



National IPA/TCPN Proposal:

Missouri Western State University
4525 Downs Drive
St Joseph, MO 64507

Project Location:

Missouri Western State University
4525 Downs Drive
St Joseph, MO 64507



Project Title: MWSU Chiller #3

Proposal Number: R150505-MO-15317

Proposal Date: August 9, 2017

Presented to:

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Presented by:

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Introducing Daikin Applied

Our Philosophy

Daikin Applied is your partner in delivering pro-active, responsive solutions for building owners. We incorporate innovation, expertise and technology that will minimize energy consumption and optimize financial incentives and promise responsive lifecycle support. We want to earn your trust that we understand your needs.

Our Company

Daikin Industries, Ltd. is a Fortune 1000 company with 2014 revenues in excess of \$18 billion and more than 40,000 employees worldwide. Daikin is engaged primarily in the development, manufacture, sales and aftermarket support of heating, ventilation, air conditioning and refrigeration, (HVACR) equipment, refrigerants and other chemicals, as well as oil hydraulic products. Daikin is a leader in providing solutions for customers in Asia and Europe. For more information, visit www.daikin.com.



Daikin Applied, a wholly owned subsidiary of Daikin Industries, Ltd., is a global leader in the design and manufacture of HVAC systems that are unmatched in efficiency, reliability and sustainability. Examples of our innovative technologies include the Magnitude[®] Magnetic Bearing Centrifugal Chiller and the Pathfinder[®] Air-Cooled Chiller, both of which are the most efficient chillers available in their respective type and size range.



Daikin Applied has more than six million square feet of manufacturing facilities at 12 plants on three continents.

We have offices, service operations, joint ventures and manufacturing facilities with more than 5,000 dedicated employees around the world. All our manufacturing facilities in the United States are ISO 9001 certified. For more information, visit www.daikinapplied.com.

Daikin's award winning Applied Development Center at our headquarters in Plymouth, Minnesota, is sign of our commitment to innovation and customer satisfaction. Opened in May 2009, the Applied Development Center is the world's most advanced facility for HVAC research and development. The purpose of the new center is to develop and test advanced chiller, compressor and other HVAC technologies to reduce energy consumption and ultimately the carbon footprint of the buildings where they will be used.



Key Team Members

Prime Contractor – Daikin Applied

Business Name: Daikin Applied
Business Address: 13600 Industrial Park Blvd.
Minneapolis, MN 55441
Point of Contact: Duane Rothstein (info below)
DUNS: 172719437
Federal Tax EIN: 41-0404230
NAICS Code(s): 333415, 238220
CCR CAGE Code: 3A3W3
Type of Business: Large

National IPA/TCPN Contract Number: R150505

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Scope

Daikin Applied will provide the following (installation NOT included):

Daikin Applied Trailblazer™ Air-Cooled Scroll Chiller, Model AGZ241E

Detailed equipment submittal in proposal Appendix beginning on page 8

- Refrigerant: R-410a
- Evaporator: brazed plate
- Liquid & discharge shut-off valves
- Head pressure control: VFD 1st two (2) fans down for operation to 0°F ambient **(NOTE: low ambient kit will be shipped loose for field installation by Daikin Factory Service)**
- Compressor motor thermal & overload protection
- Control transformer
- Water flow switch **(field installed by installing contractor)**
- MicroTech III DDC controller with BAS communications card
- Single point power connection with non-fused disconnect switch
- Voltage: 460/60/3
- Check, test and startup included
- Standard one year parts only warranty
- Additional four year parts only extended compressor warranty

Not Included:

- Demo or removal of existing chiller
- Hauling, rigging, & setting of new chiller
- Power wiring and control wiring to pump starters or chiller starters
- External isolators
- Strainer (required to be installed before evaporator)

National IPA/TCPN Price Breakdown

The following table summarizes pricing per Daikin Applied's National IPA/TCPN contract.

