

Engineering Report and Structural Calculation Package

Prepared by: VC Engineering, LLC

Email: vcinfo@vceng.biz

Phone: 312-206-2896

Sephora – RTU Replacement Project

Store No. 0730

9301 Tampa Avenue

Northridge, CA 91324

Date: March 3, 2024

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Briget Wandruff
Dir. of Client Services
Brinco Mechanical Management Services, Inc.
125 South Main Street

RE: Sephora Store 0730
Structural Analysis of Roof Structure for Replacement Mechanical Equipment
VC Engineering Project #24005

Dear Ms. Wandruff,

VC Engineering is pleased to present this report of our structural analysis of the existing roof structure to support new replacement mechanical units at the store located at the address indicated on the cover page. This report includes a summary of the services we have provided, a discussion of relevant data gathered, calculations and our conclusions regarding the structural capacity of the existing roof structure.

BACKGROUND

Brinco Mechanical indicated to VC Engineering that they intend to remove and replace (3) mechanical units on the roof. VC Engineering was contacted to perform a structural analysis of the existing roof structural members to support the new loads imposed from the removal and replacement of the units.

OBSERVATIONS AND DISCUSSION

VC Engineering performed a site visit to the building to observe the existing structural framing and observed a total of (3) rooftop units tributary to the space served. Based on email correspondence from Brinco Mechanical, VC Engineering understands that all units are intended to be replaced with new units installed at the same location as the existing units mounted to the existing supports. VC Engineering will rely on the accuracy of our field measurements and structural data collected in order to perform our structural analysis.

The roof construction consists of 1 1/2" metal deck spanning to 24K steel joists. The steel joists span to W18x40 girders that span to steel wide flange columns. Supplemental steel support framing is located above the roof and posted down to the existing W18x40 girders. The supplemental steel support framing consists of HSS beams and posts of various sizes. Refer to the structural drawings for additional information. The local governing 2022 California Building Code with local amendments is used to determine the code prescribed loads on the roof structure.

Existing Unit Information			New Unit Information		Total Max Difference (lbs)
RTU	Carrier Model #	Total Operating Weight (lbs)	Carrier Model #	Total Operating Weight (lbs)	
1	50TCQD14	925	50FCQM14A2A5-0A0A0	1383	458
2	50TCQD14	925	50FCQM14A2A5-0A0A0	1383	458
3	50TCQA05	625	50FCQA05A2A5-0A0A0	577	-48

Reference the table above for new unit information. Carrier units are proposed to be installed at the same location as the existing units indicated above. The operating weights indicated above include all accessories and operating weights of the unit as provided to VC Engineering in an email correspondence from Brinco Mechanical.

CONCLUSION

VC Engineering performed a structural analysis of the existing framing to support the code prescribed loads as well as the loads imposed by the new mechanical units and determined that the existing structural framing is adequate. See attached gravity and anchorage calculations in this report for additional information. This analysis is based on the new units located in the same location as the existing units to be removed.

Please feel free to contact me with any questions.

Sincerely,

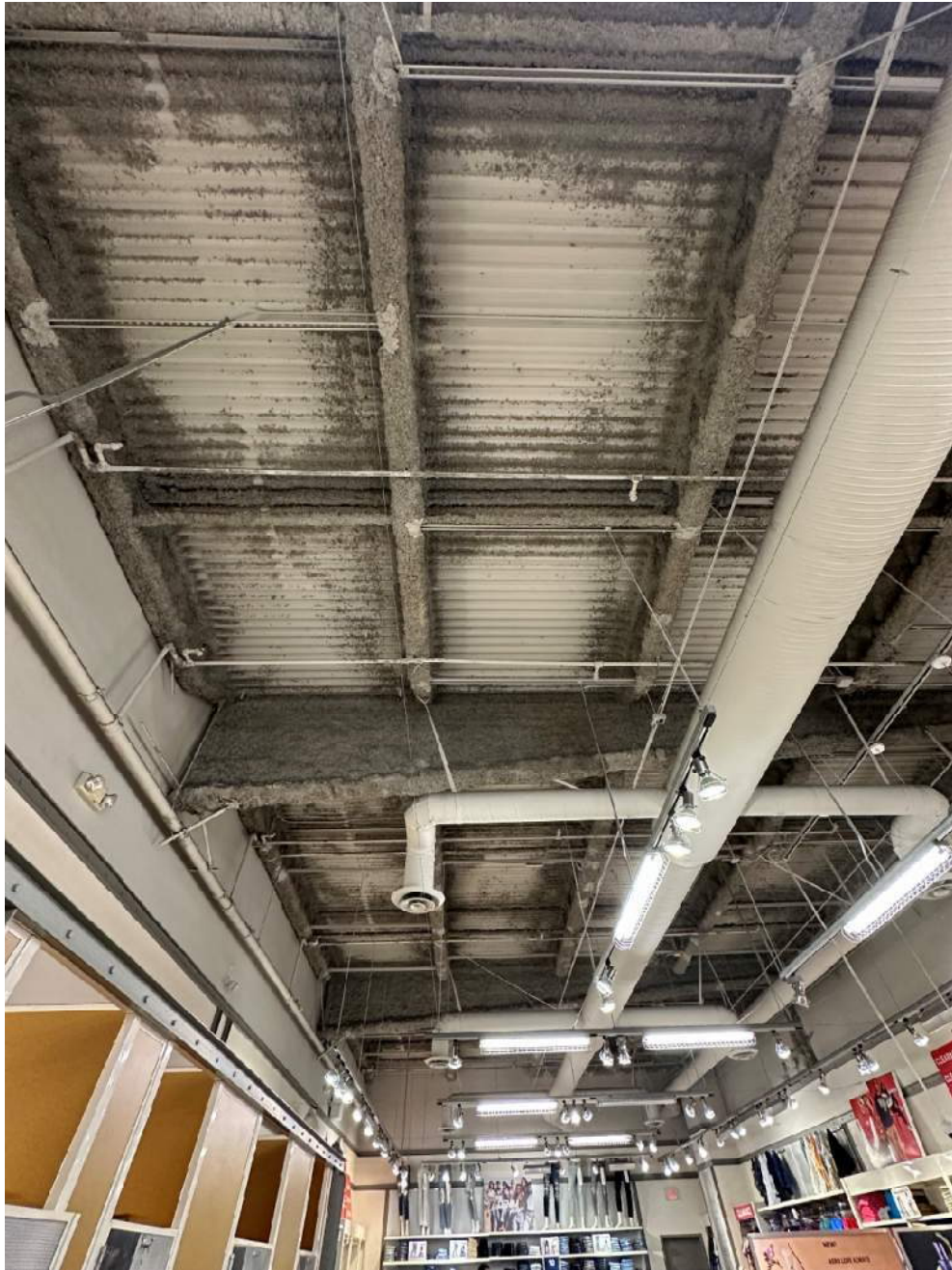


Kali Dickerson P.E.
VC Engineering, LLC





Photograph 1 – Aerial view of store via Google Maps



Photograph 2 – Typical view of exposed structural framing



Photograph 3 – Typical view of exposed structural framing



Photograph 4 – Overall view of units on rooftop concealed from line of site and centrally located on the roof



Photograph 5 – Overall view of steel platform above roof



Photograph 6 – RTU #1

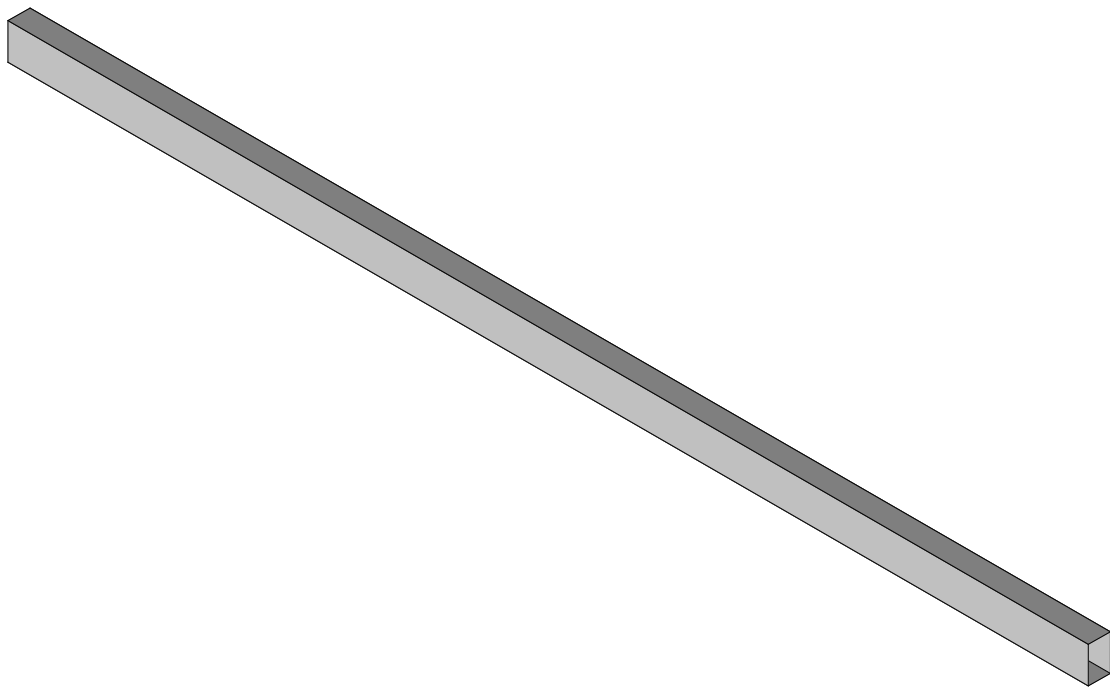


Photograph 7 – RTU #2

Structural Drawings

Gravity Calculations





Typical HSS10x6x1/2 Beam Calculation

Mar 3, 2024 at 9:30 PM
untitled.r2d



Loads: BLC 2, DLrtu

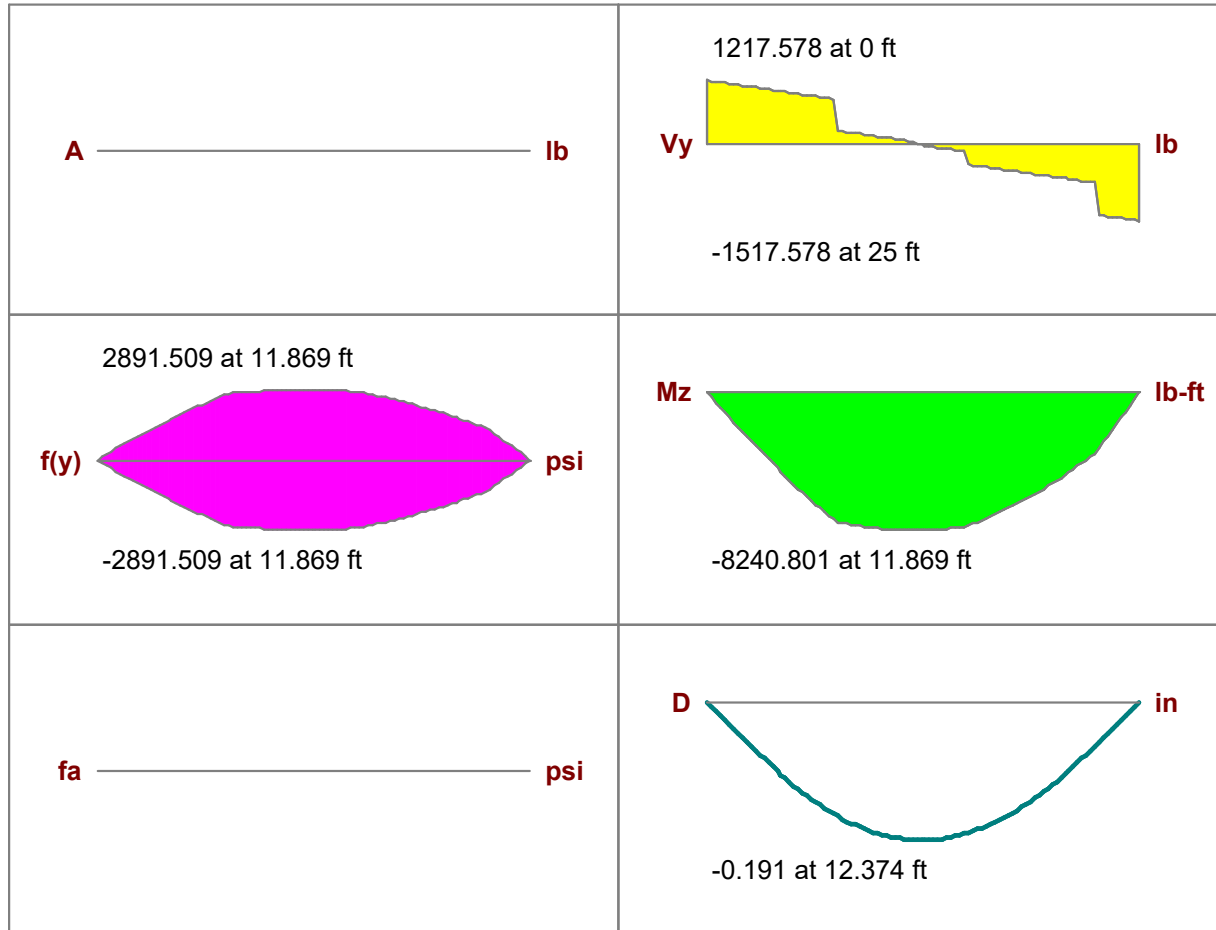
		Mar 3, 2024 at 9:30 PM
	Dead Load RTU = $1383 / 2 = 692$ Each RTU (250 lb Ex.)	untitled.r2d

Beam: **M1**

Shape: **HSS10X6X8**
Material: **A500 Gr.B RECT**
Length: **25 ft**
I Joint: **N1**
J Joint: **N2**

Envelope

Code Check: **0.083 (LC 1)**
Report Based On 100 Sections



AISC 15th (360-16): ASD Code Check

Max Bending Check	0.083 (LC 1)	Max Shear Check	0.011 (LC 1)	Max Defl Ratio	L/1566
Location	11.869 ft	Location	25 ft	Location	12.374 ft
Equation	H1-1b			Span	1

Bending Flange	Compact	Compression Flange	Non-Slender
Bending Web	Compact	Compression Web	Non-Slender

Fy	46000 psi	Lb	25 ft	In Plane	25 ft
Pnc/om	128262.463 lb	Lc/r	125.779		84.293
Pnt/om	371856.287 lb				
Mn/om	98702.595 lb-ft	L Comp Flange	25 ft		
Vn/om	132259.365 lb				
Cb	1.124				

