

Submittal Records

Architect: Snyder Architects Inc.	Date: 2024-07-31
Attention: Amit Patel, Anil Gokarn, Avinash Garde, Mike Wilding, Jamie Leach, Shakil Manashiya, Jake Graham	Project: Gymnasium Addition at Glenview PS
Subcontractor: Kirk Mechanical	Shop Drawings – Mechanical HVAC

Copies	Title /Description	# Pages
1	20 Ton PKGD Precedent Unitary Rooftop	21
	Unit	

Method of Delivery: Electronic

The Architect's review is for the sole purpose of ascertaining conformance with the general design concept and for the general arrangement. This review shall not mean approval of the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor and such review shall not relieve the Contractor of their responsibility for errors or omissions in the shop drawings or of their responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes, quantities or to techniques of construction and installation and for coordination of related work.



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	eptions taken	
Comply	with notations _	\checkmark
Revise	& Resubmit	
Not revi	ewed	



Submittal

Prepared For:DEI Consulting Engineers

Sold To: Kirk Mechanical Date: July 30, 2024

Job Name:

DEI Glenview PS Additions

Trane Canada ULC is pleased to provide the following submittal for your review and approval.

Product Summary

Qty Product

1 20 Ton PKGD Precedent Unitary Rooftop

Tag: HVAC-1

Submittal Notes: Roof Curb Height Submitted as 18"H Curb + 1" Isolation Rail

Carmine Bozzo / Rory Mills / Sarmad Feroz

Trane Hamilton 110 Lancing Drive, Building 1, Unit 3 Hamilton, ON L8W 3A1 Office Phone: (416) 499-3600 The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within <u>14 days</u> of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

REVIEWED

By KIRK MECHANICAL LIMITED at 3:22 pm, Jul 30, 2024

DEI CO MECHANICAL ELECTR	nsulting gineersրե ncal laquatic
This review by DEI & Associates Inc. is for conformance with the general design con that DEI & Associates Inc. approves the drawings, responsibility for which shall re same, and such review shall not relieve the errors or omissions in the shop drawings requirements of the construction and cor	ncept. This review shall not mean etail design inherent in the shop emain with the contractor submitting ne contractor of his responsibility for or his responsibility for meeting all
Reviewed Not Reviewed	Reviewed As Noted Revise and Resubmit

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6- 25 Ton PKGD Precedent Unitary Rooftops	



Tag Data - 20 Ton PKGD Precedent Unitary Rooftops (Qty: 1)

I	Item	Tag(s)	Qty	Description	Model Number
	A1	HVAC-1	1	20 Ton PKGD Precedent Unitary Rooftop	DHJ240AWSAH**00C000000000001

Product Data - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

Heat Pump / Hybrid Heat

High Efficiency

R-410A

20 Ton

575/3/60

Symbio 700 Controller with Conventional Thermostat Terminal Strip

Stainless Steel Gas Heat

High Gas Heat

Hinged Access Panels with 2-in MERV Filter

Stainless Steel Drain Pan

3-year parts, coils & controls warranty

5-year compressor parts only warranty

15-year stainless steel heat exchanger parts only warranty

Fresh Air Option Module (Field Installed)

0-100% Economizer, dry bulb control, Hor (Field Installed)

Power exhaust (Field Installed)

Digital display zone sensor (Field Installed)

Horizontal Conversion Panel (Field Installed)

18"H Roof Curb + 1" Isolation Rail (Field Installed)

1st Year Labor Warranty Whole Unit

- Insulated

Horizontal S/A and R/A openings (on side of unit)

Consulting Engineers				
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☐ Reviewed☐ Not Reviewed☐ Revise and Resubmit				

Product Report - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

Trane Precedent Packaged Rooftop



Controls
Unit Controls Symbio 700

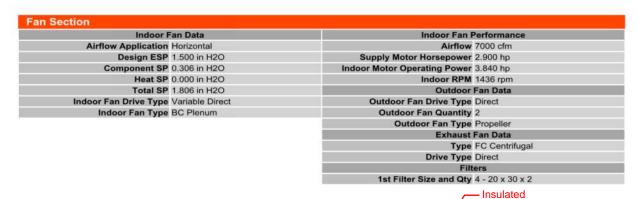
Entering Dry Bulb 80.00 F	Capacity	
Entering Wet Bulb 67.00 F	Gross Total 242.37 MBh	
Ambient Temp 95.00 F	Gross Latent 64.22 MBh	
Leaving Coil Dry Bulb 56.51 F	Gross Sensible 178.15 MBh	
Leaving Coil Wet Bulb 55.66 F	Net Total 230.95 MBh	
Leaving Unit Dry Bulb 58.58 F	Net Sensible 166.73 MBh	
Leaving Unit Wet Bulb 56.56 F	Net Sensible Heat Ratio 72.00 %	
Saturated Discharge Temperature 120.87 F	Fan Motor Heat 5.63 MBh	
Saturated Suction Temperature 48.23 F	Refrig Charge-Circuit 1 39.0 lb	

