Fan, Non-compressorized, End Control Panel, Left Access* - Figure five depicts the supply fan in the blow-through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is located at the end of the unit.

R = *Blow Through Supply Fan, Non-compressorized, End Control Panel, Right Access* - Figure six depicts the supply fan in the blow-through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is at the end of the unit.

S = *Blow Through Supply Fan, Non-compressorized, Left Control Panel, Left Access* - Figure five depicts the supply fan in the blow-through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is at the left side of the unit.

T = *Blow Through Supply Fan, Non-compressorized, Right Control Panel, Right Access* - Figure six depicts the supply fan in the blow-through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is at the right side of the unit.

U = *Blow Through Supply Fan, Non-compressorized, Walk-in Vestibule, Left Access* - Figure five depicts the supply fan in the blow-through position with access doors on the left side of the air tunnel. A walk-in service vestibule with an electrical cabinet is included. This selection does not include the compressorized section.

V = *Blow Through Supply Fan, Non-compressorized, Walk-in Vestibule, Right Access* - Figure six depicts the supply fan in the blow-through position with access doors on the right side of the air tunnel. A walk-

in service vestibule with an electrical cabinet is included. This selection does not include the compressorized section.

W = *Draw Through Supply Fan, End Control Panel, Left Side Air Tunnel Access* - Figure five depicts the supply fan in the draw-through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is located at the end of the unit. This option is available for unit sizes 45-105 tons.

Y = *Draw Through Supply Fan, End Control Panel, Right Side Air Tunnel Access* - Figure six depicts the supply fan in the draw-through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section; instead, access to the control panel is at the end of the unit. This option is available for unit sizes 45-105 tons.

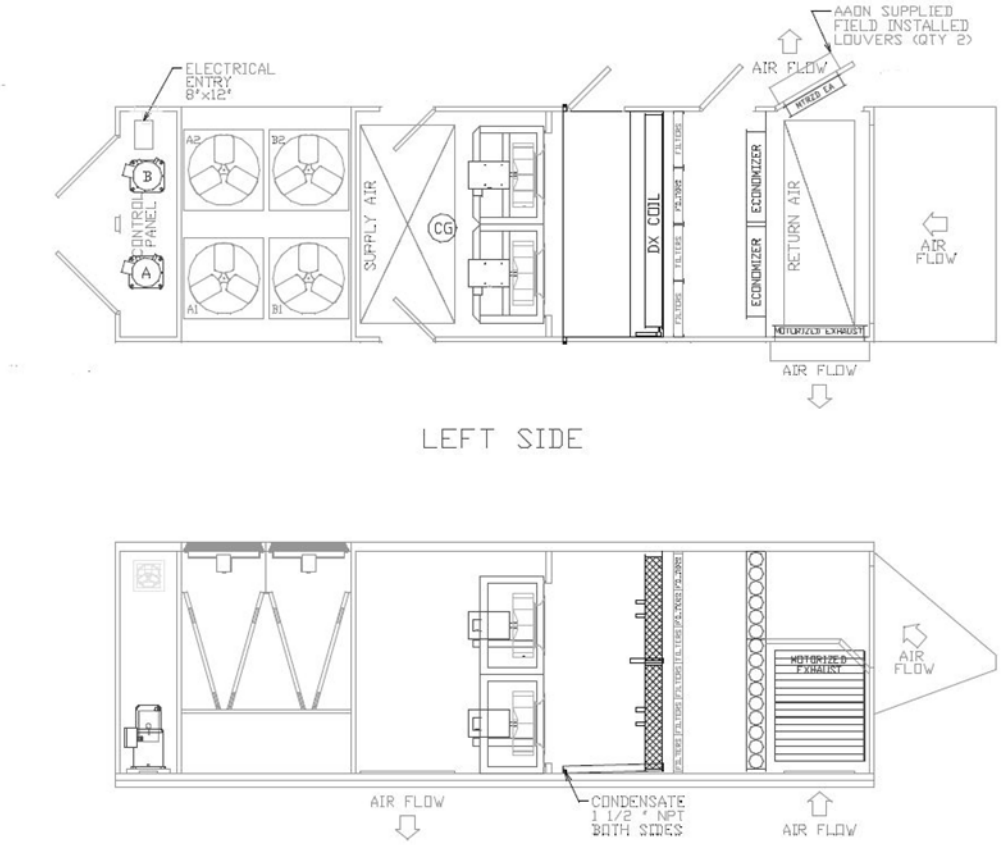

Figure 6: Draw Through Supply Fan, End Control Panel, Right Side Air Tunnel Access

Z = *Blow Through Supply Fan, End Control Panel, Left Side Air Tunnel Access* - Figure five depicts the supply fan in the blow-through position with access doors on the left side of the air tunnel. This selection does not include a walk-in compressorized section; instead, the control panel access is located at the end of the unit. This option is available for unit sizes 45-105 tons.

1 = *Blow Through Supply Fan, End Control Panel, Right Side Air Tunnel Access* - Figure six depicts the supply fan in the blow-through position with access doors on the right side of the air tunnel. This selection does not include a walk-in compressorized section; instead, the control panel access is at the end of the unit. This option is available for unit sizes 45-105 tons.

4.2. Feature Option: (2) Supply & Return Locations

RZA-145-D0-3-CAB0A-00000:N**0**-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Bottom Supply + Bottom Return*
A = *Bottom Supply + No Return*
B = *Bottom Supply + Left Return*
C = *Bottom Supply + Right Return*
D = *Bottom Supply + End Return*
E = *Left Supply + No Return*
F = *Left Supply + Bottom Return*
G = *Left Supply + Left Return*
H = *Left Supply + Right Return*
J = *Left Supply + End Return*
K = *Right Supply + No Return*
L = *Right Supply + Bottom Return*
M = *Right Supply + Left Return*
N = *Right Supply + Right Return*
P = *Right Supply + End Return*
Q = *Top Supply + No Return*
R = *Top Supply + Bottom Return*
S = *Top Supply + Left Return*
T = *Top Supply + Right Return*
U = *Top Supply + End Return*
V = *End Supply + No Return*
W = *End Supply + Bottom Return*
Y = *End Supply + Left Return*
Z = *End Supply + Right Return*
1 = *End Supply + End Return*

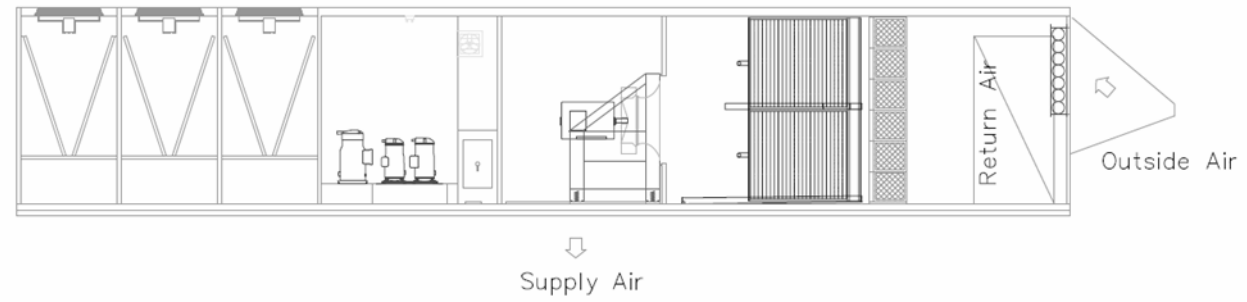

Figure 7: RZ Series Bottom Supply + Left Return

Figure 8: RZ Series Top Supply + No Return

4.3. Feature Option: (3A) Supply Fan Quantity

RZA-145-D0-3-CAB0A-00000:N0-**A**AKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *1 Fan*
A = *2 Fans*
B = *3 Fans*
C = *4 Fans*
D = *5 Fan*
E = *6 Fans*
F = *7 Fans*
G = *8 Fans*
H = *9 Fan*
J = *10 Fans*
K = *11 Fans*
L = *12 Fans*

AAON's ECat software selects the correct available options for Feature 3A based on the user's specific unit conditions and input from the fan selection program. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.4. Feature Option: (3B) Supply Fan Configuration

RZA-145-D0-3-CAB0A-00000:N0-A**A**KAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No VFDs + Full Width Fan*
A = *1 Fan per VFD + Full Width Fan*
B = *2 Fans per VFD + Full Width Fan*
C = *3 Fans per VFD + Full Width Fan*
D = *4 Fans per VFD + Full Width Fan*
E = *No VFDs + Narrow Width Fan*
F = *1 Fan per VFD + Narrow Width Fan*
G = *2 Fans per VFD + Narrow Width Fan*
H = *3 Fans per VFD + Narrow Width Fan*
J = *4 Fans per VFD + Narrow Width Fan*
K = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
L = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
M = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
N = *3 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
P = *4 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
Q = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
R = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
S = *2 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
T = *3 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
U = *4 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

Figure 9: Inlet Backdraft Dampers

AAON's ECat software selects the correct available options for Feature 3B based on the user's specific unit conditions and input from the fan selection program. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.5. Feature Option: (3C) Supply Fan Size

RZA-145-D0-3-CAB0A-00000:N0-AA**K**AQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

G = *27" Direct Drive Backward Curved Plenum Aluminum*
J = *30" Direct Drive Backward Curved Plenum Steel*
K = *33" Direct Drive Backward Curved Plenum Steel*
L = *36.5" Direct Drive Backward Curved Plenum Aluminum*
M = *42.5" Direct Drive Backward Curved Plenum Aluminum*
N = *18.5" Direct Drive Airfoil Plenum Aluminum*
P = *22" Direct Drive Airfoil Plenum Aluminum*
Q = *24" Direct Drive Airfoil Plenum Aluminum*
R = *27" Direct Drive Airfoil Plenum Aluminum*

Options N-R (Direct Drive Airfoil Plenum Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON's ECat software selects the correct available options for Feature 3C based on the user's specific unit conditions and the input from the fan selection program. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.6. Feature Option: (3D) Supply Fan Motor Type

RZA-145-D0-3-CAB0A-00000:N0-AAK**A**Q-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *High Efficiency Open Motor (1170 nominal rpm)*
A = *High Efficiency Open Motor (1760 nominal rpm)*
K = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*
L = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*
P = *Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)* - This selection uses less power than an induction motor under the same conditions. Permanent magnet motors must include one VFD per motor. With this option, a VFD bypass is not available; however, shaft grounding is standard on these motors.

AAON's ECat software selects the correct available options for Feature 3D based on the user's specific unit conditions and the input from the fan selection program. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.7. Feature Option: (3E) Supply Fan Motor Size

RZA-145-D0-3-CAB0A-00000:N0-AAKA**Q**-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

G = 3 hp
H = 5 hp
J = 7.5 hp
K = 10 hp
L = 15 hp
M = 20 hp
N = 25 hp
P = 30 hp
Q = 40 hp
R = 50 hp

AAON's ECat software selects the correct available options for Feature 3E based on the user's specific unit conditions and the input from the fan selection program. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.8. Feature Option: (4A) Outside Air Section

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-**J**00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *100% Outside Air, No Return Air* - This selection includes an outside air opening in the unit, which can accommodate 100% of the unit air flow. The outside air opening is not adjustable, and the unit will not have a return air opening. This unit must have a stainless steel heat exchanger if gas heat is specified. A hot gas bypass is required on all refrigeration circuits without variable speed scroll compressors.

A = *Motorized 100% Outside Air Dampers, No Return Air* - This selection includes extruded aluminum, low-leakage, gear-driven outside air dampers to control the outside air intake. This option is for 100% outside air applications, and this unit will not have a return air opening. This unit must have a stainless steel heat exchanger if gas heat is specified. A hot gas bypass is required on all refrigeration circuits without variable speed scroll compressors. This unit is also equipped with dampers that open on call for the supply fan. See Feature 7 for outside air damper actuator control options.

B = *Manually Adjustable Outside Air Opening with Return Air Opening* - This selection includes a 0-25% manually adjustable outside air opening. This option also includes a return air opening in the unit base.

C = *Motorized Outside Air Dampers with Return Air* - This selection features extruded aluminum, low-leakage, aluminum gear-driven outside air dampers to control the outside air intake. This option also includes a return air opening in the unit base. The unit is also equipped with dampers that open on call for the supply fan. See Feature 7 for outside air damper actuator control options.

D = *100 % Return Air, No Outside Air* - This selection includes a return air opening in the unit that accommodates 100% of the unit air flow. Thus, the return air opening is not adjustable and will not have an outside air opening.

E = *Economizer* - This selection features an extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly with a factory-installed actuator and barometric relief damper on the return air section. See Feature 7 for actuator control options.

G = *Economizer with Power Exhaust* - This selection features an extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly with a power exhaust for space pressurization control during the economizer mode of operation. See Feature 7 for actuator control options. A variable flow power exhaust is also available with the selection of a VFD in Feature 6B.

J = *Economizer with Power Return* - This selection features an extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly with a power return for high return static pressure applications. See Feature 7 for actuator control options. A variable flow power return is available with the selection of a VFD in Feature 5B.

Q = *Economizer with AAONAIRE Energy Recovery with Bypass Damper* - This selection includes both factory-installed energy recovery and extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly. A bypass damper with a two-position actuator allows air to flow around the wheel. Use the bypass damper when the outside air flow is greater than the maximum air flow rating of the wheel or when additional air flow is needed during economizer operation. This option limits the outside air flow through the wheel to the maximum air flow rating of the wheel shown in Table 6. See Feature 7 for economizer actuator control options.

R = *Economizer with Power Return and AAONAIRE Energy Recovery with Bypass Damper* - This selection includes factory-installed energy recovery with factory-installed extruded aluminum, low leakage,

aluminum gear-driven, economizer damper assembly with a power return for high return static pressure applications. This option also offers a variable flow power return with the selection of a VFD in Feature 5B. A bypass damper with a two-position actuator allows air to flow around the wheel. Use the bypass damper when the outside air flow is greater than the maximum air flow rating of the wheel, or when additional air flow is needed during the operation of the economizer. This option limits the outside air flow through the wheel to the maximum air flow rating of the wheel shown in Table 6. See Feature 7 for economizer actuator control options.

Table 5: Economizer Data

Model	Cabinet	Cabinet Width (in.)	Economizer			
			Blade Length (in.)	Number of Banks	Return Area (ft^2)	Outside Area (ft^2)
RZ-045	A	100	60	1	20.7	13.8
RZ-055						
RZ-065						
RZ-075						
RZ-090	B		38	2	26.2	17.5
RZ-105						
RZ-120	C					
RZ-130						
RZ-140						
RZ-145	D	142	60		41.4	27.6
RZ-160						
RZ-180						
RZ-200	E					
RZ-220						
RZ-240						

4.9. Feature Option: (4B) Energy recovery Type

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J**0**0-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Energy Recovery Wheel*

A = *Polymer Energy Recovery Wheel* - This selection includes a factory-installed polymer energy recovery wheel with a factory-installed extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly. See Feature 7 for economizer actuator control options.

B = *Polymer Energy Recovery Wheel+1% Purge* - This selection includes a factory-installed polymer energy recovery wheel with a factory-installed extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly. This option also includes an adjustable purge sector, which reduces carryover to no more than one percent. The adjustable purge sector is used to limit the cross-contamination of ventilation air with exhaust air. Feature 7 for economizer actuator control options.

C = *Aluminum Energy Recovery Wheel* - This selection includes a factory-installed aluminum energy recovery wheel with a factory-installed extruded aluminum, low leakage, aluminum gear-driven, economizer damper assembly. See Feature 7 for economizer actuator control options.

D = *Aluminum Energy Recovery Wheel+1% Purge* - This selection includes a factory-installed aluminum energy recovery wheel with a factory-installed extruded aluminum, low-leakage, aluminum gear-driven, economizer damper assembly. The option also includes an adjustable purge sector, which reduces carryover to no more than one percent. The adjustable purge sector is used to limit the cross-contamination of ventilation air with exhaust air. See Feature 7 for economizer actuator control options.

Figure 10: Aluminum Energy Recovery Wheel

4.10. Feature Option: (4C) Energy Recovery Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J0**0**-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Energy Recovery*

A = *Small Enthalpy* - The wheel's heat transfer material is treated with a silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

B = *Medium Enthalpy* - The wheel's heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

C = *Large Enthalpy* - This selection includes two wheels. The wheels' heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

D = *Extra Large Enthalpy* - This selection includes two wheels. The wheels' heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

E = *Small Sensible* - The wheel does not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

F = *Medium Sensible* - The wheel does not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

G = *Large Sensible* - This selection includes two wheels. The wheels do not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

H = *Extra Large Sensible* - This selection includes two wheels. The wheels do not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6.

J = *Small Enthalpy + Exhaust Filters* - The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. This selection includes exhaust filters installed in the exhaust air stream upstream of the wheel.

K = *Medium Enthalpy + Exhaust Filters* - The wheel's styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. The selection includes exhaust filters installed in the exhaust air stream upstream of the wheel.

L = *Large Enthalpy + Exhaust Filters* - This selection includes two wheels. The wheels' styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow is limited to the maximum air flow rating of the wheel shown in Table 6. The selection includes exhaust filters installed in the exhaust air stream upstream of the wheel.

M = *Extra Large Enthalpy + Exhaust Filters* - This selection includes two wheels. The wheels' styrene heat transfer material is treated with silica gel desiccant for sensible and latent energy recovery. The outside air flow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. This selection features exhaust filters installed in the exhaust air stream upstream of the wheel.

N = *Small Sensible + Exhaust Filters* - The wheel does not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. This selection features exhaust filters installed in the exhaust air stream upstream of the wheel.

P = *Medium Sensible + Exhaust Filters* - The wheel does not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. This selection features exhaust filters installed in the exhaust air stream upstream of the wheel.

Q = *Large Sensible + Exhaust Filters* - This selection includes two wheels. The wheels do not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. This selection features exhaust filters installed in the exhaust air stream upstream of the wheel.

R = *Extra Large Sensible + Exhaust Filters* - This option includes two wheels. The wheels do not have silica gel desiccant on the substrate. The outside airflow for this option is limited to the maximum air flow rating of the wheel shown in Table 6. This selection features exhaust filters installed in the exhaust air stream upstream of the wheel.

Table 6: Energy Recovery Wheel Information

Cabinet Size	Energy Recovery Size	Energy Recovery Wheel P= Polymer; A= Aluminum		
		Qty/Diameter/Width	Maximum Air Flow Through the Wheel	Wheel Bypass Maximum Airflow
A, B, C, Cabinet	Small	P = 1 / 74" /3" A = 1 / 74" /4"	P = 12,000 CFM A = 17,000 CFM	25,000 CFM
	Medium	P = 1 / 81" /3" A = 1 / 81" /4"	P = 15,000 CFM A = 20,000 CFM	18,000 CFM
	Large	P = 2 / 74" /3" A = 2 / 74" /4"	P = 24,000 CFM A = 34,000 CFM	20,000 CFM
D & E Cabinet	Small	P = 1 / 74" /3" A = 1 / 74" /4"	P = 12,000 CFM A = 17,000 CFM	50,000 CFM
	Medium	P = 1 / 81" /3" A = 1 / 81" /4"	P = 15,000 CFM A = 20,000 CFM	48,000 CFM
	Large	P = 2 / 74" /3" A = 2 / 74" /4"	P = 24,000 CFM A = 34,000 CFM	20,000 CFM
	Extra Large	P = 2 / 81" /3" A = 2 / 81" /4"	P = 30,000 CFM A = 40,000 CFM	24,000 CFM

4.11. Feature Option: (5A) Return Fan Quantity

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-**B**FT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Return Fan*
A = *1 Fan*
B = *2 Fans*
C = *3 Fans*
D = *4 Fans*

AAON's ECat software selects the correct available options for Feature 5A based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a power return, power exhaust, or energy recovery wheel option in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.12. Feature Option: (5B) Return Fan Configuration

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-B**F**T0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Return Fan*
A = *No VFDs + Full Width Fan*
B = *1 Fan per VFD + Full Width Fan*
C = *2 Fans per VFD + Full Width Fan*
D = *3 Fans per VFD + Full Width Fan*
E = *4 Fans per VFD + Full Width Fan*
F = *No VFDs + Narrow Width Fan*
G = *1 Fan per VFD + Narrow Width Fan*
H = *2 Fans per VFD + Narrow Width Fan*
J = *3 Fans per VFD + Narrow Width Fan*
K = *4 Fans per VFD + Narrow Width Fan*
L = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
M = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
N = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
P = *3 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
Q = *4 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
R = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
S = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
T = *2 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
U = *3 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
V = *4 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

Note: Power return with VFD or Speed Control requires a field-supplied control signal.

