KORDA

Submittal ID: 91393

Shop Drawing Submittal

Send To: **MOODY NOLAN, INC.**
300 SPRUCE STREET, SUITE 300
COLUMBUS , OH 43215-

Attention: Bernard Costantino

Project Id: **2018-0217** **Project Name:** **Dayton Charter School-Connor Group**

Discipline: HVAC **Spec Description:** 237413 ROOFTOP AIR-HANDLING UNITS

Submittal Description: PRODUCT DATA AND DETAIL DRAWINGS FOR ROOFTOP AIR-HANDLING UNITS - MOTOR CHANGE

Date Recv'd: 7/26/2022 **Date Sent:** 2022-08-17

Copies Recv'd: 1 E-COPY **Copies Sent:** 1 E-COPY

Action Taken

- ☐ **Approved**
- ■ **Approved As Noted**
- ☐ **Revise and Resubmit**
- ☐ **Reviewed**
- ☐ **Returned without review per "Submittals" Specification**

Comments:

This is approved from a mechanical perspective. Electrical approval is required.

Logged In By:: AMS **Marked/Logged Out By:** AMS

Checked By: Edwartoski, Dan **Initials:** DJE **Date:** 07/29/2022

Coordinated By: Jones, Rob **Initials:** RRJ **Date:** 2022-08-08

Coordinated By: _____ **Initials:** _____ **Date:** _____

Signature: Daniel J Edwartoski

#170

DAIMLER
Development • Leasing • Construction • Sales

SUBMITTAL SHEET

Job: 1521. - GREATER DAYTON SCHOOL

DATE: 7/26/2022
SPEC #: 23 74 13
REV #: 0

To: **Bernard Costantino**
MOODY NOLAN INC
300 SPRUCE ST
COLUMBUS, OH 43215

From: **Holly Morrow**
THE DAIMLER GROUP INC
1533 LAKE SHORE DRIVE
COLUMBUS, OH 43204

Submittal Title: 23.22-237413 RTU 5-MOTOR CHANGE-TPM-22JUL25
Submittal Item: **Sent Date:** **Due Date:**

THE DAIMLER GROUP
SHOP DRAWING REVIEW

REVIEWED ☒

SUBMIT CORRECTED COPIES FOR DISTRIBUTION

Review is for general conformance with the design concept and contract documents. Notations shall not relieve the contractor from compliance with said documents. Contractor is responsible for intended detail and accuracy, confirmation of dimensions and quantities, selecting fabrication processes, techniques of assembly, performing work in a safe manner and coordinating work with other trades.

ARCHITECT STAMP

MOODY•NOLAN
SHOP DRAWING REVIEW
This review is for general conformance with the design concept and the contractor remains responsible for:
a. Compliance with the contract documents.
b. Confirming and correlating quantities and dimensions.
c. Selecting fabrication process and techniques of construction.
d. Coordination of the work with the other trades.
☐ REVIEWED WITH NO CORRECTIONS ☐ REVISE AND RESUBMIT
☑ REVIEWED WITH CORRECTIONS NOTED ☐ NOT REVIEWED
This review neither extends nor alters any contractual obligations of the architect or contractor, and does not authorize changes in the contract sum or contract time.
BY: BJC DATE: 08/23/22

ENGINEER STAMP

JOB NO.	DATE
2018-0217	2022-07-26

APPROVED ☐
APPROVED AS NOTED ■
REVISE AND RESUBMIT ☐
REVIEWED ☐
DATE 2022-08-17
BY D. Edwartoski

SUBMITTALS HAVE BEEN REVIEWED FOR CONFORMANCE WITH THE DESIGN PRINCIPLES AND CONTRACT DOCUMENTS OF THE PROJECT. CONTRACTOR IS NOT RELIEVED FROM HIS SOLE RESPONSIBILITY REGARDING CHECKING OF DIMENSIONS, COORDINATION OF THE WORK OF ALL TRADES, CORRELATION OF DESIGN DOCUMENTS THAT MAY CONTAIN CONTRADICTORY INFORMATION AND FOR INFORMATION THAT PERTAINS TO THE FABRICATION OR CONSTRUCTION PROCESSES, OR TO SAFETY REQUIREMENTS.

DEVIATIONS, IF ANY FROM THE CONTRACT DOCUMENTS NOT CLEARLY NOTED AS SUCH BY THE CONTRACTOR, HAVE NOT BEEN REVIEWED, ARE NOT APPROVED AND CAN BE AUTHORIZED ONLY BY A PROPERLY EXECUTED CHANGE ORDER.

☐ SEE WRITTEN COMMENTS DATED _____

KORDA/NEMETH ENGINEERING, INC.
1650 WATERMARK DRIVE, SUITE 200, COLUMBUS, OHIO 43215-1094

Additional Notes:

SUBMITTING FOR RECORD - Change to RTU 5 fan MFG
Daikin is changing fan manufacturers in some units. The updated selection is very similar, but there is a small change in the electrical characteristics, this change will also help reduce the lead time for the fans.

TP Mechanical
CONTRACTORS | SERVICE | FABRICATION

FOR RECORD
SUBMITTAL DATA

Project:	**The Greater Dayton School**
Bid Category :	**HVAC**
Project No.:	**E1000110**
TP Tab No.:	**112**
Construction Manager:	**Daimler Group**
Architect/Engineer:	**Moody Nolan**
Submittal For:	**RTU-5 Motor Change**
Specification #:	**237413**
Manufacturer:	**Daikin**
Project Manager:	**Josh Bolton 937-768-2289**

The attached submittal data has been reviewed by TP Mechanical Contractors for compliance with the Architect/Engineer's specifications and plan schedule for this project.