Heating Section	
Heat Type	Stainless Steel Gas Heat
Heating	High Gas Heat
Input Heating Capacity	400.00 MBh
Output Heating Capacity	324.00 MBh
Heating EAT	45.00 F
Heating LAT	87.36 F
Heating Temp Rise	42.36 F
Heat	Pump
Heat pump Heating Capacity	162.76 MBh
Heat pump EAT	45.00 F
Heat pump LAT	70.05 F
Heat pump heating ambient temperature	20.00 F
Heat pump heating temperature rise	25.05 F
Heat pump heating ambient relative humid	70.00 %
AHRI COP @ 47 F	3.60 Number
AHRI COP @ 17 F	2.13 Number



Product Report - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1



			Roof cu	rb 18" Full Perir	meter Knockdov	vn Curb		
		Fresh Air	r Options Modu	le Fresh Air Op	tion Module			
			Zone senso	rs Digital displa	y zone sensor			
		F	resh air selecti	on 0-100% Ecor	nomizer, dry bul	b control, Hor		
Power exhaust			st yes					
		Horizontal (Conversion Par	el yes				
		Economize	er Conversion I	(it None				
	Symbio Ad	v Controls and	BACnet Conv I	Cit None				
Acoustics								
Sound Path	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kH
Ducted Discharge	87 dB	94 dB	80 dB	74 dB	69 dB	65 dB	65 dB	64 dE
Ducted Inlet	83 dB	87 dB	77 dB	77 dB	73 dB	69 dB	67 dB	64 dE
Outdoor Noise	94 dB	91 dB	93 dB	92 dB	89 dB	85 dB	82 dB	77 df

Note:Ducted Discharge/Ducted Inlet prediction data conform to AHRI 260

Warranty		
	Labor (first year) 1st Yr Labor Whole Unit	



Mechanical Specifications - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

Heat Exchanger

- Compact cabinet features a tubular heat exchanger in low, medium and high heat capacities.
- Corrosion-resistant aluminized steel tubes and burners are standard on all models.
- Induced draft blower to pull the gas mixture through the burner tubes.
- Direct spark ignition and a flame sensor as a safety device to validate the flame.

General

- Packaged rooftop units cooling, heating capacities, and efficiencies are AHRI Certified within scope of AHRI Standard 210-240 for 12.5 to 25 Tons and ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces (all gas heating units).
- Convertible airflow.
- Symbio controls operating range between 40.0 F and 125.0 F in cooling mode standard from the factory. Factory or field-installed low ambient kit extended operating range down to 0°F.
- Factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation, and control sequence before leaving the factory.
- Colored and numbered wiring internal to the unit for simplified identification.
- Units cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

Casing

- -Zinc coated, heavy gauge, galvanized steel.
- Weather resistant pre-painted metal with galvanized substrate.
- Meets ASTM B117, 672 hour salt spray test.
- Removable single side maintenance access panels.
- Lifting handles in maintenance access panels (can be removed and reinstalled by removing fasteners while providing a water and air tight seal).
- Exposed vertical panels and top covers in the indoor air section insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material.
- Base pan shall have no penetrations within the perimeter of the curb other than the raised 1 inch high downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up.
- Base of the unit insulated with 1/8 inch. foil-faced, closed-cell insulation.
- Unit base provisions for forklift and/or crane lifting on three sides of unit.

Evaporator and Condenser Coils

- Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin are standard.
- Coils are leak tested at the factory to ensure integrity.
- Evaporator coil and condenser coil are leak tested to 600 psig.
- Assembled unit is leak tested to 465 psig.
- Condenser coil is patent pending 1+1+1 hybrid coil, designed with slight gaps for cleaning ease.
- Composite, dual-sloped, removable condensate drain pan is standard.

Compressors

- All units have direct-drive, hermetic, scroll type compressors with centrifugal type oil pumps.
- Suction gas-cooled motor with voltage utilization range of plus or minus 10 percent of unit nameplate voltage.
- Internal overloads standard with scroll compressors.
- Crankcase heaters are standard on all compressors.
- All units have dual compressors.
- Three stages of cooling available on 12.5 to 17.5 tons units and four stages of cooling available on 20 and 25 tons units.