AAON's ECat software selects the correct available options for Feature 5B based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a power return, power exhaust, or energy recovery wheel option in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.13. Feature Option: (5C) Return Fan Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BF**T**0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = No Return Fan
N = 27" Direct Drive Backward Curved Plenum Aluminum
Q = 30" Direct Drive Backward Curved Plenum Steel
R = 33" Direct Drive Backward Curved Plenum Steel
S = 36.5" Direct Drive Backward Curved Plenum Aluminum
T = 42.5" Direct Drive Backward Curved Plenum Aluminum
U = 18.5" Direct Drive Airfoil Plenum Aluminum
V = 22" Direct Drive Airfoil Plenum Aluminum
W = 24" Direct Drive Airfoil Plenum Aluminum
Y = 27" Direct Drive Airfoil Plenum Aluminum

Options U-Y (Direct Drive Airfoil Plenum Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON's ECat software selects the correct available options for Feature 5C based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.14. Feature Option: (5D) Return Fan Motor Type

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT**0**M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Return Fan*

A = *High Efficiency Open Motor (1170 nominal rpm)*

B = *High Efficiency Open Motor (1760 nominal rpm)*

L = *High Efficiency Totally Enclosed Motor (1170 nominal rpm)*

M = *High Efficiency Totally Enclosed Motor (1760 nominal rpm)*

P = *Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm)* - This selection uses less power than an induction motor under the same conditions. Permanent magnet motors must include one VFD per motor, and VFD bypass is not available; however, shaft grounding is standard on these motors.

Q = *Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm)* - This selection uses less power than an induction motor under the same conditions. Permanent magnet motors must include one VFD per motor, and VFD bypass is not available; however, shaft grounding is standard on these motors.

AAON's ECat software selects the correct available options for Feature 5D based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.15. Feature Option: (5E) Return Fan Motor Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0**M**-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Return Fan*
H = *3 hp*
J = *5 hp*
K = *7.5 hp*
L = *10 hp*
M = *15 hp*
N = *20 hp*
P = *25 hp*
Q = *30 hp*
R = *40 hp*

AAON's Ecat software selects the correct available options for Feature 5E based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, motors, and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.16. Feature Option: (6A) Exhaust Fan Quantity

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-**0**0000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Exhaust Fan*
A = *1 Fan*
B = *2 Fans*

AAON's Ecat software selects the correct available options for Feature 6A based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a power return, power exhaust, or energy recovery wheel option in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.17. Feature Option: (6B) Exhaust Fan Configuration

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-0**0**000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

A = *No VFDs + Full Width Fan*
B = *1 Fan per VFD + Full Width Fan*
C = *2 Fans per VFD + Full Width Fan*
D = *3 Fans per VFD + Full Width Fan*
E = *4 Fans per VFD + Full Width Fan*
F = *No VFDs + Narrow Width Fan*
G = *1 Fan per VFD + Narrow Width Fan*
H = *2 Fans per VFD + Narrow Width Fan*
J = *3 Fans per VFD + Narrow Width Fan*
K = *4 Fans per VFD + Narrow Width Fan*
L = *No VFDs + Full Width Fan + Inlet Backdraft Dampers*
M = *1 Fan per VFD + Full Width Fan + Inlet Backdraft Dampers*
N = *2 Fans per VFD + Full Width Fan + Inlet Backdraft Dampers*
P = *3 Fans per VFD + Inlet Backdraft Dampers*
Q = *4 Fans per VFD + Inlet Backdraft Dampers*
R = *No VFDs + Narrow Width Fan + Inlet Backdraft Dampers*
S = *1 Fan per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
T = *2 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
U = *3 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*
V = *4 Fans per VFD + Narrow Width Fan + Inlet Backdraft Dampers*

AAON's Ecat software selects the correct available options for Feature 6B based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a power return, power exhaust, or energy recovery wheel option in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.18. Feature Option: (6C) Exhaust Fan Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00**0**00-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Exhaust Fan*
N = *27" Direct Drive Backward Curved Plenum Aluminum*
Q = *30" Direct Drive Backward Curved Plenum Steel*
R = *33" Direct Drive Backward Curved Plenum Steel*
S = *36.5" Direct Drive Backward Curved Plenum Aluminum*
T = *42.5" Direct Drive Backward Curved Plenum Aluminum*
U = *18.5" Direct Drive Airfoil Plenum Aluminum*
V = *22" Direct Drive Airfoil Plenum Aluminum*
W = *24" Direct Drive Airfoil Plenum Aluminum*
Y = *27" Direct Drive Airfoil Plenum Aluminum*

Options U-Y (Direct Drive Airfoil Plenum Aluminum fans) are welded aluminum. The blade count of this fan moves the sound frequency into a spectrum that is easier to attenuate.

AAON's ECat software selects the correct available options for Feature 6C based on unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, motors, and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users will be able to choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.19. Feature Option (6D) Exhaust Fan Motor Type

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-0000-0QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = No Exhaust Fan

A = High Efficiency Open Motor (1170 nominal rpm)

B = High Efficiency Open Motor (1760 nominal rpm)

L = High Efficiency Totally Enclosed Motor (1170 nominal rpm)

M = High Efficiency Totally Enclosed Motor (1760 nominal rpm)

P = Permanent Magnet AC Totally Enclosed Motor (1170 nominal rpm) - This selection uses less power than an induction motor under the same conditions. Permanent magnet motors must include one VFD per motor, and VFD bypass is not available; however, shaft grounding is standard on these motors.

Q = Permanent Magnet AC Totally Enclosed Motor (1760 nominal rpm) - This selection uses less power than an induction motor under the same conditions. Permanent magnet motors must include one VFD per motor, and VFD bypass is not available; however, shaft grounding is standard on these motors.

AAON's ECat selects the correct available options for Feature 6D based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.20. Feature Option: (6E) Exhaust Fan Motor Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-0000**0**-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Exhaust Fan*
H = *3 hp*
J = *5 hp*
K = *7.5 hp*
L = *10 hp*
M = *15 hp*
N = *20 hp*
P = *25 hp*
Q = *30 hp*
R = *40 hp*

AAON's ECat software selects the correct available options for Feature 6E based on the user's specific unit conditions and the input from the fan selection program. When building a fan configuration with AAON ECat, users select a return/exhaust fan or energy recovery wheel in Feature 4A. When all of the other features have been selected, users are prompted to select supply fans, return or exhaust fans, or motors and VFDs under the "Fan Selection" window. In the "Fan Selection" window, users choose the number of fans, VFDs, and motor efficiency for their unit. General fan information, such as fan sound information and fan curves, is also located in the "Fan Selection" window.

4.21. Feature Option: (7) Outside Air Control

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-**Q**F-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard - None* - This selection does not include any economizers or motorized outside air dampers.

C = *Fully Modulating Actuator with Sensible Limit* - This selection is equipped with a fully modulating economizer actuator with two positions. Position one is the closed position, whereas position two is the minimum outside air position. Position two activates automatically whenever the supply fan is in operation. During the economizer mode, the actuator modulates between holding the minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field-adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperatures only. The actuator is spring return closed.

D = *Fully Modulating Actuator with Enthalpy Limit* - This selection is equipped with a fully modulating economizer actuator with two positions. Position one is the closed position, whereas position two is the minimum outside air position. Position two activates automatically whenever the supply fan is in operation. During the economizer mode, the actuator modulates between holding the minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field-adjusted for the desired amount of outside air. Changeover control responds to the sensible and latent heat of the ambient air. The actuator is spring returned closed.

E = *DDC Actuator* - This selection includes an economizer actuator with a terminal strip (EC1 and EC2) in the controls compartment for a field-supplied outside air control signal. The actuator is factory configured for a 4-20 mA control signal, but can be reconfigured for a 0-10 VDC control signal by removing the resistor between the terminals, EC1 and EC2. Use this option where customer-supplied controls are employed for the unit and economizer functions. All economizer functions will be conducted by others. AAON only provides the damper assembly and actuator for this option. This option is also part of the D-PAC and PAC control systems. See Feature 13 and the Controls section for more information on D-PAC and PAC controls.

P = *CO_2 Override + Fully Modulating Actuator with Sensible Limit* - This selection features an Option C + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand-controlled ventilation applications where the outside air ventilation is based on actual, not assumed, demand for energy savings. The sensor is self-calibrating with a 14-day log that automatically corrects sensor drift, and has onboard push buttons with an LCD display for specifying the CO_2 setpoint. This option works best with air velocities in the 600 to 1200 fpm range.

Q = *CO_2 Override + Fully Modulating Actuator with Enthalpy Limit* – This selection features an Option D + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand-controlled ventilation applications where the outside air ventilation is based on actual, not assumed, demand for energy savings. The sensor is self-calibrating with a 14-day log that automatically corrects sensor drift, and has onboard push buttons with an LCD display for specifying CO_2 setpoints. This option works best with air velocities in the 600 to 1200 fpm range.

R = *CO_2 Override + DDC Actuator* - This selection features an Option E + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand-controlled ventilation applications where the outside air ventilation is based on actual, not assumed, demand for energy savings. The sensor is self-calibrating with a 14-day log that automatically corrects sensor drift, and has onboard push buttons with an LCD display for specifying CO_2 setpoints. This option works best with air velocities in the 600 to 1200 fpm range. The CO_2 sensor is wired back to a set of terminals or a customer-supplied factory-installed DDC controller.

U = *2 Position Actuator* - This selection is used with the motorized outside air options in Feature 1. Position one is the closed position, whereas position two is the fully open position. Position two activates automatically whenever the supply fan is in operation.

V = *Fault Detection and Diagnostics Controller (FDD) Fully Modulating Actuator with Sensible Limit* - This selection is equipped with a fully modulating economizer actuator with two positions provided with fault detection and diagnostics. Position one is the closed position, whereas position two is the minimum outside air position. Position two activates automatically whenever the supply fan is in operation. During the economizer mode, the actuator modulates between holding the minimum outside air position and having the outside air dampers fully opened to maintain a discharge temperature of 55°F. The minimum outside air position can be field-adjusted for the desired amount of outside air. The range for the changeover control is 45°F to 95°F and responds to sensible temperatures only. The actuator is spring returned closed. The fault detection and diagnostics check feedback to ensure that the economizer is operating properly. When selected with AAON controls, fault detection and diagnostics are included as part of the controls. When selected without AAON controls, a standalone controller will be provided for the FDD. The included economizer comes with a 5-year warranty.

W = *FDD Fully Modulating Actuator with Enthalpy Limit* - This selection is equipped with a fully modulating economizer actuator with two positions provided with fault detection and diagnostics. Position one is the closed position, whereas position two is the minimum outside air position. Position

two activates automatically whenever the supply fan is in operation. During the economizer mode, the actuator modulates between holding the minimum outside air position and having the outside air dampers fully open to maintain a discharge temperature of 55°F. The minimum outside air position can be field-adjusted for the desired amount of outside air. Changeover control responds to sensible and latent heat of the ambient air. The actuator is spring returned closed. The fault detection and diagnostics check feedback to ensure that the economizer is still operating properly. When selected with AAON controls, fault detection and diagnostics are included as part of the controls. When selected without AAON controls, a standalone controller will be provided for the FDD. The included economizer comes with a 5-year warranty.

Y = *FDD Fully Modulating Actuator with Sensible Limit + CO_2 Override* - This selection features an Option V + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand-controlled ventilation applications where the outside air ventilation is based on actual, not assumed, demand for energy savings. The sensor is self-calibrating with a 14-day log that automatically corrects sensor drift and has onboard push buttons with an LCD display for specifying CO_2 setpoints. This option works best with air velocities in the 600 to 1200 fpm range. The fault detection and diagnostics check feedback to ensure that the economizer is still operating properly. When selected with AAON controls, fault detection and diagnostics are included as part of the controls. When selected without AAON controls, a standalone controller will be provided for the FDD. The included economizer comes with a 5-year warranty.

Z = *FDD Fully Modulating Actuator with Enthalpy Limit + CO_2 Override* - This selection features an Option W + CO_2 ventilation controller that senses the return air stream through a pitot tube. Used for demand-controlled ventilation applications where outside air ventilation is based on actual, not assumed, demand for energy savings. The sensor is self-calibrating with a 14-day log that automatically corrects sensor drift and has onboard push buttons with an LCD display for specifying CO_2 setpoints. This option works best with air velocities in the 600 to 1200 fpm range. The fault detection and diagnostics check feedback to ensure that the economizer is still operating properly. When selected with AAON controls, fault detection and diagnostics are included as part of the controls. When selected without AAON controls, a standalone controller will be provided for the FDD. The included economizer comes with a 5-year warranty.

4.22. Feature Option: (8) Return and Exhaust Air Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-Q**F**-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Return Opening* - This selection works for unit configurations that must include 100% outside air or 100% outside air with motorized dampers. See Feature 4A Outside Air Section for more information.

A = *Standard Return Opening without EA Opening* - This selection's unit configuration must include a manual or motorized outside air with return air opening, 100% return air, or an economizer. See Feature 4A Outside Air Section for more information.

B = *Large Return Opening without EA Opening* – This selection's unit configuration must include manual or motorized outside air with return air opening, 100% return air, or an economizer. See Feature 4A Outside Air Section for more information. A larger return opening results in lower velocities and lower pressure drop through the return ducts.

C = *Standard Return Opening + Barometric Relief EA Dampers* - This selection's unit configuration must include a power exhaust, power return, or energy recovery with or without return air bypass.

D = *Large Return Opening + Barometric Relief EA Dampers* - This selection's unit configuration must include a power exhaust, power return, or energy recovery with or without return air bypass.

E = *Standard Return Opening + Motorized EA Dampers* - This selection's unit configuration must include a power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section for more information. This option features extruded aluminum, low leakage, and aluminum gear-driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan.

F = *Large Return Opening + Motorized EA Dampers* - This selection's unit configuration must include a power exhaust, power return, or energy recovery. See Feature 4A Outside Air Section for more information. This option features extruded aluminum, low leakage, aluminum gear-driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan. The larger return opening results in lower velocities and lower pressure drop through the return ducts.

G = *Standard Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include an economizer and return air bypass dampers.

H = *Large Return Opening without EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include an economizer and return air bypass dampers.

J = *Standard Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include a power exhaust, power return, or energy recovery, and return air bypass dampers.

K = *Large Return Opening + Barometric Relief EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* - The selection's unit configuration must include a power exhaust, power return, or energy recovery, and return air bypass dampers.

L = *Standard Return Opening + Motorized EA Dampers + RA Bypass* - This selection's unit configuration must include a power exhaust, power return, or energy recovery, as well as return air bypass dampers. See Feature 4A Outside Air Section for more information. This option features extruded aluminum, low leakage, aluminum gear-driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan.

M = *Large Return Opening + Motorized EA Dampers + Standard RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include a power exhaust, power return, or energy recovery, and return 65bypass dampers. See Feature 4A Outside Air Section for more information. This option features extruded aluminum, low leakage, aluminum gear-driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan.

N = *Standard Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include an economizer, and return air bypass dampers.

P = *Large Return Opening without EA Dampers + Large RA Bypass (Field Bypass Filter Required)* - The unit configuration must include an economizer, and return air bypass dampers.

Q = *Standard Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include power exhaust, power return, or energy recovery, and return air bypass dampers.

R = *Large Return Opening + Barometric Relief EA Dampers + Large RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include power exhaust, power return, or energy recovery, and return air bypass dampers.

S = *Standard Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include a power exhaust, power return, or energy recovery, and return air bypass dampers See Feature 4A Outside Air Section for more information. This option features extruded aluminum, low leakage, aluminum gear-driven exhaust air dampers to open and close the exhaust dampers based on a call for the supply fan.

T = *Large Return Opening + Motorized EA Dampers + Large RA Bypass (Field Bypass Filter Required)* - This selection's unit configuration must include power exhaust, power return, or energy recovery, and return air bypass dampers. See Feature 4A Outside Air Section for more information. This option includes extruded aluminum, low leakage, aluminum gear driven exhaust air dampers to open and close exhaust dampers based on a call for the supply fan.

4.23. Feature Option: (9A) Unit Filter Type

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-**A**0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *2" Pleated MERV 8* - This selection includes 2-inch pleated MERV 8-unit filters. See Feature 9B for information on the filter location.

A = *4" Pleated MERV 8* - This selection includes 4-inch pleated MERV 8-unit filters. See Feature 9B for information on the filter location.

B = *2" Pleated MERV 8 + 4" Pleated MERV 11* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 4-inch pleated MERV 11 filters. See Feature 9B for information on the filter location.

C = *2" Pleated MERV 8 + 4" Pleated MERV 13* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 4-inch pleated MERV 13 filters. See Feature 9B for information on the filter location.

D = *2" Pleated MERV 8 + 4" Pleated MERV 14* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 4-inch pleated MERV 14 filters. See Feature 9B for filter location.

E = *4" Pleated MERV 8 + 4" Pleated MERV 11* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 4-inch pleated MERV 11 filters. See Feature 9B for information on the filter location.

F = *4" Pleated MERV 8 + 4" Pleated MERV 13* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 4-inch pleated MERV 13 filters. See Feature 9B for information on the filter location.

G = *4" Pleated MERV 8 + 4" Pleated MERV 14* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 4-inch pleated MERV 14 filters. See Feature 9B for information on the filter location.

H = 2" Pleated MERV 8 + 12" Cartridge MERV 11 - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 12-inch cartridge MERV 11 filters. See Feature 9B for information on the filter location.

J = *2" Pleated MERV 8 + 12" Cartridge MERV 13* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 12-inch cartridge MERV 13 filters. See Feature 9B for information on the filter location.

K = *2" Pleated MERV 8 + 12" Cartridge MERV 14* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 12-inch cartridge MERV 14 filters. See Feature 9B for information on the filter location.

L = *4" Pleated MERV 8 + 12" Cartridge MERV 11* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 12-inch cartridge MERV 11 filters. See Feature 9B for information on the filter location.

M = *4" Pleated MERV 8 + 12" Cartridge MERV 13* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 12-inch cartridge MERV 13 filters. See Feature 9B for information on the filter location.

N = *4" Pleated MERV 8 + 12" Cartridge MERV 14* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 12-inch cartridge MERV 14 filters. See Feature 9B for information on the filter location.

P = *2" Pleated MERV 8 + 30" Bag MERV 13* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 30-inch bag MERV 13 filters. See Feature 9B for information on the filter location.

Q = *2" Pleated MERV 8 + 30" Bag MERV 14* - This selection includes 2-inch pleated MERV 8 pre-filters mounted upstream of 30-inch bag MERV 14 filters. See Feature 9B for information on the filter location.

R = *4" Pleated MERV 8 + 30" Bag MERV 13* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 30-inch bag MERV 13 filters. See Feature 9B for information on the filter location.

S = *4" Pleated MERV 8 + 30" Bag MERV 14* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 30-inch bag MERV 14 filters. See Feature 9B for more information on the filter location.

W = *4" Pleated MERV 8 + 12" 99.97 HEPA* - This selection includes 4-inch pleated MERV 8 pre-filters mounted upstream of 12-inch 99.97% efficiency HEPA filters. See Feature 9B for more information on the filter location.

4.24. Feature Option: (9B) Unit Filter Size & Location

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A**0**AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = Standard Filters in Standard Position
A = Standard Filters in Pre-position
B = High Efficiency Filters Box A in Standard Position
C = High Efficiency Filters Box B in Standard Position
D = High Efficiency Filters Box C in Standard Position
E = High Efficiency Filters Box A in Pre-Position
F = High Efficiency Filters Box B in Pre-Position
G = High Efficiency Filters Box C in Pre-Position
H = Dual Angled Filter Racks Box A in Standard Position
J = Dual Angled Filter Racks Box B in Standard Position
K = Dual Angled Filter Racks Box A in Pre-Position
L = Dual Angled Filter Racks Box B in Pre-Position
N = HEPA Filters Box A in Standard Position
P = HEPA Filters Box B in Standard Position
Q = HEPA Filters Box A in Pre-Position
R = HEPA Filters Box B in Pre-Position

Standard Position (0 & B-D & H-J & N-P): These filters are located after the blower section in a blow-through unit or before the cooling section in a draw-through unit.

Pre-Position (A & E-G & K-L & Q-R): Pre-position filters are only available on blow-through units. These filters are located after the return section, before the blower section.

