TRANSMITTAL

To: **Megen Construction**
11130 Ashburn Road
Cincinnati, OH 45240

DATE: 9/7/2023

Job Name:
Batavia High School

Email jwilliams@megenconstruction.com

ATTN: Jeff Williams

REVIEW IS ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS.
CONTRACTORS ARE RESPONSIBLE FOR:
A) DIMENSIONS AND QUANTITIES TO BE CONFIRMED AND CORRELATED AT THE JOB SITE.
B) INFORMATION THAT PERTAINS SOLELY TO FABRICATION PURPOSES, MEANS AND METHODS OF CONSTRUCTION, SAFETY PRECAUTIONS, TECHNIQUES, AND PROCEDURES.
C) COORDINATION AND/OR SCHEDULING OF DELIVERIES AND THE WORK FOR ALL TRADES.
D) ANY OTHER ASPECT OF THE SUBMITTAL PROCESS AS SPECIFIED IN THE CONTRACT DOCUMENTS.
REVIEW NOTES DO NOT AUTHORIZE CHANGES TO THE CONTRACT SUM UNLESS STATED IN A SEPARATE CHANGE ORDER.

☐ NO EXCEPTIONS ☐ REVISE & RESUBMIT
☒ REVIEWED & NOTED ☐ REJECTED
☐ NOT REVIEWED

BY: A. Nichols DATE: 09/11/23

elevar

Hudson Piping Inc. respectfully submits the following:

XX	Shop Drawings
	Literature
	Contract Documents

These are submitted as follows:

XX	For Approval
	For Your Files
	For Credit
	Approved As Noted
	Correct & Resubmit

Contractor to review concrete pad dimensions and coordinate with GC on pad revisions required. Units are longer than existing units on site.

Please make necessary corrections and return 1 copy to Hudson Piping Inc.

Copies	Description	Spec. No.
1	Packaged Water Chillers	236400

REMARKS:

Respectfully submitted,

BRIAN HUDSON
email bhudson@hudsonpiping.com

Submittal:

Batavia High School

1 Bulldog Place
Batavia, OH 45103

Architect
and
Mechanical Engineer:
Elevar Design Group
555 Carr Street
Cincinnati, OH 45203

Submitted By:
Mechanical Contractor
Hudson Piping Inc.
836 Walnut Street
Dayton, KY 41074

Project #2802
9/7/2023
Reviewed By: Brian Hudson

Section	Description
236400	Packaged Water Chillers

Cincinnati Office
11325 Reed Hartman Hwy, Suite 100
Cincinnati, OH 45241
(513) 475-3800

Columbus Office
6155A Huntley Road
Columbus, OH 43229
(614) 360-1330

Dayton Office
Location Coming Soon

September 1, 2023

Submittal Number: 23-101-0901

DAIKIN AIR-COOLED SCROLL CHILLER SUBMITTAL DATA

Job Name: **Batavia Local School District – Existing Batavia High School Renovation**

Customer: **Hudson Piping Inc.**
836 Walnut Street
Dayton, KY 41074

Engineer: **Elevar Design Group**
555 Carr Street
Cincinnati, OH 45203

Daikin Air-Cooled Scroll Chiller

Tag(s)	Qty	Description
CH-1 and 2	2	Daikin Air-Cooled Scroll Chiller

Submittal Notes 09-1-2023:

- Startup By Daikin Factory Service (ElitAire Service)
- Quarterly chiller evaluation inspections will be completed by Daikin Factory Service (ElitAire Service)

Tom Haun
513-280-2446
thaun@elitaire.com
ElitAire, Inc.

Job Information	*Technical Data Sheet*
Job Name	Batavia Schools - Existing HS Renovation
Date	9/1/2023
Submitted By	Brett Graham
Software Version	14.21
Unit Tag	CH-1 and 2

Image may not represent ordered unit

Unit Overview

Model Number	Capacity ton	Voltage	Unit Starter Type	ASHRAE 90.1	LEED Enhanced Refrigerant Management Credit
AGZ140E	140.4	460 V / 60 Hz / 3 Ph	Across the Line	'07, '10, '13 & '16	Pass

Unit

Unit Type	Platform	Unit Revision
Air-Cooled Scroll Compressor Chiller	Packaged	0B

Head Pressure	Tubing
Fantrol Only (32°F Min)	Replaceable Filter Dryer with Discharge & Liquid Valves
Unit Controls	**Display**
Electronic Expansion Valve	On Controller only
Refrigerant Type	**Refrigerant Weight**
R410A	152 lb (per unit)

Pump Controls

Dual Evaporator Pumps - Dual Control Output

Approval

ETL/cETL, AHRI & ASHRAE 90.1

Evaporator

Fluid Volume:	15.0 gal
Connection Hand:	Universal Connection - Facing out back
Connection Size:	4.0 in
Insulation:	Single Layer Insulation to Suction at each Compressor

Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Glycol Concentration	Fluid Flow	Fluid Flow (with glycol) Min / Max	Pressure Drop	Pressure Drop (with glycol) Min / Max	Fouling Factor
58.00 °F	42.00 °F	Ethylene Glycol	30.0 %	228.6 gpm	149.5 / 623.1 gpm	6.00 ft H_2O	2.70 / 41.1 ft H_2O	0.000100 °F.ft².h/Btu

Note: Evaporator Pressure Drop does not include a strainer. Minimum flow is based on a Variable Flow Pumping System Type and applies to part load conditions only.