Anchorage Calculations

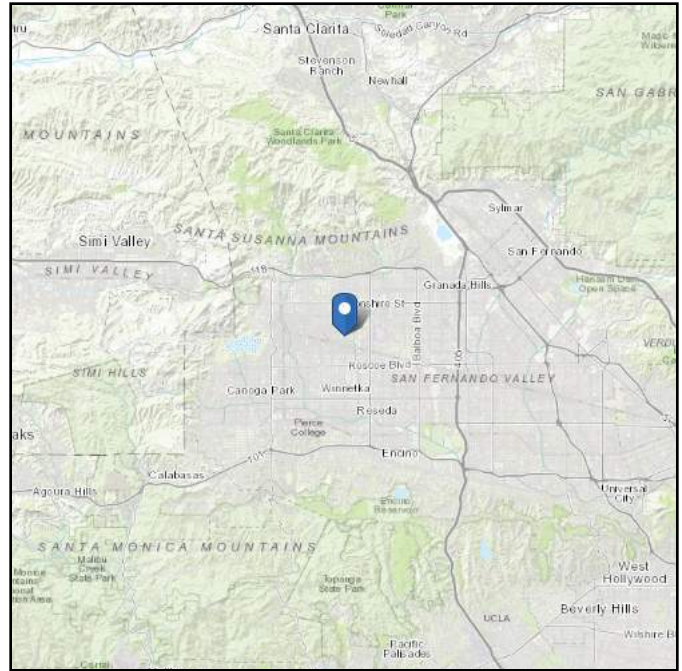
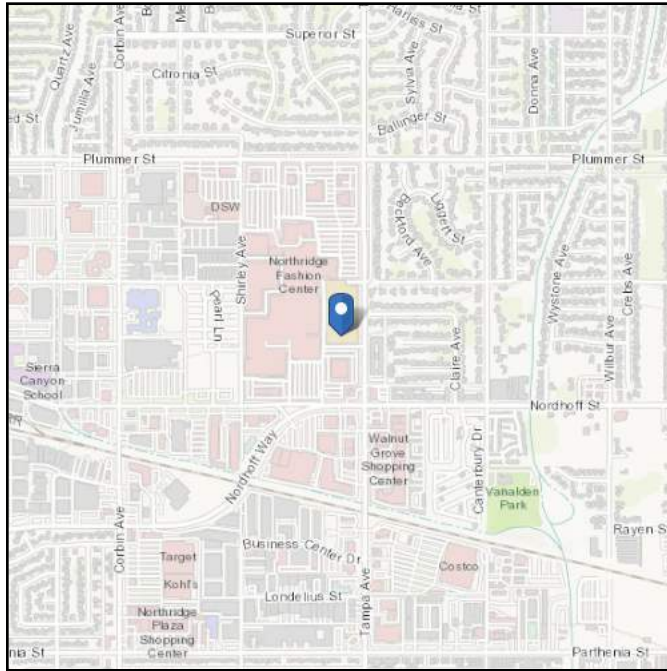


ASCE Hazards Report

Address:
9301 Tampa Ave
Northridge, California
91324

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 34.237509
Longitude: -118.554408
Elevation: 841.4471512570167 ft (NAVD 88)



Wind

Results:

Wind Speed	94 Vmph
10-year MRI	65 Vmph
25-year MRI	71 Vmph
50-year MRI	76 Vmph
100-year MRI	81 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Thu Feb 22 2024

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	1.807	S_{D1} :	N/A
S_1 :	0.626	T_L :	8
F_a :	1.2	PGA :	0.74
F_v :	N/A	PGA _M :	0.888
S_{MS} :	2.168	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1
S_{DS} :	1.446	C_v :	1.461

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Thu Feb 22 2024

Date Source: [USGS Seismic Design Maps](#)

Snow

Results:

Ground Snow Load, p_g :	0 lb/ft ²
Mapped Elevation:	841.4 ft
Data Source:	ASCE/SEI 7-16, Table 7.2-8
Date Accessed:	Thu Feb 22 2024

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Seismic Force Minimum Anchorage Calculation

New Mechanical Unit Input

Carrier			Brand
50FCQM14A2A5-0A0A0			Model Number
Wp	1383	lb	Wp - Operating Weight (Includes all accessories)
Lx	116	in	Long Dimension of New Unit
Ly	64	in	Short Dimension of New Unit
H	58	in	Height of New Unit

Seismic Parameters

Sds	1.446	g	Short Period Spectral Acceleration
ap	2.5		Air-Side HVAC - Component Amplification Factor
Rp	6.0		Air-Side HVAC - Component Response Modification Factor
Wp	1250	lb	Component Operating Weight
Ip	1.0		Component Importance Factor
z/h	1.0		Height of Structure/Unit Ratio

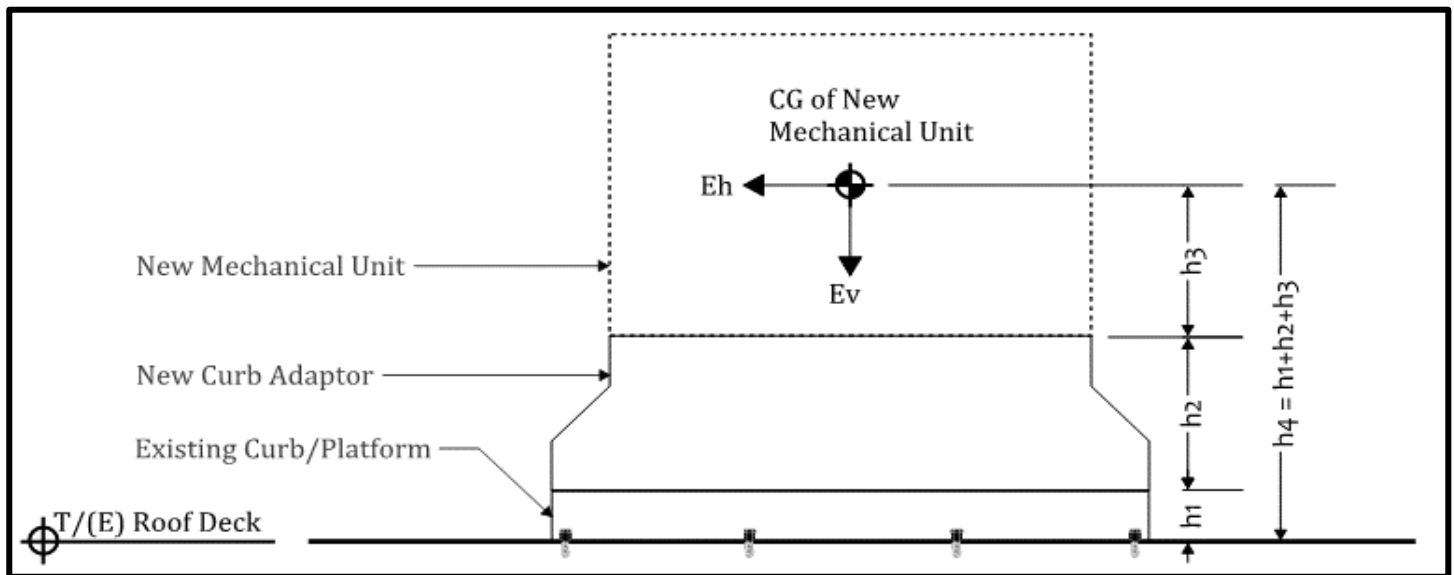
Seismic Force Calculation

Fpmin	542	lb
Fp	904	lb
Fpmax	2892	lb

Seismic Force, Fp	904	lb
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Existing Curb and Curb Adapter Information

h1	0	in
h2	0	in
h3	29	in
h4	29	in



New Unit Specifications



turn to the experts™ 



COMMERCIAL HVAC DIVISION

S U B M I T T A L

Contractor: Christian Brothers

Job Name: Sephora Northridge

Engineer:

Date: 04/11/2024

Mark For	Qty	Model Number	Description
12.5T HP RTU	2	50FCQM14A2A5-0A0A0	12.5T HP 208/230-3-60
	2	CRPWREXH082A00	Horizontal Power Exhaust 208/230V
	2	ECE-SRT05CB-DCDS	Horizontal Economizer
4T HP RTU	1	50FCQA05A2A5-0A0A0	4T HP 208/230V-3P208/230-3-60
	1	CRPWREXH028A01	Horz Power Exhaust 208/230V 1or3ph +575V
	1	ECH-SRT12CB-DCDS	Horizontal Economizer

REVISION:

SUBMITTED BY: Chris Burdette

PREPARED BY: Chris Burdette

The information contained herein is provided for informational purposes only for the designer of record's evaluation. It does not constitute or imply any opinion, representation, or warranty whatsoever, including but not limited to the system design's fitness for its intended purpose.

12.5T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:49PM

12.5T

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report**

Unit Report For 12.5T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:49PM

Unit Parameters

Unit Model:.....**50FCQM14A2A5-0A0A0**
Unit Size:.....**14 (12.5 Tons)**
Volts-Phase-Hertz:.....**230-3-60**
Heating Type:.....**Heat Pump**
Heat Control:.....**Two-Stage Cooling / One Circuit**
Duct Cfg:.....**Horizontal Supply / Horizontal Return**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:.....**9' 7.875"**
Unit Width:.....**5' 3.375"**
Unit Height:.....**4' 9.375"**

*** Weights and Dimensions are approximate. Weight does not include roof curbs, unit packaging, field installed accessories or factory installed options. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Base Unit Weight (Does not include any accessories):
1250.....lb

Lines and Filters

Return Air Filter Type:.....**Throwaway**
Return Air Filter Quantity:.....**6**
Return Air Filter Size:.....**18 x 24 x 2**

Selection includes construction throwaway filter into the base fan curve.

Unit Configuration

Standard/Medium Static (EcoBlue)
Al/Cu - Al/Cu
Base Electromechanical Controls
Standard Packaging

Warranty Information

1-Year parts (STD.)
5-Year Compressor (std.)

No optional warranties were selected.

Ordering Information

Part Number	Description	Quantity
50FCQM14A2A5-0A0A0	Rooftop Unit	1
Field Installed Accessories		
CRPWREXH082A00	Horizontal Power Exhaust	1

Certified Drawing for 12.5T

Project: Sephora Northridge
Prepared By:

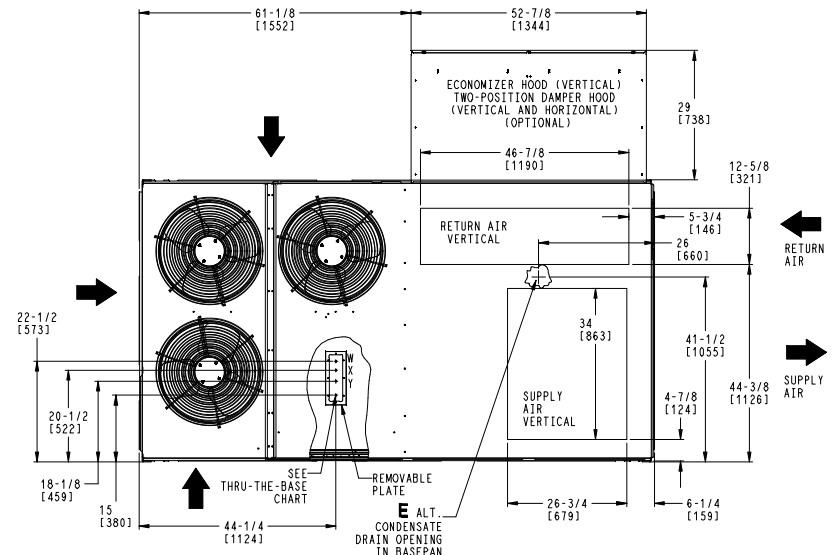
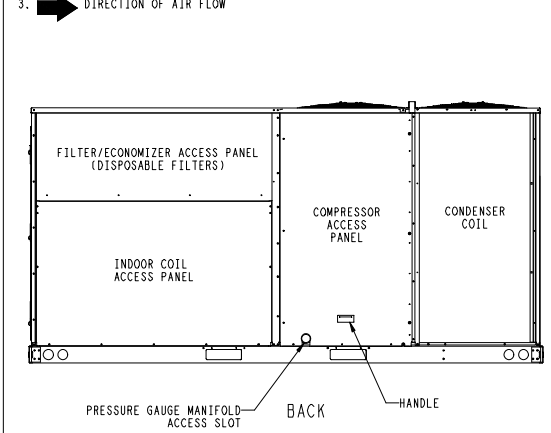
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NOTES:

1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW

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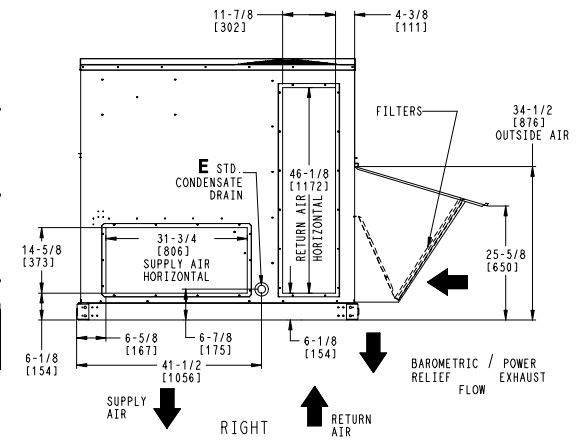
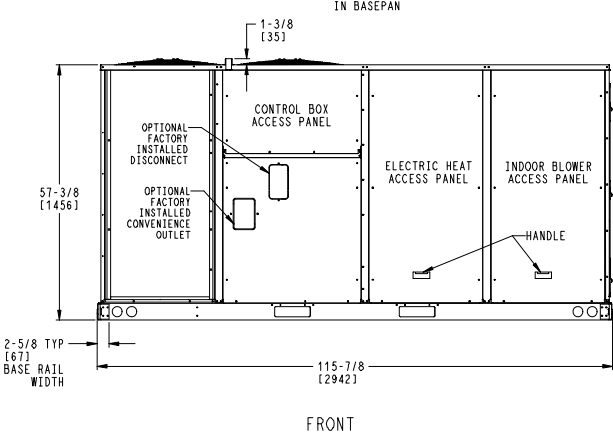
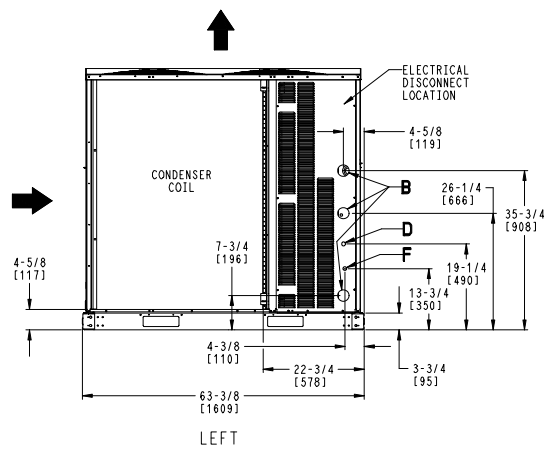
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CONNECTION SIZES	
B	2 1/2" [64] DIA POWER SUPPLY HOLE
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	7/8" [22] DIA FIELD CONVENIENCE OUTLET HOLE

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTPWRO05A00, 006A00, 007A00			
ACCESSORY NO.	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
005	W	1/2" ACC.	7/8" [22.2]
	X	1/2" 24V	7/8" [22.2]
	Y	1 1/4" POWER	1 1/2" [38.1]
006	W	1/2" ACC.	7/8" [22.2]
	X	1/2" 24V	7/8" [22.2]
	Y	1 1/2" POWER	2" [50.8]
007	W	1/2" ACC.	7/8" [22.2]
	X	1/2" 24V	7/8" [22.2]
	Y	2" POWER	2 1/2" [63.5]

FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR X & Y ARE PROVIDED AS SPECIFIED ON "006".