Table 7: Unit Filter Box Size

RZ Cabinet Size	Feature 9B	Filter Box	Filter Type	Length (in)	CFM
45-75 tons	0, A		MERV 8	10	32,000
90-140 tons				28	50,000
145-180 tons				22	66,600
200-240 tons					80,000

45-140 tons	B, E	A	4” High Eff	16	30,680*
			12” Cartridge	24	30,680*
			30” Bag	44	30,660*
	C, F	B	4” High Eff	44	40,000*
			12” Cartridge	60	40,000*
			30” Bag	91	32,000*
	D, G	C	4” High Eff	58	46,020*
			12” Cartridge	74	46,000*
			30” Bag	106	40,000*
	H, K	A	4” High Eff	80	50,000**
	N, Q	A	4” MERV 8 + 12” HEPA	24	24,000*
	P, R	B	4” MERV 8 + 12” HEPA	74	34,000*
145-240 tons	B, E	A	4” High Eff	16	38,350*
			12” Cartridge	24	38,350*
			30” Bag	44	38,300*
	C, F	B	4” High Eff	44	50,000*
			12” Cartridge	60	50,000*
			30” Bag	91	40,000*
	D, G	C	4” High Eff	58	61,360*
			12” Cartridge	74	61,360*
			30” Bag	106	50,000*
	H, K	A	4” High Eff	68	66,600**
	J, L	B	4” High Eff	68	79,920**
	N, Q	A	4” MERV 8 + 12” HEPA	24	35,000*
	P, R	B	4” MERV 8 + 12” HEPA	74	56,000*

* When used in the final position, the unit CFM limit is the lesser of this value and the MERV 8 Filter Type CFM value.

** Dual Angled Filter Rack - The first rack uses MERV 8 filters, while the second rack uses 4-inch filters with the higher MERV rating to allow for higher CFMs.

The CFM values are calculated based on 500 fpm through the filters.

4.25. Feature Option: (9C) final Filter Type

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0**A**A-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *No Final Filters*

A = *12" Cartridge MERV 13 - Filter Box A* - This selection's unit must include 12- inch-thick pleated cartridge filters with a MERV rating of 13 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units.

B = *12" Cartridge MERV 13 - Filter Box B* - This selection's unit must include 12-inch-thick pleated cartridge filters with a MERV rating of 13 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units.

C = *12" Cartridge MERV 13 - Filter Box C* - This selection's unit must include 12-inch-thick pleated cartridge filters with a MERV rating of 13 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units.

D = *12" Cartridge MERV 14 - Filter Box A* - This selection's unit must include 12-inch-thick pleated cartridge filters with a MERV rating of 14 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units.

E = *12" Cartridge MERV 14 - Filter Box B* - This selection's unit must include 12-inch-thick pleated cartridge filters with a MERV rating of 14 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units.

F = *12" Cartridge MERV 14 - Filter Box C* - This selection's unit must include 12-inch-thick pleated cartridge filters with a MERV rating of 14 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units.

G = *30" Bag MERV 13 - Filter Box A* - This selection's unit must include 30-inch bag filters with a MERV rating of 13 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

H = *30" Bag MERV 13 - Filter Box B* - This selection's unit must include 30-inch bag filters with a MERV rating of 13 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

J = *30" Bag MERV 13 - Filter Box C* - This selection's unit must include 30-inch bag filters with a MERV rating of 13 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

K = *30" Bag MERV 14 - Filter Box A* - This selection's unit must include 30-inch bag filters with a MERV rating of 14 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

L = *30" Bag MERV 14 - Filter Box B* - This selection's unit must include 30-inch bag filters with a MERV rating of 14 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

M = *30" Bag MERV 14 - Filter Box C* - This selection's unit must include 30-inch bag filters with a MERV rating of 14 in the final filter position downstream of all air stream unit components. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

N = *HEPA Frame (No Filter) - Filter Box A* - This selection's unit must include a frame for HEPA filters in the final filter position downstream of all air stream unit components. HEPA filters are to be field provided, field installed, and field certified. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

P = *HEPA Frame (No Filter) - Filter Box B* - This selection's unit must include a frame for HEPA filters in the final filter position downstream of all air stream unit components. HEPA filters are to be field provided, field installed, and field certified. Final filters are only available for draw-through units. They are not available for units with gas or electric heat.

Q = *12" 99.97 HEPA - Filter Box A* - This selection's unit must include a HEPA filter frame and 99.97% HEPA filters in the final filter position downstream of all air stream unit components. HEPA filters require field certification. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

R = *12" 99.97 HEPA - Filter Box B* - This selection's unit must include a HEPA filter frame and 99.97% HEPA filters in the final filter position downstream of all air stream unit components. HEPA filters require field certification. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

S = *4" MERV 8 + 12" 99.97 HEPA - Filter Box A* - This selection's unit must include a HEPA filter frame, adapter, 4-inch MERV 8 filters, and 99.97% HEPA filters in the final filter position downstream of all air stream unit components. HEPA filters require field certification. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

T = *4" MERV 8 + 12" 99.97 HEPA - Filter Box B* - This selection's unit shall include a HEPA filter frame, adapter, 4-inch MERV 8 filters, and 99.97% HEPA filters in the final filter position downstream of all air stream unit components. HEPA filters require field certification. The final filters are only available for draw-through units. They are not available for units with gas or electric heat.

Table 8: Final Filter Box Size

RZ Cabinet Size	Feature 9C	Filter Box	Filter Type	Length (in.)	CFM
45-140 tons	A, D	A	12” Cartridge	24	30,680*
	G, K		30” Bag	44	30,660*
	N, Q, S		99.97% HEPA	24	23,000*
	B, E	B	12” Cartridge	60	40,000*
	H, L		30” Bag	91	32,000*
	P, R, T		99.97% HEPA	74	33,000*
	C, F	C	12” Cartridge	74	46,000*
	J, M		30” Bag	106	40,000*
145-240	A, D	A	12” Cartridge	24	38,350*
	G, K		30” Bag	44	38,300*
	N, Q, S		99.97% HEPA	24	33,000*
	B, E	B	12” Cartridge	60	50,000*
	H, L		30” Bag	91	40,000*
	P, R, T		99.97% HEPA	74	54,000*
	C, F	C	12” Cartridge	74	61,360*
	J, M		30” Bag	106	50,000*

*When used in the final position, the unit CFM limit is the lesser of this value and the MERV 8 Filter Type CFM value.

The CFM values are calculated based on 500 fpm through the filters.

4.26. Feature Option: (9D) Filter Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0A**A**-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *None*

A = *Clogged Filter Switch* - Unit Filters - This selection includes one clogged filter switch.

B = *Clogged Filter Switch* - Unit + Energy Recovery Filters - This selection includes two clogged filter switches; unless the exhaust filters option is selected, then three switches are included.

C = *Clogged Filter Switch* - Unit + Final Filters - This selection includes two clogged filter switches.

D = *Clogged Filter Switch* - Unit + Energy Recovery + Final Filters - This selection includes three clogged filter switches; unless the exhaust filters option is selected, then four switches are included.

E = *Magnehelic Gauge - Unit Filters* - Includes one magnehelic gauge.

F = *Magnehelic Gauge - Unit + Energy Recovery Filters* - This selection includes two magnehelic gauges; unless the exhaust filters option is selected, then three gauges are included.

G = *Magnehelic Gauge - Unit + Final Filters* - This selection includes two magnehelic gauges.

H = *Magnehelic Gauge - Unit + Energy Recovery + Final Filters* - This selection includes three magnehelic gauges; unless the exhaust filters option is selected, then four gauges are included.

J = *CFS + Magnehelic Gauge - Unit Filters* - This selection includes one clogged filter switch and one magnehelic gauge.

K = *CFS + Magnehelic Gauge - Unit + Energy Recovery Filters* - This selection includes two clogged filter switches and two magnehelic gauges; unless the exhaust filters option is selected, then three clogged switches and three magnehelic gauges are included.

L = *CFS + Magnehelic Gauge - Unit + Final Filters* - This selection includes two clogged filter switches and two magnehelic gauges.

M = *CFS + Magnehelic Gauge - Unit + Energy Recovery + Final Filters* - This selection includes three clogged filter switches and three magnehelic gauges; unless the exhaust filters option is selected, then four clogged filter switches and four magnehelic gauges are included.

*A Special Pricing Authorization (SPA) is required if the CFS or Magnehelic gauge is to be used to respond to the pressure drop across the energy recovery wheel or only the cooling coil.

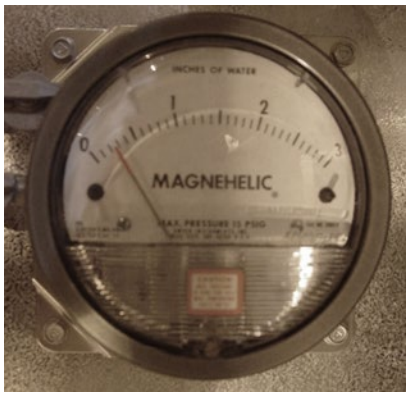

Figure 11: Magnehelic Gauge

Clogged Filter Switch (CFS) - This selection includes an adjustable differential pressure switch that senses pressure drops across the filter bank and cooling coil; but only applies to unit filter selection. The range of adjustment spans from 0.17 to 5.0 in. W.C. with contact closure on rise. The switch is mounted in the fan compartment with terminal connections in the low-voltage control section. Normally, open dry contacts (C1 and C2) are provided to indicate clogged filters.

Note: Factory-installed controllers are wired in parallel; Field-installed controllers are individual sets of terminals.

Magnehelic Gauge - The Magnehelic gauge reads pressure drops across the filter bank and cooling coil. The gauge measures from 0 to 3 in. W.C. in 0.10 in. graduations and is mounted in the control cabinet.

4.27. Feature Option: (10A) Refrigeration Control A

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-**0**0-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

E = *Freeze Stats (each circuit)* - This selection includes an adjustable temperature sensor (-10 to 70°F), mounted to the tubing of the first cooling circuit. It is wired to de-energize all cooling circuits if the tubing temperature falls below the setpoint to prevent the freezing of the evaporator coil.

4.28. Feature Option: (10B) Refrigeration Control B

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-0**0**-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

4.29. Feature Option: (11A) Refrigeration Options A

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-**M**0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

D = *Hot Gas Bypass Non-Variable Compressor Circuits (HGBNV)* - This selection features a field-adjustable, pressure-activated bypass valve on the refrigeration circuits with non-variable compressors. The valve is factory-installed to divert the hot compressor discharge gas to the evaporator coil if pressure on the evaporator side of the valve drops below 105 psi for R-410A (34°F at sea level). The bypass valve is at full capacity after six degrees of differential (28°F at sea level). This option is used to prevent the coil from freezing during periods of low air flow or cold entering coil conditions without cycling the compressors on and off. This option is used to protect the refrigeration system and cannot be used to modulate the cooling capacity.

A hot gas bypass is required on all Variable Air Volume (VAV) and Makeup Air (MUA) units that do not have variable-speed scroll compressors. Additionally, a hot gas bypass on the lag circuits is recommended for all VAV and MUA units with variable-speed scroll compressors on only the lead circuits.

E = *Modulating Hot Gas Reheat (MHGR)* - This selection features a reheat coil mounted downstream of the evaporator and piped to the lag cooling circuit, which enables the unit to operate in a dehumidification mode once the cooling load has been satisfied. A three-way modulating reheat valve diverts a varying percentage of the hot gas entering the condensing coil to the reheat coil to provide the unit with a dehumidification mode of operation. With this option, receiver tanks are standard. A supply air temperature sensor and DDC controller are used to maintain the supply air temperature during the dehumidification mode of operation. The supply air temperature sensor ships loose in the unit control cabinet for installation in the supply air stream. Maintaining constant control over the supply air temperature during the dehumidification process prevents space temperature swings and is ideal for VAV and makeup air applications.

Depending on the type of controls selected, the unit is factory wired for either priority dehumidification or priority cooling. Priority dehumidification ensures that if the controller gets a cooling call and a dehumidification call simultaneously, the unit will run in dehumidification mode until the humidity setpoint is reached. Priority Cooling ensures that if the controller gets a cooling call and a dehumidification call simultaneously, the unit will run in cooling mode until the cooling setpoint temperature is reached. When there is no longer a call for cooling, but there is a call for dehumidification, the compressors will continue to run, and the reheat will be activated.

Field-Installed DDC Controls by others: The terminal contact (RH1) and reset terminals (AI1 & COM) are included to connect to the customer-supplied controller. The unit requires a contact closure to RH1 to enable the dehumidification mode. The unit is factory wired for priority dehumidification. Providing a 0-10VDC signal is optional to reset the supply air setpoint. Units with controls by others will need to provide control logic to enable the compressors and modulate the variable capacity compressors (if ordered) during the dehumidification mode. The customer-supplied controller will also need to be able to set cooling or dehumidification as the priority.

Field provided Factory-Installed DDC Controls by others: The customer-supplied DDC controller must provide a digital point to enable dehumidification mode. Providing a 0-10VDC signal is optional to reset the supply air setpoint. Units with controls by others need to provide control logic to enable the compressors and modulate the variable capacity compressors (if ordered) during the dehumidification mode. The customer-supplied controller will also need to be able to set cooling or dehumidification as the priority.

Factory-Provided VCC-X Controls: This selection allows controls to set priority dehumidification or cooling in the field.

M = *HGBNV + MHGR* - Option D + Option E

Q = *Polymer E-Coated Modulating Hot Gas Reheat* - This selection features a polymer E-coated modulating hot gas reheat coil. The polymer coating is capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind and is applicable to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for instructions to follow for proper coil cleaning, maintenance, and record keeping.

W = *HGBNV + Polymer E-Coated MHGR* - Option D + Option Q

4.30. Feature Option: (11B) Refrigeration Options B

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M**0**-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

4.31. Feature Option: (12) Refrigeration Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-**C**-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

B = *Compressor Isolation Valves* - This selection features ball-type service valves mounted on the refrigeration circuit discharge and suction lines permit the isolation of the compressor for service or replacement. This option reduces the amount of refrigerant that must be recovered during both compressor services and replacements. The valves are located close to the compressors and work through a quarter turn from open to closed. To prevent accidental loss, Teflon seals and gaskets are used in conjunction with a nylon cap gasket.

C = *Option B + Sight Glass* - This selection is comprised of Option B + Moisture indication sight glass attached to the refrigeration circuit liquid lines. When the sight glasses produce a green color, it indicates dry conditions, whereas a chartreuse color (green with a yellow tint or bright green) indicates caution, and a yellow color indicates wet conditions. The sight glass is not a charge indicator.

Table 9: Sight Glass Moisture Content Indication

Refrigerant	75° F Liquid Line Temperature
Indicator Color	R-410A (R-454B)
Green DRY	Below 75ppm
Chartreuse CAUTION	75-150ppm

Yellow WET	Above 150ppm

Figure 12: Sight Glasses

F = *Option B + Variable Circuits -20°F Low Ambient* - This selection is comprised of Option B + - Factory-installed, flooded condenser, head pressure control option, which allows cooling down to -20°F ambient. When the ambient temperature drops, the condensing pressure also drops. A three-way pressure-activated valve then allows the discharge gas to bypass the condenser. Mixing the discharge gas with liquid creates high pressure at the condenser outlet, reducing the flow, causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for [Unit Size 075 & Series' B, C, D, E] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on each variable circuit. Additional option components for [Unit Sizes 045, 055, & 065] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lead circuit. For this option, it is highly recommended that a hot gas bypass be selected. The hot gas bypass is used for low ambient applications such as computer equipment rooms. Additionally, a crankcase heater will also be provided.

G = *Option C + Variable Circuits -20°F Low Ambient* - This selection is comprised of Option C + - Factory-installed, flooded condenser, head pressure control option, which allows the unit to cool down to -20°F ambient. When the ambient temperature drops, the condensing pressure also drops. A three-way pressure-activated valve then allows the discharge gas to bypass the condenser. Mixing the discharge gas with liquid creates high pressure at the condenser outlet, reducing the flow, causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for [Unit Size 075 & Series' B, C, D, E] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on each variable circuit. Additional option components for [Unit Sizes 045, 055, & 065] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lead circuit. For this option, it is highly recommended to select a hot gas bypass for use in low ambient applications such as computer equipment rooms. Additionally, a crankcase heater is also provided.

K = *Option B + Tandem Circuits -20°F Low Ambient* - This selection is comprised of Option B + - Factory-installed, flooded condenser, head pressure control option, which allows the unit to cool down to -20°F ambient. When the ambient temperature drops, the condensing pressure also drops. A three-way pressure-activated valve then allows the discharge gas to bypass the condenser. Mixing the discharge gas with liquid creates high pressure at the condenser outlet, reducing the flow, causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for [Unit Size 075 & Series' B, C, D, E] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the tandem circuits. Additional option components for [Unit's Sizes 045, 055, & 065] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lag circuit. For this option, it is highly

recommended to select a hot gas bypass for use in low ambient applications such as computer equipment rooms. Additionally, a crankcase heater is also provided.

L = *Option C + Tandem Circuits -20°F Low Ambient [Size 075 & Series B, C, D, E]* - This selection is comprised of Option C + - Factory-installed, flooded condenser, head pressure control option, which allows the unit to cool down to -20°F ambient. When the ambient temperature drops, the condensing pressure also drops. A three-way pressure-activated valve then allows the discharge gas to bypass the condenser. Mixing the discharge gas with liquid creates high pressure at the condenser outlet, reducing the flow, causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for [Unit Size 075 & Series' B, C, D, E] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the tandem circuits. Additional option components for [Unit Sizes 045, 055, & 065] include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on the lag circuit. For this option, it is highly recommended that a hot gas bypass also be selected. The hot gas bypass is used for low ambient applications such as computer equipment rooms. Additionally, a crankcase heater is also provided.

P = *Option B + All Circuits -20°F Low Ambient* - This option is comprised of Option B + - Factory-installed, flooded condenser, head pressure control option, which allows the unit to cool down to -20°F ambient. When the ambient temperature drops, the condensing pressure drops. A three-way pressure-activated valve then allows the discharge gas to bypass the condenser. Mixing the discharge gas with liquid creates high pressure at the condenser outlet, reducing the flow, causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on all circuits. For this option, it is highly recommended to select a hot gas bypass for use in low ambient applications such as computer equipment rooms. Additionally, a crankcase heater is also provided.

Q = *Option C + All Circuits -20°F Low Ambient* - This option is comprised of Option C + - Factory-installed, flooded condenser, head pressure control option, which allows the unit to cool down to -20°F ambient. When the ambient temperature drops, the condensing pressure also drops. A three-way pressure-activated valve then allows the discharge gas to bypass the condenser. Mixing the discharge gas with liquid creates high pressure at the condenser outlet, reducing the flow, causing liquid to back up into the condenser. Flooding the condenser reduces the area available for condensing, resulting in a rise in condensing pressure. Additional option components for this option include a receiver tank, pressure equalization valve, isolation valve, and pressure relief valve on all circuits. For this option, it is highly recommended to select a hot gas bypass for use in low ambient applications such as computer equipment rooms. Additionally, a crankcase heater is also provided.

4.32. Feature Option: (13A) Unit Disconnect Type

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-**0**00-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Single Point Power - Standard Power Block*
A = *Single Point Power - Non-Fused Disconnect Power Switch*
B = *Single Point Power - Circuit Breaker*
C = *Dual Point Power - Standard Power Block - Method #1*

D = *Dual Point Power - Non-Fused Disconnect Power Switch - Method #1*
E = *Dual Point Power - Circuit Breaker - Method #1*
F = *Dual Point Power - Standard Power Block - Method #2*
G = *Dual Point Power - Non-Fused Disconnect Power Switch - Method #2*
H = *Dual Point Power - Circuit Breaker - Method #2*
J = *Dual Point Power - Standard Power Block - Method #3*
K = *Dual Point Power - Non-Fused Disconnect Power Switch - Method #3*
L = *Dual Point Power - Circuit Breaker - Method #3*
M = *Dual Point Power - Standard Power Block - Method #4*
N = *Dual Point Power* - Non-Fused Disconnect Power Switch - Method #4
P = *Dual Point Power* - Circuit Breaker - Method #4

Wiring Method #1: The first circuit powers the compressors, condenser fans & (optional) heat wheel, and Exhaust or Return Air fans if selected. The second circuit powers the supply fan, optional heating, controls, and the phase and brown out option if selected.