In order to maintain the project schedule, we request that this submittal be returned to TP Mechanical Contractors **within 7 days**.

NOTE: Material cannot be released without Architect/Engineer's approval of submittal.

(Please place stamp of approval here)

X PRODUCT DATA

_____ DRAWINGS

7/25/22 DATE SUBMITTED

_____ DATE RESUBMITTED

T. P. MECHANICAL CONTRACTORS

BY Josh Bolton TJ

This drawing or brochure has been checked to quality or proper components only. Approval of this drawing or brochure shall not relieve the supplier of responsibility for accuracy or dimensions of full compliance with plans and specifications and purchase order.

1500 Kemper Meadow Drive ♦ Cincinnati, OH 45240 ♦ 513-851-8881 ♦ FAX 513-851-0612

Rooftop Air Handling Unit Submittal

The Greater Dayton School

Daikin Rooftop Units (RTU-5)

7/25/22

TP Mechanical

Sales Engineer:
Brian Turner
ElitAire
bturner@elitaire.com
513-673-0600 cell

Notes:

7/25/22

- For lead time purposes, Daikin is changing the supply and exhaust fan for RTU-5. The change in fans does change the electrical for RTU-5 slightly.

- 460/3
- Disconnect Switch
- VFD – except RTU-5, RTU-5 to include ECM supply fan motor
- Shaft Grounding Rings Included
- 24” Plenum Roofcurb with Vibration Isolation Rails (Separate submittal package to be provided)
- RTU-5 includes Variable Speed Compressor
- Dry Bulb Economizer
- RTU-4 includes Hot Gas Reheat & Modulating Gas Heat
- Powered Exhaust
- BACnet Card
- Outdoor Airflow Station
- Units include 1 Year Parts Warranty & 5 Year Compressor Warranty
- Start Up is Included

Rebel® Packaged Rooftop System

Job Information	*Technical Data Sheet*
Job Name	The Greater Dayton School -adc-
Date	7/25/2022
Submitted By	Tony Decrescenzo
Software Version	10.70
Unit Tag	RTU-5

Unit Overview

Model Number	Voltage V/Hz/Phase	Design Cooling Capacity Btu/hr	AHRI360 Standard Efficiency		ASHRAE 90.1-2016 Compliant
			EER	IEER	
DPS015A	460/60/3	174901	11.1	18.0	ASHRAE 90.1-2016 compliant

Unit

Model Number:	DPS015A
Model Type:	Cooling
Heat Type:	None
Energy Recovery:	None
Application:	Variable Air Volume, Duct SP Control (Mixed Air or 100% OA)
Controls:	Microtech III
Outside Air:	0-100% Economizer with Drybulb Control
Altitude:	0 ft
Approval	cETLus

Physical

Dimensions and Weight			
Length	**Height***	**Width**	**Weight***
91.0 in	56.8 in	96.5 in	2419 lb

Corner Weights			
L1	**L2**	**L3**	**L4**
364 lb	301 lb	794 lb	959 lb

Construction			
Exterior	**Insulation and Liners**	**Air Opening Location**	
		Return	**Supply**
Painted Galvanized Steel	1" Injected Foam, R-7, Galvanized Steel Liner	Bottom	Bottom

Electrical

Changes to fan

Unit FLA	MCA	MROPD	SCCR
36.6 A	39.8 A	50 A	5 kAIC

Note: Use only copper supply wires with ampacity based on 75° C conductor rating. Connections to terminals must be made with copper lugs and copper wire.

Return/Outside/Exhaust Air

Outside Air Option		
Type	**Damper Pressure Drop**	**Exhaust Air Type**
0-100% Econ with Dry Bulb Control	0.29 inH_2O	Airfoil Power Exhaust Fan

Type	**Drive Type**	**Wheel Diameter**
SWSI AF	Direct Drive	18 in

Motor			
(Qty) Horsepower	**Type**	**Efficiency**	**Full Load Current (Each)**
(1) 8.0 HP	ECM - Series II	Premium	7.3 A

Performance			
Air Flow CFM	**External Static Pressure** inH_2O	**Fan Speed** RPM	**Brake Horsepower** HP
6000	0.50	1902	1.85

Filter Section

Physical				
Type	**Quantity / Size**	**Face Area**	**Face Velocity**	**Air Pressure Drop**
2" MERV 8 & 4" MERV 14 Filters	6 / 18 in x 24 in x 2 in & 6 / 18 in x 24 in x 4 in	18.0 ft^2	333.3 ft/min	0.47

DX Cooling Coil

Physical							
Coil Type	**Refrigerant Type**	**Fins per Inch**	**Rows**	**Face Area**	**Face Velocity**	**Air Pressure drop**	**Drain Pan Material**
Cu Tube/ Al Fin	R410A	15	6	15.4 ft^2	388.9 ft/min	0.52 inH_2O	Stainless Steel

Cooling Performance									
Capacity			**Indoor Air Temperature**						**Ambient air Temperature** °F
			Entering		**Leaving**				
Total Btu/hr	**Sensible** Btu/hr	**Moisture Removal** lb/h	**Dry Bulb** °F	**Wet Bulb** °F	**Dry Bulb** °F	**Wet Bulb** °F	**Dewpoint** °F		
174901	155071	16.6	78.3	64.4	54.7	54.6	54.6		95.0

Condensate Connection Size: 3/4 in. Male NPT

Fan Section

Fan		
Type	**Fan Wheel Diameter**	**Fan Isolation**
SWSI AF	18 in	None

Performance				
Airflow	**Total Static Pressure**	**Fan Speed**	**Brake Horsepower**	**Altitude**
6000 CFM	3.3 inH_2O	2411 rpm	4.86 HP	0 ft