Condenser

Coil Fins:	MicroChannel
Guards:	Condenser Coil Louvers & Base Frame Wire Grilles

Design Ambient Air Temperature		Fan Diameter	Minimum Design Ambient Temperature
95.0 °F		30.0 in	32.0 °F

Unit Performance

Design

Capacity	Input Power	Efficiency (EER)	IPLV.IP (EER)*
140.4 ton	156.9 kW	10.58 Btu/W.h	16.41 Btu/W.h

Performance Points rated at AHRI Ambient Relief - with Glycol

Unit					Evaporator				Condenser	
Point #	% Load	Capacity ton	Input Power kW	Efficiency (EER) Btu/W.h	Fluid Flow gpm	Pressure Drop ft H_2O	Entering Fluid °F	Leaving Fluid °F	Ambient Air °F	Altitude ft
1	100.0	140.4	156.9	10.58	228.6	6.00	58.00	42.00	95.0	0.000
2	90.0	124.5	127.3	11.74	228.6	6.00	56.40	42.00	89.0	0.000
3	80.0	110.7	103.1	12.89	228.6	6.00	54.80	42.00	83.0	0.000
4	70.0	96.86	80.05	14.52	228.6	6.00	53.20	42.00	77.0	0.000
5	60.0	83.02	61.48	16.20	228.6	6.00	51.60	42.00	71.0	0.000
6	50.0	69.19	47.46	17.49	228.6	6.00	50.00	42.00	65.0	0.000
7	40.0	55.35	36.81	18.05	228.6	6.00	48.40	42.00	59.0	0.000
8	30.0	41.51	26.78	18.60	228.6	6.00	46.80	42.00	55.0	0.000
9	20.0	This load point is below the chiller minimum load.								
10	10.0	This load point is below the chiller minimum load.								

** IPLV reflects AHRI standard rating conditions with water and does not change with user defined conditions*

Sound (with insulation)

Type of Sound Insulation: Low Noise (Sound Reduction Compressor Blankets)

Sound Pressure (*at 30 feet*)

63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA	75% Load dBA	50% Load dBA	25% Load dBA
64	59	63	60	55	54	53	45	**62**	61	59	58

Sound Power

63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA	75% Load dBA	50% Load dBA	25% Load dBA
91	86	90	87	82	81	80	72	**89**	88	86	85

Octave band is non 'A' weighted and overall readings are 'A' weighted. Sound data rated in accordance with AHRI Standard-370.

Physical

Unit

Length*	Height	Width*	Shipping Weight*	Operating Weight*
238 in	99 in	88 in	7055 lb	7174 lb

**Shipping and Operating Weights are based on 'worst case' unit configuration variations and include the below listed Option weights but do not include the weights of any Accessories. Contact Chiller Applications for additional information.*

Option Weights

Louvers:	500 lb
Total:	500 lb

Note: Option weights shown may be 'worst case' and should not be used to calculate unit weight without the option present.

Electrical

Unit Electrical Data

Voltage	Starter Type	Fan Motor Quantity	LRA Fan Motor (each)	FLA Fan Motors (each)
460 V / 60 Hz / 3 Ph	Across the Line	10	17.8 A	3.6 A
Power Connection Type:	High Short Circuit Current Rating with Single Point Disconnect Switch and Circuit Protection			
Short Circuit Current Rating:	65 kA			

Single Point Power Connection

Minimum Circuit Ampacity (MCA):	316 A
Recommended Overcurrent Protection Size:	350 A
Maximum Overcurrent Protection Size(MOCP):	350 A
Lug Connection Size:	(2) 3/0 - 500 MCM

Compressor Electrical Data

Compressor Type	Compressor Quantity	Starter Type
Scroll	4	Across the Line

Circuit #:	**1**		**2**	
Compressor #:	**1**	**3**	**2**	**4**
Rated Load Amps (RLA):	54.5 A	73 A	54.5 A	73 A
Inrush Current:	310 A	408 A	310 A	408 A

Note: Power wiring connections to the chiller may be done with either copper or aluminum wiring. Wire should be sized per NEC and/or local codes. Wire sizing and wire count must fit in the power connection lug sizing listed above. Please contact your local sales office for more information.

Options

Control

Communication:	BACnet MS/TP

Electrical

Water Flow Indicator:	Thermal Dispersion Type

Warranty

Unit Startup	Daikin Factory Service (ElitAire Service)
Standard Warranty:	1st Year Entire Unit Parts & Labor
Extended Compressor Warranty:	Compressor Only; extended 4 years parts only (5 Years Total)
Refrigerant Warranty	1 Year Total

AHRI Certification

Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found In the AHRI Directory at www.ahridirectory.org. Unit contains freeze protection liquids in the evaporator and is certified when rated per the Standard with water.