Economizer (Standard)

- Fully modulating 0-100 percent motor and dampers, minimum position setting preset linkage, wiring harness with plug, spring return actuator and fixed dry bulb control.

Gas Heating Section

-The heating section shall have a progressive tubular heat exchanger. Stainless steel tubes and 439 stainless steel burners shall be provided to find the solid purpose of ascertaining conformance with the general design concept. This review shall not mean enduced draft combustion blower shall be used to pull the combustion products through the diagodesign inherent in the shop drawings, responsibility for which shall remain with the contractor submitted.

DET Consulting Engineers

display the construction and contract documents of the construction and contract of the contractor submitting same, and such review shall not relieve the contractor of his responsibility for which shall remain with the contractor submitting same, and such review shall not relieve the contractor of his responsibility for errors or omissions in the shop drawings or his responsibility for meeting all requirements of the construction and contract documents.

Equipment Submit	tal 📐	Reviewed	Reviewed AS Norte of 17
	Г	Not Reviewed	Revise and Resubmit

- Heater shall use a direct spark ignition (DSI) system.
- On initial call for heat, the combustion blower shall purge the heat exchanger for 20 seconds before ignition.
- After three unsuccessful ignition attempts, entire heating system shall be locked out until manually reset at the thermostat/zone sensor.
- Units shall be suitable for use with natural gas or propane (field-installed kit).

Indoor Fan

- Direct drive plenum fan design 12.5 to 25 tons units.
- Plenum fan design- backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor.
- Supply fan speed adjustments can be made using the Symbio 700 or Mobile App.
- Motors are thermally protected.
- Variable speed direct drive motors are high efficiency 12.5 to 25 tons.

Filters $\sqrt{}^{13}$

- MERV& filters shall be provided.

Frostat

- Utilized as a safety device.
- Opens to prevent freezing temperatures on evaporator coil.
- Temperature will need to rise to 50.0 F before closing.
- Utilized in low airflow or high outside air applications (cooling only).

Coil Guards

- Provides condenser coil protection.

Stainless Steel Drain Pan

- Corrosion and oxidation resistance.
- Constructed of 304 stainless steel.

Powered Exhaust

- Available for 12.5 to 25 ton units.
- Shall provide exhaust of return air, when using an economizer.
- Maintain better building pressurization.

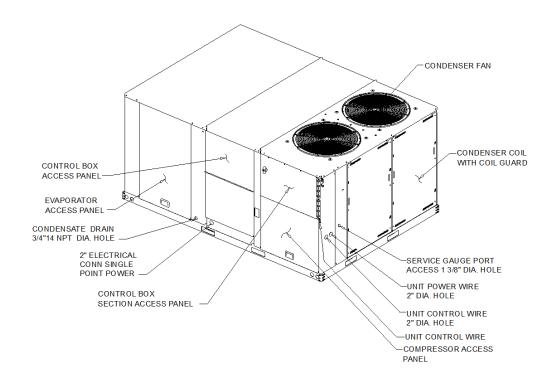


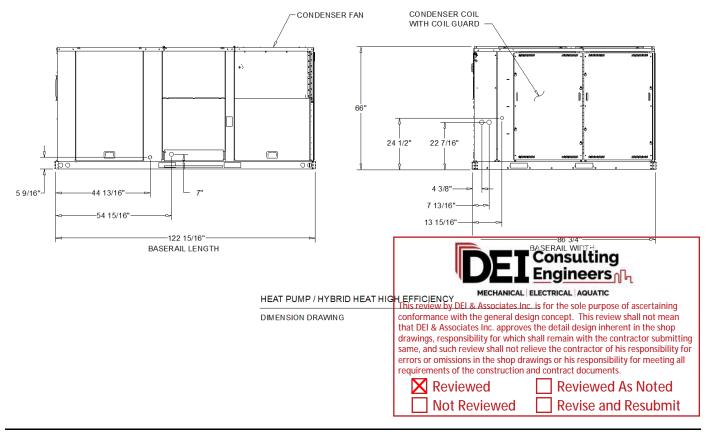
Dimensional Drawings - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

NOTES:

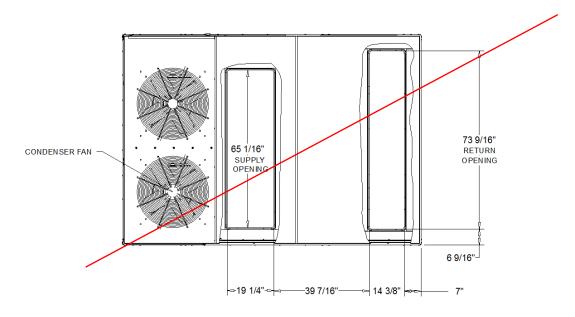
- 1. THRU -THE -BASE ELECTRICAL IS NOT STANDARD ON ALL UNITS.
- 2. VERIFY WEIGHTS, CONNECTIONS, AND ALL DIMENSIONS WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

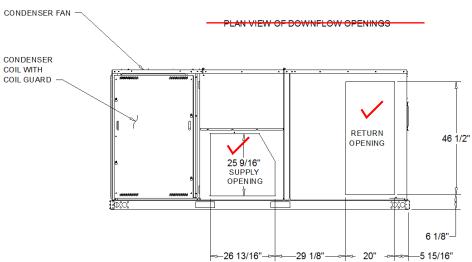




Dimensional Drawings - 20 Ton PKGD Precedent Unitary Rooftops

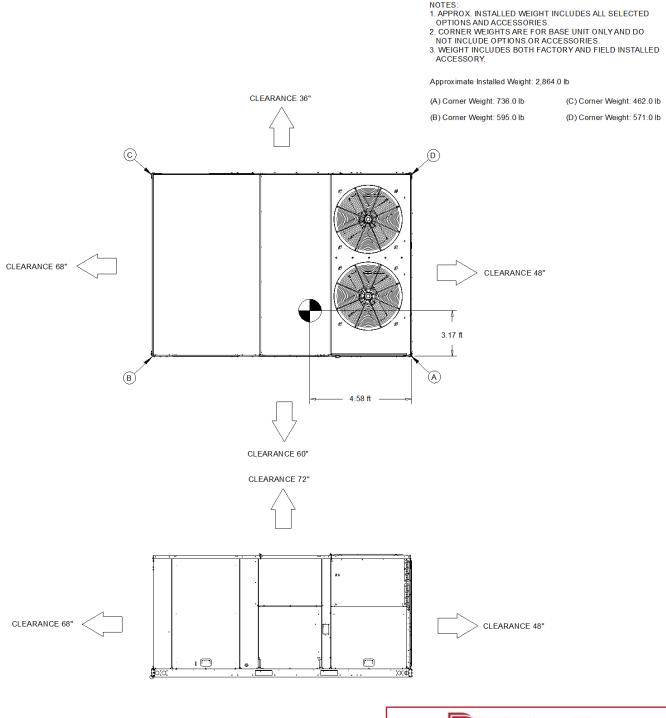
Item: A1 Qty: 1 Tag(s): HVAC-1





Horizontal S/A and R/A openings required (on side of unit) HORIZONTAL AIR FLOW OPENING Consulting Engineers 1 1 HEAT PUMP / HYBRID HEAT HIGH EFFICIENCY MECHANICAL ELECTRICAL AQUATIC This review by DEI & Associates Inc. is for the sole purpose of ascertaining DIMENSION DRAWING conformance with the general design concept. This review shall not mean that DEI & Associates Inc. approves the detail design inherent in the shop drawings, responsibility for which shall remain with the contractor submitting same, and such review shall not relieve the contractor of his responsibility for errors or omissions in the shop drawings or his responsibility for meeting all requirements of the construction and contract documents. Reviewed Reviewed As Noted **Not Reviewed Revise and Resubmit Equipment Submittal** Page 9 of 17

Weight, Clearance & Rigging - 20 Ton PKGD Precedent Unitary Rooftops Item: A1 Qty: 1 Tag(s): HVAC-1

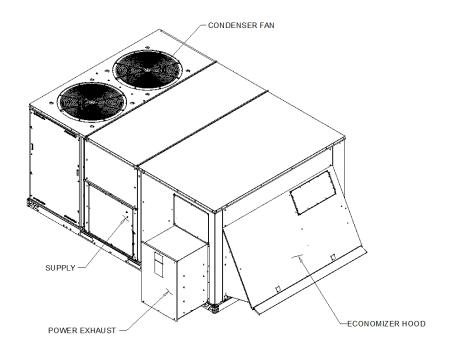


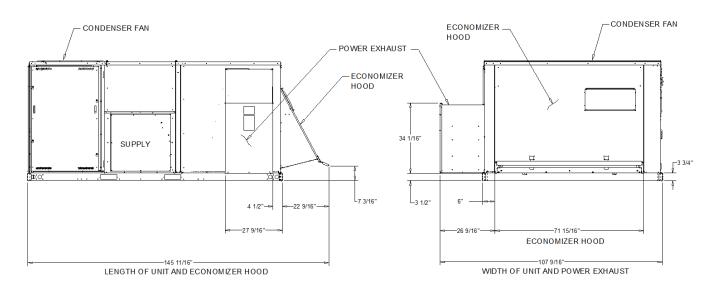


WEIGHTS AND CLEARANCES

Accessory - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1





DEI Consulting Engineers ₁ 1-1

POWERED EXHAUST AND AIR DAMPER(S) (FIELD ACCESSORY)