Motor				Drive
Type	**Horsepower**	**Efficiency**	**FLA**	**Type**
ECM Motor	8.0	Premium	6.8 A	Direct Drive

Unit Discharge Conditions

AirTemperature				
Motor Heat Btu/hr	Moisture Removal lb/h	Unit Leaving Dry Bulb °F	Unit Leaving Wet Bulb °F	Unit Leaving Dewpoint °F
14399	16.6	56.9	55.4	54.6

Minimum Airflows

Notes: Refer to fan curve for applicability of approximate airflows

Condensing Section

Compressor

Type	Quantity	Refrigerant Charge lb	Total Power	Capacity Control	Compressor Isolation
Inverter Scroll + Fixed Scroll	2	24.4	12.53 kW	Mod Control with Inverter Compressor	Rubber in Shear

Compressor Amps:

Compressor 1	7.9 A
Compressor 2	12.8 A

Condenser Coil

Type	Fins per Inch	Fin Material
Aluminum Microchannel	21	Aluminum

Coil Options: Vandal Guard

Condenser Fan Motors

Number of Motors*	Full Load Current (Total)
2	1.8 A

AHRI 360 Certified Data at AHRI 360 Standard Conditions

Net Capacity	EER	IEER	ASHRAE 90.1
170000 Btu/hr	11.1	18.0	ASHRAE 90.1-2016 compliant

Internal Pressure Drop Calculation

External Static Pressure:	1.50 inH_2O
Filter:	0.47 inH_2O
Dirty Filter:	0.50 inH_2O
Outside Air:	0.29 inH_2O
DX Coil:	0.52 inH_2O
Total Static Pressure:	3.28 inH_2O

Sound

	Sound Power (db)							
Frequency	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**
Inlet	85	83	91	86	88	82	77	71
Discharge	85	86	94	91	94	88	85	79
Radiated*	85	85	81	78	76	71	64	57

Options

Unit	
Ventilation Controls:	Outdoor Air Monitor
Electrical	
Field Connection:	Non-Fused Disconnect Switch
Powered Receptacle:	Field powered 115V GFI outlet
Power Options:	Phase Failure Monitor
Controls	
Communication Card:	BACnet/MSTP card, Factory installed

Factory Installed Sensors

- Duct High Limit Switch
- Duct Static Pressure Sensor
- BACnet/MSTP Card
- Return Air Temperature Sensor
- Discharge Air Temperature sensor – Wired in unit, mounted in supply duct
- Outside Air Temperature Sensor
- Dirty Filter On/Off Switch
- Supply Fan Air Proving Via Modbus
- Building Static Pressure Sensor
- Ebtron Airflow Station

Warranty

Parts:	Standard One Year
Compressor:	Additional Four Year, Five Year Total

AHRI Certification

All equipment is rated and certified in accordance with AHRI 360.

Notes

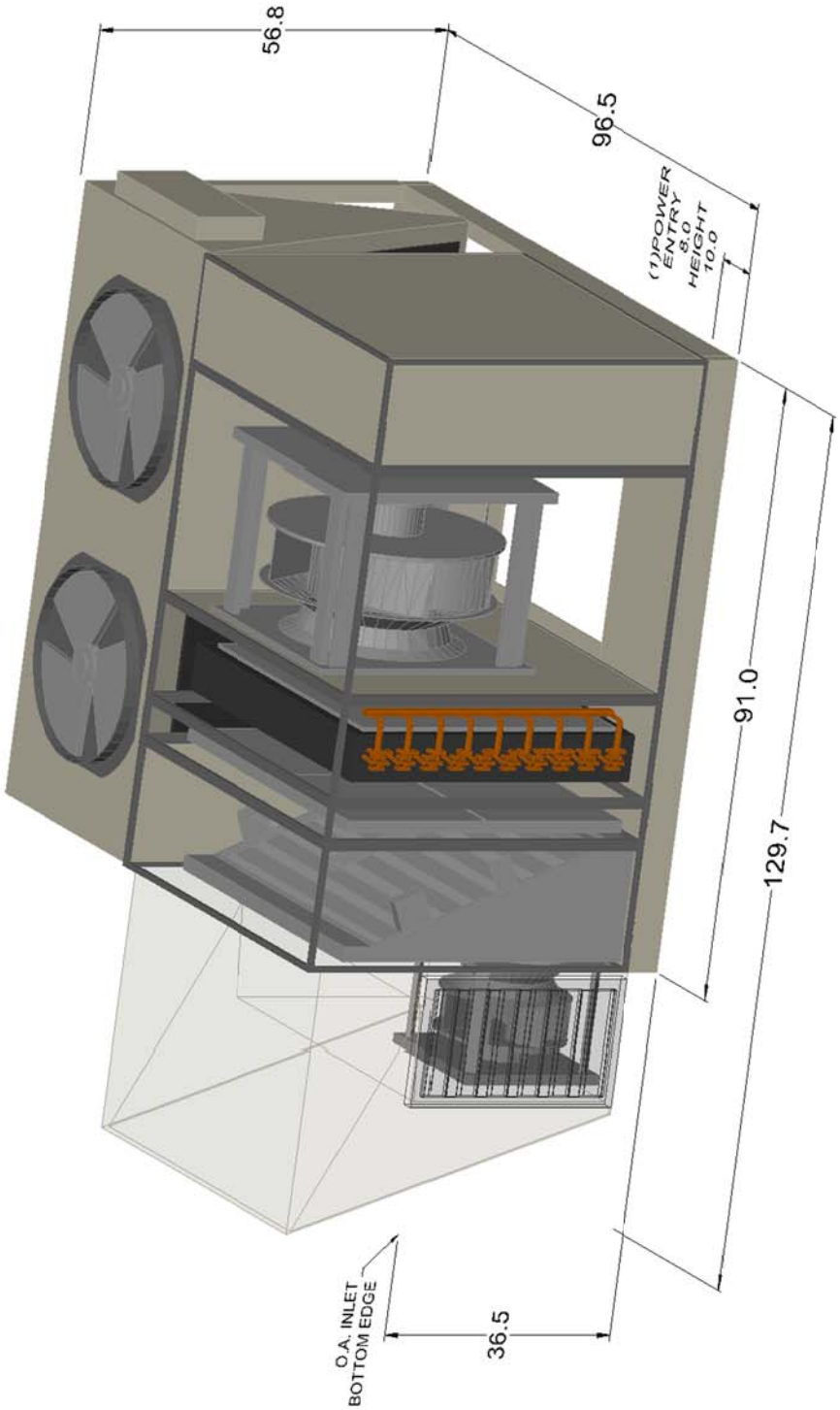
Forklift slots to remove unit from a truck bed. The fork lift slots are not to be used to place unit on a roof curb. Unit is to be lifted onto curb per IOM instructions.