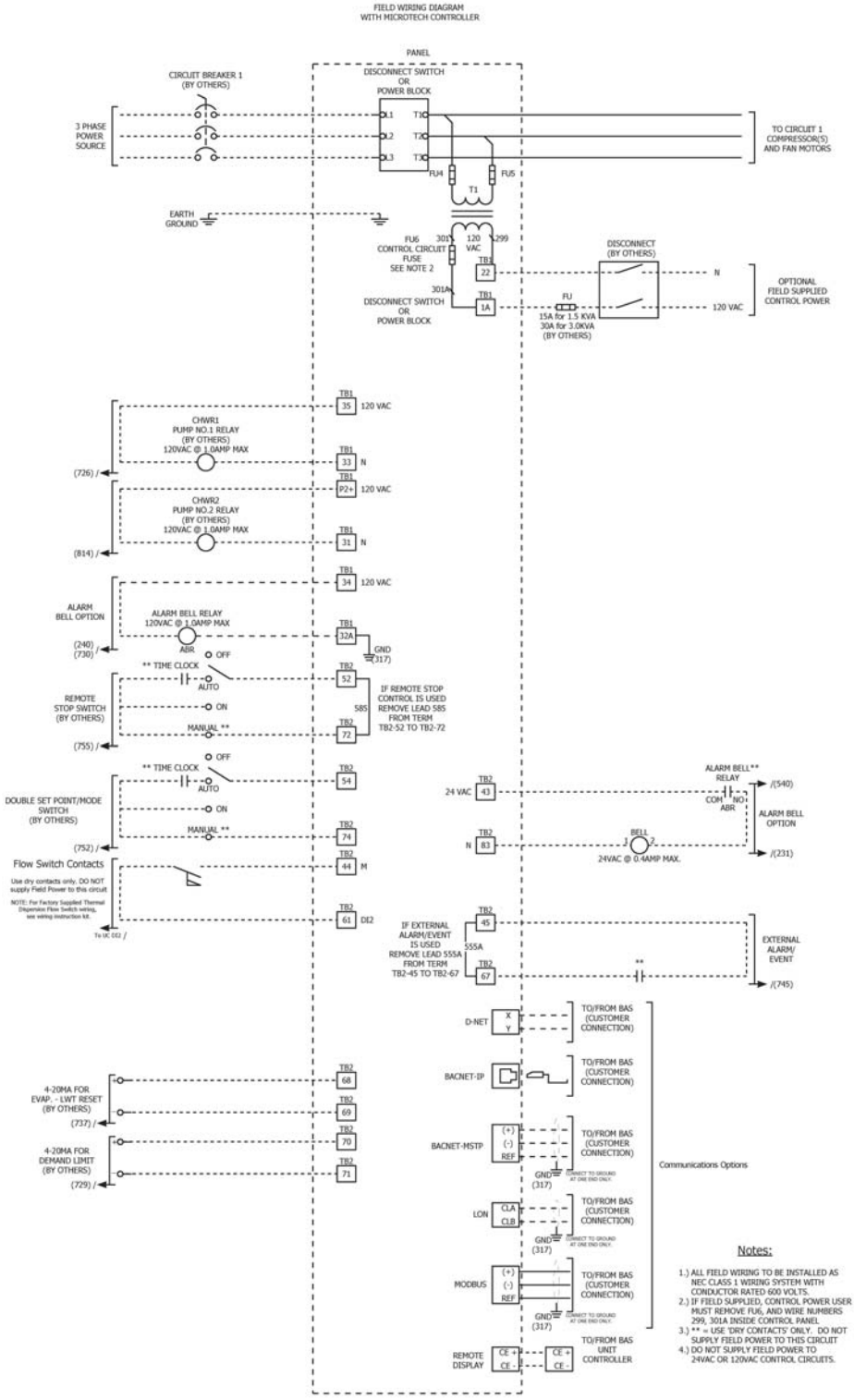
Performance at AHRI Standard Condition – with Water

Unit					Evaporator				Condenser	
% Load	Capacity ton	Input Power kW	Efficiency (EER) Btu/W.h	IPLV.IP* (EER) Btu/W.h	Fluid Flow gpm	Pressure Drop ft H_2O	Entering Fluid °F	Leaving Fluid °F	Ambient Air °F	Altitude ft
100	143.3	158.2	10.87	16.41	342.9	11.3	54.00	44.00	95.0	0.000

Note: Performance with water given as reference only to show compliance with AHRI Standard 550/590. Unit will be configured from the factory to support glycol performance as rated. The unit must not operate with water only without consulting the factory.

0D

AGZ030-241E Single-Point Connection Field Wiring Diagram



Field Wiring Diagram	Unit Tag: CH-1 and 2			DAIKIN		
Product: Air-Cooled Scroll	Project Name: Batavia Schools -			13600 Industrial Park Blvd. Minneapolis, MN 55441		
Model: AGZ030-241E Single-Point	Sales Office: ElitAire, Inc.			www.DaikinApplied.com	Software Version: 14.21	
Sales Engineer: Tom Haun	Sept. 01, 2023	Ver/Rev:	Sheet 1 of 1	Scale: N/A	Tolerance: N/A	Dwg Units: N/A