MECHANICAL ELECTRICAL AQUATIC

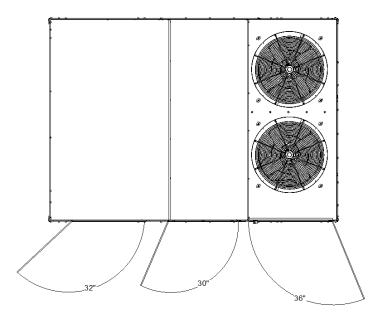
HEAT PUMP / HYBRID HEAT HIGH EFFICIENCY

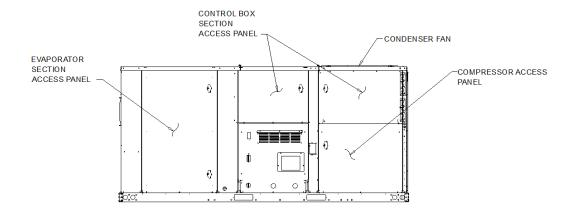
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X	Reviewed
\Box	Not Reviewed

Accessory - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1





SWING DIAMETER FOR HINGED DOOR(S) (OP TON)

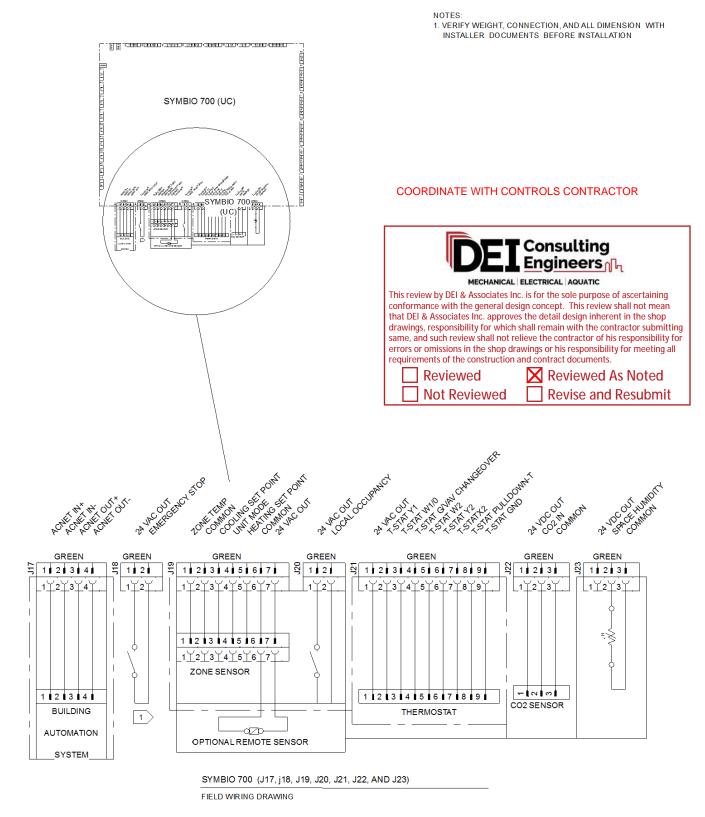
HEAT PUMP / HYBRID HEAT HIGH EFFICIENCY

MECHANICAL | ELECTRICAL | AQUATIC |
This review by DEL & Associates Inc. is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that DEI & Associates Inc. approves the detail design inherent in the shop drawings, responsibility for which shall remain with the contractor submitting same, and such review shall not relieve the contractor of his responsibility for errors or omissions in the shop drawings or his responsibility for meeting all requirements of the construction and contract documents.