Accessories

Optional

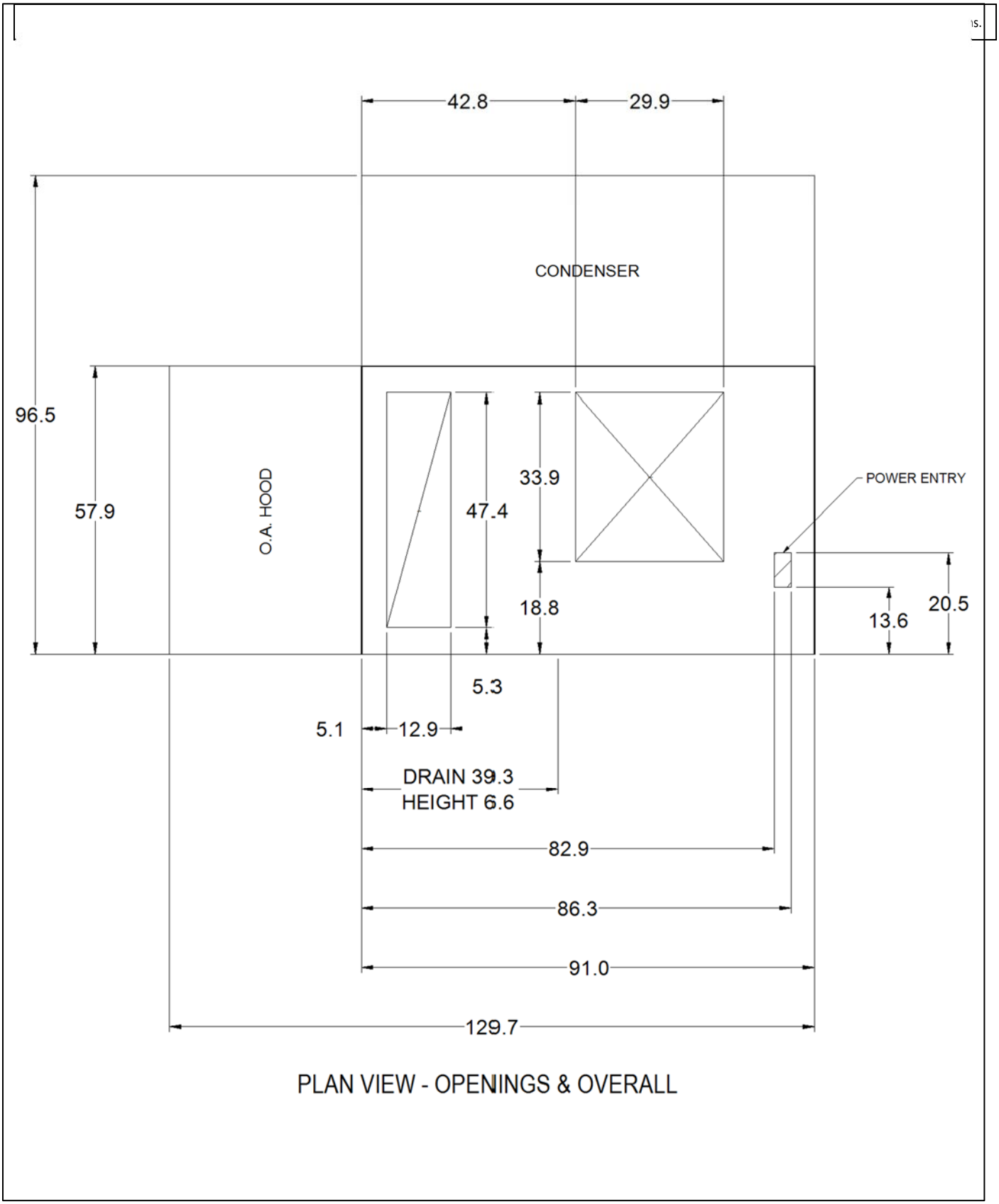
Part Number	Description
910181702	OA STATIC PRESSURE TIP (DWYER A-306)

Drawings(1) for RTU-5



Notes:
(1) Recommended location for optional field cut side power connection.