AGZ-E Guards: Condenser Coil Louvers, Base Wire Grilles

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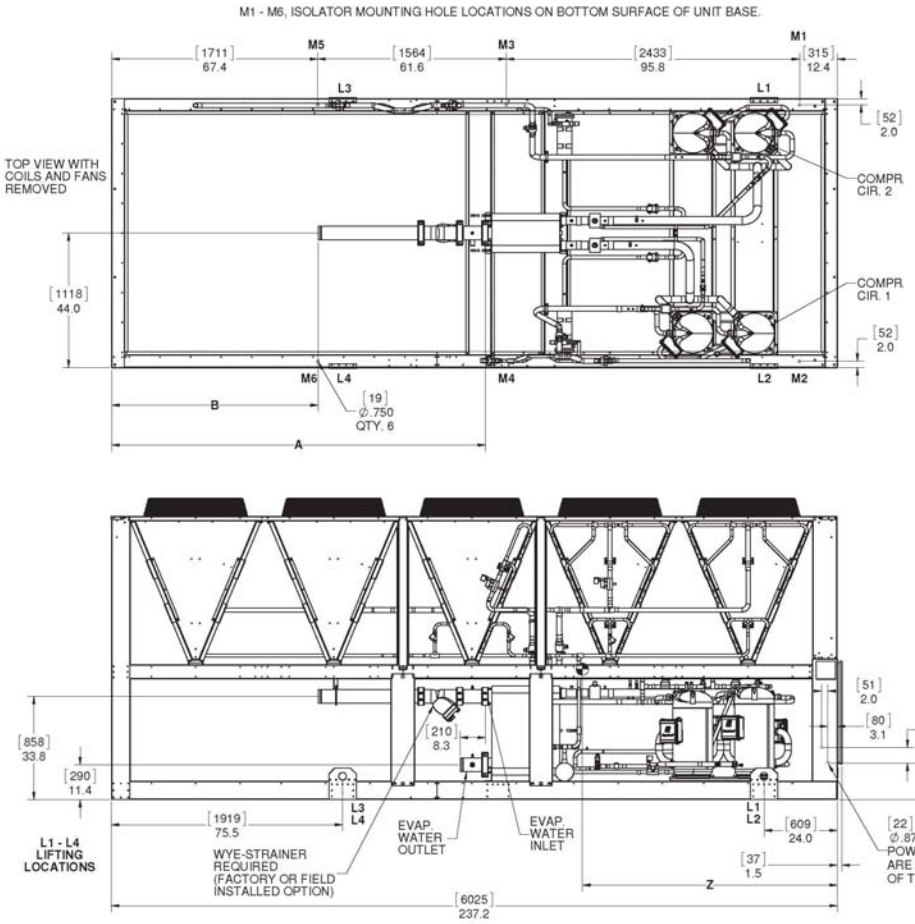
Diagram Notes
Diagram simulates wrap, grille and louver options as selected only. Refrigeration components may vary depending on selected options.

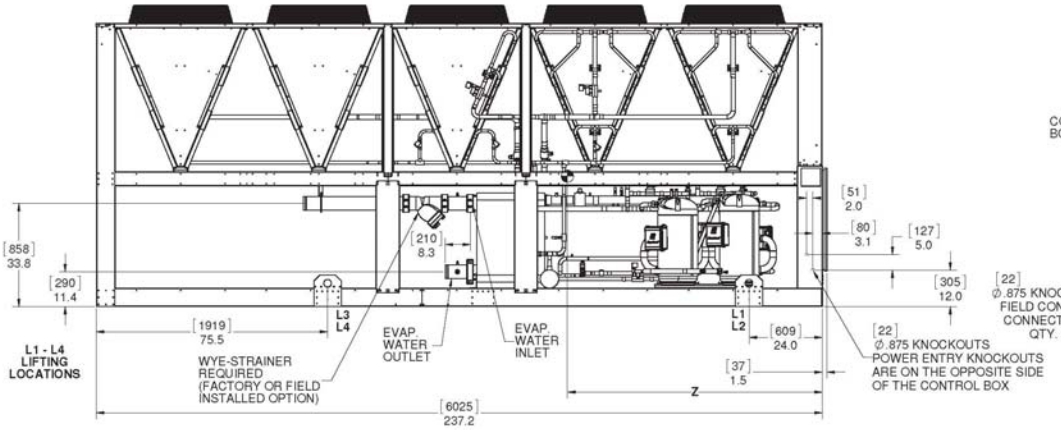
Product Drawing	Unit Tag: CH-1 and 2			Sales Office: ElitAire, Inc.			
Product: Air-Cooled Scroll Chiller	Project Name: Batavia Schools - Existing			Sales Engineer: Tom Haun			
Model: AGZ140-180E	Sept. 01, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: N/A	Tolerance: N/A	Dwg Units: N/A	

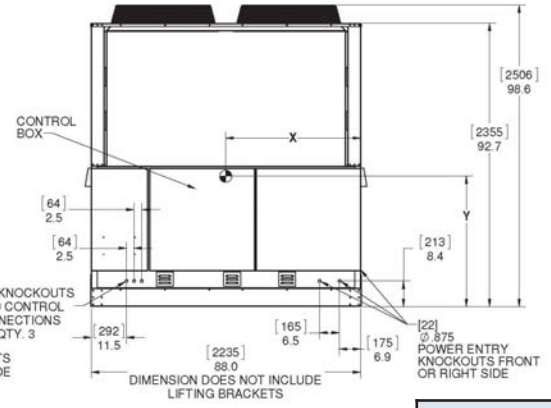
DAIKIN
13600 Industrial Park Blvd. Minneapolis, MN 55441
www.DaikinApplied.com Software Version: 14.21

AGZ140E Packaged (Microchannel Condenser)

Unit Dimensions







Unit Weight Data												
Units	Weight		Lifting Weight				Mounting Weight					
	Shipping	Operating	L1	L2	L3	L4	M1	M2	M3	M4	M5	M6
lb	6555	6674	1862	1868	1410	1415	1411	1416	1070	1074	850	853
kg	2973	3027	845	847	640	642	640	642	485	487	386	387

Unit and Center of Gravity Dimensions						
Units	A (No Strainer)	B (With Strainer)	Connection Size (Victaulic)	Center of Gravity		
				X	Y	Z
in	122.1	67.5	4.0	44.1	42.6	83.3
mm	3102	1715	102	1120	1083	2117

NOTE

A water strainer must be installed at the inlet of the evaporator to protect it from damage. Please refer to the IOM for additional details.