Reviewed Reviewed Reviewed Reviewed Reviewed Reviewed Reviewed

Field Wiring - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

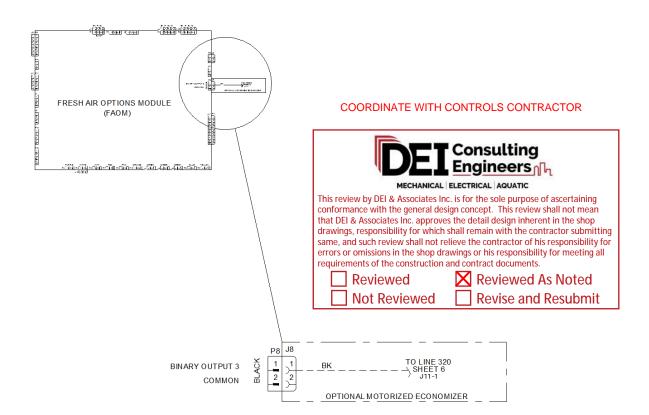


Field Wiring - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

NOTES:

1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



OPTIONAL MOTORIZED ECONOMIZER (J8)

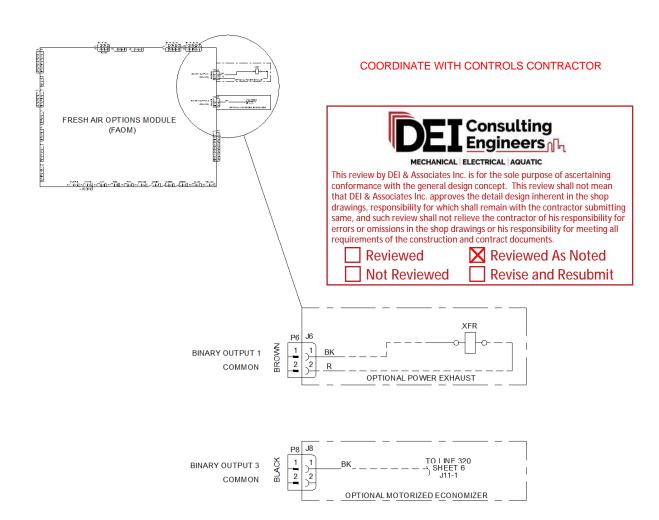
FIELD WIRING DRAWING (INDOOR OPTION MODULE)

Field Wiring - 20 Ton PKGD Precedent Unitary Rooftops

Item: A1 Qty: 1 Tag(s): HVAC-1

NOTES:

 VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



OPTIONAL POWER EXHAUST WITH MOTORIZED ECONOMIZER (J6 and J8)

FIELD WIRING DRAWING (INDOOR OPTION MODULE)

Field Installed Options - Part/Order Number Summary

This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - 20 Ton PKGD Precedent Unitary Rooftops

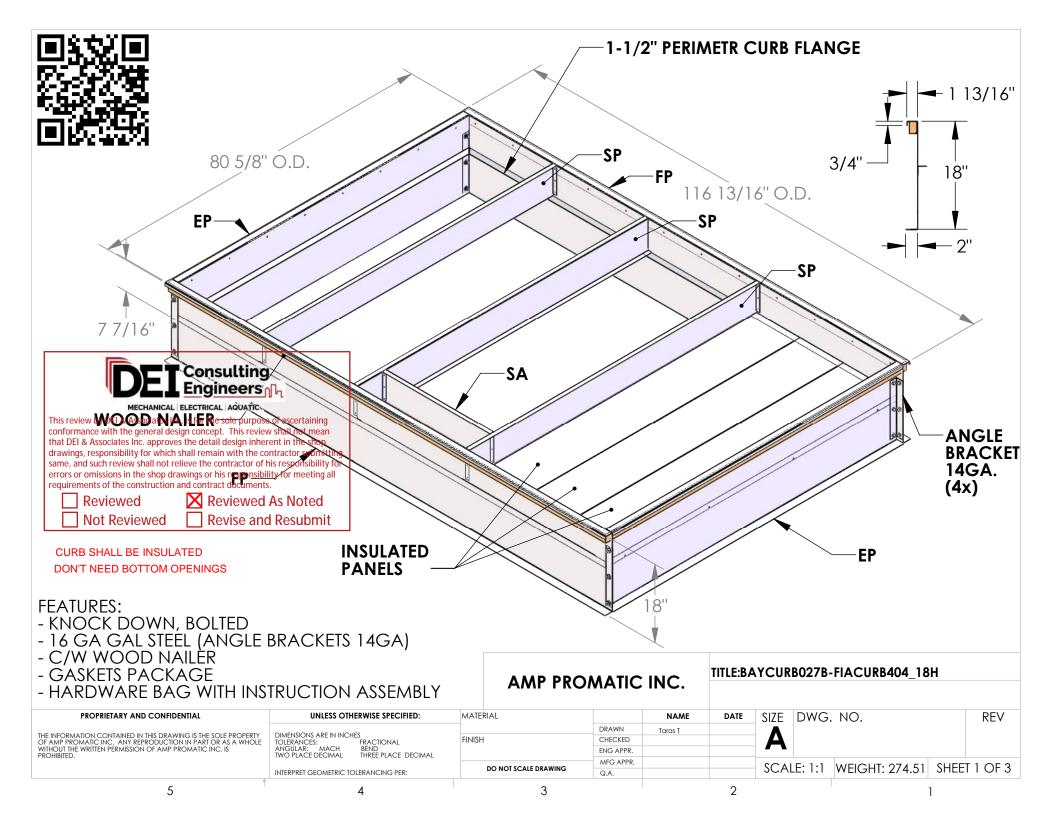
	ltem	Tag(s)	Qty	Description	Model Number
Ī	A1	HVAC-1	1	20 Ton PKGD Precedent Unitary Rooftop	DHJ240AWSAH**00C00000000001