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50FCO 14 SINGLE ZONE ELECTRICAL HEAT PUMP	50TM002592	REV
U.S. ECCN: NSR	1 OF 2	5/4/22	-			-

Certified Drawing for 12.5T

Project: Sephora Northridge
Prepared By:

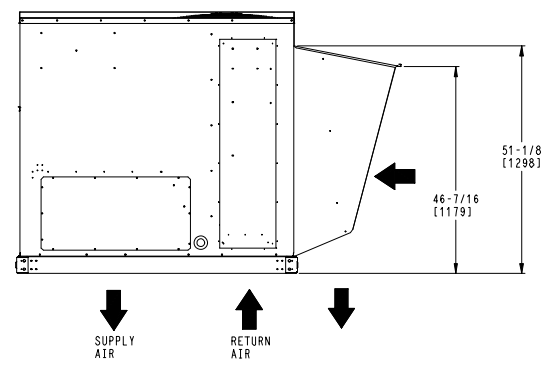
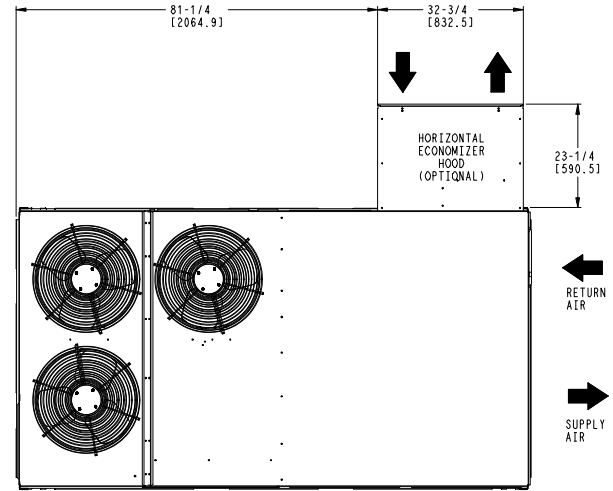
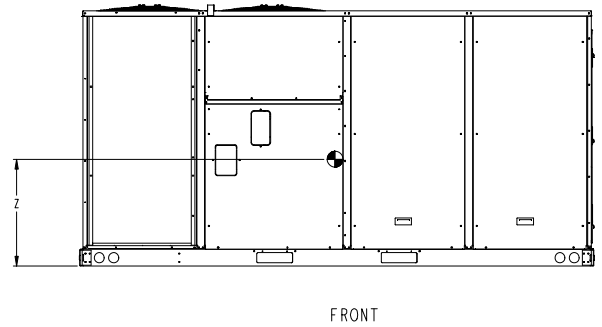
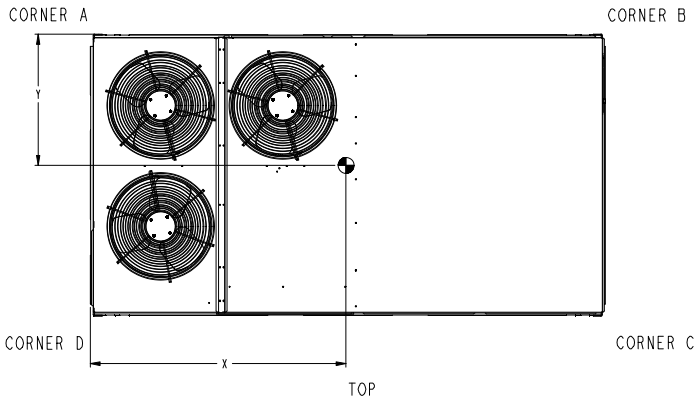
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UNIT	STD UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50FCQ-14	1250	567	350	159	338	153	277	125	286	130	57 (1448)	28 1/2 (724)	24 (610)

STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT & WITHOUT PACKAGING.
FOR OPTIONS & ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.

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HORIZONTAL ECONOMIZER

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50FCQ 14 SINGLE ZONE ELECTRICAL HEAT PUMP	50TM002592	REV
U. S. ECCN: NSR	2 OF 2	5/4/22	-			-



Date: _____ Weight: 133lbs (US) 60.33kg (Metric) Part Number: ECE-SRT05CB-DCDS

RTU: _____

Submitted to: _____ Approved by: _____ Notes: _____

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Horizontal Orientation, Siemens POL224.00 Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Siemens Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order KIT-3534-DIFFADB

FEATURES:

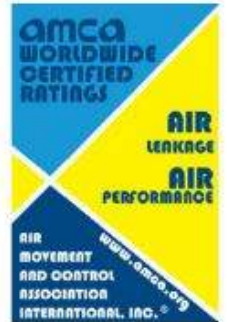
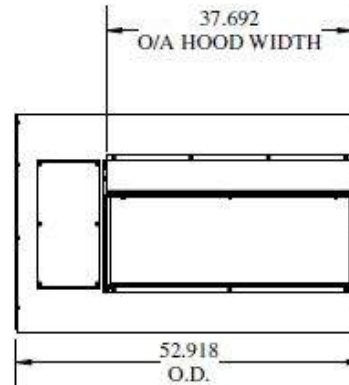
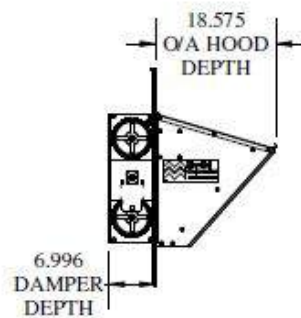
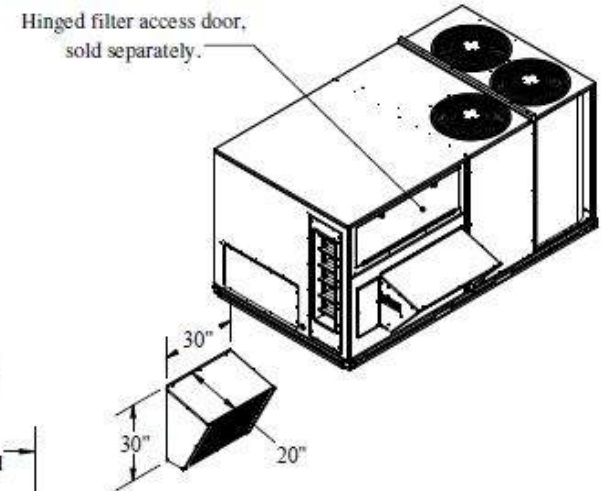
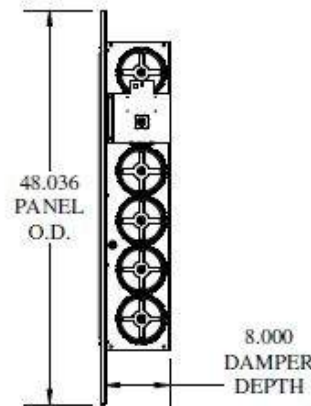
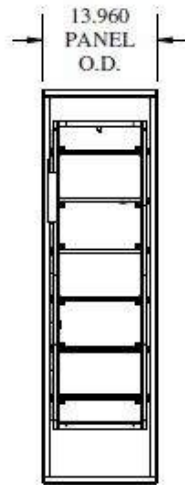
- External gear driven dampers with roll formed blades.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with Economizer assembly.
- Hinged filter access door if required, sold separately.
 - MMC P/# for Chassis 5 - ECD-SRT5CA-HDOOR
- All harnesses and plugs needed are supplied.
- Economizer OA and Return dampers are AMCA Class 1A listed.
- Relief damper is AMCA listed.
- Motorized relief available, add -M to end of part number
 - Ex: ECE-SRT05CB-DCDS-M
- Economizer with smoke detector available, add -S to end of part number
 - Ex: ECE-SRT05CB-DCDS-S

NOTE: If using a 48/50LC08-12 unit please order an ECE-SRT34CB-D2*H economizer with Honeywell controls.

-Control Types	
-DCDS	Siemens controller, actuator, adjustable drybulb controls
-DCES	Siemens controller, actuator, enthalpy controls

- * For Differential Sensors, please purchase Kit below:
 Differential Dry Bulb Kit - KIT-3534-DIFFADB
 Differential Enthalpy Kit - KIT-3534-DIFFENT

NOTE: The Siemens POL224.00 controller can be programmed using the buttons and the LCD display on the face of the controller or by using with Siemens app which can be found by searching "Climatix" in the app store and requires a Siemens WLAN Stick (Purchased separately Siemens # POL903.00 or MicroMetl # 9901-5057). The WLAN stick can be removed after programming and then re-used on other units /controllers. The app and WLAN Stick will allow for easier setup using GPS for automatic parameter setting by climate zone. Contact MicroMetl for the complete Siemens POL224.00 Application Guide. The Controller is field mounted in the RTU control box.



Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2016 / 2019 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.1 for Fault Detection and Diagnostic controls.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2016 / 2019 damper leakage requirements as stated in Table 6.4.3.4.3., and meet 2019 Fault Detection and Diagnosis requirements in section 6.4.3.12.
3. **IECC:** Economizers meet IECC 2018 section C402.4.5.2 and, IECC 2018 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2018 section c403.2.4.7 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

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Master Revision 0001A
Page Revision 0001A

Performance Summary For 12.5T

Project: Sephora Northridge
 Prepared By:

03/15/2024
 03:49PM

Part Number:50FCQM14A2A5-0A0A0

ARI EER:.....**10.60**
 IEER:.....**15.0**

Base Unit Dimensions

Unit Length:.....**115.9** in
 Unit Width:.....**63.4** in
 Unit Height:.....**57.4** in
Base Unit Weight (Does not include any accessories):.....**1250** lb

Unit

Unit Voltage-Phase-Hertz:.....**230-3-60**
 Air Discharge:.....**Vertical**
 Fan Drive Type:.....**Vane Axial**
 Actual Airflow:.....**5000** CFM
 Site Altitude:.....**0** ft

Cooling Performance

Condenser Entering Air DB:.....**95.0** F
 Evaporator Entering Air DB:.....**80.0** F
 Evaporator Entering Air WB:.....**67.0** F
 Entering Air Enthalpy:.....**31.44** BTU/lb
 Evaporator Leaving Air DB:.....**60.0** F
 Evaporator Leaving Air WB:.....**57.7** F
 Evaporator Leaving Air Enthalpy:.....**24.83** BTU/lb
 Gross Cooling Capacity:.....**148.79** MBH
 Gross Sensible Capacity:.....**108.05** MBH
 Compressor Power Input:.....**11.25** kW
 Coil Bypass Factor:.....**0.094**

Heating Performance

Outdoor Ambient Temperature:.....**47.0** F
 Entering Air Indoor Coil DB:.....**70.0** F
 Leaving Air Indoor Coil DB:.....**93.9** F
 Total Heating Capacity:.....**128.90** MBH
 Integrated Heating Capacity:.....**128.90** MBH
 Heating Power Input:.....**10.81** kW
 High Temperature COP:.....**3.30**
 Low Temperature COP:.....**2.30**

Supply Fan

External Static Pressure:.....**0.50** in wg
 Options / Accessories Static Pressure
 Power Exhaust:.....**(Fan Data Includes Drop)**
 Application External Static (ESP + Unit Opts/Acc.):.....**0.50** in wg
 Fan RPM:.....**1378**
 Fan Power:.....**1.27** BHP
 NOTE:.....**Selected IFM RPM Range: 947 - 2200**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Power Exhaust

Return Duct Static:.....**0.40** in wg
 Max. Air To Exhaust:.....**2850** CFM

Electrical Data

Voltage Range:.....**187 - 253**
 Compressor #1 RLA:.....**15.6**
 Compressor #1 LRA:.....**93**

Performance Summary For 12.5T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:49PM

Compressor #2 RLA:	15.6
Compressor #2 LRA:	.93
Indoor Fan Motor Type:	MED
Indoor Fan Motor FLA (Total):	7.5
Power Supply MCA:	.51
Power Supply MOCP (Fuse or HACR):	.60
Disconnect Size FLA:	.54
Disconnect Size LRA:	.213
Electrical Convenience Outlet:	None
Power Exhaust [Kit Qty / FLA(ea kit)]:	1 / 3.8
Outdoor Fan [Qty / FLA (ea)]:	3 / 1.5

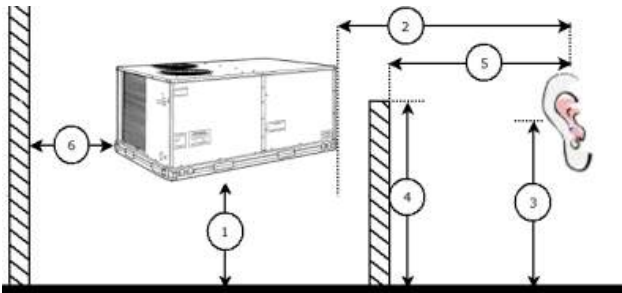
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	81.6	77.5	89.3
125 Hz	78.5	73.1	85.2
250 Hz	75.2	69.8	80.3
500 Hz	72.8	65.5	78.0
1000 Hz	74.1	65.4	77.0
2000 Hz	68.4	57.1	74.4
4000 Hz	62.3	49.2	73.7
8000 Hz	54.7	45.5	68.9
A-Weighted	77.2	69.0	83.0

Advanced Acoustics



Advanced Acoustics Parameters

- 1. Unit height above ground:.....**30.0** ft
- 2. Horizontal distance from unit to receiver:.....**50.0** ft
- 3. Receiver height above ground:.....**5.7** ft
- 4. Height of obstruction:.....**0.0** ft
- 5. Horizontal distance from obstruction to receiver:.....**0.0** ft
- 6. Horizontal distance from unit to obstruction:.....**0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	89.3	85.2	80.3	78.0	77.0	74.4	73.7	68.9	91.6 Lw
B	63.1	69.1	71.7	74.8	77.0	75.6	74.7	67.8	82.5 LwA
C	56.9	52.8	47.9	45.6	44.6	42.0	41.3	36.5	59.2 Lp

Performance Summary For 12.5T

Project: Sephora Northridge
Prepared By:

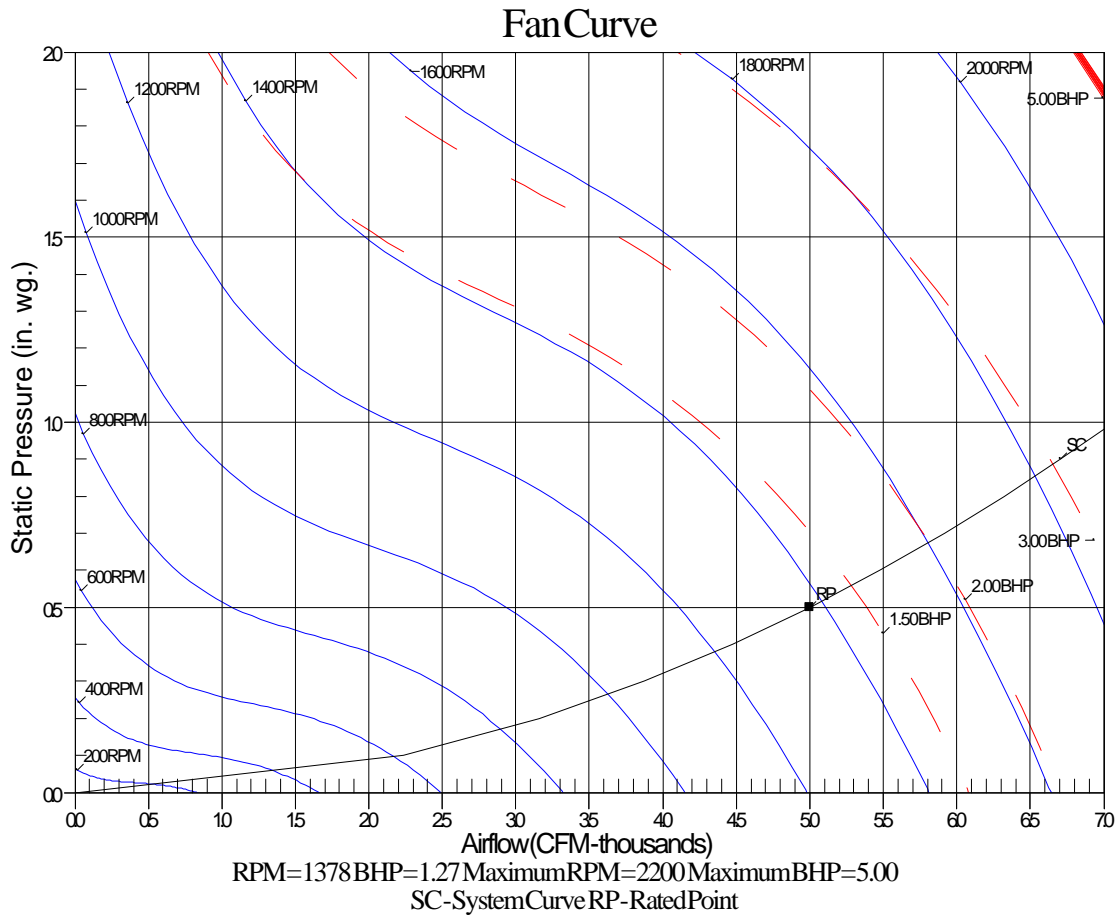
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D	30.7	36.7	39.3	42.4	44.6	43.2	42.3	35.4	50.1 LpA
---	------	------	------	------	------	------	------	------	----------

Legend

- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



4T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:50PM

4T

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report**

Unit Report For 4T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:50PM

Unit Parameters

Unit Model:.....**50FCQA05A2A5-0A0A0**
Unit Size:.....**05 (4 Tons)**
Volts-Phase-Hertz:.....**230-3-60**
Heating Type:.....**Heat Pump**
Heat Control:.....**Single Stage Compressor Models**
Duct Cfg:.....**Horizontal Supply / Horizontal Return**

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:.....**6' 2.375"**
Unit Width:.....**3' 10.625"**
Unit Height:.....**2' 9.375"**
Total Operating Weight:.....503 lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Return Air Filter Type:.....**Throwaway**
Return Air Filter Quantity:.....**2**
Return Air Filter Size:.....**16 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve.