Product Drawing	Unit Tag: CH-1 and 2			Sales Office: ElitAire, Inc.		
Product: Air-Cooled Scroll Chiller	Project Name: Batavia Schools - Existing			Sales Engineer: Tom Haun		
Model: AGZ140E	Sept. 01, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in [mm]

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www.DaikinApplied.com Software Version: 14.21

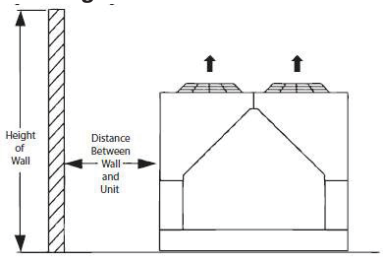
AGZ-E Close Spacing Performance | 0A

The graphs below are based on individual cases and should not be combined with other scenarios

Case 1: Building or Wall on One Side of Unit

Assumes a solid height wall taller than unit. Refer to Case 4 for partial wall openings

Building or Wall on One Side of Unit



For models AGZ030-101E, maintain a 4 feet minimum from a wall of any height.

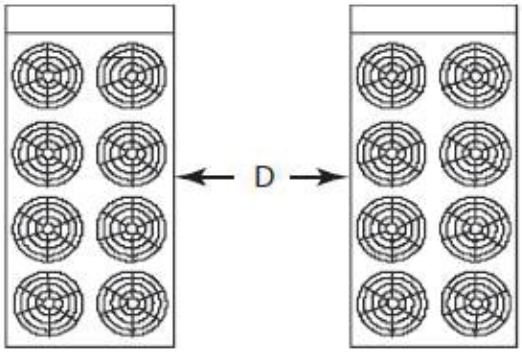
For models AGZ110-130E, maintain a 6 feet minimum from a wall of any height.

For models AGZ140-241E, maintain an 8 feet minimum from a wall of any height.

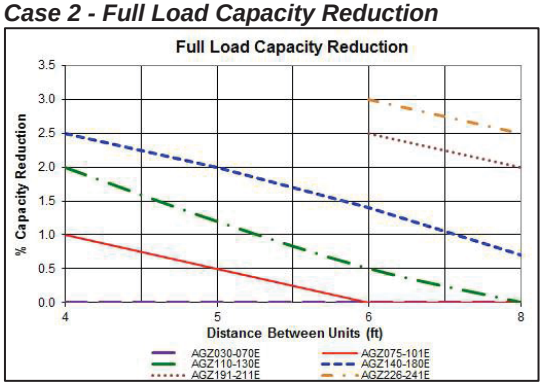
Case 2: Two Units, Side-by-Side

For models 030-180, there must be a minimum of 4 feet between two units placed side-by-side; however, performance may be affected at this distance. For models 191-241, the minimum is 6 feet as closing spacing may cause air recirculation and elevated condenser pressure. Assuming the requirement of one side having at least 8 feet of service clearance is met, Case 2 figures show performance adjustments as the distance between two units increases.

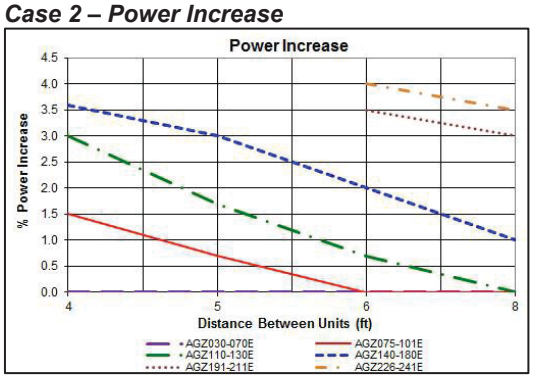
Two Units, Side-by-Side



Case 2 - Full Load Capacity Reduction



Case 2 – Power Increase

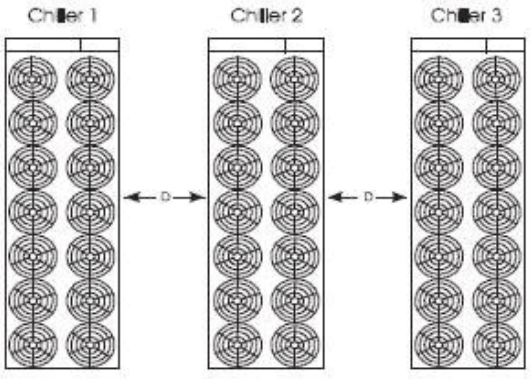


Product Drawing						
Product: Air-Cooled Scroll Chiller	Project Name:					
Model: AGZ-E	Sales Office: ElitAire, Inc.					
Sales Engineer: Tom Haun	Sept. 01, 2023	Ver/Rev:	Sheet 1 of 1	Scale: NTS	Tolerance: +/-1.0”	Dwg Units: in [mm]