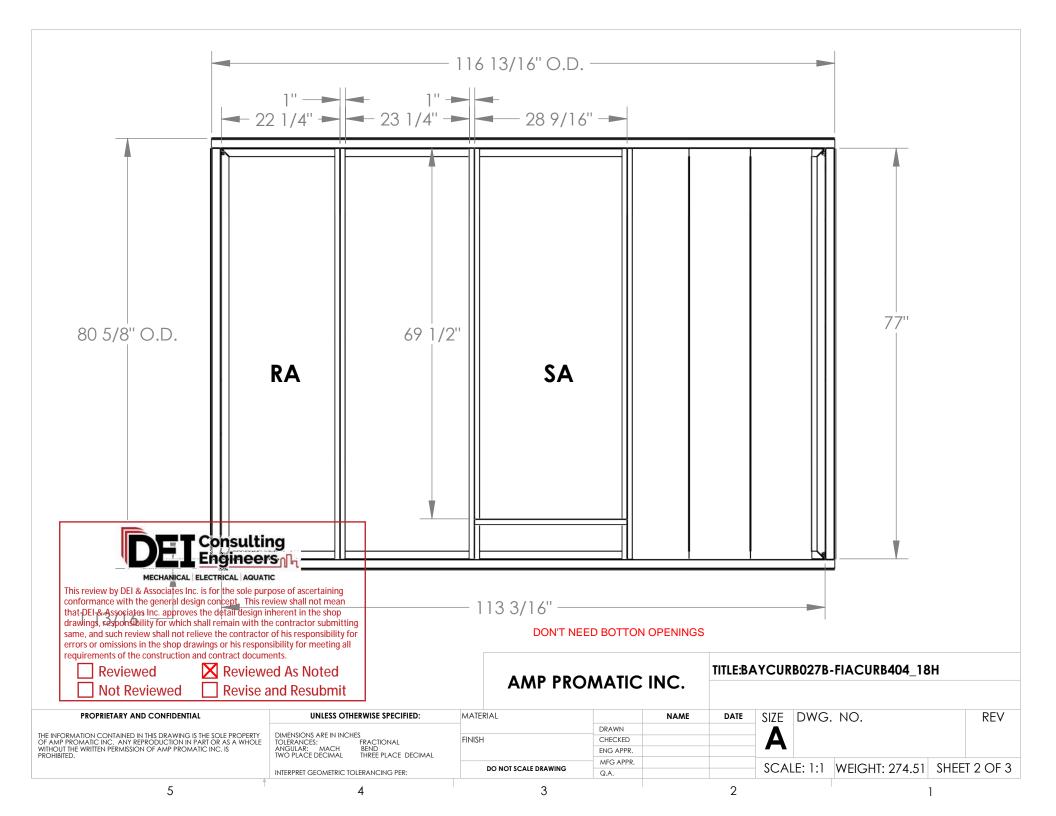
Field Installed Option Description	Part/Ordering Number
Fresh Air Option Module	FIAOPTN002A
0-100% Economizer, dry bulb control, Hor	FIAECON303A
Power exhaust	FIAPWRXW03A
Digital display zone sensor	BAYSENS135A
Horizontal Conversion Panel	FIAHZDC001A