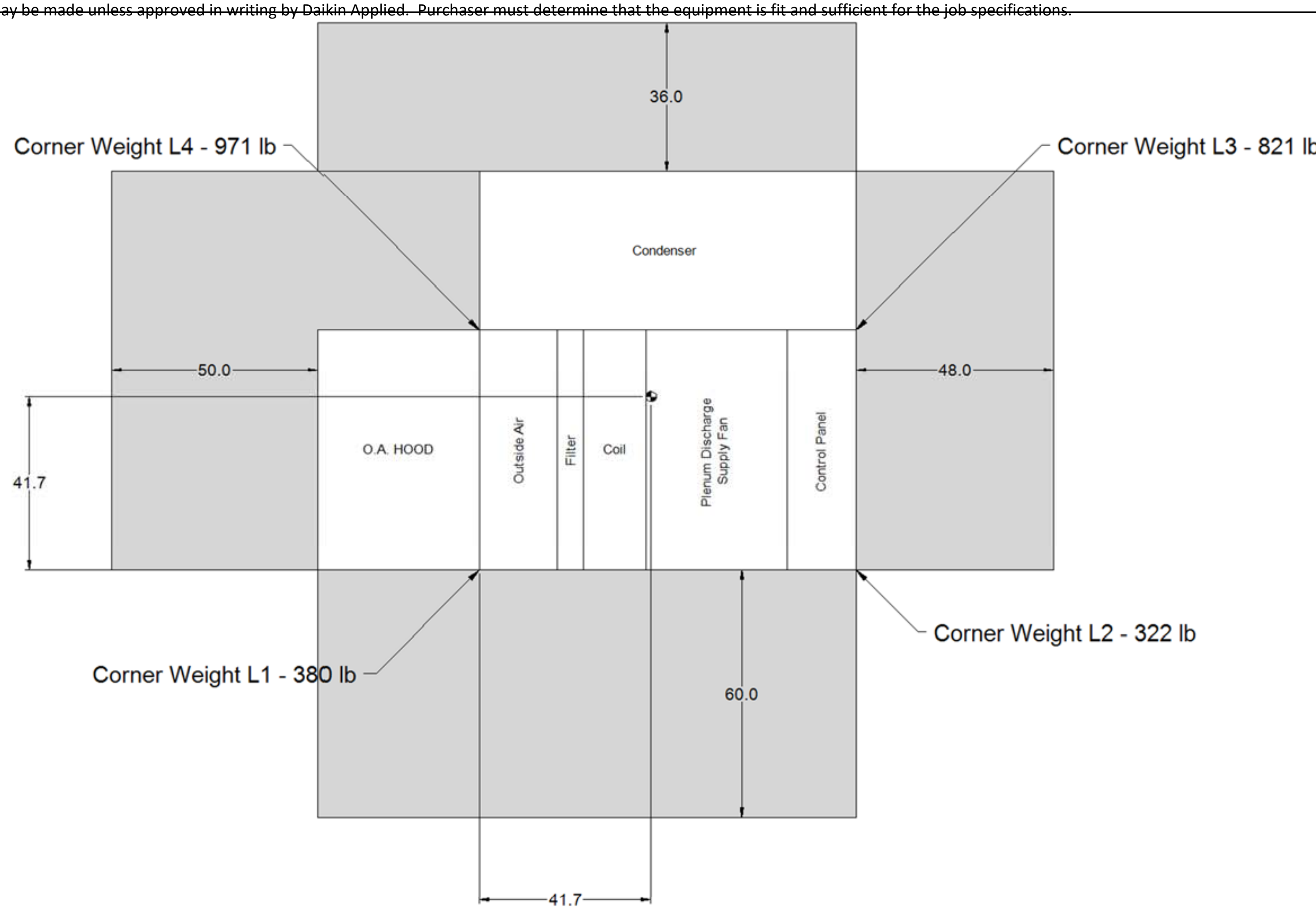
Drawings(2) for RTU-5



PLAN VIEW - OPENINGS & OVERALL

No change to this drawing may be made unless approved in writing by Daikin Applied. Purchaser must determine that the equipment is fit and sufficient for the job specifications.