Unit Configuration

Direct Drive - EcoBlue - Medium Static
Al/Cu - Al/Cu
Base Electro-mechanical controls
Standard Packaging

Warranty Information

5-Year compressor parts (STD.)
1-Year parts (STD.)

No optional warranties were selected.

Ordering Information

Part Number	Description	Quantity
50FCQA05A2A5-0A0A0	Rooftop Unit	1
Field Installed Accessories		
CRPWREXH028A01	Horizontal Power Exhaust	1

Certified Drawing for 4T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:50PM

NOTES:

1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE

UNIT	J	K
50FCO*04	33 3/8 [847]	7 7/8 [200]
50FCO*05	33 3/8 [847]	14 7/8 [377]
50FCO*06	41 3/8 [1051]	18 5/8 [472]
50FCO*07	41 3/8 [1051]	18 5/8 [472]



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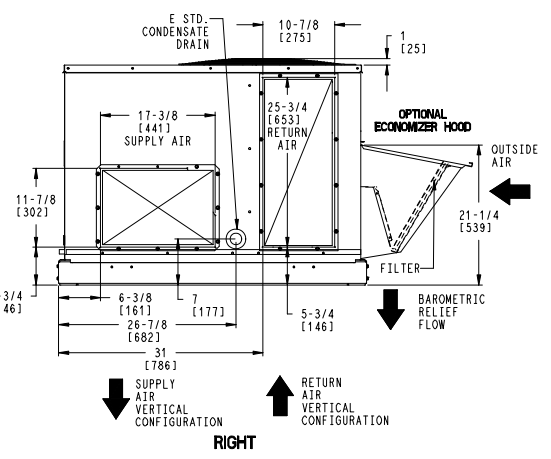
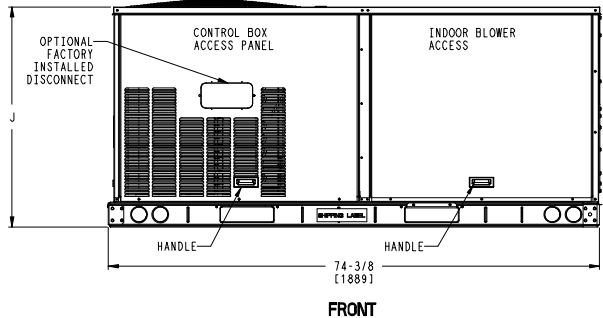
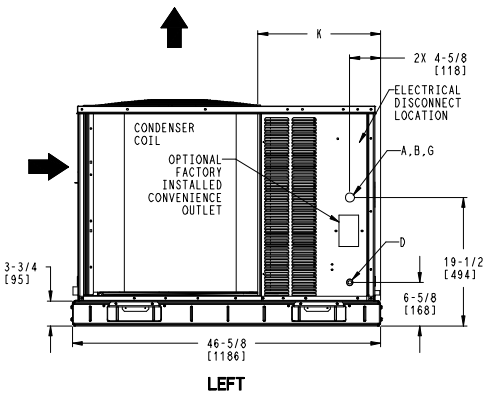
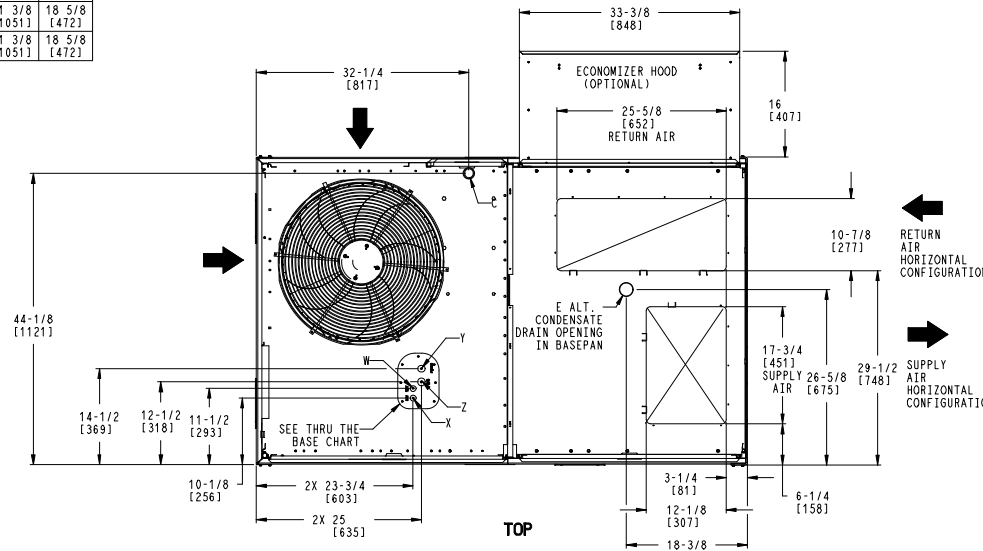
CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2" [51] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [44] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
G	2 1/2" [64] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTMPW008A00, 009A00			
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	115V	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y *	3/4"	POWER	1 1/8" [28.6]
Z **	(009A00) 1/2" FPT	GAS	1 1/8" [28.6]

FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED

* SELECT EITHER 3/4" OR 1/2" FOR POWER, DEPENDING ON WIRE SIZE

** (008A00) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	DESCRIPTION	UNIT	REV
U.S. ECCN:NSR	1 OF 3	08/15/19	-	50FCO 04-07 SINGLE PACKAGE HEAT PUMP	48TC003348	-

Certified Drawing for 4T

Project: Sephora Northridge
Prepared By:

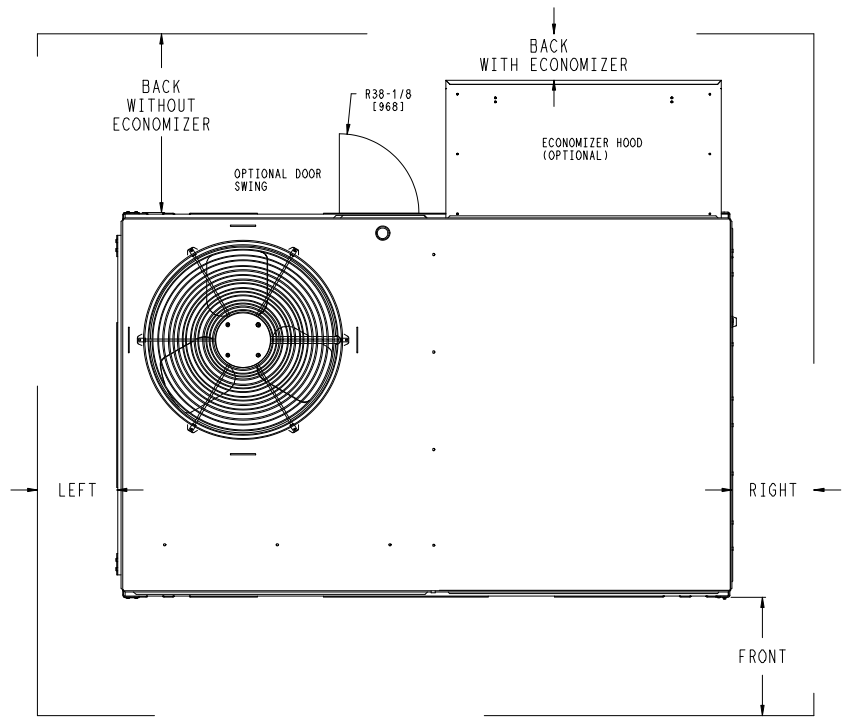
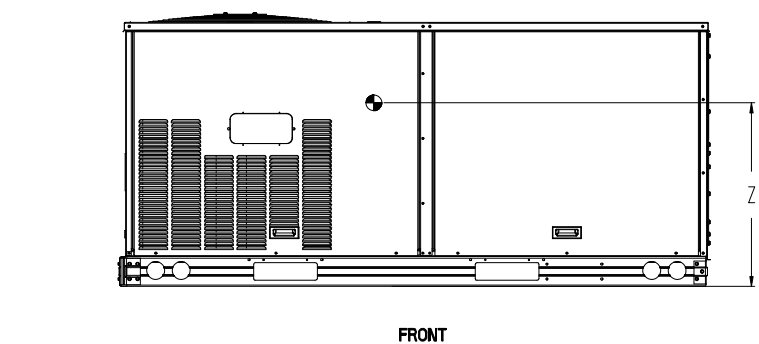
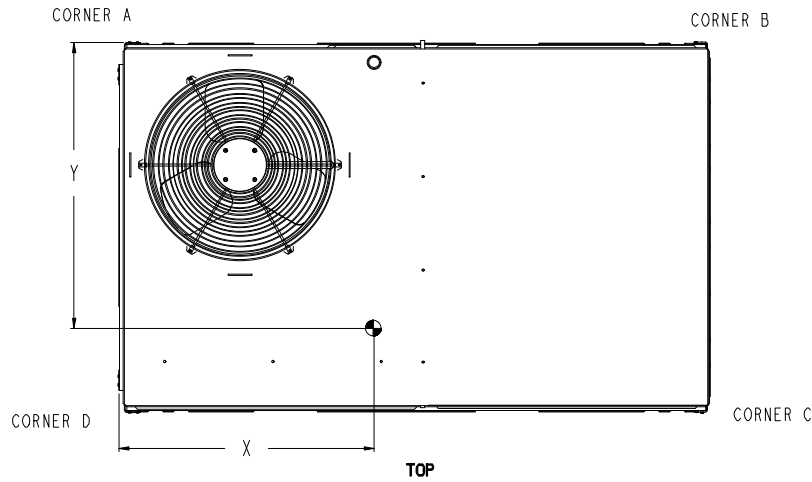
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UNIT	STD. UNIT WEIGHT*		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50FCQ*04	467	212	126	57	118	53	108	49	115	52	36 [914]	22 3/8 [568]	16 1/8 [410]
50FCQ*05	473	215	127	58	119	54	110	50	117	53	36 [914]	22 3/8 [568]	16 1/8 [410]
50FCQ*06	584	265	160	72	145	66	133	60	146	66	35 3/8 [898]	22 5/16 [557]	16 1/2 [419]
50FCQ*07	589	267	161	73	146	66	134	61	147	67	35 3/8 [898]	22 5/16 [557]	16 1/2 [419]

* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



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NOTE:

1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

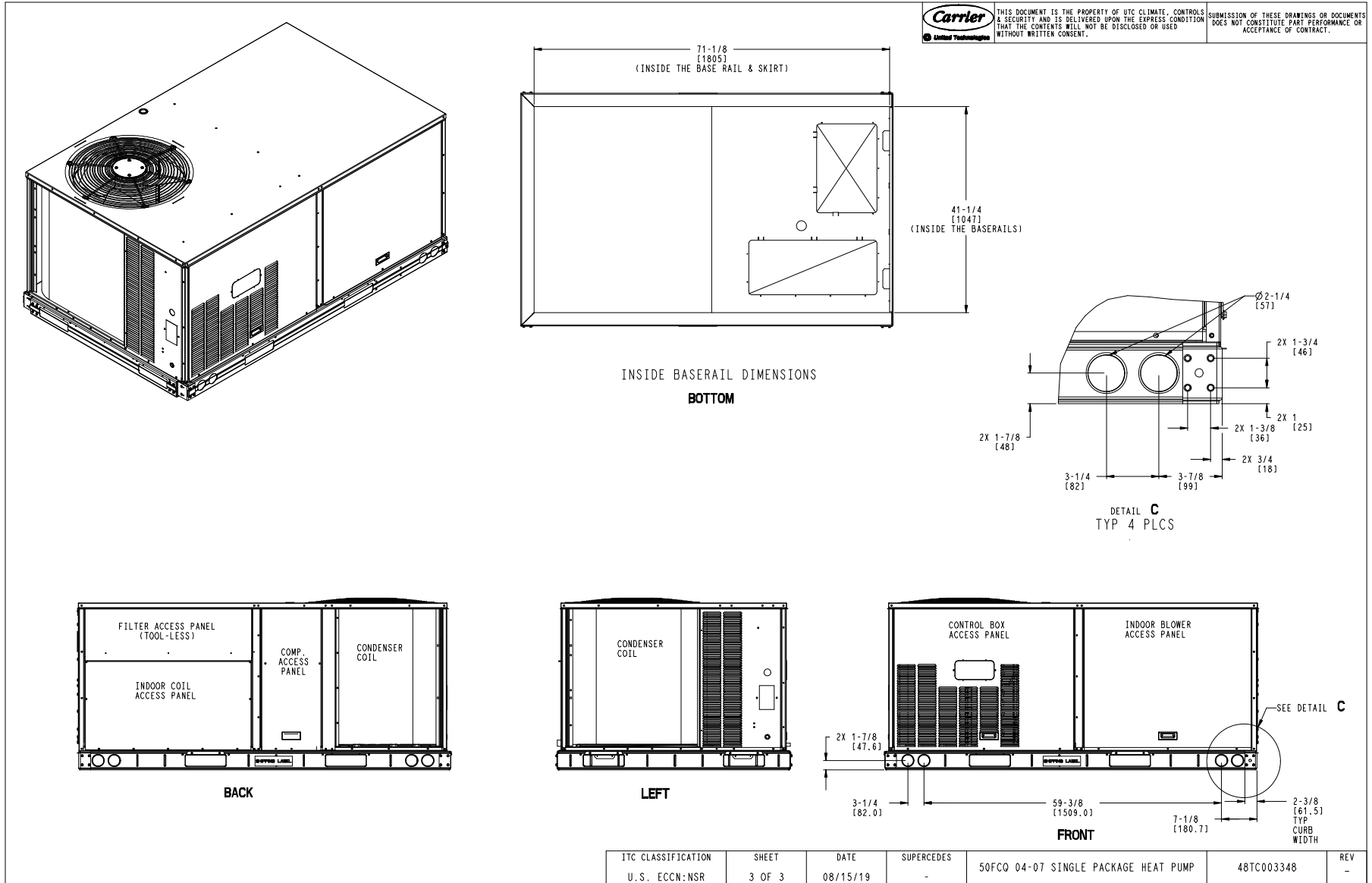
SURFACE	CLEARANCE		OPERATING CLEARANCE
	SERVICE WITH: CONDUCTIVE BARRIER	SERVICE WITH: NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 3	DATE 08/15/19	SUPERCEDES -	50FCQ 04-07 SINGLE PACKAGE HEAT PUMP	48TC003348	REV -
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Certified Drawing for 4T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:50PM