Wiring Method #2: The first circuit powers the compressors and condenser fans. The second circuit powers the supply fan, controls, (optional) exhaust/return fans, (optional) heat, (optional) heat wheel, and the phase and brown out protection if selected.

Wiring Method #3: The first circuit powers the compressors, condenser fan(s), (optional) heat wheel(s), (optional) exhaust/return fan(s), and (optional) heat. The second circuit powers the supply fan(s) and controls.

Wiring Method #4: The first circuit powers the compressors, condenser fans, supply fan, (optional) heat, and (optional) heat wheel. The second circuit powers the exhaust/return fans and controls only.

Individual components within the controls compartment are fused and/or internally protected. Switch options include a molded case and a non-fused and disconnect switch inside the unit controls compartment. The switch is accessible from the exterior of the unit and protected by a cast metal, lockable cover. The switch disconnects high-voltage service to the unit. To add a switch, choose any switch, and after all options have been selected, and the fan program is completed, the AAON ECat will automatically calculate the minimum allowable ampacity and choose the correct size switch.

4.33. Feature Option: (13B/C) Disconnect 1/ Disconnect 2 Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-0**00**-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Power Block*
A = *15 amps*
B = *20 amps*
C = *25 amps*
D = *30 amps*
E = *35 amps*
F = *40 amps*
G = *45 amps*
H = *50 amps*
J = *60 amps*
K = *70 amps*
L = *80 amps*
M = *90 amps*
N = *100 amps*
P = *110 amps*
Q = *125 amps*
R = *150 amps*
S = *175 amps*
T = *200 amps*
U = *225 amps*
V = *250 amps*
W = *300 amps*
Y = *350 amps*
Z = *400 amps*
1 = *450 amps*
2 = *500 amps*
3 = *600 amps*
4 = *700 amps*
5 = *800 amps*
6 = *1000 amps*
7 = *1200 amps*

Individual components within the controls compartment are fused and/or internally protected. The switch options for the above include a molded case and a non-fused disconnect switch inside the unit's controls compartment. The switch is accessible from the exterior of the unit and protected by a cast metal, lockable cover. The switch disconnects high-voltage service to the unit. To add a switch, choose any switch, and after all options have been selected and the fan program is completed, the AAON ECat will automatically calculate the minimum allowable ampacity and choose the correct size switch.

4.34. Feature Option: (14) Safety Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-**8**0-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

A = *Return and Supply Air Firestat* - The bimetallic snap-action safety switches only sense temperature, and are mounted to both the supply and return air streams. The supply air switch is rated to 200°F, while the return air switch is rated to 125°F. Both switches are manually reset and wired to shut down the 24 VAC control circuit. The firestats are non-addressable.

B = *Return Air Smoke Detector* - The photoelectric type smoke detector is factory-mounted to the return air section of the unit. The detector is wired to shut down the 24 VAC control circuit upon its activation, thereby shutting off the unit. Relay contacts are provided for interfacing the detector with the unit's alarm panels. A test magnet is also provided in the unit controls cabinet. The smoke detectors are non-addressable.

C = *Supply Air Smoke Detector* - The photoelectric type smoke detector is factory-mounted to the filter/economizer section. The sensor is mounted to the fan/heating compartment and senses the supply air downstream of the fan. The detector is wired to shut down the 24 VAC control circuit upon its activation, thereby shutting off the unit. Relay contacts are provided for interfacing the detector with the unit's alarm panels. A test magnet is also provided in the unit controls cabinet. The unit's smoke detectors are non-addressable.

Figure 13: Supply Air Smoke Detector

D = *High Supply Air Static Pressure Switch* - The static pressure switch will shut off the fans and compressors if the static pressure downstream of the supply fans gets too high. This option is required for all systems with a VFD bypass.

E = *Remote Safety Shutdown Terminals* - The low-voltage terminals labeled BI1 and BI2 are wired to connect to a field-installed smoke detector, Firestat, or a building safety automatic shutdown system. When the contacts are open, the 24 VAC control circuit is broken, and the unit will not operate. Remove the factory-supplied jumper before installing.

F = *Option A + B - RA and SA Firestat + RA Smoke Detector*

G = *Option A + C - RA and SA Firestat + SA Smoke Detector*

H = *Option A + D - RA and SA Firestat + High SA Static Pressure Switch*

J = *Option A + E - RA and SA Firestat + Remote Safety Shutdown Terminals*

K = *Option B + C - RA Smoke Detector + SA Smoke Detector*

L = *Option B + D - RA Smoke Detector + High SA Static Pressure Switch*

M = *Option B + E - RA Smoke Detector + Remote Safety Shutdown Terminals*

N = *Option C + E - SA Smoke Detector + High SA Static Pressure Switch*

P = *Option C + E - SA Smoke Detector + Remote Safety Shutdown Terminals*

Q = *Option D + E - High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

R = *Option A + B + C - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector*

S = *Option A + B + D - RA and SA Firestat + RA Smoke Detector + High SA Static Pressure Switch*

T = *Option A + B + E - RA and SA Firestat + RA Smoke Detector + Remote Safety Shutdown Terminals*

U = *Option A + B + E - RA and SA Firestat + SA Smoke Detector + High SA Static Pressure Switch*

V = *Option A + C + E - RA and SA Firestat + SA Smoke Detector + Remote Safety Shutdown Terminals*

W = *Option A + D + E - RA and SA Firestat + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

Y = *Option B + C + D - RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch*

Z = *Option B + C + E - RA Smoke Detector + SA Smoke Detector + Remote Safety Shutdown Terminals*

1 = *Option B + D + E - RA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

2 = *Option C + D + E - SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

3 = *Option A + B + C + D - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch*

4 = *Option A + B + C + E - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + Remote Safety Shutdown Terminals*

5 = *Option A + B + D + E - RA and SA Firestat + RA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

6 = *Option A + C + D + E - RA and SA Firestat + SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

7 = *Option B + C + D + E - RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

8 = *Option A + B + C + D + E - RA and SA Firestat + RA Smoke Detector + SA Smoke Detector + High SA Static Pressure Switch + Remote Safety Shutdown Terminals*

4.35. Feature Option: (15) Electrical Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-8**0**-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

B = *Phase and Brown Out Protection* - This selection ensures that the voltage monitor is used to protect the motors and compressors from voltage imbalances, over/under voltages, and phase losses. The monitor resets automatically. When DDC controls by others are ordered, the Phase and Brown Out protection is wired back to a set of standard terminals or to a customer-supplied controller for status.

C = *Air Disinfection UV Lights* - This selection comes with factory-provided UV lights to disinfect the airstream. The UV fixture is installed directly downstream of the cooling coil. The bulbs are shipped loose for field installation. Additionally, door interlock switches are also provided with this option. See Table 10 for more information.

E = *Compressor Sound Blankets* - This selection comes with factory-provided and installed compressor sound-dampening blankets on all compressors.

K = *Phase and Brown Out Protection + Air Disinfection UV Lights* - Option B + C

M = *Phase and Brown Out Protection + Compressor Sound Blankets* - Option B + E

P = *Air Disinfection UV Lights + Compressor Sound Blankets* - Option C + E

Z = *Phase and Brown Out Protection + Air Disinfection UV Lights + Compressor Sound Blankets* - Option B + C + E

***Note**: Use Part # R68860 for UV Lamp replacement

Table 10: Air Disinfection UV Information

RZ Cabinet Size	Cooling Coil Size	Model Option A3	CFM Max	Lamp Watt/ SqFt Coil	Residence Time (Seconds)	Dose µJ/cm²*	Estimated Inactivation Rate (Coronavirus)
A, B & C (45-140 tons)	Standard	A, B, E, F, G	27,300	15.47	0.474	1,037	98.00%
D (145-180 tons)			46,200	18.73	0.600	1,419	99.50%
E (200-240 tons)			60,800	14.23	0.794	1,320	99.30%
A, B & C (90-140 tons)	Large	C, D, H, J, K	37,500	38.67	0.394	1,348	99.40%
D (145-180 tons)			53,500	16.18	0.659	1,292	99.20%
E (200-240 tons)			72,900	13.84	0.900	1,377	99.40%

*All dosages and estimated inactivation rates are at the end of life for the bulb, have a wind chill degradation of 55 degrees factored in, and factor in the velocity on the coil. Warmer temperatures or lower airflows will increase the effectiveness of the UV light.

4.36. Feature Option: (16A) Control Sequence

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-**D**A0B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard Terminal Block for Thermostat* - This selection includes a terminal strip for use with a thermostat. See the Controls Section and Thermostat Terminals sheet from AAON's ECat software for more information.

A = *Terminal Block for Thermostat + Isolation Relays* - This selection includes a standard terminal strip only used with thermostats, and factory-installed isolation relays to prevent a drop in voltage across the controls circuit. This option is strongly recommended for applications with questions about the length of the thermostat wiring. See the Controls Section and Thermostat Terminals sheet from AAON's ECat software for more information.

B = *Single Zone VAV Unit Controller - VAV Cool + CAV Heat* - This selection features VAV controls for systems that only control the space temperature for a single zone. During the cooling mode of operation, the supply fan modulates based on the space temperature, while mechanical cooling modulates based on the supply air temperature. Both the supply fan and mechanical cooling modulation require the ability to vary their capacity or the use of two-step compressors. During the heating mode of operation, the supply fan provides constant air flow, while the heating modulates based on the controlling temperature. The supply air temperature sensor ships loose in the unit control cabinet for installation in the supply air stream. The space temperature sensor is factory supplied with a setpoint reset and unoccupied override with AAON Controls for field installation. A building static pressure sensor is factory supplied for field installation if the power exhaust option with VFD is selected. The outside air humidity sensor is factory-mounted and wired if the enthalpy-controlled economizer is selected. See the Controls section for more information.

C = *Single Zone VAV Unit Controller - VAV Cool + VAV Heat* - This selection features VAV controls for systems that only control the space temperature for a single zone. During the cooling mode of operation, the supply fan modulates based on the space temperature, and mechanical cooling modulates based on the supply air temperature. During the heating mode of operation, the supply fan modulates based on the space temperature, and the heating will modulate based on the supply air temperature, which requires either variable capacity or the use of two-step compressors. With gas heat, modulating gas heating control is required. The supply air temperature sensor ships loose in the unit control cabinet for installation in the supply air stream. The space temperature sensor is factory supplied with a setpoint reset and unoccupied override with AAON Controls for field installation. A building static pressure sensor is factory supplied for field installation if the power exhaust option with VFD is selected. The outside air humidity sensor is factory-mounted and wired if the enthalpy-controlled economizer is selected. See the Controls section for more information.

D = *VAV Unit Controller - VAV Cool + CAV Heat* - This selection features standard VAV controls for non-heat pump systems and heat pump systems. During the cooling mode of operation, the supply fan modulates based on the supply static pressure, while the mechanical cooling modulates based on the supply air temperature. During the heating mode of operation, the supply fan provides constant air flow, and the heating modulates based on the controlling temperature. The return and outside air temperature sensors are factory-mounted and wired. The supply air static pressure probe and supply air temperature sensor are factory-supplied for field installation. The space temperature sensor is also factory supplied with a setpoint reset and unoccupied override with AAON controls for field installation.

A building static pressure sensor is factory supplied for field installation if the power exhaust option with VFD is selected. The outside air humidity sensor is factory-mounted and wired if the enthalpy-controlled economizer is selected. See the Controls Section for more information.

E = *Constant Air Volume Unit Controller - CAV Cool + CAV Heat* - This selection features standard Constant Volume controls for non-heat pump systems. During the cooling mode of operation, the supply fan provides constant air flow, while the mechanical cooling modulates based on the controlling temperature. During the heating mode of operation, the supply fan provides constant air flow, while the heating modulates based on the controlling temperature. The outside air temperature sensor is factory-mounted and wired. The supply air temperature sensor and space temperature sensor are factory supplied with a setpoint reset and unoccupied override for field installation. A building static pressure sensor is factory supplied for field installation if the power exhaust option with VFD is selected. The outside air humidity sensor is factory-mounted and wired if the enthalpy-controlled economizer is selected. See the Controls Section for more information.

F = *Makeup Air Unit Controller* - This selection features standard Makeup Air controls for non-heat pump systems. During the cooling mode of operation, the supply fan provides constant air flow, while the mechanical cooling modulates based on the controlling temperature. During the heating mode of operation, the supply fan provides constant air flow, while the heating modulates based on the controlling temperature. The outside air temperature sensor is factory-mounted and wired. The supply air temperature sensor is factory-supplied for field installation. A building static pressure sensor is factory supplied for field installation if the power exhaust with VFD is selected. See the Controls Section for more information.

M = *Field-Installed DDC Controls by Others* - This selection provides an expanded terminal strip to interface with controls by others. This expanded terminal strip includes terminals for remote start/stop of the heat wheel, remote start/stop of the power exhaust fan, CO_2 sensor, and Phase and Brown out. See the Controls Section and Field-controlled Terminal sheet from the AAON ECat for more information.

N = *Field Installed DDC Controls + Installation Relays* - This selection provides an expanded terminal strip to interface with controls by others, with factory-installed isolation relays to prevent voltage drop in the controls circuit. This option is strongly recommended on applications where there is a question about the length of control wiring. This expanded terminal strip includes terminals for remote start/stop of the heat wheel, remote start/stop of the power exhaust fan, CO2 sensor, and Phase and Brown out. See Controls the section and the field-controlled Terminal sheet from AAON ECat for more information.

P = *Factory Installed DDC Controls by Others + Installation Relays* - This selection is equipped with factory-installed controls with factory-installed isolation relays to prevent a voltage drop in the controls circuit. This option requires a Special Pricing Authorization (SPA) issued by the Applications Department. An AAON sales representative must provide a controls parts list, cut sheets, and wiring diagrams before the SPA will be issued. Once the order is submitted, a completed Special Parts Request Form is sent to the sales representative with the control numbers assigned. The sales representative must then forward the form to the controls supplier, who must then transfer these numbers to all of the equipment parts and boxes that are sent to AAON. Proper routing of customer-supplied parts to units in production will be delayed if this procedure is not followed. AAON does not deal directly with the controls provider. The AAON sales rep must be the information liaison. See the “Policy Manual for Sales Representatives” for more detailed information on the proper procedure. See the Field Controlled Terminal sheet from AAON’s ECat software for more information.

4.37. Feature Option: (16B) Control Supplier

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-D**A**0B-00-000-ABEQ0A-E00000-00000DB

0 = Standard

A = *AAON Controls* - This selection includes a Factory-installed AAON controller. See the Controls Section for more information.

C = *AAON Controls Supervisory* - This selection allows for controls by others, but the controls for the variable speed compressors, electronic expansion valves, and head pressure control of the condenser fans are facilitated by AAON controls for proper control and compressor protection.

4.38. Feature Option: (16C) Control Supplier Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA**0**B-00-000-ABEQ0A-E00000-00000DB

0 = *Standard*

4.39. Feature Option: (16D) BMS Connection & Diagnostics

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0**B**-00-000-ABEQ0A-E00000-00000DB

0 = *None*

B = *BACnet MSTP* - This selection features an AAON-supplied and factory-installed controller with a BACnet MSTP license. See Feature 16A for available control configurations. See also the Controls section and unit-specific Controller Components worksheet in the AAON ECat for more information.

K = *BACnet MSTP with Diagnostics* - This selection includes Option B + Extra sensors (that measure liquid pressure, liquid temperature, and discharge temperature) to provide more refrigeration diagnostic values.

4.40. Feature Option: (17A) Preheat Configuration

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-**0**0-000-ABEQ0A-E00000-00000DB

0 = No Preheat

F = Hot Water Preheat Coil in Option Box - This selection is a hot water preheat coil. This unit includes a mixed air preheat coil mounted adjacent and upstream of the cooling coil, but downstream of the unit filters. No valves or controls are included with this option.

G = Steam Distributing Preheat Coil in Option Box - This selection is a steam distributing preheat coil. This unit includes a mixed air preheat coil mounted adjacent and upstream of the cooling coil, but downstream of the unit filters. The maximum operating pressure for the steam coils is 25 psi. No valves or controls are included with this option.

M = Polymer Coated Hot Water Preheat Coil in Option Box - This selection includes a polymer e-coating that is only applied to the hot water preheat coils and casings. The e-coating is capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for specific instructions on coil cleaning, maintenance, and record keeping.

N = Polymer Coated Steam Distributing Preheat Coil in Option Box - This selection includes a polymer e-coating that is only applied to the steam distributing preheat coils and casings. The e-coating is capable of withstanding at least 10,000 hours of salt spray per ASTM B117-90, yet is only 0.8-1.2 mils thick and has excellent flexibility. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polymer e-coating is acceptable. The coating includes a 5-year warranty, from the date of original equipment shipment from the factory. Refer to the unit Installation, Operation, and Maintenance Manual for specific instructions on coil cleaning, maintenance, and record keeping.

P = Direct Fired Heat 100% OA Nat Gas (CAV) - This selection includes a direct-fired natural gas preheater, which is only available on MUA units.

Table 11: Direct Fired Temp Details

Unit Size	Burner Size	Max Temp Rise	Max Supply Temp
RZA-045-140 tons		90°F	140°F
RZA-145-240 tons	Shorter than 5’ [F17B = A-G]	90°F	140°F
	5’ and Longer [F17B = H-M]	100°F	140°F

4.41. Feature Option: (17B) Preheat Sizing

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-0**0**-000-ABEQ0A-E00000-00000DB

0 = No Preheat

Hot Water Preheat Coil [17A = F, M]

A = Size A 1 Row Half Serpentine 10 FPI
B = Size B 1 Row Half Serpentine 10 FPI
C = Size C 1 Row Half Serpentine 10 FPI
D = Size D 1 Row Half Serpentine 10 FPI
E = Size A 1 Row Quarter Serpentine 10 FPI
F = Size B 1 Row Quarter Serpentine 10 FPI
G = Size C 1 Row Quarter Serpentine 10 FPI
H = Size D 1 Row Quarter Serpentine 10 FPI
J = Size A 2 Row Full Serpentine 10 FPI
K = Size B 2 Row Full Serpentine 10 FPI
L = Size C 2 Row Full Serpentine 10 FPI
M = Size D 2 Row Full Serpentine 10 FPI
N = Size A 2 Row Half Serpentine 10 FPI
P = Size B 2 Row Half Serpentine 10 FPI
Q = Size C 2 Row Half Serpentine 10 FPI
R = Size D 2 Row Half Serpentine 10 FPI

Steam Distributing Preheat Coil [17A = G, N]

A = *Size A 1 Row Full Serpentine 10 FPI*
B = *Size B 1 Row Full Serpentine 10 FPI*
C = *Size C 1 Row Full Serpentine 10 FPI*
D = *Size D 1 Row Full Serpentine 10 FPI*
J = *Size A 2 Row Full Serpentine 10 FPI*
K = *Size B 2 Row Full Serpentine 10 FPI*
L = *Size C 2 Row Full Serpentine 10 FPI*
M = *Size D 2 Row Full Serpentine 10 FPI*

Direct Fired Gas Heat [17A = P]

A = *1' Burner G = 4.5' Burner*
B = *1.5' Burner H = 5.5' Burner*
C = *2' Burner J = 6' Burner*
D = *2.5' Burner K = 7' Burner*
E = *3' Burner L = 7.5' Burner*
F = *4' Burner M = 8.5' Burner*

Table 12: Hot Water Preheat & Steam Distributing Preheat Coil Sizes

RZ Cabinet Size	Coil Size	Hot Water Preheat Coils		Steam Distributing Preheat Coils	
		Coil Quantity	Coil Total Face Area	Coil Quantity	Coil total Face Area (ft^2)
A (45-75 tons)	Size A	1	33.3	2	30.0
	Size B	1	24.6	1	23.8
	Size C	1	18.3	1	15.4
	Size D	1	11.3	1	10.5
B & C (90-140 tons)	Size A	2	42.9	4	39.0
	Size B	1	33.3	2	30.0
	Size C	1	24.6	1	23.8
	Size D	1	18.3	1	15.4
D&E (145-240 tons)	Size A	2	66.6	4	61.8
	Size B	2	49.2	2	47.5
	Size C	1	33.3	2	30.9
	Size D	1	21.7	1	23.8

4.42. Feature Option: (18A) Option Box Location

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-**0**00-ABEQ0A-E00000-00000DB

0 = *No Option Box*
A = *One Option Box after Return*
B = *One Option Box after Pre-Filter*
C = *One Option Box after Cooling*
D = *One Option Box after Supply Fan*
E = *One Option Box after Heat*
F = *One Option Box after Return + One after Pre-Filter*
G = *One Option Box after Return + One after Cooling*
H = *One Option Box after Return + One after Supply Fan*
J = *One Option Box after Return + One after Heat*
K = *One Option Box after Pre-Filter + One after Cooling*
L = *One Option Box after Pre-Filter + One after Supply Fan*
M = *One Option Box after Pre-Filter + One after Heat*
N = *One Option Box after Cooling + One after Supply Fan*
P = *One Option Box after Cooling + One after Heat*
Q = *One Option Box after Supply Fan + One after Heat*

Note: The selections above are additional cabinet options for the installation of items not currently offered in the RZ equipment. Examples include humidifiers, special filtration systems, air blenders, air monitoring stations, hot water recirculating pumps, or storage compartments. The above options indicate length and location. A Special Pricing Authorization (SPA) is required if the factory installs customer-supplied equipment.