Qty	Model	Item/Description
1	AGZ241E	Daikin Air Cooled Scroll Chiller
1	n/a	Equipment Check, Test, and Start-up
Total Proposed Net Pricing (Excluding Sales Tax)		\$

Notes

- Purchase Orders are to be issued to Daikin Applied; see page 4 for additional information
- Pricing includes **FOB First Destination** per Daikin's TCPN Contract
- A Tax Exempt Certificate shall be submitted with the Purchase Order to avoid paying sales tax
- Pricing is valid for 30 days
- Payment terms are Net 30 days (subject to credit approval)

Terms & Conditions

DAIKIN APPLIED AMERICAS INC. Terms & Conditions of Sale (North America)

1. **Terms of Agreement:** The term "Company" as used herein shall mean Daikin Applied Americas Inc. Company offers to sell the materials, equipment or services indicated only under the terms and conditions stated herein. Submittal of any further purchase documents by Buyer, or execution of this offer by Buyer, or allowing Company to commence work, shall be deemed an acceptance of this offer. Any additional or differing terms and conditions contained on any documents prepared or submitted by Buyer (whether or not such terms materially alter this offer) are hereby rejected by Company and shall not become part of the contract between Buyer and Company unless expressly consented to in writing by Company.
2. **Price Policy:** All prices are subject to increase upon notice, due to such events as announced increases in the Company's list prices, or increases in labor or material costs.
3. **Terms of Payment:** Terms of payment are subject at all times to prior approval of the Company's credit department. Terms of payment are net 30 days from date of invoice, unless otherwise agreed to in writing by Company. If at any time the financial condition of Buyer or any other circumstance affecting the credit decision does not, in Company's opinion, justify continuance of production of products or shipment of products on the terms of payment specified, Company may require full or partial payment in advance, or may at its sole discretion stop or delay production or shipment of products. In the event of default in payment, Buyer agrees to pay all costs of collection incurred by Company, including but not limited to, collection agency fees, attorneys' fees, legal expenses and court costs. All past due amounts shall bear interest at the highest rate allowed by law.
4. **Shipping Terms:** All shipments will be made F.O.B. factory or warehouse with freight prepaid and allowed as quoted via a low cost common carrier, and charges for special carrier services requested by Buyer shall be paid by Buyer. Company may ship the goods in one or more lots; such lots may be separately invoiced and shall be paid for when due per invoice, without regard to subsequent deliveries. Delay in delivery of any lot shall not relieve Buyer of its obligation to accept remaining deliveries.
5. **Claims:** Responsibility of Company for all shipments ceases upon delivery of the goods to the carrier; and regardless of shipping terms or freight payment, Buyer shall bear all risk of loss or damage in transit. Any claims for damage or shortage in transit must be filed by Buyer against the carrier, and not Company. Claims for factory shortages will not be considered unless made in writing to Company within ten (10) days after receipt of the goods and accompanied by reference to Company's bill of lading and factory order numbers.
6. **Taxes:** The amount of any present or future taxes applicable to the product shall be added to the price contained herein and paid by Buyer in the same manner and with the same effects as if originally added thereto.
7. **Cancellations:** Accepted orders are not subject to cancellation without Company being (a) reimbursed for any and all expenses (including overhead), (b) paid a reasonable profit, and (c) indemnified by Buyer against any and all loss.
8. **Shipment Dates:** Shipment dates are only estimates. No contract has been made to ship in a specified time, unless set forth in a separate writing signed by an officer of Company. Company shall not be liable for any damage as a result of any delay or failure to deliver due to disapproval of Company Credit Department or due to any cause beyond Company's reasonable control, including without limitation, any act of God, act of Buyer, governmental act, accident, labor unrest, delay in transportation, or inability to obtain necessary labor, materials or manufacturing facilities.
9. **Returns:** Goods may not be returned unless Buyer obtains the advance written permission of an authorized Company official, and when so returned will be subject to handling and transportation charges. Authorized returned goods must be shipped prepaid to the location designated by the authorization.
10. **Limited Warranty:** Subject to sections 11 and 12 herein, Company warrants that it will, at its option, repair or replace defective parts in the event any product manufactured by Company, sold hereunder and used in the United States or Canada, proves defective in material or workmanship within twelve (12) months from initial start-up, or eighteen (18) months from date of shipment, whichever period expires sooner. Replaced parts are warranted for the duration of the original warranty period. THIS WARRANTY CONSTITUTES BUYER'S SOLE REMEDY. IT IS GIVEN IN LIEU OF ALL OTHER WARRANTIES. THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No liability shall attach to Company until Company has been paid in full for all products purchased hereunder. No person (including any agent,