Date: _____ Weight: 74lbs (US) 33.57kg (Metric) Part Number: ECH-SRT12CB-DCDS

RTU: _____

Submitted to: _____ Approved by: _____ Notes: _____

Economizer - Economizer - Genesis Ultra Low Leak Economizer, Horizontal Orientation, Siemens POL224.00 Multiple Speed Electromechanical Controller, Adjustable Dry Bulb Sensor, Siemens Actuator. Painted Rain Hood With Aluminum Filter, Barometric Relief, All Necessary Panels And Hardware Included. For Differential Return Air Sensor Please Order KIT-3534-DIFFADB

FEATURES:

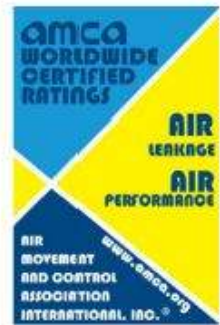
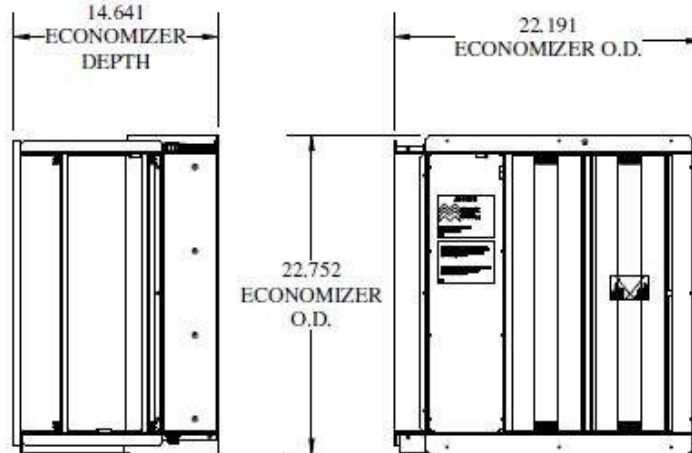
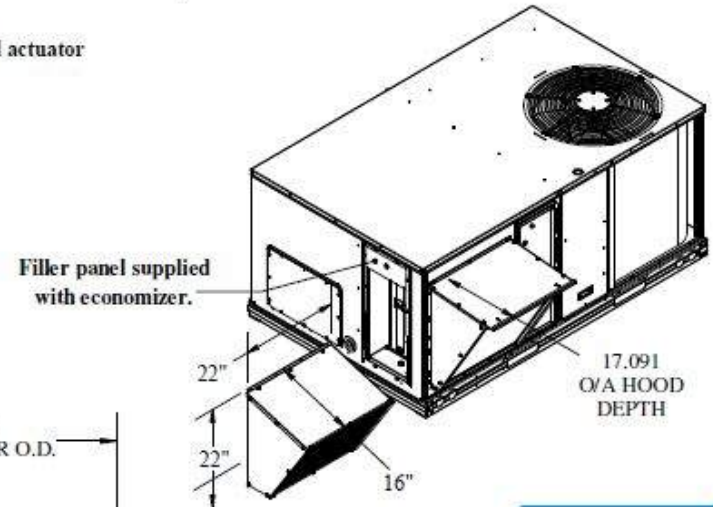
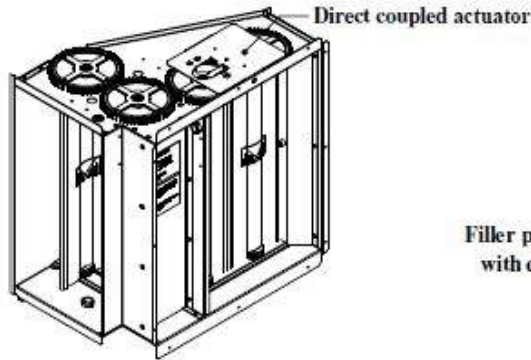
- External gear driven dampers with roll formed blades.
- Factory assembled rain hood, with aluminum water entrainment filters.
- Filter access door supplied with Economizer assembly.
- Hinged filter access door if required, sold separately.
 - MMC P/# for Chassis 1 - ECH-SRT12CA-HDOOR
- All harnesses and plugs needed are supplied.
- Economizer OA and Return dampers are AMCA Class 1A listed.
- Relief damper is AMCA listed.
- Motorized relief available, add -M to end of part number
 - Ex: ECH-SRT12CB-DCDS-M
- Economizer with smoke detector available, add -S to end of part number
 - Ex: ECH-SRT12CB-DCDS-S

NOTE: The ECH-SRT12CB-DC*S economizer plugs directly into the Vane Axial Unit Control Board (UCB) without the need for jumpers. If installing the economizer on a 48/50 TC, TCQ 03 - 07; 48/50 HC, HCQ A04 - A06; 48/50LC, KC 04 - 06 unit, you will need to remove the harness shipped on the controller and replace it with a 9962-2020 harness ordered separately. If using a 48/50JC unit, please order the ECH-SRT12CB-D0DB-4 economizer with Honeywell controls.

-Control Types	
-DCDS	Siemens controller, actuator, adjustable drybulb controls
-DCES	Siemens controller, actuator, enthalpy controls

- * For Differential Sensors, please purchase Kit below:
 Differential Dry Bulb Kit - KIT-3534-DIFFADB
 Differential Enthalpy Kit - KIT-3534-DIFFENT

NOTE: The Siemens POL224.00 controller can be programmed using the buttons and the LCD display on the face of the controller or by using with Siemens app which can be found by searching "Climatix" in the app store and requires a Siemens WLAN Stick (Purchased separately - Siemens # POL903.00 or MicroMetl # 9901-5057). The WLAN stick can be removed after programming and then re-used on other units/controllers. The app and WLAN Stick will allow for easier setup using GPS for automatic parameter setting by climate zone. Contact MicroMetl for the complete Siemens POL224.00 Application Guide. The Controller is field mounted in the RTU control box.



Compliant Economizer:

1. **Title 24:** Economizers meet California Energy Commission Title 24-2016 / 2019 prescriptive section 140.4 (damper leakage etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls.
2. **ASHRAE 90.1:** Economizers meet ASHRAE 90.1-2019 damper leakage requirements as stated in Table 6.4.3.4.3., and meet 2019 Fault Detection and Diagnosis requirements in section 6.4.3.12.
3. **IECC:** Economizers meet IECC 2018 section C402.4.5.2 and, IECC 2018 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief damper (when provided) leakage requirements, and IECC 2018 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
4. **AMCA:** Outside air and return air (volume) dampers are AMCA Class 1A rated at 1" w.g. Refer to MicroMetl NS2 catalog sheet on web site for details. Relief air dampers are also AMCA rated. Refer to GR1 series catalog sheet on web site for details.

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Master Revision 0001A
 Page Revision 0001A

Performance Summary For 4T

Project: Sephora Northridge
Prepared By:

03/15/2024
03:50PM

Part Number:50FCQA05A2A5-0A0A0

ARI SEER:.....14.30

Base Unit Dimensions

Unit Length:.....74.4 in
Unit Width:.....46.6 in
Unit Height:.....33.4 in

Operating Weight

Base Unit Weight:.....473 lb

Accessories

Horizontal Power Exhaust:.....30 lb

Total Operating Weight:.....503 lb

Unit

Unit Voltage-Phase-Hertz:.....230-3-60
Air Discharge:.....Vertical
Fan Drive Type:.....Vane Axial
Actual Airflow:.....1600 CFM
Site Altitude:.....0 ft

Cooling Performance

Condenser Entering Air DB:.....95.0 F
Evaporator Entering Air DB:.....80.0 F
Evaporator Entering Air WB:.....67.0 F
Entering Air Enthalpy:.....31.44 BTU/lb
Evaporator Leaving Air DB:.....58.1 F
Evaporator Leaving Air WB:.....57.2 F
Evaporator Leaving Air Enthalpy:.....24.50 BTU/lb
Gross Cooling Capacity:.....49.92 MBH
Gross Sensible Capacity:.....37.82 MBH
Compressor Power Input:.....3.53 kW
Coil Bypass Factor:.....0.109

Heating Performance

Outdoor Ambient Temperature:.....47.0 F
Entering Air Indoor Coil DB:.....70.0 F
Leaving Air Indoor Coil DB:.....96.7 F
Total Heating Capacity:.....46.10 MBH
Integrated Heating Capacity:.....46.10 MBH
Heating Power Input:.....3.08 kW
High Temperature COP:.....3.70
Low Temperature COP:.....2.28
HSPF:.....8.2

Supply Fan

External Static Pressure:.....0.50 in wg
Options / Accessories Static Pressure
Power Exhaust:.....(Fan Data Includes Drop)
Application External Static (ESP + Unit Opts/Acc.):.....0.50 in wg
Fan RPM:.....1565
Fan Power:.....0.41 BHP
NOTE:.....Selected IFM RPM Range: 217 - 2170

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Power Exhaust

Return Duct Static:.....0.40 in wg
Max. Air To Exhaust:.....1300 CFM

Performance Summary For 4T

Project: Sephora Northridge
 Prepared By:

03/15/2024
 03:50PM

Electrical Data

Voltage Range:.....	187 - 253
Compressor #1 RLA:.....	13.7
Compressor #1 LRA:.....	83
Indoor Fan Motor Type:.....	MED
Indoor Fan Motor FLA (Total):.....	7.1
Power Supply MCA:.....	28
Power Supply MOCP (Fuse or HACR):.....	40
Disconnect Size FLA:.....	28
Disconnect Size LRA:.....	99
Electrical Convenience Outlet:.....	None
Power Exhaust [Kit Qty / FLA(ea kit)]:.....	1 / 1.9
Outdoor Fan [Qty / FLA (ea)]:.....	1 / 1.5

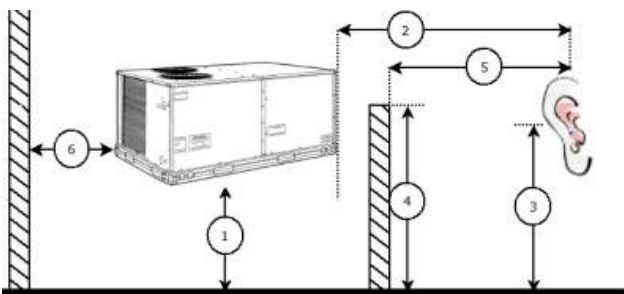
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	88.2	88.3	85.6
125 Hz	78.2	73.8	84.7
250 Hz	72.0	69.6	80.5
500 Hz	68.0	59.5	76.0
1000 Hz	63.6	62.7	72.4
2000 Hz	60.0	52.8	68.0
4000 Hz	58.9	47.6	62.8
8000 Hz	57.1	41.2	59.3
A-Weighted	71.3	67.9	79.0

Advanced Acoustics



Advanced Acoustics Parameters

- 1. Unit height above ground:..... **30.0** ft
- 2. Horizontal distance from unit to receiver:..... **50.0** ft
- 3. Receiver height above ground:..... **5.7** ft
- 4. Height of obstruction:..... **0.0** ft
- 5. Horizontal distance from obstruction to receiver:..... **0.0** ft
- 6. Horizontal distance from unit to obstruction:..... **0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
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Performance Summary For 4T

Project: Sephora Northridge
Prepared By:

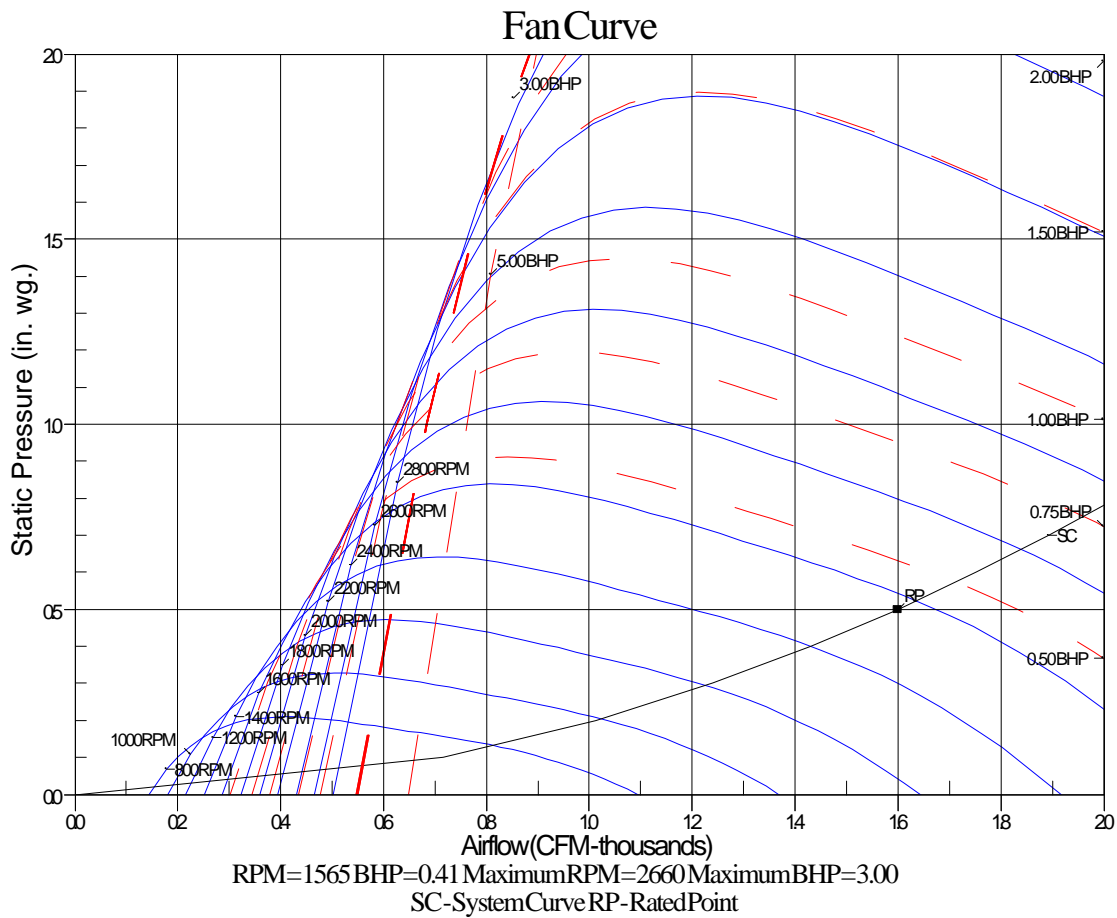
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A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

Legend

- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.