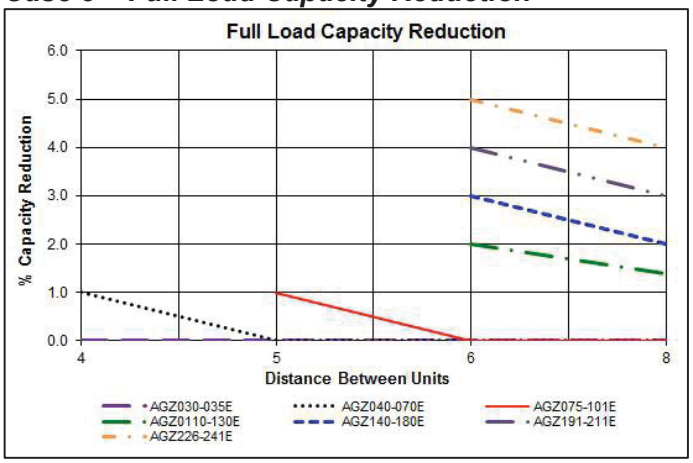
Case 3: Three or More Units, Side-by-Side

For all models, there must be a minimum distance between any units placed side-by-side; however, performance may be affected at this distance. Minimum distances are: models 030 to 070 - 4 feet, models 075 to 101 - 5 feet, models 110 to 241 - 6 feet. The Case 3 charts below depict Case 3 performance adjustments as the distance between units increases. Data shown is for the middle unit with a unit on each side. See Case 2 adjustment factors for the two outside units.

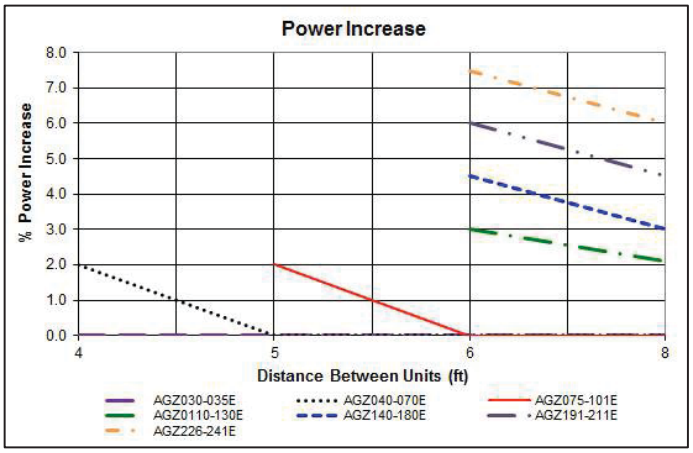
Three or More Units, Side-by-Side



Case 3 – Full Load Capacity Reduction



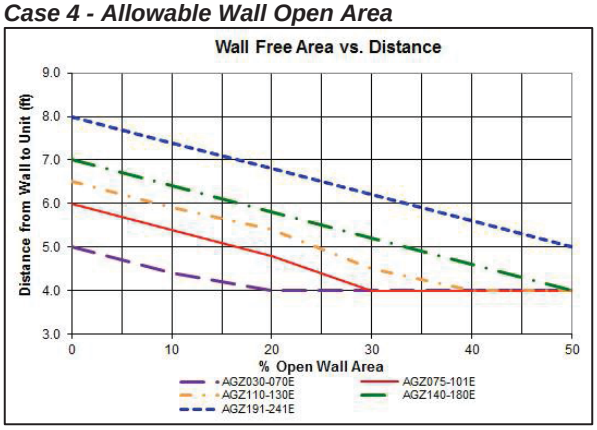
Case 3 – Power Increase



Case 4: Open Screening Walls

Decorative screening walls are often used to help conceal a unit either on grade or on a rooftop. When possible, design these walls such that the combination of their open area and distance from the unit (see chart below) do not require performance adjustment. If the wall opening percentage is less than recommended for the distance to the unit, it should be considered as a solid wall. It is assumed that the wall height is equal to or less than the unit height when mounted on its base support. If the wall height is greater than the unit height, see Case 5: Pit Installation for performance adjustment factors. The distance from the sides of the unit to the side walls must be sufficient for service, such as opening control panel doors. For uneven wall spacing, the distance from the unit to each wall can be averaged providing no distance is less than 4 feet. Values are based on walls on all four sides.

Case 4 - Allowable Wall Open Area



Case *5: Pit Installation*

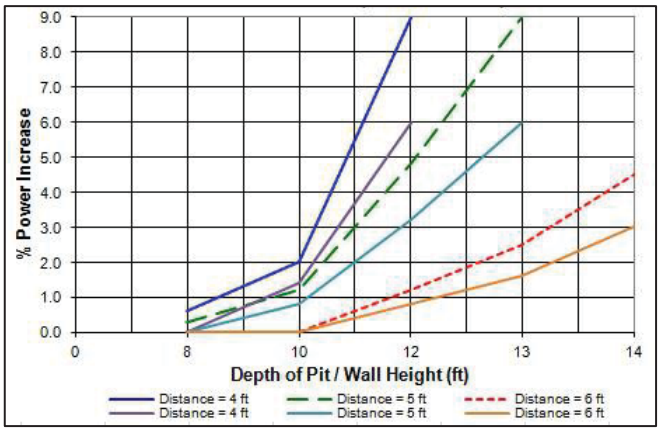
Pit installations can cause operating problems resulting from air recirculation and restriction and require care that sufficient air clearance is provided, safety requirements are met and service access is provided. A solid wall surrounding a unit is substantially a pit and this data should be used. Derates are based on single chiller installation only.

Steel grating is sometimes used to cover a pit to prevent accidental falls or trips into the pit. The grating material and installation design must be strong enough to prevent such accidents, yet provide abundant open area to avoid recirculation problems. Have any pit installation reviewed by the Daikin Applied sales representative prior to installation to ensure it has sufficient air-flow characteristics and approved by the installation design engineer to avoid risk of accident.