sales representative, dealer or distributor) has the authority to expand Company's obligation beyond the terms of this express warranty, or to state that the performance of any product is other than is published by Company. Company must receive a startup Registration Form for products containing motor compressors and/or furnaces within ten (10) days of original product startup, or the startup date and ship date will be deemed the same for warranty period determination, and the warranty shall expire twelve (12) months from that date.

11. **Warranty Exclusions:** Company's warranty set forth in section 10 does not apply to any products or parts which (a) have been opened, disassembled, repaired, or altered by anyone other than Company or its authorized service representative; or (b) have been subjected to misuse, negligence, accidents, damage, or abnormal use or service; or (c) have been operated, installed, or startup has been provided in a manner contrary to Company's printed instructions, or (d) were manufactured or furnished by others and which are not an integral part of a product manufactured by Company. Refrigerants, fluids, oils and expendable items such as filters are not covered by Company's warranty. For additional consideration Company will provide an extended warranty(ies) on certain products or parts thereof. The terms of any extended warranty(ies) are shown on the product limited warranty certificate or on a separate extended warranty statement.
12. **Limitation on Liability; Indemnity:** Company's liability with respect to the products sold hereunder shall be limited to the warranty provided in section 10 hereof, and shall not exceed the lesser of (a) the cost of repairing or replacing defective products, or (b) the original purchase price of the products. IN NO EVENT AND UNDER NO CIRCUMSTANCES SHALL COMPANY BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL, CONTINGENT OR CONSEQUENTIAL DAMAGES, WHETHER THE THEORY BE BREACH OF THIS OR ANY OTHER WARRANTY, NEGLIGENCE OR STRICT LIABILITY IN TORT.
13. **Infringement:** Company will, at its own expense, defend any suits that may be instituted by anyone against Buyer for alleged infringement of any valid United States patent, trademark or copyright in existence on the date of this contract relating to any products sold hereunder that are manufactured by Company, provided Buyer (i) shall have made all payments then due hereunder, (ii) shall give Company immediate notice in writing of any such suit and transmit to Company immediately upon receipt all processes and papers served upon Buyer, and (iii) shall permit Company, either in the name of Buyer or the name of Company, to defend the same and give Company all needed information, assistance and authority to enable it to do so. If such products are in such suit held in and of themselves to infringe any such patent, trademark or copyright, Company will pay any final award of damages in such suit to the extent attributable to such infringement. Notwithstanding the foregoing, Company shall not be responsible for any settlement made without its written consent, or for infringements of combination or process patents covering the use of the products in combination with other goods not furnished and manufactured by Company.
14. **Disputes and Choice of Law:** This contract and these Terms and Conditions of Sale shall constitute the entire agreement between Company and Buyer and shall be governed by and construed according to the laws of the State of Minnesota. All claims, disputes, and controversies arising out of or relating to this contract, or the breach thereof, shall, in lieu of court action, be submitted to arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA"), and any judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. The site of the arbitration shall be Minneapolis, Minnesota, unless another site is mutually agreed between the parties. The parties agree that any party to the arbitration shall be entitled to discovery of the other party as provided by the Federal Rules of Civil Procedure; provided, however, that any such discovery shall be completed within four (4) months from the date the Demand for Arbitration is filed with the AAA.
15. **Canada:** The parties hereto confirm that it is their wish that this contract be drawn up in the English language only; les parties aux présentes confirment leur volonté que ce contrat soit rédigé en langue anglaise seulement.