**CRPWREXH028A01,
CRPWREXH029A01,
CRPWREXH082A00,
CRPWREXH083A00**
For Use With Horizontal
EconoMi\$er™ IV or
EconoMi\$er™ 2 Only

**SMALL ROOFTOP UNITS
ACCESSORY HORIZONTAL POWER EXHAUST
GAS HEATING/ELECTRIC COOLING, ELECTRIC
COOLING, AND HEAT PUMP UNITS
2 to 12 1/2 TONS**

Installation Instructions

TABLE OF CONTENTS

PACKAGE CONTENTS	1
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SAFETY CONSIDERATIONS	1
GENERAL	1
INSTALLATION	2-11
Power Exhaust Wiring with ECONOMICER IV	4
Power Exhaust Wiring with EconoMi\$er2 and PremierLink™ Control or RTU-MP/OPEN	9
Operational Notes for Testing Purposes — PremierLink	10
Attaching Power Exhaust to Duct	11

IMPORTANT: Read these instructions completely before attempting to install the accessory power exhaust.

PACKAGE CONTENTS

QTY	CONTENTS
1	Power Exhaust Hood/Fan Assembly
1	Low Voltage Wiring Harness with plug — 48 in. (1219mm)
1	High Voltage Wiring Harness with plug — 218 in. (5537mm)
8	No. 10 x 3/4 in. (19mm) Mounting Screws

UNIT CONFIGURATION TABLE

UNIT CONFIGURATION	UNIT FOOTPRINT SIZE
Small Cabinet	46 3/4" x 74 3/8"
Large Cabinet	58 1/2" x 88 1/8"
Extra Large Cabinet	63 3/8" x 115 7/8"

PACKAGE USAGE


UNIT SIZE	UNIT VOLTAGE	No. of FANS	POWER EXHAUST PART NUMBER
Small and Large Cabinet	208/230 V, 1 Ph	1	CRPWREXH028A01
	460 V, 3 Ph	1	CRPWREXH029A01
Extra Large Cabinet	208/230 V, 1 Ph	2	CRPWREXH082A00
	460 V, 3 Ph	2	CRPWREXH083A00

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform the basic maintenance functions. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury and/or death.

Before beginning any modification, be certain that the main-line electrical disconnect switch is in the OFF position. Close the main gas supply shutoff valve. Tag disconnect switch and gas valve with suitable warning labels.

⚠ CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing furnaces.

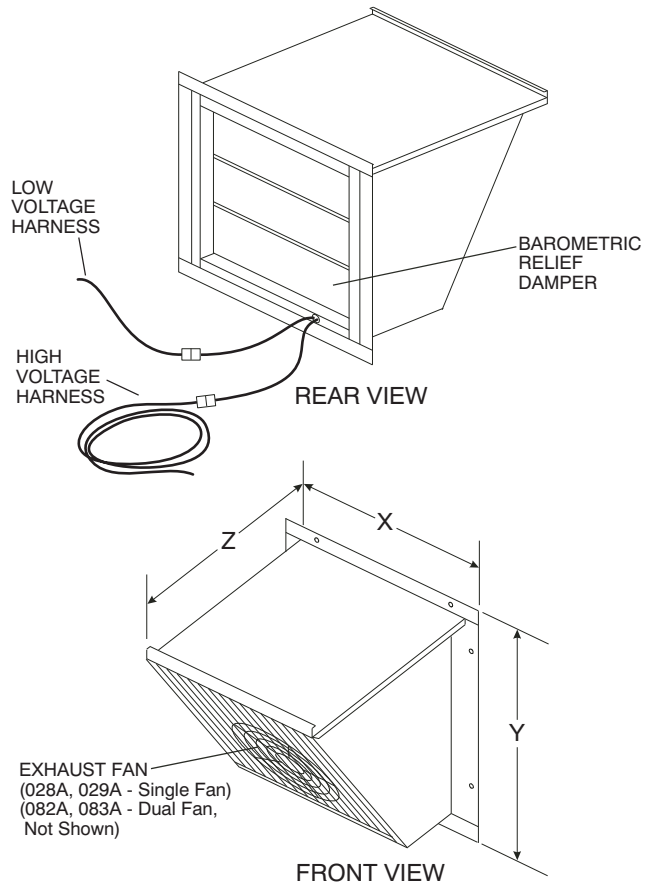
GENERAL

The accessory horizontal power exhaust is used in conjunction with horizontal EconoMi\$er IV or EconoMi\$er2 only and is mounted external to the rooftop unit in the return air ductwork. For vertical return air applications, this power exhaust accessory **cannot** be used. The vertical power exhaust accessory must be used for vertical return air applications.

NOTE: This accessory may be used with the horizontal or vertical EconoMi\$er.

See Table 1 and 2 for EconoMi\$er usage. See Fig. 1 for accessory dimensions. The 028, 029 accessory weighs 30 lb (13.6 kg). The 082, 083 accessory weighs 75 lb (34 kg).

NOTE: For 575-v installations, a field-supplied and installed transformer (part no. HT01AH859) must be used with 208/230 v power exhaust.



Power Exhaust	"X" in (mm)	"Y" in (mm)	"Z" in (mm)
CRPWREXH028A01	23.25 (590)	24.3 (625)	19.6 (495)
CRPWREXH029A01			
CRPWREXH082A00	39 (990)	24.3 (625)	17.1 (435)
CRPWREXH083A00			

C10535

Fig. 1 - Accessory Horizontal Power Exhaust

Table 1 – Accessory Horizontal EconoMi\$er Usage

PART NO.	UNIT SIZE	DESCRIPTION
CRECOMZR024A02	Small Cabinet	EconoMi\$er IV with W7212 Controller
CRECOMZR025A02	Large Cabinet	
CRECOMZR064A00	Extra Large Cabinet	
CRECOMZR026A00	Small Cabinet	EconoMi\$er2 without Controller (for use with PremierLink controller or a field-supplied building management system).
CRECOMZR027A00	Large Cabinet	
CRECOMZR065A00	Extra Large Cabinet	

Table 2 – Factory-Installed Horizontal EconoMi\$er Usage

BASE RTU UNIT SERIAL #	DESCRIPTION
From 4005Gxxxxx to current	EconoMi\$er IV with W7212 controller.
From 0802Gxxxxx to current	EconoMi\$er2 without controller (used with PremierLink or field-supplied building management system).

CRPWREXH

INSTALLATION

IMPORTANT: Follow all local and national electrical codes when installing accessory.

Follow all local and NEC (National Electrical Code) codes. If a single power source is to be used, size the wire to include power exhaust MCA and MOCP. (See Table 3.)

Table 3 – Power Exhaust Electrical Data

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
CRPWREXH028A01	1.7	N/A	0.68	15
CRPWREXH029A01	N/A	1.0	N/A	15
CRPWREXH082A00	3.3	N/A	1.32	15
CRPWREXH083A00	N/A	1.8	N/A	15

LEGEND

- MCA – Minimum Circuit Amps
- MOCP – Maximum Overcurrent Protection
- N/A – Not Applicable

NOTE: For R-410A units, refer to unit nameplate for MCA and MOCP for installed power exhaust. For R-22 units, use the calculations detailed below. If multiple power exhausts are used, the MCA value used in wire size calculations must be the sum of the number of individual power exhausts used.

Check MCA and MOCP when power exhaust is powered through the unit (must be in accordance with NEC and/or local codes). Determine the new MCA including the power exhaust using the following formula:

$$MCA\ New = MCA\ unit\ only + MCA\ of\ Power\ Exhaust$$

For example, using a R-22 gas heat, electric cooling, 6-ton unit with MCA = 28.9 and MOCP = 35, with CRPWREXH030A01 power exhaust.

$$MCA\ New = 28.9\ amps + 1.7\ amps = 30.6\ amps$$

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 35 amps, the MCA New is below 35, therefore the MOCP is acceptable. If “MCA New” is larger than the published MOCP, raise the MOCP to the next larger size. For separate power, the MOCP for the power exhaust will be 15 amps per NEC.

NOTE: For 575-v installations, a field-supplied and installed transformer (part no. HT01AH859) must be used with 208/230-v power exhaust. See Fig. 5 for single fan units and Fig. 7 for dual fan units.

The horizontal power exhaust can be used with 2 different types of Economi\$ers. These instructions will clearly describe the installation and wiring for:

- Economi\$er IV with W7212 controller.
- Economi\$er2 without controller (used with PremierLink controller or a field-supplied building management system).

To install the horizontal power exhaust, perform the following procedure:

1. Turn off unit power supply and install lockout tag.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury and/or death.

Before beginning any modification, be certain that the main-line electrical disconnect switch is in the OFF position. Close the main gas supply shutoff valve. Tag disconnect switch and gas valve with suitable warning labels.

2. If ductwork has not already been constructed and connected to HVAC (heating, ventilation and air conditioning) unit, field-fabricate and secure the return air duct per HVAC unit recommendations and the unit installation instructions.
3. Once the horizontal Economi\$er has been installed, locate the notched tab in the upper left corner of the return damper. (See Fig. 2.) Bend back this tab to allow for power exhaust wiring entry.

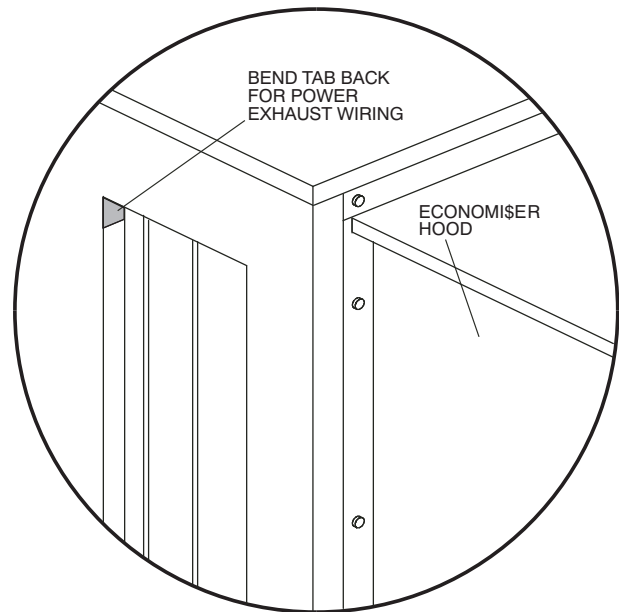
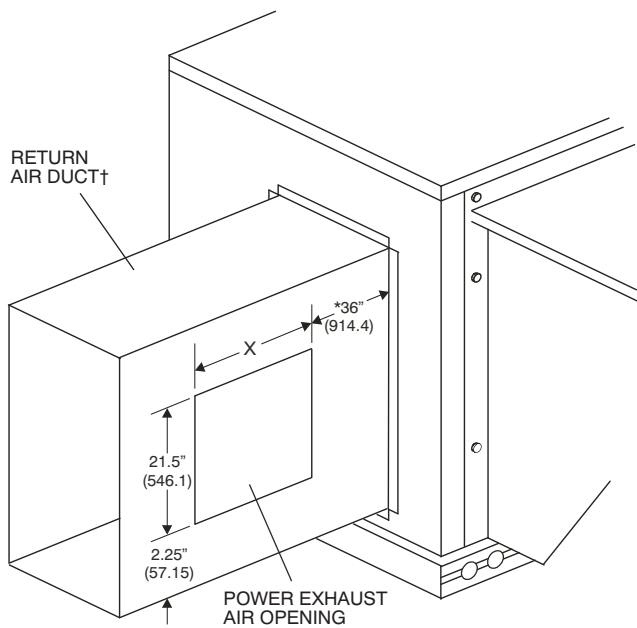


Fig. 2 - Tab on Horizontal Economi\$er

C07419

4. Install the Economi\$er per the instructions provided with the accessory. Tape the barometric relief blades on the Economi\$er shut. The barometric relief is not used when the power exhaust is installed.
5. Cut an exhaust air opening in the side of the return air duct. See Fig. 3 for dimensions.
6. Place the power exhaust near the exhaust air opening in preparation for wiring to the unit. It may be easier to hold the power exhaust unit up to this opening and attach with a few screws and then remove so that the installation will be easier later when it is important that the wires are not pinched.

CRPWREXH



Power Exhaust	"X" in (mm)
CRPWREXH028A01	19.5 (495)
CRPWREXH029A01	
CRPWREXH082A00	35 (890)
CRPWREXH083A00	

NOTES:
 Dimensions are in inches. Dimensions in () are in millimeters.
 * Recommended distance if space allows.
 † May require bracing due to the weight of the power exhaust.

C10536

Fig. 3 - Tab on Horizontal EconoMi\$er

7. Follow control and power wiring instructions specific to this economizer and unit control.

IMPORTANT: To achieve higher levels of exhaust air, multiple power exhaust accessories may be used. If more than one power exhaust is being installed, cut additional openings in the ductwork.

Power Exhaust Wiring with ECONOMISER IV

- Both wiring harnesses (low voltage and high voltage) are plugged together with the extensions at the factory for shipping. Unplug harnesses and uncoil wire. (See Fig. 1.)
- Route the other end of the low voltage extension harness to the EconoMi\$er controller. (See Fig. 4.) The harness is connected to the controller by connecting the tan wire to the tan wire 24 VAC COM terminal on the controller. The terminal on the gray wire is connected to terminal EF1 on the controller. See Fig. 5 – Fig. 8 for EconoMi\$er wiring diagrams. Install the gray jumper wire on the controller from the exhaust fan terminal (EF), to the 24 VAC HOT terminals. The gray jumper is shipped wire tied to the control harness.
- The power line wiring harness must be routed through the duct, through the hole created by the bent tab on the EconoMi\$er, and through the unit to the control box. (See Fig. 4.) The harness must be routed through the grommets provided in the unit control box. Do not drill routing holes.
- Wire the end of the power line wiring harness to the power exhaust power source. (See Fig. 5 – Fig. 8.)

R-410A Rooftop Models Only:

For single point wiring applications, connect the power exhaust power wire harness to the compressor contactor or in the control box. Install the power exhaust power wire harness into the pressure lugs on the compressor contactor, used for the field power wiring also.

Be careful not to route power exhaust harness on top of indoor coil. Follow all local and NEC (National Electrical Code) codes. If a single power source is to be used, size the wire to include power exhaust MCA and MOCP.

- Make sure all wiring is secure. Use field-supplied wire ties if necessary. Be sure that wiring does not interfere with operation of the HVAC unit, EconoMi\$er, or power exhaust.
- Connect the end switch harness plug and the power line harness plug to the two plugs coming out of the power exhaust. (See Fig. 4.)