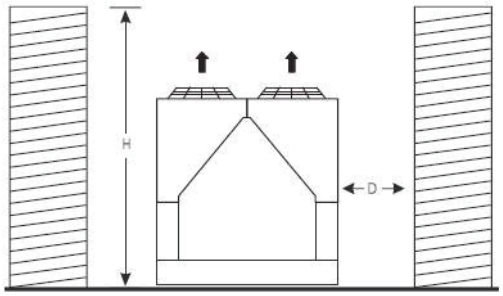
Models AGZ030-070E:

The Case 5 figures for models AGZ030-070E show adjustment factors for pit/wall heights of 4 feet, 5 feet, and 6 feet.

Case 5 - Full Load Capacity Reduction and Power Increase (AGZ030E-070E)



Case 5- Pit Installation



KEY:

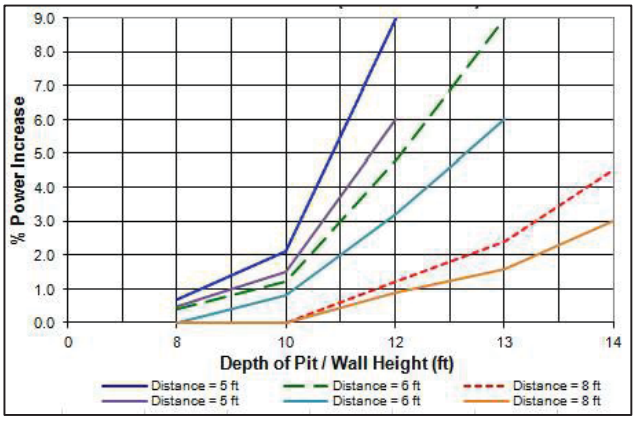
- - - - - - - - - - : ***Power Increase***

_____***: Capacity Reduction***

Models AGZ075-130E:

The Case 5 figures for models AGZ075-130E show adjustment factors for pit/wall heights of 5 feet, 6 feet, and 8 feet.

Case 5 - Full Load Capacity Reduction and Power Increase (AGZ075-130E)

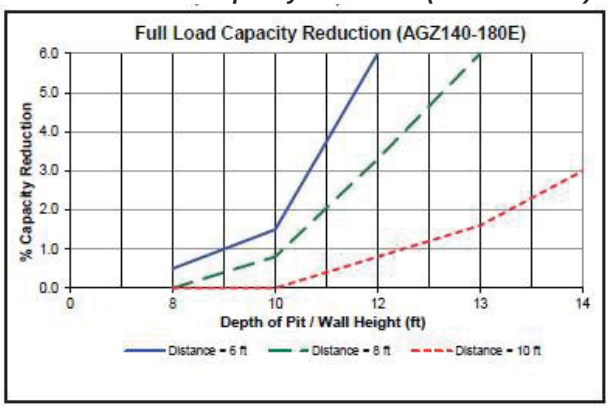


KEY:
- - - - - - - - - - : ***Power Increase***
_____***: Capacity Reduction***

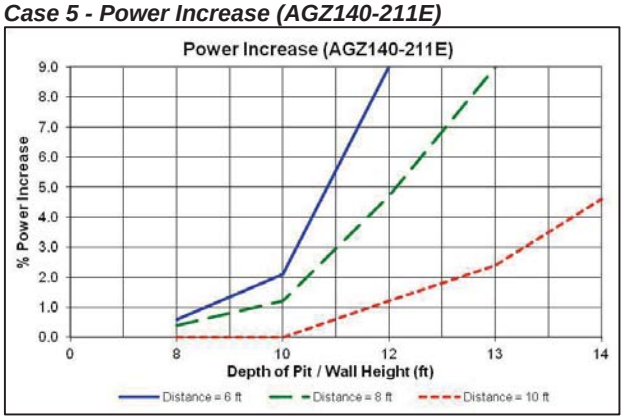
Models AGZ140-241E:

The Case 5 figures for models AGZ140-241E show adjustment factors for pit/wall heights of 6 feet, 8 feet, and 10 feet.

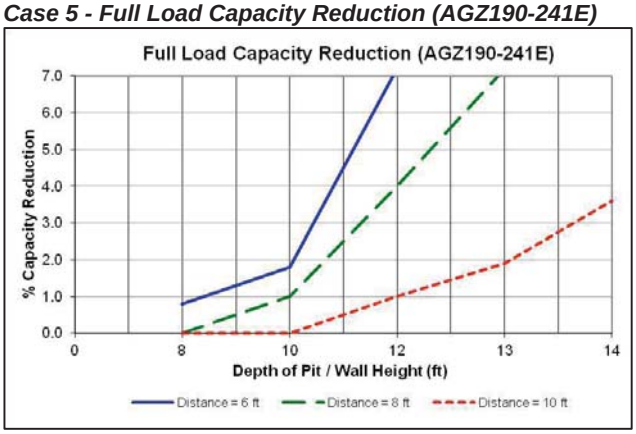
Case 5 - Full Load Capacity Reduction (AGZ140-180E)