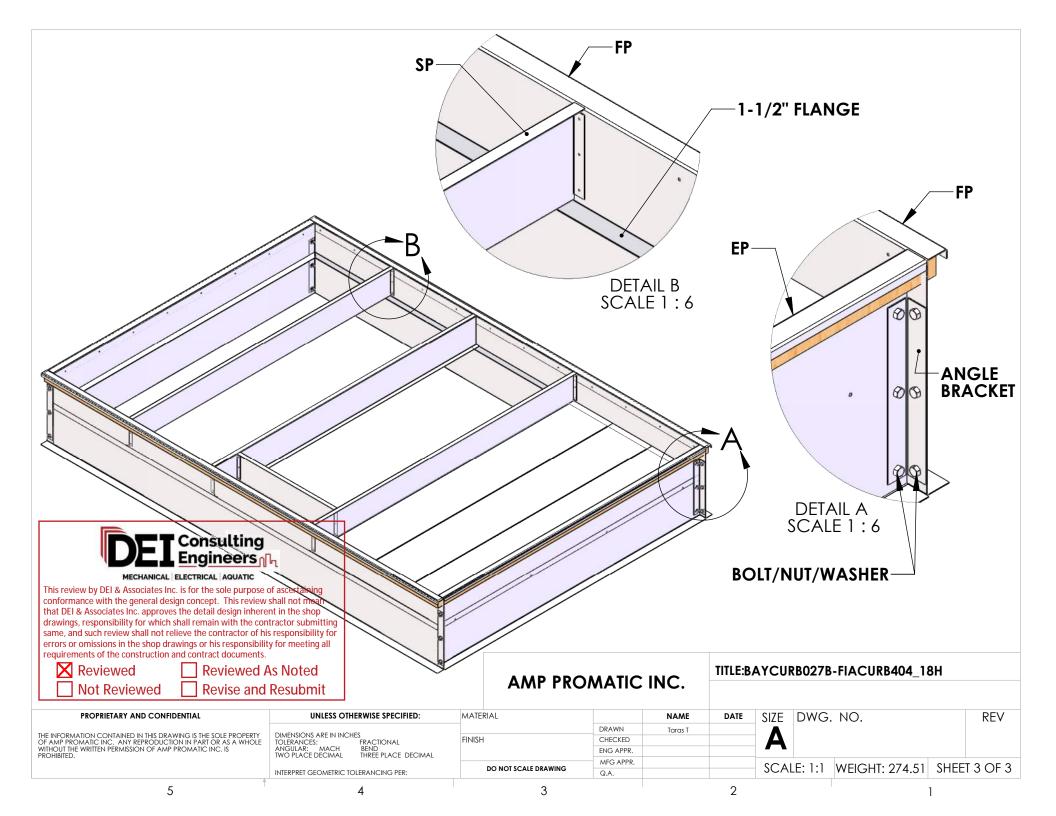


18"H Roof Curb + 1" Vibration Isolation Rail









279 TROWERS RD., WOODBRIDGE, ON L4L6A1 TEL: (905) 265 8114 FAX: (905) 265 8115 AMP PROMATIC INC. EMAIL: AMPINCWF@GMAIL.COM 116 7/8" O.D. FLEX DUCT DROP 22 1/4'⊳ =23 1/4≌ 28 1/2" 80 5/8" Ó.D 116 7/8" O.D. **SUPPLY RETURN** 69 1/2" 80 5/8' 76 7/8' AIR AIR O.D. I.D. ➡ 1 7/8" TYPE - 113 1/8" I.D. 80 5/8" 116 7/8" 10" 120 3/8" 84 1/8" 1 7/8" PRIME 18GA 16GA **GALVANIZED STEEL STRUCTURAL** WEATHER FLASHING C-CHANNEL FRAME RAIL Consulting Engineers MECHANICAL ELECTRICAL AQUATIC This review by DEI & Associates Inc. is for the sole purpose of ascertaining congoing and the contract of the concept. This review shall not mean that he has seeing the concept. This review shall not mean that he has been also seen that he had been also seen that he contractor submitting drawings, responsibility for which shall remain with the contractor submitting same, and such review shall not relieve the contractor of his responsibility for errors or omissions in the shop drawings or his responsibility for meeting all requirements of the construction and contract documents. Reviewed **Reviewed As Noted** 1" DEFLECTION Not Reviewed Revise and Resubmit **ISOLATOR** HARDWARE ZINC PLATES RUBBER INSULATOR MATERIAL:14/16/18GA GALVANIZED STEEL NAME DATE PROPRIETARY AND CONFIDENTIAL FEATURES • 1" Static spring deflection. • Fully welded construction. ISO-1 HEAD TRANE PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF AMP PROMATIV INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF AMP PROMATIC INC. IS PROHIBITED. DRAWN Taras T (BAYCURB27) CHECKED Walter F SIZE Gasket package. Mounted rubber pad 5/16 thick to reduce sound transmission. ENG APPR DWG. NO. Α RFV. Bottom rail stoppers to prevent frame movement. Flex connector for supply and return. MFG APPR. Q.A. SCALE:1:32 WEIGHT: 365.80 SHEET 1 OF 1