SUBMITTAL DATA

for
MWSU Chiller 3

Prepared for
MWSU

Prepared by
Kevyn Gordon

8/9/2017

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Technical Data Sheet for MWSU CH-3 stock

Job Information		Technical Data Sheet
Job Name	MWSU Chiller 3	
Date	8/9/2017	
Submitted By	Kevyn Gordon	
Software Version	07.80	
Unit Tag	MWSU CH-3 stock	



Unit Overview						
Model Number	Capacity ton	IPLV.IP* EER Btu/W.h	Voltage	Unit Starter Type	ASHRAE 90.1	LEED EA Credit 4
AGZ241E	228.1	16.20	460 V / 60.0 Hz / 3 Ph	Across the Line	'07, '10, '13/'16	Pass

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

Unit						
Unit Type				Platform		Unit Revision
Air-Cooled Scroll Compressor Chiller				Packaged		00
Head Pressure				Tubing		
Fantrol Only (32°F Min)				Replaceable Filter Dryer with Discharge & Liquid Valves and HGBP Ready		
Unit Controls				Display		
Electronic Expansion Valve				On Controller only		
Refrigerant Type				Refrigerant Weight		
R410A				222 lb (per unit)		
Pump Controls						
Dual Evaporator Pumps - Dual Control Output						
Approval						
ETL/cETL, AHRI & ASHRAE 90.1						
Evaporator						
Water Volume:	22.4 gal					
Connection Hand:	Universal Connection - Facing out back					
Connection Size:	6.0 in					
Insulation:	Single Layer Insulation to Suction at each Compressor					
Entering Fluid Temperature	Leaving Fluid Temperature	Fluid Type	Fluid Flow	Fluid Flow Min / Max	Pressure Drop	Fouling Factor
54.00 °F	44.00°F	Water	545.0 gpm	338.8/ 903.5 gpm	10.6 ft H ₂ O	0.000100 °F.ft ² .h/Btu
Condenser						
Coil Fins:	MicroChannel					
Guards:	None					
Design Ambient Air Temperature	Altitude	Fan Diameter		Nominal Fan Motor Horsepower	Minimum Design Ambient Temperature	
95.0 °F	0.000 ft	30.0 in		2.0 hp	35.0 °F	

Technical Data Sheet for MWSU CH-3 stock

Unit Performance

Design										
Capacity			Input Power			Efficiency (EER)			IPLV.IP* (EER)	
228.1 ton			269.5 kW			10.20 Btu/W.h			16.20 Btu/W.h	
Performance Points rated at AHRI Ambient Relief										
Unit					Evaporator				Condenser	
Point #	% Load	Capacity ton	Input Power kW	Efficiency (EER) Btu/W.h	Fluid Flow gpm	Pressure Drop ft H ₂ O	Entering Fluid Temperature °F	Leaving Fluid Temperature °F	Ambient Air Temperature °F	Altitude ft
1	100.0	228.1	269.5	10.20	545.0	10.6	54.00	44.00	95.0	0.000
2	90.0	205.3	213.4	11.50	545.0	10.6	53.00	44.00	89.0	0.000
3	80.0	182.5	167.9	13.00	545.0	10.6	52.00	44.00	83.0	0.000
4	70.0	159.7	128.2	14.90	545.0	10.6	51.00	44.00	77.0	0.000
5	60.0	136.9	98.40	16.70	545.0	10.6	50.00	44.00	71.0	0.000
6	50.0	114.1	77.90	17.60	545.0	10.6	49.00	44.00	65.0	0.000
7	40.0	91.20	59.40	18.40	545.0	10.6	48.00	44.00	59.0	0.000
8	30.0	68.40	42.60	19.30	545.0	10.6	47.00	44.00	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 and does not change with user defined conditions

Sound (without insulation)

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
70	71	70	68	68	62	62	59	72
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
98	98	98	95	96	90	90	86	100

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*
328 in	99 in	88 in	9501 lb	9688 lb

* Shipping and operating weights do not include the weights of any Options or Accessories. Contact Chiller Applications for additional information.