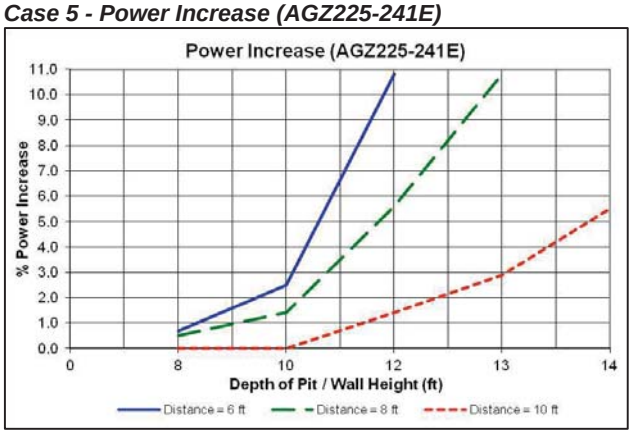
Case 5 - Power Increase (AGZ140-211E)



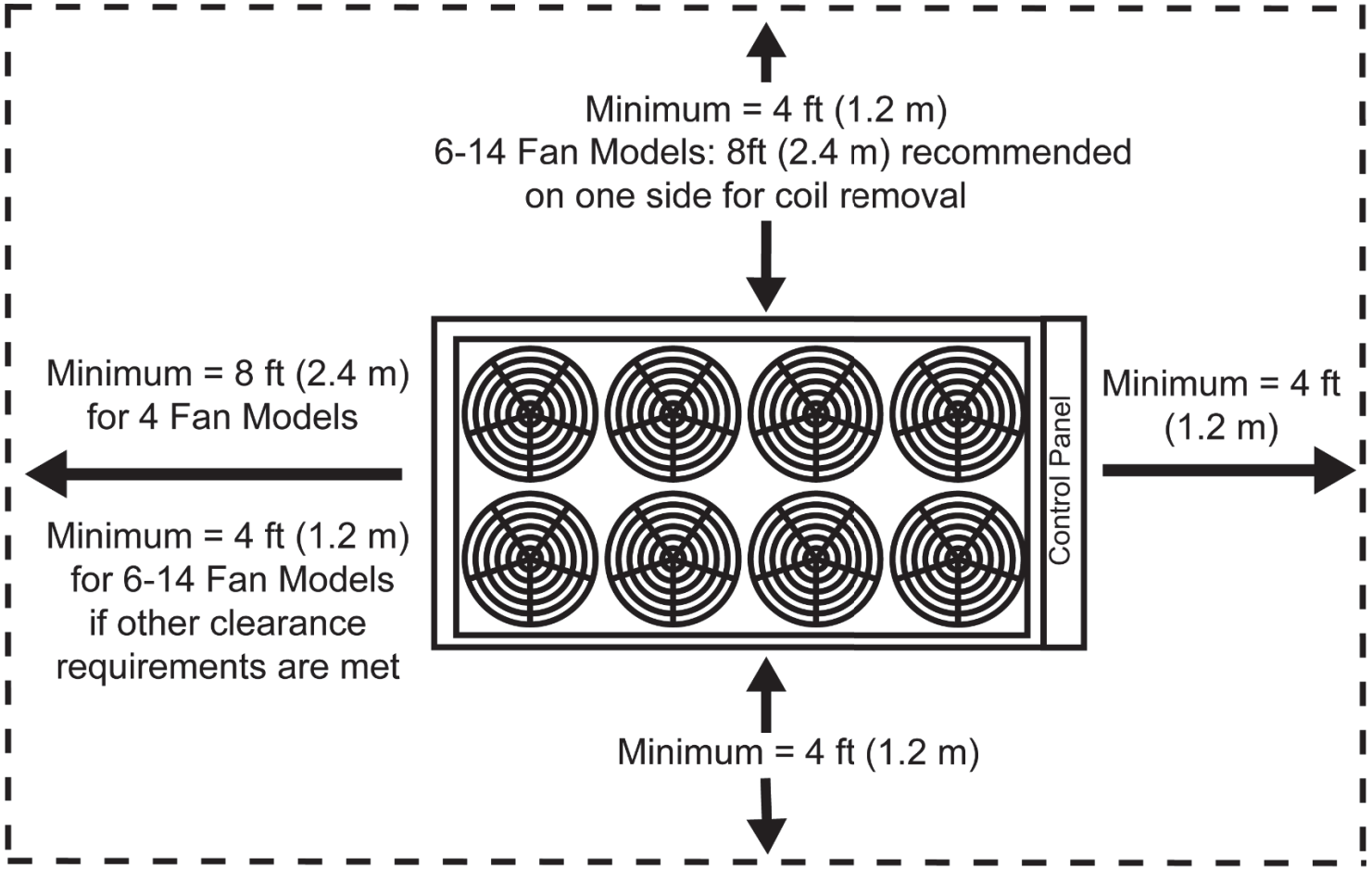
Case 5 - Full Load Capacity Reduction (AGZ190-241E)



Case 5 - Power Increase (AGZ225-241E)



AGZ-E Service Clearance



- NOTE: Additional clearance may be required for proper airflow. Please consult Close Spacing drawings and IOM for additional details.

Product Drawing	Unit Tag: CH-1 and 2			Sales Office: ElitAire, Inc.		
Product: Air-Cooled Scroll Chiller	Project Name: Batavia Schools - Existing			Sales Engineer: Tom Haun		
Model: AGZ-E	Sept. 01, 2023	Ver/Rev:	Sheet: 1 of 1	Scale: NTS	Tolerance: +/- 1.0"	Dwg Units: in [mm]

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www.DaikinApplied.com Software Version: 14.21