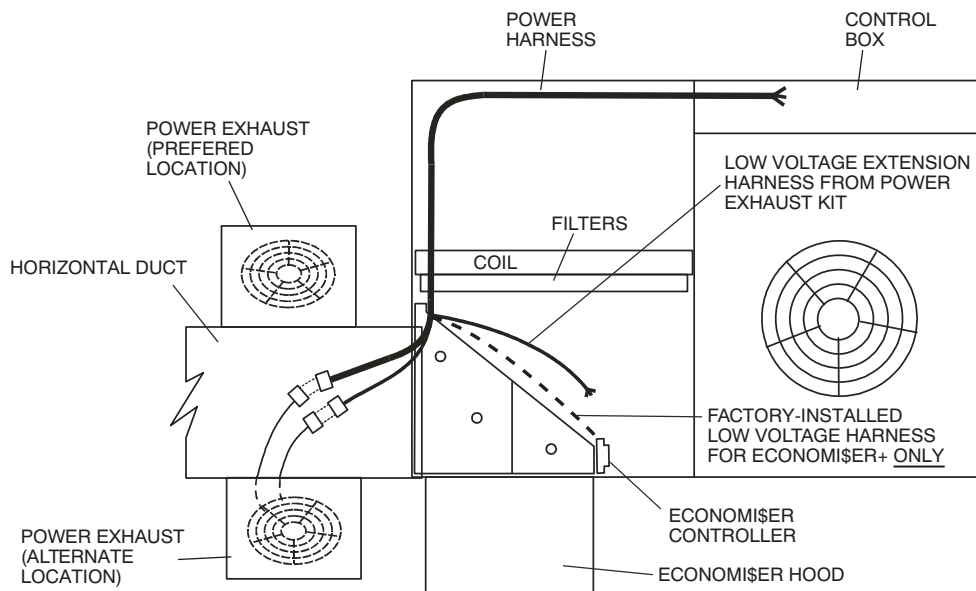
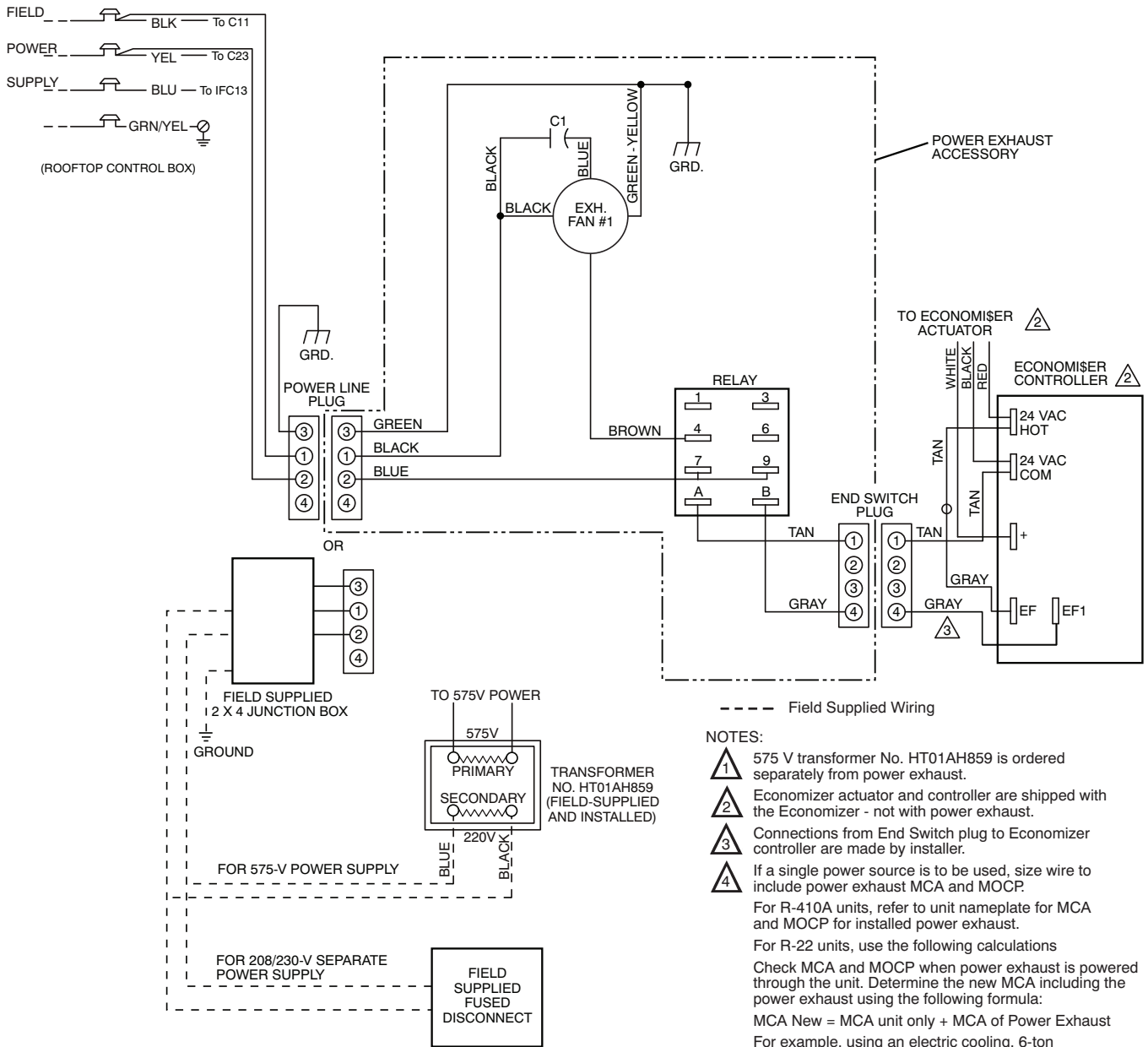


Fig. 4 - Power Exhaust Harness Routing

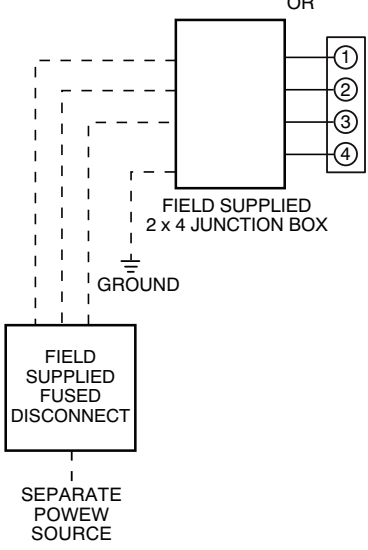
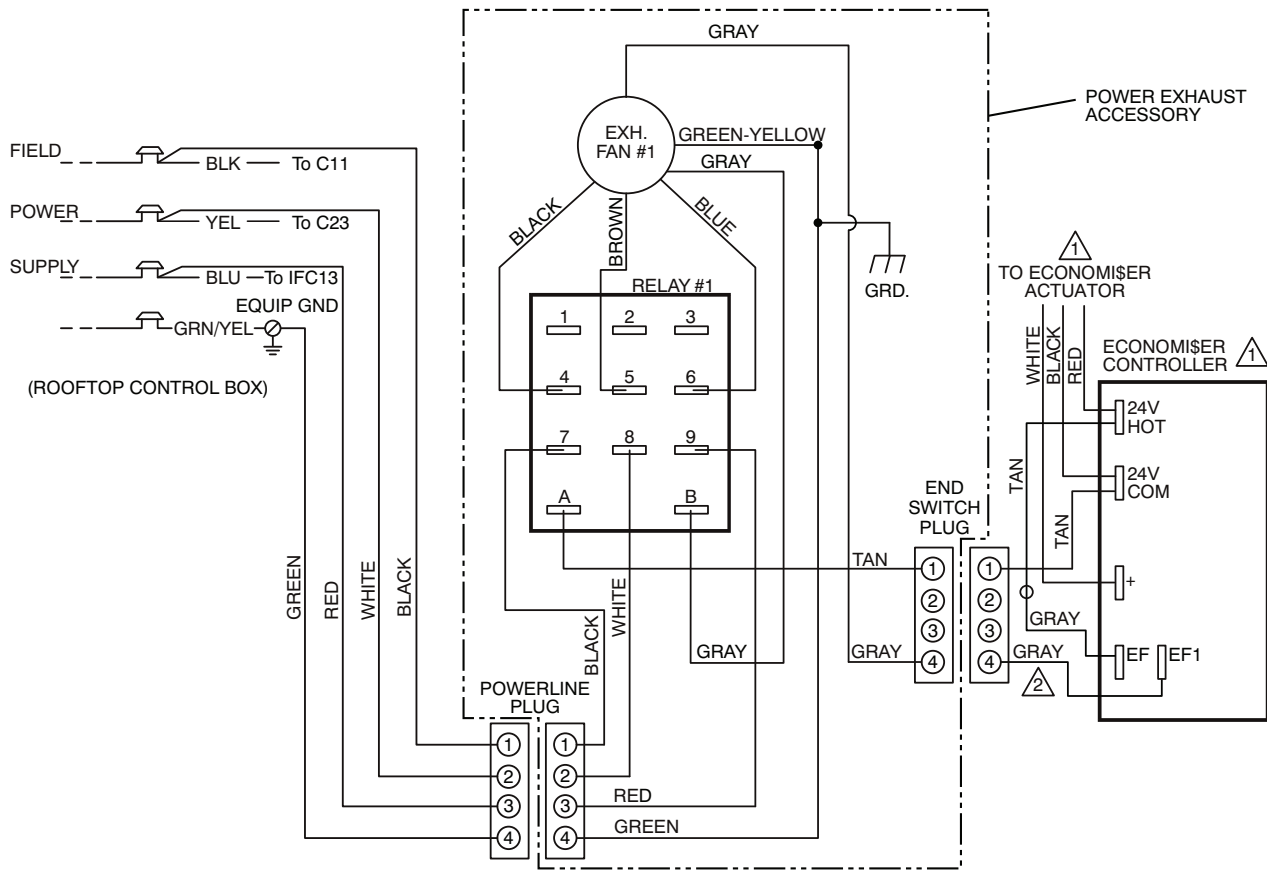
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CRPWREXH

Fig. 5 - Single Fan Power Exhaust Wiring for EconoMi\$er IV with W7212 Controller — 208/230 and 575-V Units

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--- Field Supplied Wiring

NOTES:

- ⚠️ 1 Economizer actuator and controller are shipped with the Economizer - not with power exhaust.
- ⚠️ 2 Connections from End Switch plug to Economizer controller are made by installer.
- ⚠️ 3 If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

For R-410A units, refer to unit nameplate for MCA and MOCP for installed power exhaust.

For R-22 units, use the following calculations

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

MCA New = MCA unit only + MCA of Power Exhaust

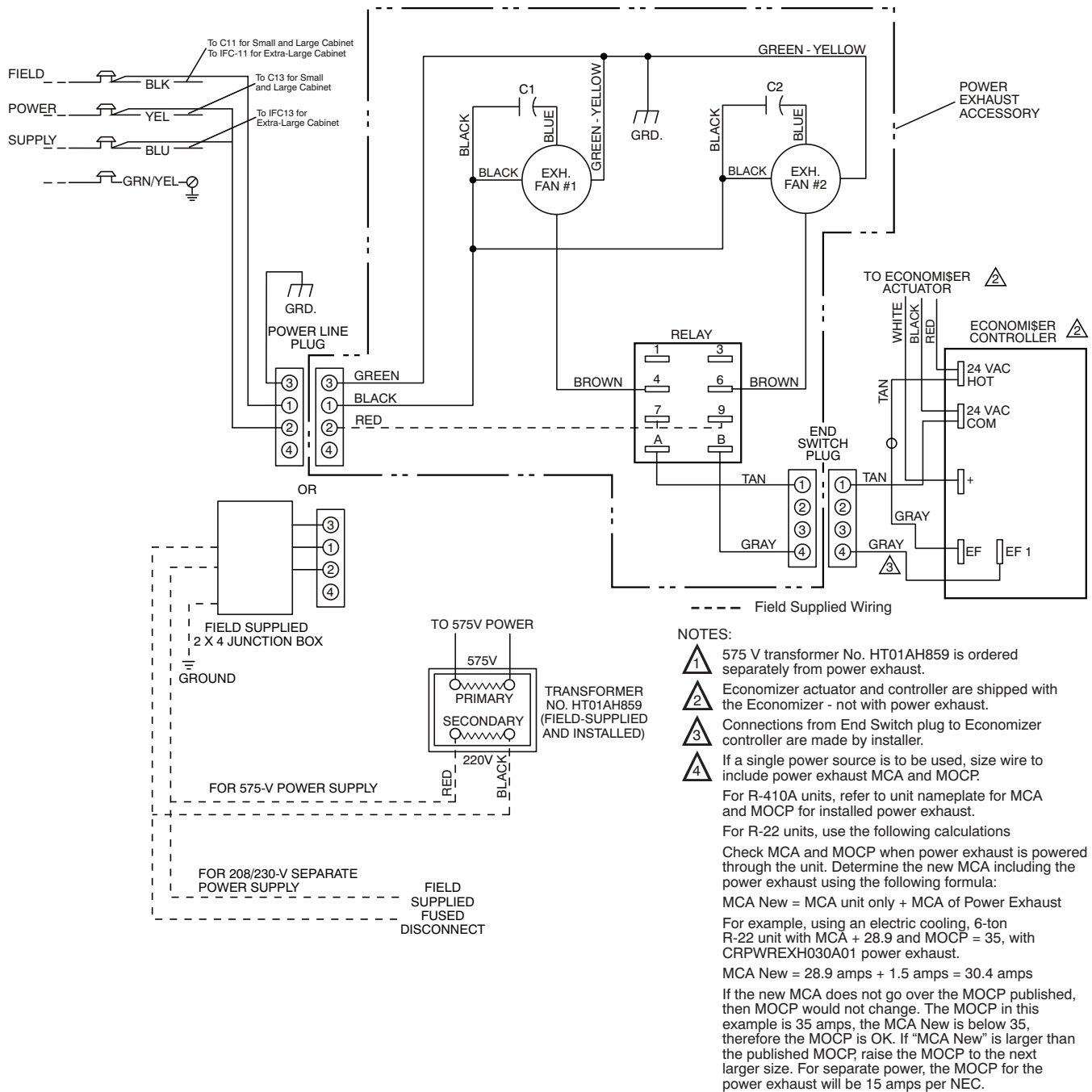
For example, using an electric cooling, 6-ton R-22 unit with MCA + 28.9 and MOCP = 35, with CRPWREXH030A01 power exhaust.

MCA New = 28.9 amps + 1.5 amps = 30.4 amps

If the new MCA does not go over the MOCP published, then MOCP would not change. The MOCP in this example is 35 amps, the MCA New is below 35, therefore the MOCP is OK. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. For separate power, the MOCP for the power exhaust will be 15 amps per NEC.