Technical Data Sheet for MWSU CH-3 stock

Electrical

Unit Electrical Data						
Voltage	Starter Type	Fan Motor Quantity		LRA Fan Motor (each)		FLA Fan Motors (each)
460 v / 60.0 Hz / 3 Ph	Across the Line	14		18A		3.6A
Power Connection Type:	Single Point Disconnect Switch with Circuit Protection					
Short Circuit Current Rating:	5 kA					
Single Point Power Connection						
MCA:	525.5 A					
Fuse Size (recommended):	600 A					
Fuse Size (maximum):	600 A					
Connector Wire Range:	(2) 3/0-500MCM					
Compressor Electrical Data						
Compressor Type		Compressor Quantity			Starter Type	
Scroll		6			Across the Line	
Circuit #:	1			2		
Compressor #:	1	3	5	2	4	6
RLA:	76 A	76 A	76 A	76 A	76 A	76 A
Inrush Current:	408 A	408 A	408 A	408 A	408 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 in latest installation manual. Please contact your local sales office for more information.

Options

Basic Unit	
Control Box Ambient:	High Ambient with Exhaust Fans (125°F maximum)

Warranty

Unit Startup	Domestic
Standard Warranty:	1st Year Entire Unit Parts only
Extended Compressor Warranty:	Compressor Only; extended 4 years parts only

AHRI Certification



Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Using Vapor Compression Cycle 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

Accessories

Optional	
Part Number	Description
350147415	MT III Comm Mod for Chillers, BACnet IP
349904801	Control Box Heater for Low Ambient; AGZ030-241E
334704307	Fan VFD Low Ambient Kit; AGZ: not Pump Package, 110-241E, 400-460V
334704405	Fan VFD Line Reactor Kit; AGZ: not Pump Package, 110-241E, 400-460V
331776619	Flow Switch; Thermal Dispersion; AGZ: 030-241E, 025-190D

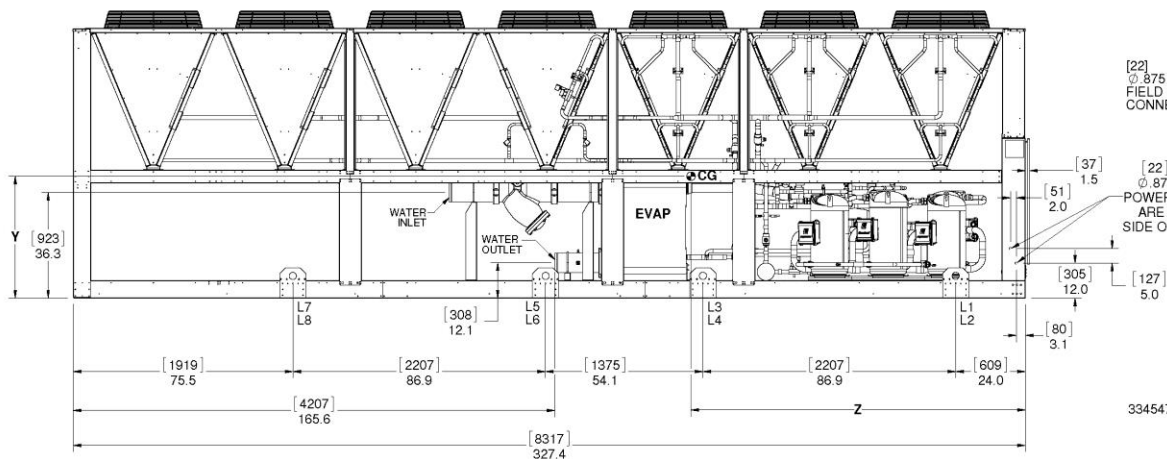
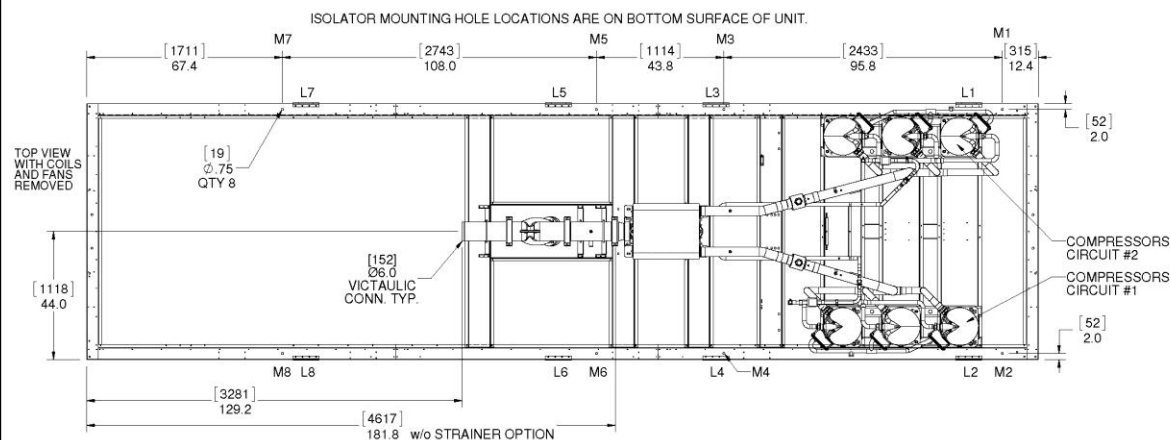
No change to this drawing may be made unless approved in writing by Daikin Applied. Purchaser must determine that the equipment is fit and sufficient for the job specifications.