4.43. Feature Option: (18B) Option Box Size

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-0**0**0-ABEQ0A-E00000-00000DB

0 = *No Option Box*
A = *2ft First Box*
B = *2ft First Box + 2ft Second Box*
C = *2ft First Box + 4ft Second Box*
D = *2ft First Box + 6ft Second Box*
E = *2ft First Box + 8ft Second Box*
F = *4ft First Box*
G = *4ft First Box + 2ft Second Box*
H = *4ft First Box + 4ft Second Box*
J = *4ft First Box + 6ft Second Box*
K = *4ft First Box + 8ft Second Box*
L = *6ft First Box*
M = *6ft First Box + 2ft Second Box*
N = *6ft First Box + 4ft Second Box*
P = *6ft First Box + 6ft Second Box*
Q = *6ft First Box + 8ft Second Box*
R = *8ft First Box*
S = *8ft First Box + 2ft Second Box*
T = *8ft First Box + 4ft Second Box*
U = *8ft First Box + 6ft Second Box*
V = *8ft First Box + 8ft Second Box*

Note: The first and second boxes correlate to the boxes selected in Feature 18A. The second box from Feature 18A (options F-Q) is the box after the + sign. Ensure that the correct size is selected for each box.

4.44. Feature Option: (18C) Box Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-00**0**-ABEQ0A-E00000-00000DB

0 = *None*
A = *20" Drain Pan in First Box*
B = *20" Drain Pan in First Box + 20" Drain Pan in Second Box*
C = *20" Drain Pan in First Box + 44" Drain Pan in Second Box*
D = *Option A + Sound Attenuator*
E = *44" Drain Pan in First Box*
F = *44" Drain Pan in First Box + 20" Drain Pan in Second Box*
G = *44" Drain Pan in First Box + 44" Drain Pan in Second Box*
H = *Option E + Sound Attenuator*
J = *Sound Attenuator in First Box*
M = *Sound Attenuator in First Box + Sound Attenuator in Second Box*
N = *Empty First Box + 20" Drain Pan in Second Box*
P = *Empty First Box + 44" Drain Pan in Second Box*
Q = *Empty First Box + Sound Attenuator in Second Box*
S = *Air Mixer in First Box*
T = *Option S + 20” Drain Pan in Second Box*
U = *Option S + 44” Drain Pan in Second Box*
V = *Option S + Sound Attenuator in Second Box*

Note: The first and second boxes correlate to the boxes selected in Feature 18A. The second box from Feature 18A (options F-Q) is the box after the + sign. Ensure that the correct size is selected for each box.

4.45. Feature Option: (19) Outside Air Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-**A**BEQ0A-E00000-00000DB

0 = *No Outside Air Hood - 100% Return Air*

A = *Outside Air Hood*

B = *Outside Air Hood with Metal Mesh Filters* - This selection features washable expanded aluminum mesh filters mounted over the outside air intake and coated for adhesion. This option is used to filter large particles in the outside air and prevent moisture from being carried over in humid environments. The filters meet the requirements of UL Class 2. The initial resistance is 0.088 in. w.g. at 520 fpm.

C = *Outside Air Hood + Outside Air Flow Measuring Station* - This selection includes an outside air hood + outside airflow measuring station and airflow signal processor that communicates directly with the factory-provided control systems and can also be used with customer-provided controls with a 0-10 VDC output signal. LonTalk and BACnet may also be available for some applications. The monitoring size is dependent on the cfm.

G = *Option B + C - Outside Air Hood with Metal Mesh Filters + Outside Air Flow Measuring Station*

4.46. Feature Option: (20) Cabinet Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-A**B**EQ0A-E00000-00000DB

0 = *Standard*

B = *SA & RA Burglar Bars* - This selection includes ½-inch diameter welded steel bars crosshatched 6-8 inches apart across the unit supply and return air openings.

C = *SA and RA Walkable Safety Grates* - This selection includes black painted metal grates over the supply and return air openings for walk-in access.

D = *Perforated Liner for SA Fan* - This selection includes perforated and insulated metal liners across the supply air plenum to attenuate sound.

E = *Perforated Liner for RA Fan* - This selection includes perforated and insulated metal liners across the return air plenum to attenuate sound.

L = *Option B + D - SA & RA Burglar Bars + Perforated Liner on SA Fan*

M = *Option B + E - SA & RA Burglar Bars + Perforated Liner on RA Fan*

N = *Option C + D SA & RA Walkable Safety Grates + Perforated Liner on SA Fan*

P = *Option C + E SA & RA Walkable Safety Grates + Perforated Liner on RA Fan*

Q = *Option D + E - Perforated Liner on SA Fan + Perforated Liner on RA Fan*

1 = *Option B + D + E - SA & RA Burglar Bars + Perforated Liner on SA Fan + Perforated Liner on RA Fan*

2 = *Option C + D + E – SA & RA Walkable Safety Grates + Perforated Liner on SA Fan + Perforated Liner on RA Fan*

4.47. Feature Option: (21) Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-AB**E**Q0A-E00000-00000DB

0 = *None*

B = *Motorized Service Vestibule Fresh Air* - This selection includes a ventilation fan in the service vestibule that provides air circulation to the service vestibule when occupied.

C = *Supply Fan Air Flow Measuring* - This selection includes a supply fan airflow signal processor that communicates directly with the factory-provided control systems, but can also be used with customer-provided controls with a field-selectable 0-5 VDC, 0-10 VDC, or a 4-20mA output signal. BACnet MS/TP or Modbus RTU network communications are also available.

D = *Return Fan Air Flow Measuring* - This selection includes a return fan airflow signal processor that communicates directly with the factory-provided control systems, but can also be used with customer-provided controls with a field-selectable 0-5 VDC, 0-10 VDC, or 4-20mA output signal. BACnet MS/TP or Modbus RTU network communications are also available to use with the unit.

E = *Access Door Windows* - This selection includes 12” x 12”, wire-reinforced glass, double pane windows that permit the visual inspection of the cabinet interior while the access doors are closed. A window is included on all cabinet access doors of the unit.

K = *Option B + C - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring*

L = *Option B + D - Motorized Service Vestibule Fresh Air + Return Fan Air Flow Measuring*

M = *Option B + E - Motorized Service Vestibule Fresh Air + Access Door Windows*

N = *Option C + D - Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring*

P = *Option C + E - Supply Fan Air Flow Measuring + Access Door Windows*

Q = *Option D + E - Return Fan Air Flow Measuring + Access Door Windows*

Y = *Option B + C + D - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring*

Z = *Option B + C + E - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring + Access Door Windows*

1 = *Option B + D + E - Motorized Service Vestibule Fresh Air + Return Fan Air Flow Measuring + Access Door Windows*

2 = *Option C + D + E - Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring + Access Door Windows*

7 = *Option B + C + D + E - Motorized Service Vestibule Fresh Air + Supply Fan Air Flow Measuring + Return Fan Air Flow Measuring+ Access Door Windows*

Figure 14: Access Door Windows

4.48. Feature Option: (22) Maintenance Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABE**Q**0A-E00000-00000DB

0 = *Standard* - This selection includes a standard unit construction with LED service lights provided in the controls and compressor compartments. The light circuit is wired to the line side of the unit power block, permitting the use of the lights while power to the unit is shut off.

A = *Factory Wired 115V Convenience Outlet* - This selection includes a factory-wired 2x4-inch electrical box with a ground fault interrupter receptacle located within the controls vestibule. The circuit is rated at 12 amps maximum and is factory wired to a step-down transformer, fuse block, and outlet disconnect. The circuit is wired to the line side of the unit power block or power switch, permitting the use of the outlet while power to the unit is shut off. **Caution: When the power to the unit is disconnected with the factory-installed unit power switch, the convenience outlet will remain live.**

Figure 15: Factory Wired Convenience Outlet

B = *Field Wired 115V Convenience Outlet* - This selection includes a field-wired 2x4 electrical box with a ground fault interrupter receptacle, located inside the unit control cabinet. The receptacle is rated for 20 amps. The outlet must be field-wired to a 115 VAC power supply.

C = *Service Lights* - This selection includes factory-installed and wired service lights in the walk-in areas.

D = *Remote Start/Stop contacts* - This selection includes remote start/stop terminals labeled ST1 and ST2. This option is normally used with a remote time clock or space type thermostat with

occupied/unoccupied capability. Field-supplied contact closure is needed for unit operation. When contacts are open, the low-voltage circuit is broken, and the unit will not operate.

E = *Supply Fan Auxiliary Contacts* - This selection includes contacts on the low voltage terminal block that closes when the supply fan is energized. This option is used to interface with other devices or to indicate unit operation.

F = *Option A + C - Factory Wired 115V Convenience Outlet + Service Lights*

G = *Option A + D - Factory Wired 115V Convenience Outlet + Remote Start/Stop Contacts*

H = *Option A + E - Factory Wired 115V Convenience Outlet + Supply Fan Auxiliary Contacts*

J = *Option B + C - Field Wired 115V Convenience Outlet + Service Lights*

K = *Option B + D - Field Wired 115V Convenience Outlet + Remote Start/Stop Contacts*

L = *Option B + E - Field Wired 115V Convenience Outlet + Supply Fan Auxiliary Contacts*

M = *Option C + D - Service Lights + Remote Start/Stop Contacts*

N = *Option C + E - Service Lights + Supply Fan Auxiliary Contacts*

P = *Option D + E - Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

Q = *Option A + C + D - Factory Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts*

R = *Option A + C + E - Factory Wired 115V Convenience Outlet + Service Lights + Supply Fan Auxiliary Contacts*

S = *Option A + D + E - Factory Wired 115V Convenience Outlet + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

T = *Option B + C + D - Field Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts*

U = *Option B + C + E - Field Wired 115V Convenience Outlet + Service Lights + Supply Fan Auxiliary Contacts*

V = *Option B + D + E - Field Wired 115V Convenience Outlet + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

W = *Option C + D + E - Service Lights + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

Y = *Option A + C + D + E - Factory Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

Z = *Option B + C + D + E - Field Wired 115V Convenience Outlet + Service Lights + Remote Start/Stop Contacts + Supply Fan Auxiliary Contacts*

Note: If F22 is selected with the **Factory-Wired 115V Convenience Outlet** option, then a convenience outlet would be added to the additional vestibule in addition to an outlet on the primary vestibule.

4.49. Feature Option: (23) Code Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ**0**A-E00000-00000DB

0 = *Standard - ETL U.S.A. Listing* - All AAON equipment is ETL U.S.A. listed and tested in accordance with the latest revision of UL 1995. If a Special Pricing Authorization (SPA) is applied, there may be additional costs incurred to secure the ETL label.

A = *Chicago Code* - This selection includes a Chicago code for the unit. The Chicago code states that the unit's wiring to the condenser fan motors must be in a flexible conduit, and refrigerant pressure relief valves must also be supplied.

B = *ETL U.S.A. + Canada Listing* - This selection ensures that the equipment is ETL U.S.A. and Canada listed and tested in accordance with the latest revision of UL Standard 1995/CSA C22.2 No. 236. The nameplate, safety labels, and warnings will be in English and French.

4.50. Feature Option: (24) Shipping Splits

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0**A**-E00000-00000DB

0 = *Standard*
A = *Two Piece Unit*
D = *Two Piece Unit (Refrigeration Split)*

4.51. Feature Option: (25) Air-Cooled Condenser Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-**E**00000-00000DB

0 = *Standard*

E = *VFD Condenser Fan Head Pressure Control* - VFD Controlled Condenser Fans - Variable Speed - This selection includes factory-provided and programmed VFDs that receive inputs from the pressure transducers on each refrigerant circuit and vary the fan speed based on the pressure inputs to maintain a discharge pressure. The standard pressure setpoint for this unit is 340 psi for standard air-cooled systems and 400 psi for modulating hot gas reheat air-cooled systems. With AAON unit controls, the VFDs will be controlled directly by the AAON Control System.

K = *Low Sound Condenser Fan (Head Pressure Control)* - Condenser fans are specifically designed for reduced and redirected sound emissions. The fans include optimized orifices, guide vanes, and serrated blades. These condenser fans are driven by EC motors, which either speed up or slow down to adjust air flows to maintain the head pressure setpoint. The head pressure setpoint is field adjustable from 260-400 psi with a default setting of 340 psi with a Head Pressure Control Module. This option includes low sound ECM condenser fans, condenser head pressure controllers, and discharge pressure transducers. The minimum allowable ambient temperature for cooling operations is 35°F.

4.52. Feature Option: (26) Evaporative Condenser Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E**0**0000-00000DB

0 = *No Evaporative Condenser*

A = *No Sump or Vestibule Heaters* - This selection is an evaporative condensed unit without sump or vestibule heaters.

B = *Sump and Vestibule Heaters* - This selection is an evaporative condensed unit with a 5kW electric immersion sump heater, and a 1kW electric baseboard heater for the controls vestibule.

4.53. Feature Option: (27) Water-Cooled Condenser Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E0**0**000-00000DB

0 = *No Water-Cooled Condenser*

4.54. Feature Option: (28) Energy Recovery Accessories

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00**0**00-00000DB

0 = *None*

A = *Energy Recovery Wheel Defrost Start/Stop* - This selection ensures that a wheel sensor is attached to detect frost buildup on the wheel. When the wheel needs defrosting, the wheel will stop on the return side for a period to melt any ice buildup, then the wheel will continue rotating.

B = *Energy Recovery Wheel Rotation Detection* - This selection ensures that a wheel rotation sensor and speed switch output module are mounted in the energy recovery wheel section. The module contains a normally open and a normally closed set of contacts wired to the low-voltage terminal block for field indication of wheel rotation.

E = *VFD for Heat Wheel Motor (Field Control)* - This selection includes a VFD that allows the speed of the Heat Wheel to be field controlled. The speed control is wired to the LVTBs for a 0-10 Volt signal. The run call will still be handled by the controls/supervisory controls.

F = *Option A + B - Energy Recovery Wheel Defrost - Start-Stop + Energy Recovery Wheel Rotation Detection.*

M = *Option B + E – Energy Recovery Wheel Rotation Detection + VFD for Heat Wheel Motor (Field Control).*

4.55. Feature Option: (29) VFD Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E0000-00000DB

0 = *Standard*

A = *Shaft Grounding on all SA, RA, EA motors* - This selection includes shaft grounding on all supply air, return air, and exhaust air motors.

C = *BACnet VFD on all motors* - This selection uses BACnet native VFDs on all supply air, return air, and exhaust air motors, which allows users to monitor and control the drives on a BACnet network using RS-485 technology and MS/TP protocol.

G = *Option A + C*

4.56. Feature Option: (30) Miscellaneous Options

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000DB

0 = *None*

A = *High Condensate Level Switch* - This selection includes a control switch that shuts down the 24V control circuit when high water levels are detected in the drain pan to prevent overflow.

S = *Additional Vestibule Heater* - This selection includes a 24V heater that is added to a vestibule for technicians while working.

T = *Option A + S – Option A + S*

Note: If F30 is selected with the additional vestibule heater option, then the additional vestibule would get a vestibule heater.

4.57. Feature Option: (31) Blank

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-**0**0000DB

0 = *Standard*

4.58. Feature Option: (32) Blank

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-0**0**000DB

0 = *Standard*

4.59. Feature Option: (33) Blank

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00**0**00DB

0 = *Standard*

4.60. Feature Option: (34) Blank

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-000**0**0DB

0 = *Standard*

4.61. Feature Option: (35) Warranty

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-0000**0**DB

0 = *Standard Warranty* - The RZ Series includes a standard 1-year, parts-only warranty. The warranty coverage lasts 12 months from the date of equipment startup or 18 months from the date of original equipment shipment from the factory, whichever is less.

A = *2 Year Parts Warranty* - This selection provides the unit with warranty coverage for two years from the date of original equipment shipment from the factory.

B = *5 Year Parts Warranty* - This selection provides the unit with warranty coverage for five years from the date of original equipment shipment from the factory.

C = *10 Year Parts Warranty* - This selection provides the unit with warranty coverage for ten years from the date of original equipment shipment from the factory.

4.62. Feature Option: (36) Cabinet Material

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000**D**B

D = *Galvanized Cabinet - Double Wall + R-13 Foam Insulation + 6" Base Rail + Double Sloped Roof* - This selection's unit construction features double-wall closed-cell polyurethane foam-insulated composite panels. A thermal break between the inside and outside of the cabinet is included in the panels. The wall panels are 2 inches thick with a minimum R value of 13. The sloped roof of the unit averages 2.5 inches thick with a minimum R-Value of 16. The floor of the unit is 3 inches thick with a minimum R-value of 19. The drain pans are comprised of 18-gauge 304 stainless steel and are double sloped to meet ASHRAE 62.1, Indoor Air Quality guidelines.

4.63. Feature Option: (37) Specials & Paint

RZA-145-D0-3-CAB0A-00000:N0-AAKAQ-J00-BFT0M-00000-QF-A0AA-00-M0-C-000-80-DA0B-00-000-ABEQ0A-E00000-00000D**B**

B = *Premium AAON Gray Exterior Paint* - This selection features primer-washed and spray-coated cabinet exteriors with a two-part polyurethane, heat-baked exterior paint. The paint is gray in color and capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with the ASTM B 117-95 test procedure.

D = *Premium AAON Gray Exterior Paint + Interior Corrosion Protection* - This selection features spray-coated interior ceilings, floors, service doors, fan inlet cones, damper racks, and filter racks in the air stream with a two-part polyurethane, heat-baked coating. The coils, coil casings, condensate drain pans, damper blades and gears, fan wheel, fan motor, energy recovery wheel casing, and compressor cabinet are not coated. This option is intended for use in coastal saltwater conditions under the stress of heat, salt, sand, and wind, and applies to all corrosive environments where a polyurethane coating is acceptable. The coating withstands at least 2,500 hours when tested under ASTM B 117-95 requirements.

G = *Premium AAON Gray Paint Exterior Paint + Interior Corrosion Protection + Shrink Wrap* - Option D + This selection ensures that the unit is heat shrink wrapped to help protect the unit during shipment.

X = *SPA + Premium AAON Gray Exterior Paint* - This selection asserts that the Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

Z = *SPA + Premium AAON Gray Exterior Paint + Interior Corrosion Protection* - This selection asserts that the Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

3 = *SPA + Premium AAON Gray Exterior Paint + Interior Corrosion Protection + Shrink Wrap* - This selection asserts that the Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

4 = *SPA + Special Exterior Paint Color* - This selection asserts that if a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are

necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

6 = *SPA + Special Exterior Paint Color + Interior Corrosion Protection* - This selection asserts that if a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

9 = *SPA + Special Exterior Paint Color + Interior Corrosion Protection + Shrink Wrap* - This selection asserts that if a special paint color is specified, a set-up charge and price add per unit is required. Use this designation if other special paint options are necessary. The Applications Department must issue a Special Pricing Authorization (SPA) to include a non-standard option.