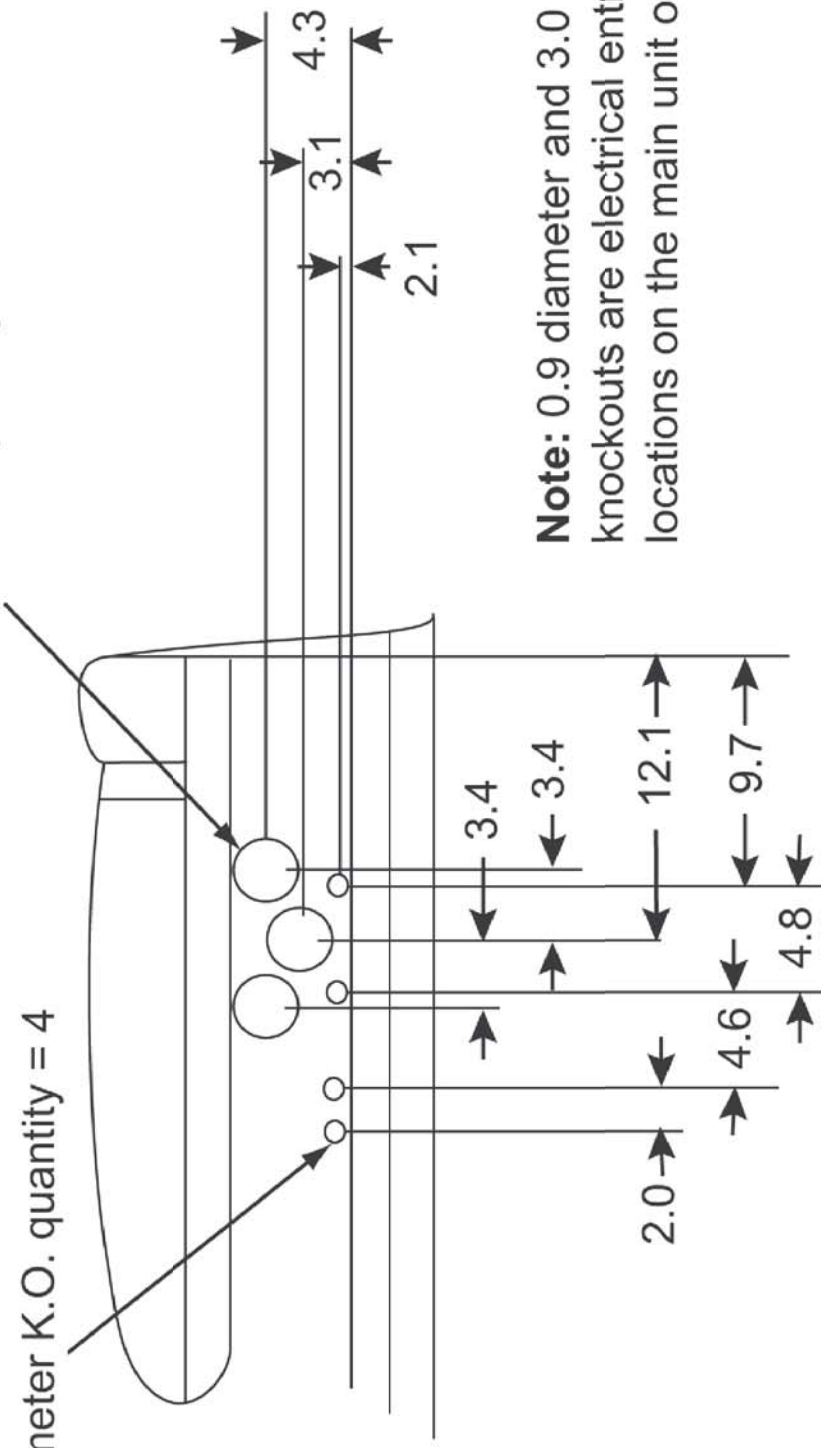
Drawings(3) for RTU-5



PLAN VIEW - CG, CORNER WEIGHTS, SERVICE CLEARANCE

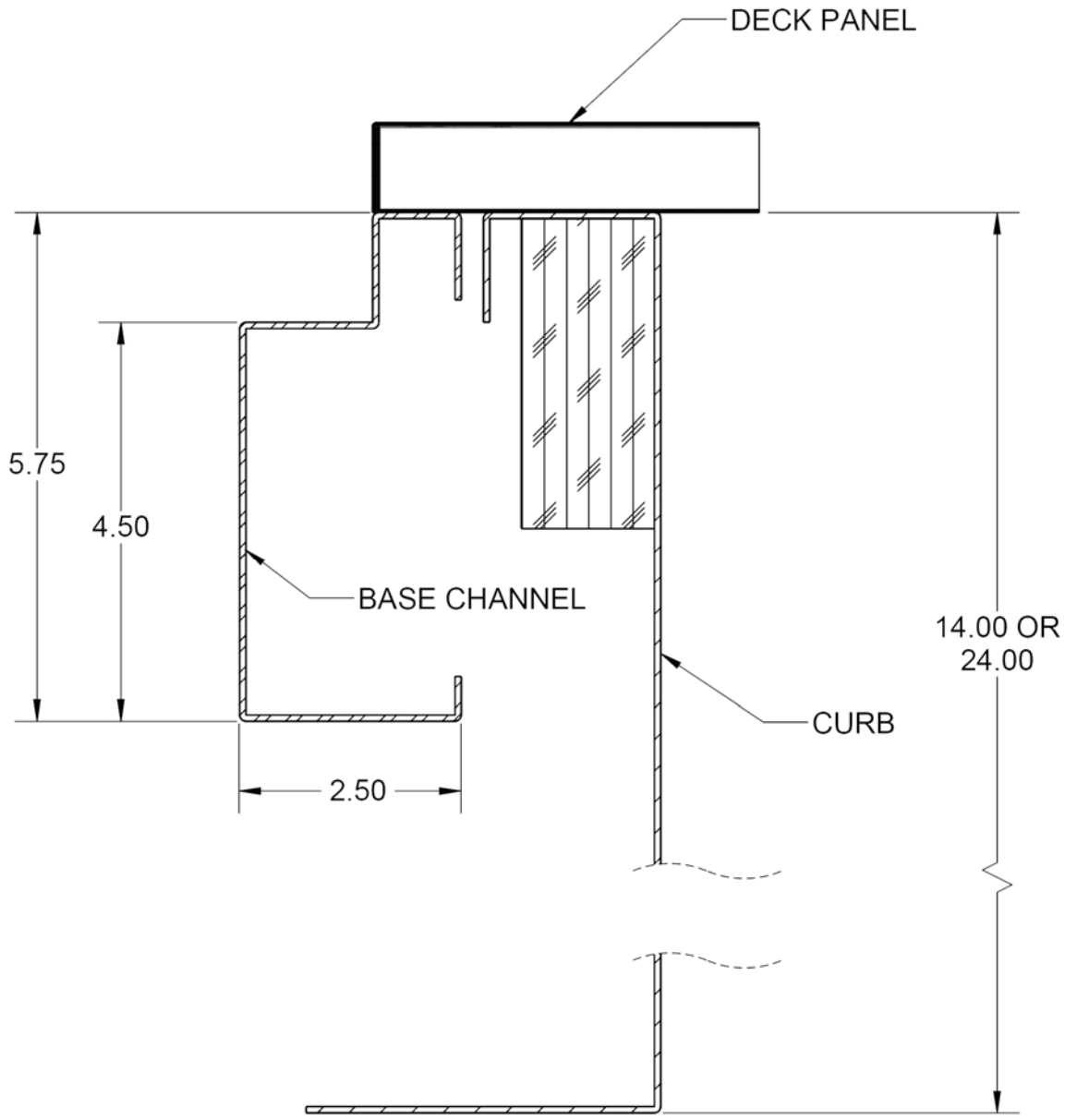
Notes:
(1) Center of Gravity Height = 27.9
(2) Total Weight = 2494 lb