AGZ241E Packaged (Microchannel Condenser)

Unit Dimensions

Unit Weight Data

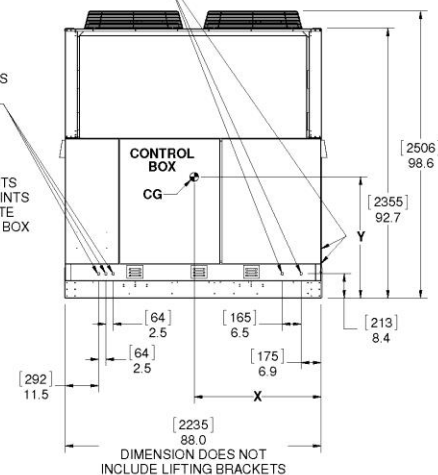
Units	Weight		Lifting Weight								Mounting Weight							
	Shipping	Operating	L1	L2	L3	L4	L5	L6	L7	L8	M1	M2	M3	M4	M5	M6	M7	M8
lb	9501	9688	1683	1671	1309	1299	1075	1068	701	696	1586	1574	1292	1283	1158	1149	826	820
kg	4310	4394	763	758	594	589	488	484	318	316	719	714	586	582	525	521	375	372



[22] Ø.875 KNOCKOUTS POWER ENTRY POINTS FRONT AND RIGHT SIDE

[22] Ø.875 KNOCKOUTS FIELD CONTROL CONNECTIONS

[22] Ø.875 KNOCKOUTS POWER ENTRY POINTS ARE ON OPPOSITE SIDE OF CONTROL BOX



Unit and Center of Gravity Dimensions

Units	Connection Size (Victaulic)	Center of Gravity		
		X	Y	Z
in	6.0	43.8	41.9	113.2
mm	152	1113	1064.0	2875

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. It is recommended that the side locations be used for power entry wire sizes larger than 350 mcm. Lifting weights are based on unit shipping weights. Mounting weights are based on unit operating weight with evaporator water included. Shipping and operating weights do not include the weights of any options or accessories.

AGZ241E_ACH_Drawing for MWSU CH-3 stock

Job Number

Job Name

Chiller 2

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Prepared Date:

www.DaikinApplied.com

9/07/2017

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.

0A

AGZ-E Guards: Base Unit, Painted Base



Diagram Notes

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

Date:

FieldWiring_AGZE_SP_Drawing for MWSU CH-3 stock

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 specific OD

AGZ030-241F Single-Point Connection Field Wiring Diagram