5. GENERAL DATA

5.1. Unit Information

Table 13: RZ Series (045-075 tons) DX and CW Cooling Information

	Model			
	045	055	0665	075
Compressors				
Quantity/Nominal tons				
R-410A Lead Variable Speed Scroll Compressor	2/22.5 ton VFD	2/25.1 ton VFD	2/29.6 ton VFD	2/17.7 ton VFD, 1/31.5 Tandem
Unit Turndown (%)	17%	20%	18%	15%
R-410A Evaporator Coils				
Number of Circuits	2; Interlaced			3; Interlaced
Standard DX Coil				
Quantity/Face Area Coil/ Total Face Area	2/27.3 ft^2/54.7 ft^2			
Rows/fpi	4/14			
6 Row DX Coil				
Quantity/Face Area Coil/ Total Face Area	2/27.3 ft^2/54.7 ft^2			
Rows/fpi	6/12			
Standard Large DX Coil				
Quantity/Face Area Coil/ Total Face Area				
Rows/fpi				
6 Row Large DX Coil				
Quantity/Face Area Coil/ Total Face Area				
Rows/fpi				
Chilled Water Coils				
Number of Connections	2 inlet, 2 outlet			
Standard CW Coil	Single Serpentine with 10 fpi			
Quantity/Face Area Coil/ Total Face Area	2/25.5 ft^2/51.0 ft^2			
Rows/fpi	4, 6, or 8 row/ 10 or 12 fpi (Single of Half Serpentine)			
Standard large CW Coil				
Quantity/Face Area Coil/ Total Face Area				
Rows/fpi				

Table 14: RZ Series (045-075 tons) Gas Heat Information

	Model			
	045	055	065	75
Gas Heat				
Input Capacity/ Output Capacity (MBH)	540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479			
Natural Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135, Modulating - 3:1 Turndown or 9:1 High Turndown 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 Modulating - 4.5:1 Turndown or 13.5:1 High Turndown 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 Modulating - 7.5:1 Turndown or 22.5:1 High Turndown 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 Modulating - 9:1 Turndown or 27:1 High Turndown 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 Modulating - 11.7:1 Turndown or 35:1 High Turndown 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 Modulating - 14.3:1 Turndown or 43:1 High Turndown 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 Modulating - 17:1 Turndown or 51:1 High Turndown			
LP Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255			

Table 15: RZ Series (045-075 tons) Electric Heat and Heating Coils Information

	Model			
	045	055	065	075
Electric Heat				
Capacity (kW)				
230/460/575V 3Φ	80; 120, 160, 200, 240			
Stages (kW)	80 kW - 2, 4 or Fully Modulating with SCR 120 kW - 3, 6 or Fully Modulating with SCR 160 kW - 4, 8 or Fully Modulating with SCR 200 kW - 5, 10 or Fully Modulating with SCR 240 kW - 6, 12 or Fully Modulating with SCR			
Hot Water Heating Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	1/33.3 ft^2/ 33.3 ft^2	1/24.6 ft^2/ 24.6 ft^2	1/18.3 ft^2/ 18.3 ft^2	1/11.3 ft^2/ 11.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Heating Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	2/15.0 ft^2/ 15.0 ft^2	1/23.8 ft^2/ 23.8 ft^2	1/15.4 ft^2/ 15.4 ft^2	1/10.5 ft^2/ 10.5 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi(Single or Half Serpentine)			
Hot Water Preheat Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	1/33.3 ft^2/ 33.3 ft^2	1/24.6 ft^2/ 24.6 ft^2	1/18.3 ft^2/ 18.3 ft^2	1/11.3 ft^2/ 11.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi(Single or Half Serpentine)			
Steam Preheat Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	2/15.0 ft^2/ 15.0 ft^2	1/23.8 ft^2/ 23.8 ft^2	1/15.4 ft^2/ 15.4 ft^2	1/10.5 ft^2/ 10.5 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi(Single or Half Serpentine)			

Table 16: RZ Series (045-075 tons) Fan Information

	Model			
	045	055	065	075
Supply Fans				
Quantity Type	1, 2, 3, 4, 5, 6, 7, 8, or 9/ Direct Backward Curved Plenum			
Max CFM for Standard Cooling Coil	30, 075			
Max CFM for Large Cooling Coil				
Air-Cooled Condenser Fans				
Quantity	4			
Type/hp	30” EC or VFD controlled fans/ 1.5 hp			
Power Exhaust Fans				
Quantity/Type	1, 2, or 3/ Direct Drive Backward Curved Plenum			
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40			
Power Return Fans				
Quantity/Type	1, 2, 3, or 4/ Direct Drive Backward Curved Plenum			
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40			

Table 17: RZ Series (090/105 tons) DX and CW Cooling Information

	Model	
	090	105
Compressors		
Quantity/Nominal tons		
R-410A Lead Variable Speed Scroll Compressor	2/19.7 ton VFD, 1/49.4 Tandem	2/22 ton VFD, 1/53.2 Tandem
Unit Turndown (%)	13%	11%
R-410A Evaporator Coils		
Number of Circuits	3, Interlaced	
Standard DX Coil		
Quantity/Face Area Coil/ Total Face Area	2/27.3 ft^2/54.7 ft^2	
Rows/fpi	4/14	
6 Row DX Coil		
Quantity/Face Area Coil/ Total Face Area	2/27.3 ft^2/54.7 ft^2	
Rows/fpi	6/12	
Standard Large DX Coil		
Quantity/Face Area Coil/ Total Face Area	2/27.3 ft^2/75.0 ft^2	
Rows/fpi	4/14	
6 Row Large DX Coil		
Quantity/Face Area Coil/ Total Face Area	2/37.5 ft^2/75.0 ft^2	
Rows/fpi	6/12	
Chilled Water Coils		
Number of Connections	2 Inlet, 2 Outlet	
Standard CW Coil	Single Serpentine with 10 fpi	
Quantity/Face Area Coil/ Total Face Area	2/25.5 ft^2/51.0 ft^2	
Rows/fpi	4, 6, or 8 rows/ 8, 10, or 12 fpi (Single or Half Serpentine)	
Standard Large CW Coil	Single Serpentine with 10 fpi	
Quantity/Face Area Coil/ Total Face Area	2/35.0 ft^2/70.0 ft^2	
Rows/fpi	4, 6, or 8 rows/ 8, 10, or 12 fpi (Single or Half Serpentine)	

Table 18:RZ Series (090-105 tons) Gas heat Information

	Model	
	090	105
Gas Heat		
Input Capacity/Output Capacity (MBH)	540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479	
Natural Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135, Modulating - 3:1 Turndown or 9:1 High Turndown 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 Modulating - 4.5:1 Turndown or 13.5:1 High Turndown 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 Modulating - 6:1 Turndown or 18:1 High Turndown 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 Modulating - 7.5:1 Turndown or 22.5:1 High Turndown 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 Modulating - 9:1 Turndown or 27:1 High Turndown 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 Modulating - 11.7:1 Turndown or 35:1 High Turndown 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 Modulating - 14.3:1 Turndown or 43:1 High Turndown 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 Modulating - 17:1 Turndown or 51:1 High Turndown	
LP Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255	

Table 19: RZ Series (09-105 tons) Electric Heat and Heating Coils Information

	Model			
	090		105	
Electric Heat				
Capacity (kW)				
230/460/575V 3Φ	80, 12, 160, 200, 240			
Stages (kW)	80 kW: 2, 4, or Fully Modulating with SCR 120 kW: 3, 6, or Fully Modulating with SCR 160 kW: 4, 8 or Fully Modulating with SCR 200 kW: 5, 10 or Fully Modulating with SCR 240 kW: 6, 12 or Fully Modulating with SCR			
Hot Water Heating Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	2/21.4 ft^2/42.9 ft^2	1/33.3 ft^2/33.3 ft^2	1/24.6 ft^2/24.6 ft^2	1/18.3 ft^2/18.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Heating Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	4/9.8 ft^2/39.0 ft^2	2/15.0 ft^2/30.0 ft^2	1/23.8 ft^2/23.8 ft^2	1/15.4 ft^2/15.4 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Hot Water Preheat Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	2/21.4 ft^2/42.9 ft^2	1/33.3 ft^2/33.3 ft^2	1/24.6 ft^2/24.6 ft^2	1/18.3 ft^2/18.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Preheat Coil	Size A	Size B	Size C	Size D
Quantity/ Face Area Coil/ Total Face Area	4/9.8 ft^2/39.0 ft^2	2/15.0 ft^2/30.0 ft^2	1/23.8 ft^2/23.8 ft^2	1/15.4 ft^2/15.4 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			

Table 20: RZ Series (090-105 tons) Fan Information

	Model	
	090	105
Supply Fans		
Quantity Type	1, 2, 3, 4, 5, 6, 7, 8, or 9/Direct Drive Backward Curved Plenum	
Max CFM for Standard Cooling Coil	30,075	
Max CFM for Large Cooling Coil	41,250	
Air-Cooled Condenser Fans		
Quantity	8	
Type/hp	30" EC or VFD controlled Fans/1.5hp	
Power Exhaust Fans		
Quantity/Type	1, 2, or 3/ Direct Drive Backward Curved Plenum	
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40	
Power Return Fans		
Quantity/Type	1, 2, 3 or 4/ Direct Drive Backward Curved Plenum	
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40	

Table 21: RZ Series (120-140 tons) Gas Heat Information

	Model		
	120	130	140
Compressors			
Quantity/Nominal tons			
R-410A Lead Variable Speed Scroll Compressors	2/29.2 ton VFD, 1/56.9 Tandem	2/30.1 ton VFD, 1/68 Tandem	2/29.7 ton VFD, 1/71.3 Tandem
Unit Turndown (%)	13%	12%	11%
R-410A Evaporator Coils			
Number of Circuits	3, Interlaced		
Standard DX Coil			
Quantity/ Face Area Coil/ Total Face Area Coil	2/27.3 ft^2/54.7 ft^2		
Rows/fpi	4/14		
6 Row DX Coil			
Quantity/ Face Area Coil/ Total Face Area Coil	2/27.3 ft^2/54.7 ft^2		
Rows/fpi	6/12		
Standard Large DX Coil			
Quantity/ Face Area Coil/ Total Face Area Coil	2/37.5 ft^2/75.0 ft^2		
Rows/fpi	4/14		
6 Row Large DX Coil			
Quantity/ Face Area Coil/ Total Face Area Coil	2/37.5 ft^2/75.0 ft^2		
Rows/fpi	6/12		
Chilled Water Coils			
Number of Connections	2 inlet, 2 outlet		
Standard CW Coil	Single Serpentine with 10 fpi		
Quantity/Face Area Coil/ Total Face Area	2/25.5 ft^2/51.0 ft^2		
Rows/fpi	4, 6, or 8 rows/ 8, 10, 12 fpi (single or Half Serpentine)		
Standard Large CW Coil	Single Serpentine with 10 fpi		
Quantity/Face Area Coil/ Total Face Area	2/35.0 ft^2/70.0 ft^2		
Rows/fpi	4, 6, or 8 rows/ 8, 10, 12 fpi (single or Half Serpentine)		

Table 22: RZ Series (120-140 tons) Gas Heat Information

	Model		
	120	130	140
Gas Heat			
Input Capacity/ Output Capacity (MBH)	540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479		
Natural Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135, Modulating - 3:1 Turndown or 9:1 High Turndown 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 Modulating - 4.5:1 Turndown or 13.5:1 High Turndown 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 Modulating - 6:1 Turndown or 18:1 High Turndown 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 Modulating - 7.5:1 Turndown or 22.5:1 High Turndown 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 Modulating - 9:1 Turndown or 27:1 High Turndown 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 Modulating - 11.7:1 Turndown or 35:1 High Turndown 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 Modulating - 14.3:1 Turndown or 43:1 High Turndown 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 Modulating - 17:1 Turndown or 51:1 High Turndown		
LP Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255		

Table 23: RZ Series (09-105 tons) Electric Heat and Heating Coils Information

	Model			
	090		105	
Electric Heat				
Capacity (kW)				
230/460/575V 3Φ	80, 120, 160, 200, 240			
Stages (kW)	80 kW: 2,: 4, or Fully Modulating with SCR 120 kW: 3,: 6, or Fully Modulating with SCR 160 kW: 4,: 8, or Fully Modulating with SCR 200 kW: 5,: 10, or Fully Modulating with SCR 240 kW: 6,: 12, or Fully Modulating with SCR			
Hot Water Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/21.4 ft^2/42.9 ft^2	1/33.3 ft^2/33.3 ft^2	1/24.6 ft^2/24.6 ft^2	1/18.3 ft^2/18.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	4/9.8 ft^2/39.0 ft^2	2/15.0 ft^2/30.0 ft^2	1/23.8 ft^2/23.8 ft^2	1/15.4 ft^2/15.4 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Hot Water Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/21.4 ft^2/42.9 ft^2	1/33.3 ft^2/33.3 ft^2	1/24.6 ft^2/24.6 ft^2	1/18.3 ft^2/18.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	4/9.8 ft^2/39.0 ft^2	2/15.0 ft^2/30.0 ft^2	1/23.8 ft^2/23.8 ft^2	1/15.4 ft^2/15.4 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			

Table 24: RZ Series (09-105 tons) Fan Information

	Model	
	090	105
Supply Fans		
Quantity Type	1, 2, 3, 4, 5, 6, 7, 8, or 9/Direct Drive Backward Curved Plenum	
Max CFM for Standard Cooling Coil	30, 075	
Max CFM for Large Cooling Coil	41,250	
Air-Cooled Condenser Fans		
Quantity	8	
Type/hp	30" EC or VFD controlled Fans/ 1.5hp	
Power Exhaust Fans		
Quantity/Type	1, 2, or 3/ Direct Drive Backward Curved Plenum	
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40	
Power Return Fans		
Quantity/Type	1, 2, 3, or 4/ Direct Drive Backward Curved Plenum	
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40	

Table 25: RZ Series (120-140 tons) DX and CW Cooling Information

	Model		
	120	130	140
Compressors			
Quantity/Nominal tons			
R-410A Lead Variable Speed Scroll Compressor	2/29.2 ton VFD, 1/56.9 Tandem	2/30.1 VFD, 1/68 Tandem	2/29.7 ton VFD, 1/71.3 Tandem
Unit Turndown (%)	13%	12%	11%
R-410A Evaporator Coils			
Number of Circuits	3, Interlaced		
Standard DX Coil			
Quantity/ Face Area Coil/ Total Face Area	2/27.3 ft^2/54.7 ft^2		
Rows/fpi	4/14		
6 Row DX Coil			
Quantity/ Face Area Coil/ Total Face Area	2/27.3 ft^2/54.7 ft^2		
Rows/fpi	6/12		
Standard Large DX Coil			
Quantity/ Face Area Coil/ Total Face Area	2/37.5 ft^2/75.0 ft^2		
Rows/fpi	6/12		
Chilled Water Coils			
Number of Connections	2 inlet, 2 outlet		
Standard CW Coil	Single Serpentine with 10 fpi		
Quantity/ Face Area Coil/ Total Face Area	2/25.5 ft^2/51.0 ft^2		
Rows/fpi	4, 6, or 8 rows/8, 10, 12 fpi (Single or Half Serpentine)		
Standard Large CW Coil	Single Serpentine with 10 fpi		
Quantity/ Face Area Coil/ Total Face Area	2/35.0 ft^2/70.0 ft^2		
Rows/fpi	4, 6, or 8 rows/8, 10, 12 fpi (Single or Half Serpentine)		

Table 26: RZ Series (120-140 tons) Gas Heat Information

	Model		
	120	130	140
Gas Heat			
Input Capacity/ Output Capacity (MBH)	540/437, 810/656, 1080/875, 1350/1094, 1620/1312, 2100/1701, 2580/2090, 3060/2479		
Natural Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135, Modulating - 3:1 Turndown or 9:1 High Turndown 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 Modulating - 4.5:1 Turndown or 13.5:1 High Turndown 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 Modulating - 6:1 Turndown or 18:1 High Turndown 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 Modulating - 7.5:1 Turndown or 22.5:1 High Turndown 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 Modulating - 9:1 Turndown or 27:1 High Turndown 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 Modulating - 11.7:1 Turndown or 35:1 High Turndown 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 Modulating - 14.3:1 Turndown or 43:1 High Turndown 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255 Modulating - 17:1 Turndown or 51:1 High Turndown		
LP Gas Capacity Steps (MBH)	540 MBH: 2 stage - 540/270, 4 stage - 540/405/270/135, 810 MBH: 3 stage - 810/540/270, 6 stage - 810/ 675/540/405/270/135 1080 MBH: 4 stage - 1080/810/540/270, 8 stage - 1080/945/810/675/540/405/270/135 1350 MBH: 5 stage - 1350/1080/810/540/270, 10 stage - 1350/1215/1080/945/810/675/540/405/270/135 1620 MBH: 6 stage - 1620/1350/1080/810/540/270, 12 stage - 1620/1485/1350/1215/1080/945/810/675/540/405/270/135 2100 MBH: 4 stage - 2100/1575/1050/525, 8 stage - 2100/1837/1575/1312/1050/787/525/262 2580 MBH: 5 stage - 2580/2064/1548/1032/516, 10 stage - 2580/2322/2064/1806/1548/1290/1032/774/516/258 3060 MBH: 6 stage - 3060/2550/2040/1530/1020/510, 12 stage - 3060/2805/2550/2295/2040/1785/1530/1275/1020/765/510/255		

Table 27: RZ Series (120-140 tons) Electric Heat and Heating Coils Information

	Model			
	120	130	140	
Electric Heat				
Capacity (kW)				
230/460/575V 3Φ	80, 120, 160, 200, 240			
Stages (kW)	80 kW: 2,: 4, or Fully Modulating with SCR 120 kW: 3,: 6, or Fully Modulating with SCR 160 kW: 4,: 8, or Fully Modulating with SCR 200 kW: 5,: 10, or Fully Modulating with SCR 240 kW: 6,: 12, or Fully Modulating with SCR			
Hot Water Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/21.4 ft^2/42.9 ft^2	1/33.3 ft^2/33.3 ft^2	1/24.6 ft^2/24.6 ft^2	1/18.3 ft^2/18.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	4/9.8 ft^2/39.0 ft^2	2/15.0 ft^2/30.0 ft^2	1/23.8 ft^2/23.8 ft^2	1/15.4 ft^2/15.4 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Hot Water Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/21.4 ft^2/42.9 ft^2	1/33.3 ft^2/33.3 ft^2	1/24.6 ft^2/24.6 ft^2	1/18.3 ft^2/18.3 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			
Steam Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	4/9.8 ft^2/39.0 ft^2	2/15.0 ft^2/30.0 ft^2	1/23.8 ft^2/23.8 ft^2	1/15.4 ft^2/15.4 ft^2
Rows/fpi	1 or 2 rows/ 10 fpi (Single or Half Serpentine)			

Table 28: RZ Series (120-140 tons) Fan Information

	Model		
	120	130	140
Supply Fans			
Quantity/Type	1, 2, 3, 4, 5, 6, 7, 8, or 9/Direct Drive Backward Curved Plenum		
Max CFM for Standard Cooling Coil	30,075		
Max CFM for Large Cooling Coil	14,250		
Air-Cooled Condenser Fans			
Quantity	8		
Type/hp	30” EC or VFD controlled Fans/1.5hp		
Power Exhaust Fans			
Quantity/Type	1, 2, or 3/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		
Power Return Fans			
Quantity/Type	1, 2, 3 or 4/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		

Table 29: RZ Series (145-180 tons) DX and CW Cooling Information

	Model		
	145	160	180
Compressors			
Quantity/Nominal tons			
R-410A Lead Variable Speed Scroll Compressor	4/20.5 ton VFD, 2/30.8 Tandem	4/23.8 ton VFD, 2/30.8 Tandem	4/27.2 ton VFD, 2/33.8 Tandem
Unit Turndown (%)	15%	19%	16%
R-410A Evaporator Coils			
Number of Circuits	6, Interlaced		
Standard DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/23.1 ft^2/92.4 ft^2		
Rows/fpi	4/14		
6 Row DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/23.1 ft^2/92.4 ft^2		
Rows/fpi	6/12		
Standard Large DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/26.7 ft^2/106.8 ft^2		
Rows/fpi	4/14		
6 Row Large DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/26.7 ft^2/106.8 ft^2		
Rows/fpi	6/12		
Chilled Water Coils			
Number of Connections	4 inlet, 4 outlet		
Standard CW Coil	Single Serpentine with 10 fpi		
Quantity/Face Area Coil/ Total Face Area	4/21.6 ft^2/86.4 ft^2		
Rows/fpi	4, 6, or 8 rows/8, 10 or 12 fpi (Single or Half Serpentine)		
Standard Large CW Coil	Single Serpentine with 10 fpi		
Quantity/Face Area Coil/ Total Face Area	4/25.2 ft^2/100.8 ft^2		
Rows/fpi	4, 6, or 8 rows/8, 10 or 12 fpi (Single or Half Serpentine)		