Prepared Date:

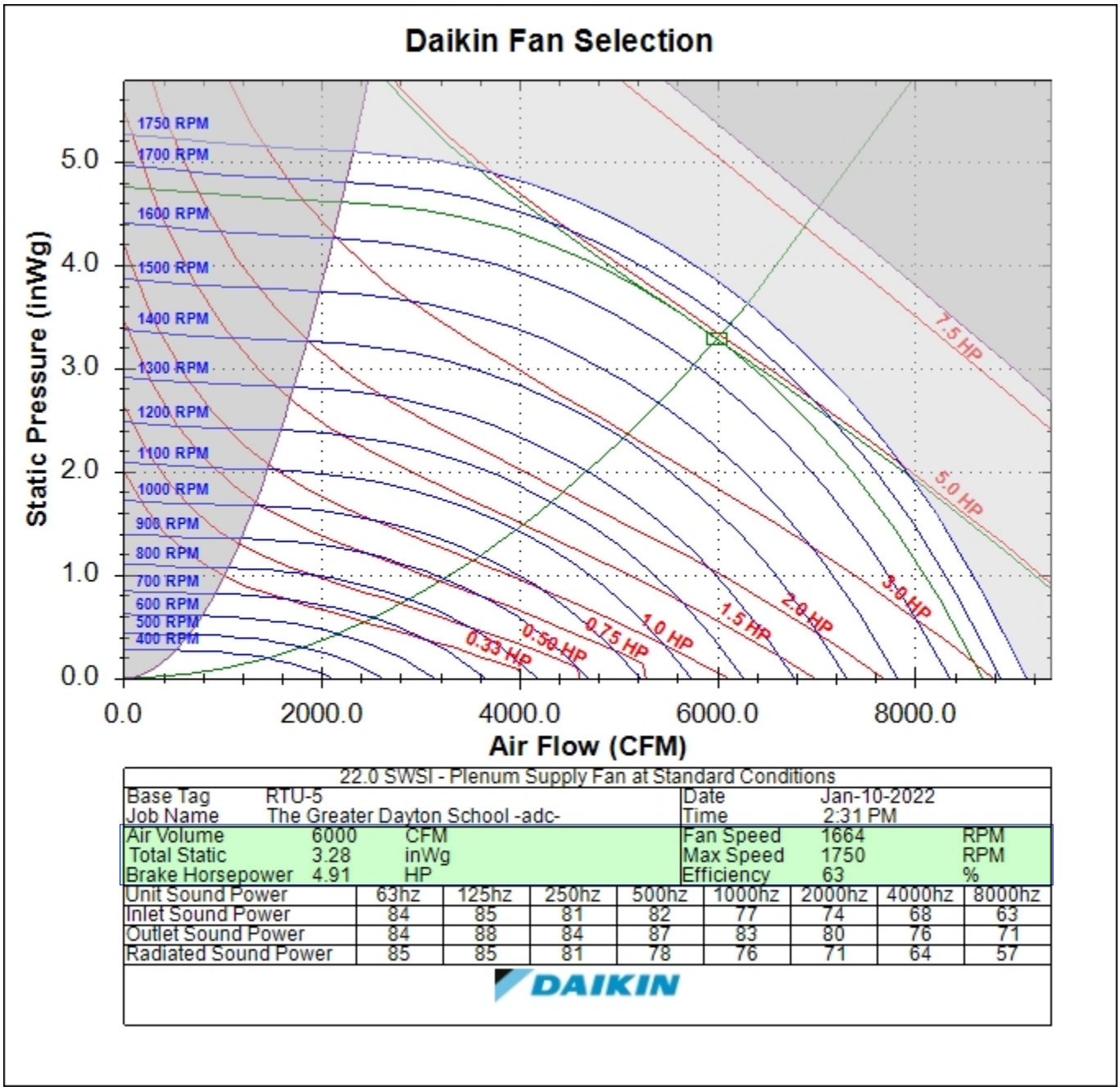


Small and Medium Cabinet Rebel Base Rail_Drawing for RTU-5

No change to this drawing may be made unless approved in writing by Daikin Applied. Purchaser must determine that the equipment is fit and sufficient for the job specifications.