Fig. 6 - Single Fan Power Exhaust Wiring for EconoMi\$er IV with W7212 Controller - 460-V Units

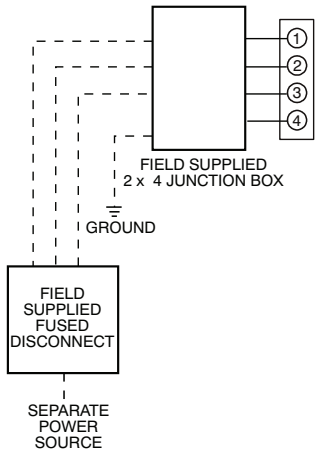
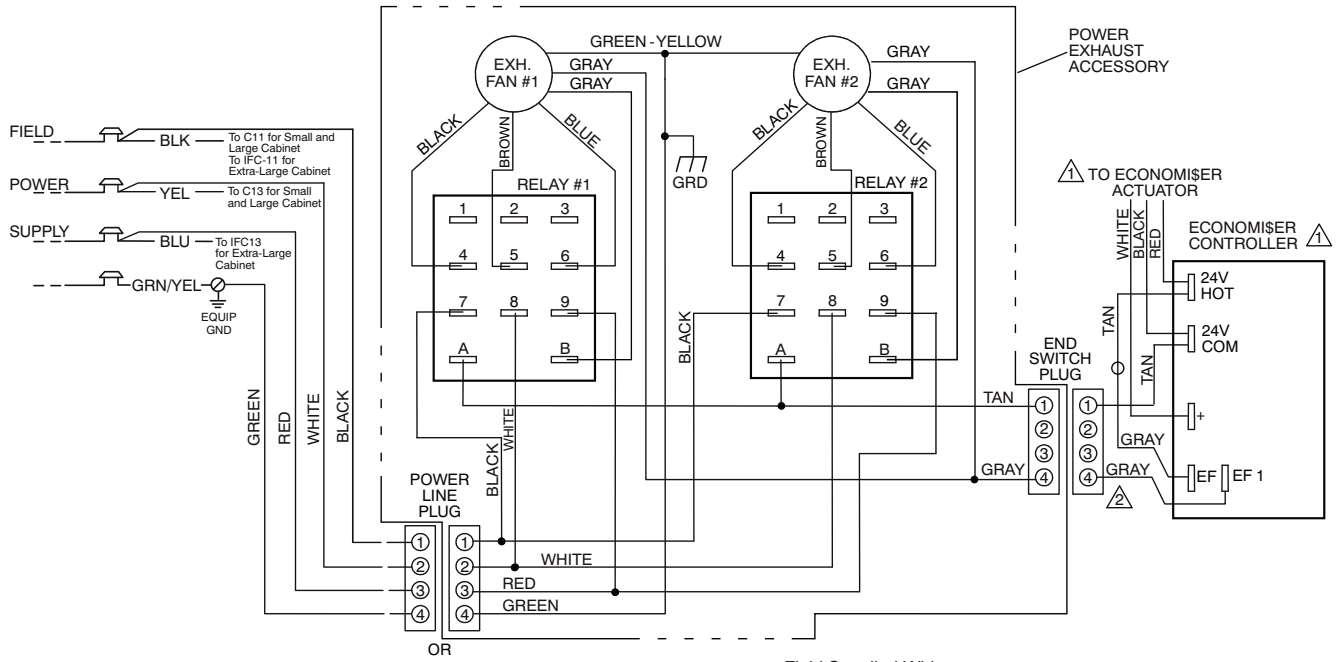
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Fig. 7 - Dual Fan Power Exhaust Wiring for EconoMiSer IV with Controller W7212 — 208/230 V and 575 V Units

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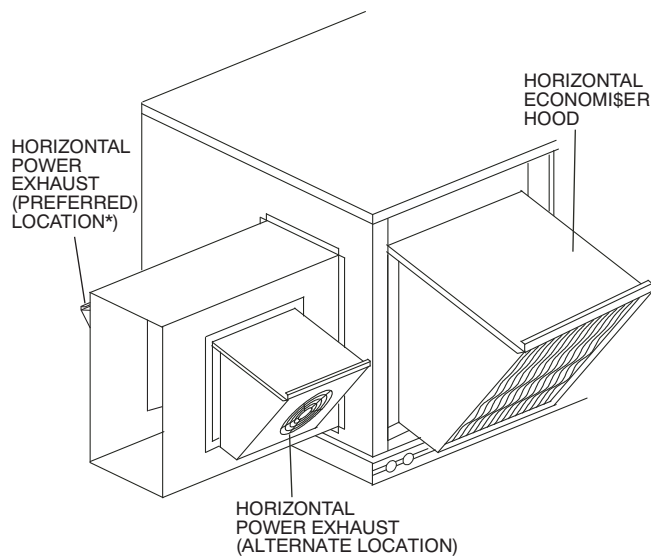
--- Field Supplied Wiring

NOTES:

- 1 ⚠ Economiser actuator and controller are shipped with the Economiser not with power exhaust.
 - 2 ⚠ Connections from End Switch Plug to the Economiser controller are made by installer.
 - 3 ⚠ If a single power source is to be used, size wire to include power exhaust MCA and MOCP.
- For R-410A units, refer to the unit nameplate for MCA and MOCP for installed power exhaust.
- For R-22 units use the following calculations
- Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:
- MCA New = MCA unit only + MCA of Power Exhaust
- For example, using an electric cooling, 6-ton R-22 unit with MCA = 28.9 and MOCP = 35, with CRPWREXH030A01 power exhaust.
- MCA New = 28.9 amps + 1.5 amps = 30.4 amps
- If the new MCA does not go over the MOCP published, then MOCP would not change. The MOCP in this example is 35 amps, the MCA New is below 35, therefore the MOCP is OK. If "MCA NEW" is larger than the published MOCP, raise the MOCP to the next larger size. For separate power, the MOCP for the power exhaust will be 15 amps per NEC.

Fig. 8 - Dual Fan Power Exhaust Wiring for EconoMi\$er IV with Controller W7212 — 460 V Units

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* Use alternate location if preferred location causes recirculation of exhaust air into outdoor air intake.

Fig. 9 - Power Exhaust Installed in Duct

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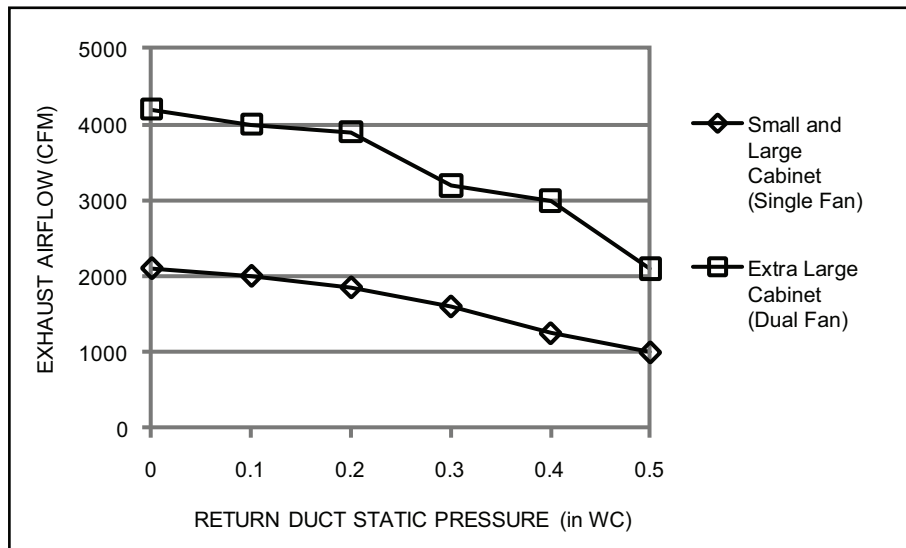


Fig. 10 - Power Exhaust Performance

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Power Exhaust Wiring with EconoMi\$er2 and PremierLink Controller or RTU-MP/OPEN

Use these instructions when installing the vertical power exhaust with EconoMi\$er2 and PremierLink or RTU-MP/OPEN controller.

1. A low voltage extension harness is supplied with the EconoMi\$er2 (without controller) beginning with unit serial number 2703Gxxxxx. Prior to serial 2703Gxxxxx, the supplied low voltage extension harness is not long enough to reach the PremierLink control board and will have to be field extended.
2. Both the control and power harness must be run through the duct, through the hole created by the bent tab on the EconoMi\$er2, and through the unit control box. (See Fig. 9.)
3. Run the control harness extension to the PremierLink control.
4. Route the other end of the long high voltage extension harness through the HVAC unit to the control box. (See Fig. 4.) The harness must be routed through the grommets provided in the unit. Do not drill routing holes. Be careful not to route the power exhaust harness on top of the indoor coil.
5. Wire the end of the power line wiring harness to the power exhaust power source. (See Fig. 5 - Fig. 8.)

R-410A Rooftop Models Only:

For single point wiring applications, connect the power exhaust power wire harness to the compressor contactor in the control box. Install the power exhaust power wire harness into the pressure lugs on the compressor contactor, used for the field power wiring also. Follow all local and NEC (National Electrical Code) codes. If a single power source is to be used, size the wire to include power exhaust MCA and MOCP. (See Table 3.)

6. Field-Installed PremierLink Control (See Fig. 12)

Connect the gray wire from the low voltage extension harness to J8-3 and the tan wire to common terminal. Common is available from PremierLink terminal J1 or the common side of the unit control power transformer (the brown leads that go to unit ground). The other end of the harness is connected to the power exhaust wiring.

NOTE: When the PremierLink board is configured for a heat pump, it does not require the HS3/EXH/RVS, allowing this terminal to be used for the power exhaust.

Factory-Installed PremierLink Control

The PremierLink J8-3 terminal is factory wired to a terminal board TB2-15 (Small & Large Cabinet) or TB3-15 (Extra Large Cabinet) located in the low voltage section to the left of the control box. The gray wire from the harness should be routed and wired to TB2-15 or TB3-15. The tan wire should be routed and wired to the Central Terminal Board Thermostat Terminal C (Common).

RTU-MP/OPEN Control

Connect the gray wire from the low voltage harness extension to J11-3 and the tan wire to the Central Terminal Board Thermostat Terminal C (Common).

7. Make sure all wiring is secure. Use field-supplied wire ties if necessary. Be sure that wiring does not interfere with operation of the HVAC unit, EconoMi\$er, or power exhaust.
8. Connect the end switch harness plug and the power line harness plug to the two plugs coming out of the power exhaust. (See Fig. 9.)

Operational Notes For Testing Purposes — PremierLink

If the “continuous power exhaust” function is disabled, the power exhaust fan will operate during EconoMi\$er purge cycles when the EconoMi\$er damper position is above the configured minimum value. If enabled, the power exhaust fan will follow the supply fan’s operation for PremierLink version 1.2 and will follow the occupancy configuration for PremierLink version 1.3.

The PremierLink “Auxiliary Output” function defines the specific use of the auxiliary output (HS3/EXH/RVS) for the power exhaust. The output will be energized or deenergized by the appropriate algorithm that uses that specific output. A setting of 1 = Exhaust fan output.

The Power Exhaust set point in the set point table determines the power exhaust damper “percent open” when the power exhaust is energized. The damper percentage set point has a 10% hysteresis.

If “Continuous” in the service configuration table is set to “enable”, the power exhaust output will energize when occupied (for PremierLink controls version 1.3 and later) and will be energized when the supply fan relay is on (for versions prior than 1.3).

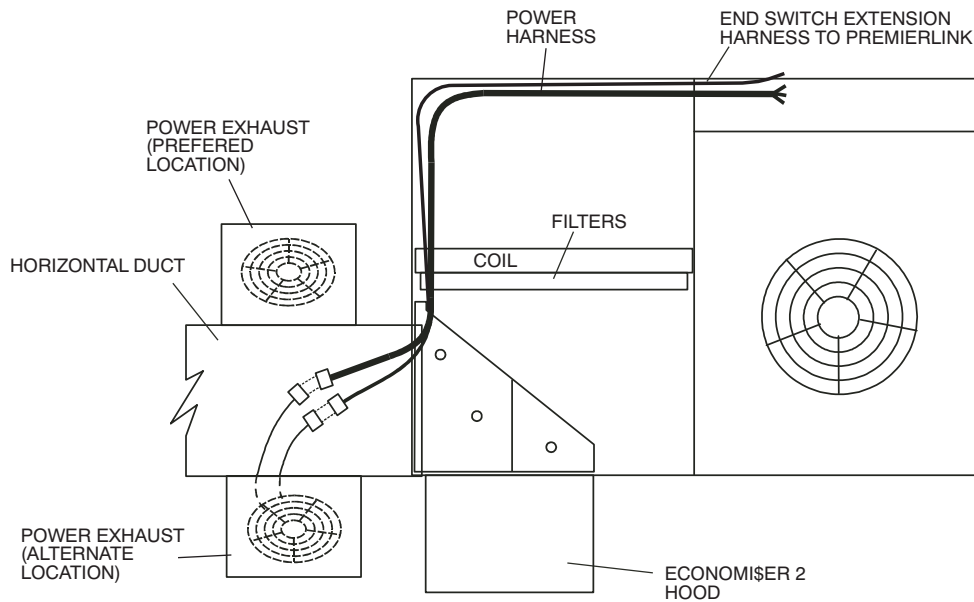


Fig. 11 - Harness Routing for EconoMi\$er2 with PremierLink Controls (R-22 Equipped Models)

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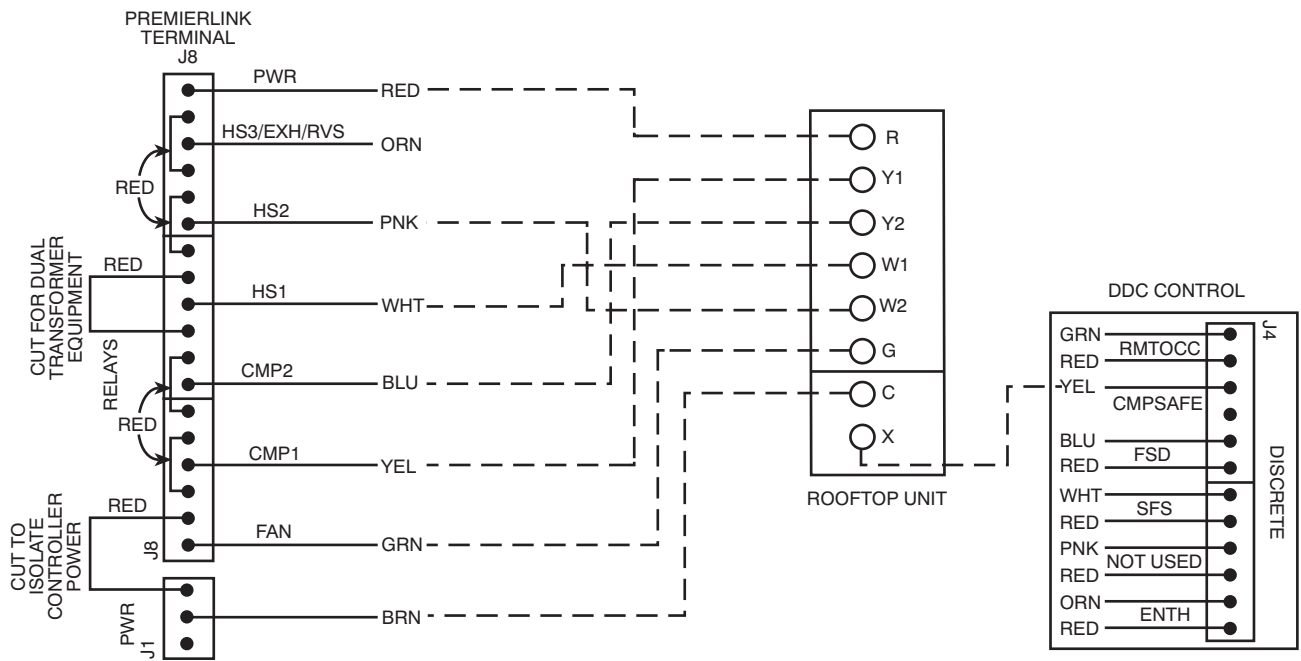


Fig. 12 - Typical PremierLink Control Wiring To R-22 Equipped Rooftop Units

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CRPWREXH

Attaching Power Exhaust to Duct

1. Caulk the side mating flanges on the power exhaust.
Lift power exhaust and install over the duct opening using the screws (no. 10 x 3/4 in.) provided. (See Fig. 9.) Make sure wiring harnesses are properly secured.

IMPORTANT: The return air duct will need to support the weight of the power exhaust. Reinforce or support duct properly to prevent damage to duct from the weight of the power exhaust.

2. Adjust the power exhaust set point on the EconoMi\$er controller to the desired activation point.
3. Return power to unit and remove lockout tag.
4. Test power exhaust operation by setting the power exhaust set point on the EconoMi\$er controller to 0%. Power exhaust performance is shown in Fig. 10.