	Model		
	145	160	180
Gas Heat			
Input Capacity/ Output Capacity (MBH)	800/648, 1200/972, 1600/1296, 2000/1620, 2400/1944, 3100/2511, 3800/3078, 4500/3645		
Natural Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200 Modulating - 3:1 Turndown or 7.5:1 High Turndown 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/ 1000/800/600/400/200 Modulating - 4.5:1 Turndown or 11.2:1 High Turndown 1600 MBH: 4 stage - 1600/1200/800/400, 8 stage - 1600/1400/1200/1000/800/600/400/200 Modulating - 6:1 Turndown or 15:1 High Turndown 2000 MBH: 5 stage - 2000/1600/1200/800/400, 10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200 Modulating - 7.5:1 Turndown or 18.7:1 High Turndown 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, 12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200 Modulating - 9:1 Turndown or 22.5:1 High Turndown 3100 MBH: 4 stage - 3100/2325/1550/775, 8 stage - 3100/2712/2325/1937/1550/1162/775/387 Modulating - 11.6:1 Turndown or 29:1 High Turndown 3800 MBH: 5 stage - 3800/3040/2280/1520/760, 10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380 Modulating - 14.2:1 Turndown or 35.6:1 High Turndown 4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750, 12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375 Modulating - 16.8:1 Turndown or 42.1:1 High Turndown		
LP Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/ 1000/800/600/400/200 1600 MBH: 4 stage - 1600/1200/800/400, 8 stage - 1600/1400/1200/1000/800/600/400/200 2000 MBH: 5 stage - 2000/1600/1200/800/400, 10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, 12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200 3100 MBH: 4 stage - 3100/2325/1550/775, 8 stage - 3100/2712/2325/1937/1550/1162/775/387 3800 MBH: 5 stage - 3800/3040/2280/1520/760, 10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380 4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750, 12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375		

Table 30: RZ Series (145-180 tons) Electric Heat and Heating Coils Information

	Model			
	145	160		180
Electric Heat				
Capacity (kW)				
230/460/575V 3Φ	80, 120, 160, 240, 320, 400, 480			
Stages (kW)	80 kW - 2, 4 or Fully Modulating with SCR 120 kW - 3, 6 or Fully Modulating with SCR 160 kW - 4, 8 or Fully Modulating with SCR 240 kW - 6, 12 or Fully Modulating with SCR 320 kW - 4, 8 or Fully Modulating with SCR 400 kW - 5, 10 or Fully Modulating with SCR 480 kW - 6, 12 or Fully Modulating with SCR			
Hot Water Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/33.3 ft²/ 66.6 ft²	2/24.6 ft²/ 49.2 ft²	1/33.3 ft²/ 33.3 ft²	1/21.7 ft²/ 21.7 ft²
Rows/fpi	1 or 2 row/10 fpi (Single or Half Serpentine)			
Steam Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/30.9 ft²/ 61.8 ft²	2/23.8 ft²/ 47.5 ft²	1/30.9 ft²/ 30.9 ft²	1/23.8 ft²/ 23.8 ft²
Rows/fpi	1 or 2 rows/10 fpi (Single Serpentine)			
Hot Water Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/33.3 ft²/ 66.6 ft²	2/24.6 ft²/ 49.2 ft²	1/33.3 ft²/ 33.3 ft²	1/21.7 ft²/ 21.7 ft²
Rows/fpi	1 or 2/10 (Single or Half Serpentine)			
Steam Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/30.9 ft²/ 61.8 ft²	2/23.8 ft²/ 47.5 ft²	1/30.9 ft²/ 30.9 ft²	1/23.8 ft²/ 23.8 ft²
Rows/fpi	1 or 2/10 (Single Serpentine)			

Table 31: RZ Series (145-180 tons) Fan Information

	Model		
	145	160	180
Supply Fans			
Quantity/Type	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12/Direct Drive Backward Curved Plenum		
Max CFM for Standard Cooling Coil	50,800		
Max CFM for Large Cooling Coil	58,820		
Air-Cooled Condenser Fans			
Quantity	12		
Type/hp	30" EC or VFD controlled Fans/1.5hp		
Power Exhaust Fans			
Quantity/Type	1, 2, 3 or 4/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		
Power Return Fans			
Quantity/Type	1, 2, 3 or 4/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		

Table 32: RZ Series (200-240 tons) DX and CW Cooling Information

	Model		
	200	220	240
Compressors			
Quantity/Nominal tons			
R-410A Lead Variable Speed Scroll Compressor	4/23.1 ton VFD, 2/48.1 Tandem	4/25.8 ton VFD, 2/51.7 Tandem	4/26.7 ton VFD, 2/59.6 Tandem
Unit Turndown (%)	16%	14%	13%
R-410A Evaporator Coils			
Number of Circuits	6, Interlaced		
Standard DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/30.4 ft^2/121.5 ft^2		
Rows/fpi	4/14		
6 Row DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/30.4 ft^2/121.5 ft^2		
Rows/fpi	6/12		
Standard Large DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/36.5 ft^2/145.8 ft^2		
Rows/fpi	4/14		
6 Row Large DX Coil			
Quantity/Face Area Coil/ Total Face Area	4/36.5 ft^2/145.8 ft^2		
Rows/fpi	6/12		
Chilled Water Coils			
Number of Connections	4 inlet, 4 outlet		
Standard CW Coil	Single Serpentine with 10 fpi		
Quantity/Face Area Coil/ Total Face Area	4/28.9 ft^2/115.5 ft^2		
Rows/fpi	4, 6, or 8 rows/ 8, 10, or 12 fpi (Single or Half Serpentine)		
Standard Large CW Coil	Single Serpentine with 10 fpi		
Quantity/Face Area Coil/ Total Face Area	4/34.9 ft^2/139.8 ft^2		
Rows/fpi	4, 6, or 8 rows/ 8, 10, or 12 fpi (Single or Half Serpentine)		

	Model		
	200	220	240
Gas Heat			
Input Capacity/Output Capacity (MBH)	800/648, 1200/972, 1600/1296, 2000/1620, 2400/1944, 3100/2511, 3800/3078, 4500/3645		
Natural Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200 Modulating - 3:1 Turndown or 7.5:1 High Turndown 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/ 1000/800/600/400/200 Modulating - 4.5:1 Turndown or 11.2:1 High Turndown 1600 MBH: 4 stage - 1600/1200/800/400, 8 stage - 1600/1400/1200/1000/800/600/400/200 Modulating - 6:1 Turndown or 15:1 High Turndown 2000 MBH: 5 stage - 2000/1600/1200/800/400, 10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200 Modulating - 7.5:1 Turndown or 18.7:1 High Turndown 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, 12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200 Modulating - 9:1 Turndown or 22.5:1 High Turndown 3100 MBH: 4 stage - 3100/2325/1550/775, 8 stage - 3100/2712/2325/1937/1550/1162/775/387 Modulating - 11.6:1 Turndown or 29:1 High Turndown 3800 MBH: 5 stage - 3800/3040/2280/1520/760, 10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380 Modulating - 14.2:1 Turndown or 35.6:1 High Turndown 4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750, 12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375 Modulating - 16.8:1 Turndown or 42.1:1 High Turndown		
LP Gas Capacity Steps (MBH)	800 MBH: 2 stage - 800/400, 4 stage - 800/600/400/200, 1200 MBH: 3 stage - 1200/800/400, 6 stage - 1200/ 1000/800/600/400/200 1600 MBH: 4 stage - 1600/1200/800/400, 8 stage - 1600/1400/1200/1000/800/600/400/200 2000 MBH: 5 stage - 2000/1600/1200/800/400, 10 stage - 2000/1800/1600/1400/1200/1000/800/600/400/200 2400 MBH: 6 stage - 2400/2000/1600/1200/800/400, 12 stage - 2400/2200/2000/1800/1600/1400/1200/1000/800/600/400/200 3100 MBH: 4 stage - 3100/2325/1550/775, 8 stage - 3100/2712/2325/1937/1550/1162/775/387 3800 MBH: 5 stage - 3800/3040/2280/1520/760, 10 stage - 3800/3420/3040/2660/2280/1900/1520/1140/760/380 4500 MBH: 6 stage - 4500/3750/3000/2250/1500/750, 12 stage - 4500/4125/3750/3375/3000/2625/2250/1875/1500/1125/750/375		

Table 33: RZ Series (200-240 tons) Electric Heat & Heating Coils Information

	Model			
	200	220	240	
Electric Heat				
Capacity (kW)				
230/460/575V 3Φ	80, 120, 160, 240, 320, 400, 480			
Stages (kW)	80 kW - 2, 4 or Fully Modulating with SCR 120 kW - 3, 6 or Fully Modulating with SCR 160 kW - 4, 8 or Fully Modulating with SCR 240 kW - 6, 12 or Fully Modulating with SCR 320 kW - 4, 8 or Fully Modulating with SCR 400 kW - 5, 10 or Fully Modulating with SCR 480 kW - 6, 12 or Fully Modulating with SCR			
Hot Water Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/33.3 ft^2/66.6 ft^2	2/24.6 ft^2/49.2 ft^2	1/33.3 ft^2/33.3 ft^2	1/21.7 ft^2/21.7 ft^2
Rows/fpi	1 or 2 row/10 fpi (Single or Half Serpentine)			
Steam Heating Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/30.9 ft^2/61.8 ft^2	2/23.8 ft^2/47.5 ft^2	1/30.9 ft^2/30.9 ft^2	1/23.8 ft^2/23.8 ft^2
Rows/fpi	1 or 2 rows/10 fpi (Single Serpentine)			
Hot Water Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/33.3 ft^2/66.6 ft^2	2/24.6 ft^2/49.2 ft^2	1/33.3 ft^2/33.3 ft^2	1/21.7 ft^2/21.7 ft^2
Rows/fpi	1 or 2 row/10 fpi (Single or Half Serpentine)			
Steam Preheat Coil	Size A	Size B	Size C	Size D
Quantity/Face Area Coil/ Total Face Area	2/30.9 ft^2/61.8 ft^2	2/23.8 ft^2/47.5 ft^2	1/30.9 ft^2/30.9 ft^2	1/23.8 ft^2/23.8 ft^2
Rows/fpi	1 or 2 rows/10 fpi (Single Serpentine)			

Table 34: RZ Series (200-240 tons) Fan Information

	Model		
	200	220	240
Supply Fans			
Quantity/Type	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12/Direct Drive Backward Curved Plenum		
Max CFM for Standard Cooling Coil	66,840		
Max CFM for Large Cooling Coil	80,200		
Air-Cooled Condenser Fans			
Quantity	16		
Type/hp	30” EC or VFD controlled Fans/1.5hp		
Power Exhaust Fans			
Quantity/Type	1, 2, 3 or 4/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		
Power Return Fans			
Quantity/Type	1, 2, 3 or 4/ Direct Drive Backward Curved Plenum		
hp	3, 5, 7.5, 10, 15, 20, 25, 30, 40		

6. ROOF CURB

A roof curb is a custom-made frame to provide the HVAC unit with a solid structure to hold it in place on the roof. These curbs are made of a set of heavy-gauge galvanized steel welded beams.

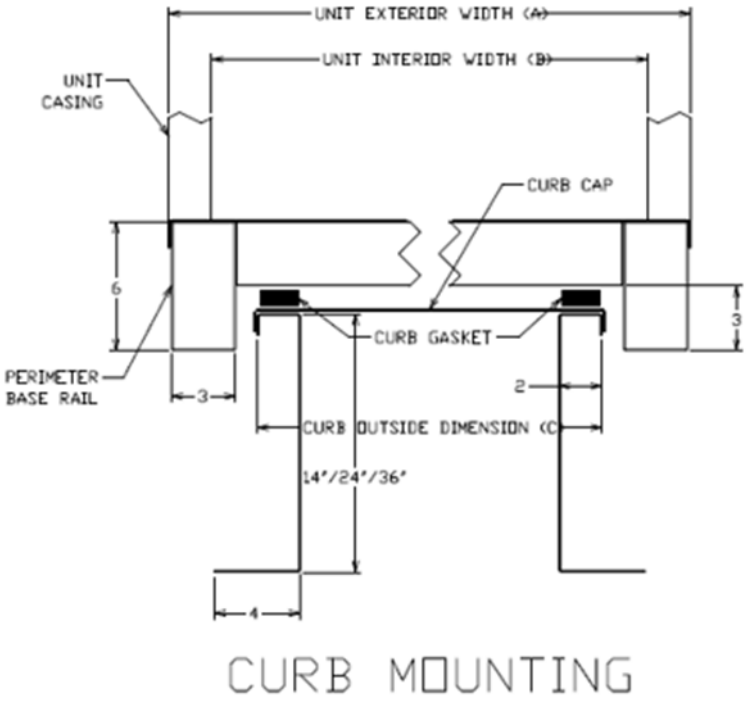

Figure 16: Roof Curb Mounting Detail

Due to the highly custom nature of this line of HVAC Units, further details on the curb for a specific unit are only available upon request. Further information will be provided through AAON's ECat software.

7. FILTER INFORMATION

Table 35: RZ Series (45-140-ton) Pre Filters

Feature 9B	Feature 9A	Quantity/Size	Type
0, A	0, A	No Pre Filters	
B, E	B, C, D, H, J, K, P, Q	12 / 24” x 24” x 2” 4 / 20” x 24” x 2”	Pleated MERV 8
	E, F, G, L, M, N, R, S	12 / 24” x 24” x 4” 4 / 20” x 24” x 4”	
C, F	B, C, D, H, J, K, P, Q	20 / 24” x 24” x 2”	
	E, F, G, L, M, N, R, S	20 / 24” x 24” x 4”	
D, G	B, C, D, H, J, K, P, Q	18 / 24” x 24” x 2” 6 / 20” x 24” x 2”	
	E, F, G, L, M, N, R, S	18 / 24” x 24” x 4” 6 / 20” x 24” x 4”	
H, K	B, C, D	36 / 16” x 25” x 2”	
	E, F, G	36 / 16” x 25” x 4”	

Table 36: RZ Series (145-240 ton) Pre Filters

Feature 9B	Feature 9A	Quantity/Size	Type
0, A	0, A	No Pre Filters	
B, E	B, C, D, H, J, K, P, Q	15 / 24” x 24” x 2” 5 / 20” x 24” x 2”	Pleated MERV 8
	E, F, G, L, M, N, R, S	15 / 24” x 24” x 4” 5 / 20” x 24” x 4”	
C, F	B, C, D, H, J, K, P, Q	25 / 24” x 24” x 2”	
	E, F, G, L, M, N, R, S	25 / 24” x 24” x 4”	
D, G	B, C, D, H, J, K, P, Q	24 / 24” x 24” x 2” 8 / 20” x 24” x 2”	
	E, F, G, L, M, N, R, S	24 / 24” x 24” x 4” 8 / 20” x 24” x 4”	
H, K	B, C, D	60 / 16” x 20” x 2”	
	E, F, G	60 / 16” x 20” x 4”	
J, L	B, C, D	72 / 16” x 20” x 2”	
	E, F, G	72 / 16” x 20” x 4”	

Table 37: RZ Series (45-140 ton) Metal Mesh Filters

Feature 4A	Feature 19	Quantity/Size	Type
0, A	BGHJKRSTUV	OA- 32 / 20" x 20" x 1"	Metal Mesh
BCEGJKQR	BGHJK	OA- 20 / 20" x 20" x 1"	
BCEGJKQR	RSTUV	OA- 32 / 20" x 20" x 1"	

Table 38: RZ Series (45-240 ton) Metal Mesh Filters

Feature 4A	Feature 19	Quantity/Size	Type
0, A	BGHJKRSTUV	OA- 48 / 20" x 20" x 1"	Metal Mesh
BCEGJKQR	BGHJK	OA- 28 / 20" x 20" x 1"	
BCEGJKQR	RSTUV	OA- 48 / 20" x 20" x 1"	

Table 39: RZ Series (45-140 ton) Energy Recovery Wheel Filters

Feature 4C	Quantity/Size	Type
A, B, C, D, E, F, G, H	OA - 20 / 24” x 24” x 2”	Pleated MERV 8
J, K, N, P,	OA - 20 / 24” x 24” x 2” EA - 12 / 18” x 24” x 2”	
L, Q	OA - 20 / 24” x 24” x 2” EA - 12 / 18” x 24” x 2”	

Table 40: RZ Series (145-240 ton) Energy Recovery Wheel Filters

Feature 4C	Quantity/Size	Type
A, B, C, D	OA - 12 / 24” x 24” x 2”	Pleated MERV 8
E, F, G, H	OA - 28 / 20” x 20” x 2”	
J, K, N, P,	OA - 12 / 24” x 24” x 2” EA - 12 / 24” x 24” x 2”	
L, M, Q, R	OA - 28 / 20” x 20” x 2” EA - 28 / 20” x 20” x 2”	

Table 41: RZ Series (45-240 ton) Unit Filters

RZ Size	Feature 9B	Feature 9A	Quantity/Size	Type
45-75 tons	0, A	0	24 / 16” x 24” x 2”	Pleated MERV 8
		A	24 / 16” x 24” x 4”	
90-140 tons		0	36 / 16” x 25” x 2”	
		A	36 / 16” x 25” x 4”	
145-180 tons		0	60 / 16” x 20” x 2”	
		A	60 / 16” x 20” x 4”	
200-240 tons		0	72 / 16” x 20” x 2”	
		A	72 / 16” x 20” x 4”	

Table 42: RZ Series (45-140 ton) Unit Filters

Feature 9B	Feature 9A	Quantity/Size	Type
B	B, E	12 / 24” x 24” x 4” 4 / 20” x 24” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
	H, L	12 / 24” x 24” x 12” 4 / 20” x 24” x 12”	Cartridge MERV 11
	J, M		Cartridge MERV 13
	K, N		Cartridge MERV 14
	P, R	12 / 24” x 24” x 30” 4 / 20” x 24” x 30”	Bag MERV 13
	Q, S		Bag MERV 14
C	B, E	20 / 24” x 24” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
	H, L	20 / 24” x 24” x 12”	Cartridge MERV 11
	J, M		Cartridge MERV 13
	K, N		Cartridge MERV 14
	P, R	16 / 24” x 24” x 30”	Bag MERV 13
	Q, S		Bag MERV 14
D	B, E	18 / 24” x 24” x 4” 6 / 20” x 24” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
	H, L	18 / 24” x 24” x 12” 6 / 20” x 24” x 12”	Cartridge MERV 11
	J, M		Cartridge MERV 13
	K, N		Cartridge MERV 14
	P, R	20 / 24” x 24” x 30”	Bag MERV 13
	Q, S		Bag MERV 14
H	B, E	36 / 16” x 25” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
N, Q	W	9 / 24" x 24" x 4" 6 / 24" x 12" x 4" 9 / 24" x 24" x 12" 6 / 24" x 12" x 12"	Pleated 4” MERV 8 + 99.99 HEPA Frame & Filters
P, R		12 / 24" x 24" x 4" 10 / 24" x 12" x 4" 12 / 24" x 24" x 12" 10 / 24" x 12" x 12	

Table 43: RZ Series (145-240 ton) Unit Filters

Feature 9B	Feature 9A	Quantity/Size	Type
B	B, E	15 / 24” x 24” x 4” 5 / 20” x 24” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
	H, L	15 / 24” x 24” x 12” 5 / 20” x 24” x 12”	Cartridge MERV 11
	J, M		Cartridge MERV 13
	K, N		Cartridge MERV 14
	P, R	15 / 24” x 24” x 30” 5 / 20” x 24” x 30”	Bag MERV 13
	Q, S		Bag MERV 14
C	B, E	25 / 24” x 24” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
	H, L	25 / 24” x 24” x 12”	Cartridge MERV 11
	J, M		Cartridge MERV 13
	K, N		Cartridge MERV 14
	P, R	20 / 24” x 24” x 30”	Bag MERV 13
	Q, S		Bag MERV 14
D	B, E	24 / 24” x 24” x 4” 8 / 20” x 24” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
	H, L	24 / 24” x 24” x 12” 8 / 20” x 24” x 12”	Cartridge MERV 11
	J, M		Cartridge MERV 13
	K, N		Cartridge MERV 14
	P, R	25 / 24” x 24” x 30”	Bag MERV 13
	Q, S		Bag MERV 14
H	B, E	60 / 16” x 20” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
J	B, E	72 / 16” x 20” x 4”	Pleated MERV 11
	C, F		Pleated MERV 13
	D, G		Pleated MERV 14
N, Q	W	15 / 24" x 24" x 4" 5 / 24" x 12" x 4" 15 / 24" x 24" x 12" 5 / 24" x 12" x 12"	Pleated 4” MERV 8 + 99.99 HEPA Frame & Filters
P, R		24 / 24" x 24" x 4" 8 / 24" x 12" x 4" 24 / 24" x 24" x 12" 8 / 24" x 12" x 12"	