Fan Curve - Supply for RTU-5



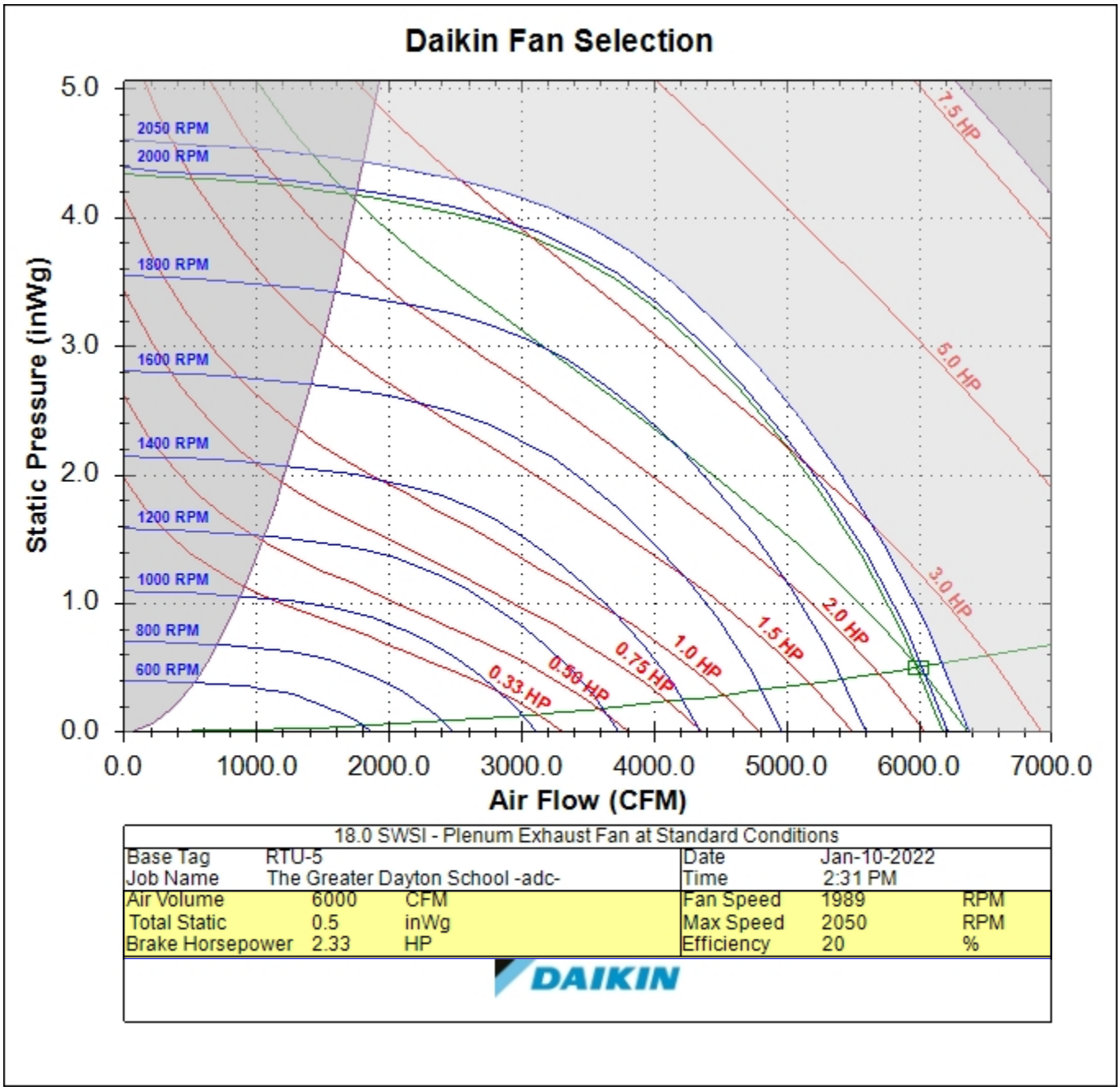
22.0 SWSI - Plenum Supply Fan at Standard Conditions

Base Tag	RTU-5		Date	Jan-10-2022	
Job Name	The Greater Dayton School -adc-		Time	2:31 PM	
Air Volume	6000	CFM	Fan Speed	1664	RPM
Total Static	3.28	inWg	Max Speed	1750	RPM
Brake Horsepower	4.91	HP	Efficiency	63	%

Unit Sound Power	63hz	125hz	250hz	500hz	1000hz	2000hz	4000hz	8000hz
Inlet Sound Power	84	85	81	82	77	74	68	63
Outlet Sound Power	84	88	84	87	83	80	76	71
Radiated Sound Power	85	85	81	78	76	71	64	57

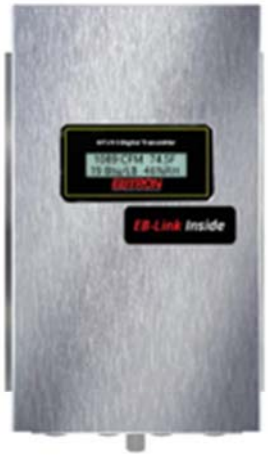
DAIKIN

Fan Curve - **Exhaust for RTU-5**



Ebtron® Gold Airflow Sensor

Part Number: 111055305



Description

This is Ebtron's top-of-the-line airflow measurement solution for accurate and repeatable measurement. The output of the Ebtron Transmitter will communicate a 0-10 VDC signal to the Microtech® III (MTIII) RTU controller. The MTIII will then interpret this as an outdoor airflow measurement. This measurement can be used as a control setpoint for outdoor air dampers on mixed air units (e.g. economizers or 30% Outdoor Air), a control setpoint for supply fan speed control on 100% Outdoor Air/Dedicated Outdoor Air System units, or it can be used as a read-only option for the building automation system. This is an ideal solution for outdoor air delivery monitoring and airflow tracking applications.

Benefits

- Complies with ASHRAE standards
- Demonstrates code compliance
- Satisfies LEED prerequisites and credits
- Provides acceptable IAQ
- Saves energy
- Reduces liability
- Improves performance

Applications

- Control RTU outdoor air dampers (mixed air RTUs)
- Control supply fan speed (100% OA RTUs)
- LEED outdoor air delivery monitoring
- Air change verification and monitoring
- System performance monitoring

CSD-00033-00 (Jan-18)

RTU-S 2020.10.28, RTU-S 2021.10.05, RTU-S