Table 44: (45-140 ton) Final Filters

Feature 9C	Quantity / Size	Type
0	No Final Filters	
A	12 / 24” x 24” x 12” 4 / 20” x 24” x 12”	Cartridge MERV 13
B	20 / 24” x 24” x 12”	
C	18 / 24” x 24” x 12” 6 / 20” x 24” x 12”	
D	12 / 24” x 24” x 12” 4 / 20” x 24” x 12”	Cartridge MERV 14
E	20 / 24” x 24” x 12”	
F	18 / 24” x 24” x 12” 6 / 20” x 24” x 12”	
G	12 / 24” x 24” x 30” 4 / 20” x 24” x 30”	Bag MERV 13
H	16 / 24” x 24” x 30”	
J	20 / 24” x 24” x 30”	
K	12 / 24” x 24” x 30” 4 / 20” x 24” x 30”	Bag MERV 14
L	16 / 24” x 24” x 30”	
M	20 / 24” x 24” x 30”	
N	9 / 24" x 24" x 12" *** 5 / 24" x 12" x 12" ***	99.99 HEPA Frame (No Filters)***
P	12 / 24" x 24" x 12" *** 9 / 24" x 12" x 12" ***	
Q	9 / 24" x 24" x 12" 5 / 24" x 12" x 12"	99.99 HEPA Frame & Filters
R	12 / 24" x 24" x 12" 9 / 24" x 12" x 12"	
S	9 / 24" x 24" x 4" 6 / 24" x 12" x 4" 9 / 24" x 24" x 12" 6 / 24" x 12" x 12"	Pleated 4” MERV 8 + 99.99 HEPA Frame & Filters
T	12 / 24" x 24" x 4" 10 / 24" x 12" x 4" 12 / 24" x 24" x 12" 10 / 24" x 12" x 12"	

***This option is only for the frame. Filters are separate and must be field supplied.

Table 45: RZ Series (145-240 ton) Final Filters

Feature 9C	Quantity / Size	Type
0	No Final Filters	
A	15 / 24” x 24” x 12” 5 / 20” x 24” x 12”	Cartridge MERV 13
B	25 / 24” x 24” x 12”	
C	24 / 24” x 24” x 12” 8 / 20” x 24” x 12”	
D	15 / 24” x 24” x 12” 5 / 20” x 24” x 12”	Cartridge MERV 14
E	25 / 24” x 24” x 12”	
F	24 / 24” x 24” x 12” 8 / 20” x 24” x 12”	
G	15 / 24” x 24” x 30” 5 / 20” x 24” x 30”	Bag MERV 13
H	20 / 24” x 24” x 30”	
J	25 / 24” x 24” x 30”	
K	15 / 24” x 24” x 30” 5 / 20” x 24” x 30”	Bag MERV 14
L	20 / 24” x 24” x 30”	
M	25 / 24” x 24” x 30”	
N	15 / 24" x 24" x 12" *** 3 / 24" x 12" x 12" ***	99.99 HEPA Frame (No Filters)***
P	24 / 24" x 24" x 12" *** 6 / 24" x 12" x 12" ***	
Q	15 / 24" x 24" x 12" 3 / 24" x 12" x 12"	99.99 HEPA Frame & Filters
R	24 / 24" x 24" x 12" 6 / 24" x 12" x 12"	
S	15 / 24" x 24" x 4" 5 / 24" x 12" x 4" 15 / 24" x 24" x 12" 5 / 24" x 12" x 12"	Pleated 4” MERV 8 + 99.99 HEPA Frame & Filters
T	24 / 24" x 24" x 4" 8 / 24" x 12" x 4" 24 / 24" x 24" x 12" 8 / 24" x 12" x 12"	

***This option is only for the frame. Filters are separate and must be field supplied.

8. CONTROL OPTIONS

Terminal Block

Low Voltage terminal block for field wiring unit controls

Required Features:

Feature 16A - Field-Installed DDC Controls by Others
Feature 16A - Field-Installed DDC Controls by Others with isolation relays

Standard Terminals Labels

[R] - 24VAC control voltage
[E] - Common
[G] - Fan enable
[Y1], [Y2], …, [Y8] - Cooling stage(s) enable(s)
[W1], [W2], …, [W12] - Heating stage(s) enable(s) or Aux Heat Stage(s) enable(s)
[HW] - Heat Wheel Enable
[PE] - Power Exhaust Enable
[RH1] - Reheat Enable
[EH1], [EH2], …, [EH12] - Emergency Heating stage(s) enable(s)
[A1], [A2] - Economizer enabled, factory wired together, used to control occupied/unoccupied operation.
[C1], [C2] - Clogged filter switch contacts for standard filters, normally open.
[C3], [C4] - Clogged filter switch contacts for energy recovery wheel OA filter, normally open.
[C5], [C6] - Clogged filter switch contacts for energy recovery wheel EA filter, normally open.
[C7], [C8] - Clogged filter switch contacts for final filters, normally open.
[EC1-], [EC2+] - Economizer DDC actuator control signal for 0-10 VDC operation.
[CO2-], [CO2+] - CO2 Sensor (0-10VDC)
[+], [-] - Modulating gas reset control signal, 0-10VDC or SCR supply air temperature control signal 0-10VDC
[S1-], [S2+] - Supply fan VFD, 0-10 VDC.
[PR1-], [PR2+] - Return fan VFD, 0-10 VDC.
[B1-], [B2+] - Exhaust fan VFD, 0-10VDC.
[AI1] & [COM] - Reheat Reset Signal (0-10VDC)
[AM], [AC] - Fan Current Feedback (0-10VDC = 0-100%)
[P1], [PC] - Fan Run Status (5-48VDC, 2-50mA)
[MA], [MC] - Fan Fault Status, normally closed.
[ST1], [ST2] - Remote start/stop contacts must be closed for the unit to operate.
[BI1], [BI2] - Remote Safety Shutdown terminals. Field-installed smoke detectors or remote fire alarms. Shutdown contacts must be closed for the unit to operate.
[NO], [C], [NC] - Set of normally open or normally closed low voltage heat wheel rotation detection contacts.
[PBO1], [PBO2] - Phase and Brown Out status

8.1. Variable Air Volume (VAV) Unit Controller

Operation - Variable Air Volume Cooling and Constant Volume Heating

For standard AAON VAV controls, the supply fan modulates based on the supply air static pressure, while the mechanical cooling modulates based on the supply air temperature when cooling. On the other hand, the supply fan provides constant airflow, while the heating modulates based on the controlling temperature when heating.

Factory-mounted and tested supply fan VFDs and ECMs vary the speed of the supply fans and the amount of supply air. Because of the reduced speed, VAV units are very energy efficient in part-load conditions. VAV units are used to serve multiple spaces with diverse or changing heating and cooling requirements, with a single unit supporting multiple zones. The space temperature sensor included with the AAON controller is used to reset the supply air temperature setpoint and force unoccupied overrides.

See the Control Vendors section below for specifics.

Required Features

Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Bypass Non-Variable Compressor Circuits
Feature 16A - VAV Unit Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Duct Temperature
Supply Air Duct Static Pressure
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features

Model Option A1 - Variable Speed Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3B - VFD Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

8.2. Single Zone Variable Air Volume (Single Zone VAV) Unit Controller

Operation - Variable Air Volume Cooling and Constant Volume/Variable Air Volume Heating

With standard AAON Single Zone VAV controls, the supply fan modulates based on the space or return air temperature, while the mechanical cooling modulates based on the supply air temperature when cooling. For constant volume heating, the supply fan provides constant airflow, and heating modulates based on the controlling temperature when heating. For variable air volume heating, the supply fan modulates based on the space or return air temperature, and the heating modulates based on the supply air temperature when heating.

Factory-mounted and tested supply fan VFDs and ECMs vary the speed of the supply fans and the amount of supply air. Because of the reduced speed, VAV units are very energy efficient in part load conditions. AAON Single Zone VAV units should be applied to only a single zone. The space temperature sensor included with the AAON controller is used to reset the supply air temperature setpoint and force an unoccupied override.

See the Control Vendors section below for specifics.

Required Features

Feature 4A - Motorized Outside Air Damper or Economizer
Feature 11A - Hot Gas Non-Variable Compressor Circuits
Feature 16A - Single Zone VAV Unit Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Duct Temperature
Return Air Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features

Model Option A1 - Variable Speed Scroll Compressors
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 3B - VFD Controlled Supply Fans
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

8.3. Constant Volume (CV) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating

With standard AAON Constant Volume controls, the supply fan provides constant air flow, while mechanical cooling modulates based on the controlling temperature when cooling. During the heating mode of operation, the supply fan provides constant air flow, while the heating modulates based on the controlling temperature when heating.

A Constant Volume unit can be used to serve spaces with uniform heating and cooling requirements. Multiple units may be required for multiple zones, allowing redundancy. The space or supply air temperature sensor can be used as the controlling sensor. If the supply air temperature is not used as the controlling sensor, it is used as a temperature lockout. If the supply air temperature sensor is used as the controlling sensor, the space temperature sensor is used as the supply air temperature setpoint reset and unoccupied override.

See the Control Vendors section below for specifics.

Required Features

Feature 4A - Motorized Outside Air Damper or Economizer
Feature 16A - Constant Volume Unit Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Duct Temperature
Space Temperature with Temperature Setpoint Reset and Unoccupied Override
Building Pressure Transducer (with Power Exhaust)

Recommended Features

Model Option A1 - Variable Speed Scroll Compressor
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - Economizer and AAONAIRE Energy Recovery Wheel
Feature 7 - Fully Modulating Actuator
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

8.4. Makeup Air (MUA) Unit Controller

Operation - Constant Volume Cooling and Constant Volume Heating

With standard AAON Makeup Air controls, the supply fan provides constant airflow, while the mechanical cooling modulates based on the controlling temperature when cooling. During the heating mode of operation, the supply fan provides constant airflow, while the heating modulates based on the controlling temperature when heating.

Makeup Air units are designed to provide 100% outside air to the system for ventilation purposes. Makeup Air units improve indoor air quality (IAQ), as well as positively pressurize the space.

See the Control Vendors section below for specifics.

Required Features

Model Option B2 - Stainless Steel Heat Exchanger - Units with Gas Heat
Feature 4A - Motorized or Non-Motorized 100% Outside Air
Feature 7 - Two Position Actuator - With Motorized 100% Outside Air
Feature 11A - Hot Gas Non-Variable Compressor Circuits
Feature 16A - Makeup Air Unit Controller

Standard Supplied Sensors

Outside Air Temperature
Supply Air Temperature
Building Pressure Transducer (with Power Exhaust)

Recommended Features

Model Option A1 - Variable Speed Scroll Compressor
Model Option B4 - Modulating Gas/SCR Electric
Feature 4A - AAONAIRE Energy Recovery Wheel
Feature 11A - Modulating Hot Gas Reheat and Hot Gas Bypass Non-Variable Compressor Circuits

9. CONTROL SYSTEM

9.1. AAON - Orion™ Controls System

Figure 17: AAON VCC-X Controller

The AAON VCC-X unit controller, which is part of the Orion Controls System, can be factory provided and installed in AAON RZ Series units. These units provide advanced control features in an easy-to-install and setup package. The VCC-X controller can be individually configured, including setpoint adjustments, viewing sensor statuses, and scheduling occupancies. It can also control VAV, CAV, MUA, Single Zone VAV, PAC, and D-PAC units. Additional features and options can be managed by the controller with the addition of modular expansion I/O boards for the controller.

The VCC-X controller can be operated as a Stand Alone System, connected via modular cable to multiple VCC-X controllers in an Interconnected System, or connected via modular cable to multiple VCC-X controllers, VAV/Zone controllers, and Add-On controllers in a Networked System.

Protocol Adaptability™ is available for interfacing to LonWorks®, BACnet®, or Johnson Controls N2 controls systems with the addition of specific gateways.

9.1.1. Required Options

To configure the VCC-X controller, an operator interface is needed. Available operator interfaces include the Modular Service Tool, Modular System Manager, System Manager TS, Tactio SI Touch Screen Interface connected via a Commlink5, and a PC equipped with free Microsoft Windows® based Orion Prism II software connected via a Commlink5. With optional accessories, remote connectivity to the controller via Prism II software is achieved.

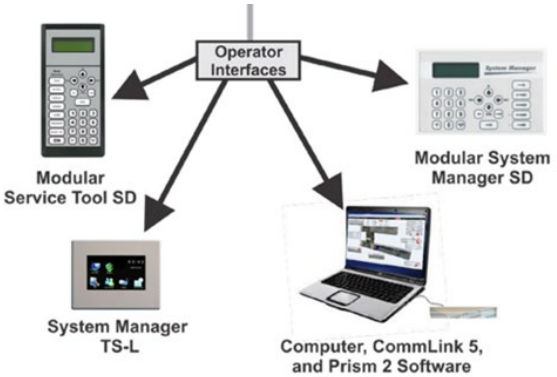

Figure 18: VCC-X Controller Operator Interface Options

10. ELECTRICAL SERVICE SIZING DATA

Use the following equations to size the electrical service wiring and disconnect switch for the unit. Electrical data for a specific unit configuration can be found within AAON's ECat software. For further assistance in determining the electrical ratings, contact the Applications Department or consult U.L. 1995.

The Minimum Circuit Ampacity (MCA) and Maximum Overcurrent Protection (MOP) must be calculated for all modes of operation, which includes the cooling mode of operation, the heating mode of operation, and, if the unit is a heat pump, the emergency heating mode of operation and auxiliary heating mode of operation. The emergency or backup heating mode of operation is when the secondary heater is in operation, and the heat pump or compressor heating is not in operation. The auxiliary or supplemental heating mode of operation is when the heat pump or compressor heating is in operation, and the secondary heater is also in operation.

To calculate the MCA and MOP, the number of motors and other current-drawing devices in operation must be known for each mode of operation. The largest MCA and MOP values calculated from the modes of operation are the correct values and are also listed on the unit nameplate.

For example, during the cooling mode of operation for an air-cooled DX unit or an air-source heat pump, the supply fans, compressors, and condenser fans are all in operation. During the heating mode of operation for an air-cooled DX unit or the emergency heating mode of operation of an air-source heat pump, only the supply fans and heater are in operation. When air-source heat pumps are in the auxiliary heating mode of operation, the supply fans, compressors, condenser fans, and secondary heater are all in operation.

After determining what current drawing devices are operating during each mode of operation, use the equations below to calculate the MCA and MOP.

Use Rated Load Amps (RLA) for compressors and Full Load Amps (FLA) for all other motors and electric heaters. The current of the exhaust fan motor should only be added to the calculations if the unit is 10 tons or smaller, includes a two-position actuator (Feature 7 = U), has no compressors, includes an energy recovery wheel, and/or when DDC controls by others factory or field installed is ordered.

Load 1 = Current of the largest motor/compressor in operation
Load 2 = Sum of the currents of the remaining motors/compressors in operation
Load 3 = Current of electric heaters in operation
Load 4 = Any remaining loads greater than or equal to 1 amp

Electric Heat FLA Calculation

Single Phase

$$FLA = \frac{(Heating\ Element\ kW)x\ 1000}{Rated\ Voltage}$$

Three Phase

$$FLA = \frac{(Heating\ Element\ kW)x1000}{(Rated\ Voltage)x\sqrt{3}}$$

Cooling Mode Equations

- MCA = 1.25(Load 1) + Load 2 + Load 4
- MOP = 2.25(Load 1) + Load 2 + Load 4

Heating Mode or Emergency/Backup Heating Mode without Electric Heat Equations

- MCA = 1.25(Load 1) + Load 2 + Load 4
- MOP = 2.25(Load 1) + Load 2 + Load 4

Heating Mode or Emergency/Backup Heating Mode with Less than 50 kW of Electric Heat Equations

- MCA = 1.25(Load 1 + Load 2 + Load 3 + Load 4)
- MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Heating Mode or Emergency/Backup Heating Mode with Greater than or Equal to 50 kW of Electric Heat Equations

- MCA = 1.25(Load 1 + Load 2) + Load 3 + 1.25(Load 4)
- MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Auxiliary/Supplemental Heating Mode without Electric Heat Equations

- MCA = 1.25(Load 1) + Load 2 + Load 4
- MOP = 2.25(Load 1) + Load 2 + Load 4

Auxiliary/Supplemental Heating Mode with Less than 50 kW of Electric Heat Equations

- MCA = 1.25(Load 1) + Load 2 + 1.25(Load 3) + Load 4
- MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Auxiliary/Supplemental Heating Mode with Greater than or Equal to 50 kW of Electric Heat Equations

- MCA = 1.25(Load 1) + Load 2 + Load 3 + Load 4
- MOP = 2.25(Load 1) + Load 2 + Load 3 + Load 4

Fuse Section

Select a fuse rating equal to the MOP value. If the MOP does not equal a standard fuse rating, select the next lower standard fuse rating. If the MOP is less than the MCA, select the fuse rating equal to or greater than the MCA.

The standard ampere ratings for fuses, from the NEC Handbook, 240-6, shall be considered 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800 and 1000 amperes.

Disconnect (Power) Switch Size

- DSS ≥ MOP

Select the standard switch size equal to the calculated MOP value. If this value is not a standard size, select the next larger size.

11. LITERATURE CHANGE HISTORY

July 2020

Original version.

November 2020

Added information for RZ sizes 45-140 ton.

December 2020

Updated the service light description and BACnet VFD description.

June 2021

Added evaporative condenser options. Added electric heat options. Revised Feature 29 Option C to clarify BACnet native VFD on fan motors.

January 2022

Updated Feature 2 Supply & Return Locations to include End Return options. Updated Feature 9A Unit Filter Type to include pleated final filter options B through G. Updated Feature 9B Unit Filter Size & Location to include Dual Angled Filter Rack options J through L. Updated Feature 9C Final Filter Type to include HEPA frame options N & P and HEPA filter options Q, R, S, T. Added Air Disinfection UV Information table under Feature 15 Electrical Accessories. Updated Feature 19 Outside Air Accessories to include Metal Mesh Filters and Outside Air Flow Measuring Station. Updated Feature 21 Accessories to include options for Supply Fan Air Flow Measuring and Return Fan Air Flow Measuring. Updated Feature 22 Maintenance Accessories to include options for Supply Fan Auxiliary Contacts. Updated the description for Feature 36 Cabinet Material option D. Added shrink wrap options to Feature 37 Specials & Paint.

December 2022

Added minor revision A for RZ sizes 045, 055, and 065 making these units 2-circuit refrigerant systems with a variable speed compressor on each circuit. Added the option E=All Variable Capacity Refrigerant Systems to Model Option A5. Revised some hot water coil and steam distributing coil dimensions. Added several unit orientation options to Feature 1. Added end supply options to Feature 2. Added -20□F Low Ambient option in Feature 12. Added hot water preheat, steam distributing preheat, and direct fired preheat to Features 17A and 17B. Added the 4” filter information and the dual angled filter rack filters in the filter information tables. Updated some of the filter CFMs in the Unit Filter Table. Updated supply air temperature sensor wording to consistently say it will ship loose in the unit control cabinet to be installed in the supply air stream.

December 2023

Added Option H=R-454B Variable Speed Scroll compressor option and N=DX Air Handling Unit option to A1. Added option B=Stainless Steel Cooling Coil Casing to A4. Added option 3 Fans per VFD and 4 Fans per VFD for Feature 6B. This is for Full Width, Narrow Width, and Inlet Backdraft Dampers. Added HEPA filter options for Feature 9A and 9B. Added Duel Point Power options for Feature 13A. Added Amp sizes for Disconnect 2 for Feature 13C. Added Sound Attenuator box option for Feature 18C. Added SA and RA Walkable Safety Grates options to Feature 20. Added Low Sound Condenser Fan Head Pressure Control option to Feature 25. Added Energy Recovery Wheel Defrost Start/Stop, VFD for Heat Wheel Motor

(Field Control) options to Feature 28. Added Additional Vestibule Heater option for Feature 30. Added 2, 5, and 10 year Parts Warranty option to Feature 35.

February 2024

Added option M to Feature 18C.

May 2024

Added Barometric Relief option to Feature 8.

September 2025

Edited and updated document format.

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