



## DISTRICT SCHOOL BOARD OF PASCO COUNTY

Kurt S. Browning, Superintendent of Schools

7227 Land O' Lakes Boulevard • Land O' Lakes, Florida 34638

### Purchasing Services

Nicole Westmoreland, MBA, Purchasing Agent

813/ 794-2221 Fax: 813/ 794-2111

727/ 774-2221 TDD: 813/794-2484

352/ 524-2221 e-mail: nwestmor@pasco.k12.fl.us

April 15, 2014

### MEMORANDUM

TO: Honorable School Board Members

FROM: Nicole Westmoreland, MBA, Purchasing Agent *NW*

RE: Request Dollar Approval for Additional Expenditures  
RFP #11-067-AF HVAC Factory Chiller Services  
Daikin Applied Americas, Inc. formerly McQuay International

On April 1, 2014 official action was taken to enter into a one-year extension of a three-year contract with the above-referenced vendor. This recommendation was for an anticipated annual expenditure of \$150,000 for the one-year extension. The one-year extension of the contract covers the period April 20, 2014 through April 19, 2015.

At this time, Maintenance Services has determined that an additional \$400,000 will be needed through April 19, 2015, to cover the anticipated expenditures for the balance of the one-year extension. This increase is a result of the need to replace two of the three chillers located at River Ridge Middle/High School. Please reference the attached memo from Mark Fox, Director of Maintenance Services for additional information. Funding for this project will be through Local Capital Improvement funds. At this time, it is my recommendation that the Board approve the additional dollar amount of \$400,000 through April 19, 2015.

Should you have any questions regarding this matter, or if I can be of further assistance, please feel free to contact me at your earliest convenience.

NW/acf

Date/Time: April 9, 2014 08:52:00

(813)794-2000 • (352) 524-2000 • (727) 774-2000 • [www.pasco.k12.fl.us](http://www.pasco.k12.fl.us)

The District School Board of Pasco County is System Accredited by AdvancED/Southern Association of Colleges and Schools



## DISTRICT SCHOOL BOARD OF PASCO COUNTY

Kurt S. Browning, Superintendent of Schools

7227 Land O' Lakes Boulevard • Land O' Lakes, Florida 34638

Department of Maintenance & Facilities Services  
11835 Treebreeze Drive • New Port Richey, FL 34654  
Mark A. Fox, Director

727/ 774-7900 West Fax: 813/ 794-7991  
813/ 794-7900 Central TDD: 813/ 794-2484  
352/ 524-7900 East e-mail: [mfox@pasco.k12.fl.us](mailto:mfox@pasco.k12.fl.us)

MFS-172-14

### MEMORANDUM

April 2, 2014

**TO:** Nicole Westmoreland, Purchasing Agent  
Amy Flack, Buyer  
Deb Mateo, Buyer Assistant

**FROM:** Mark A. Fox, Director 

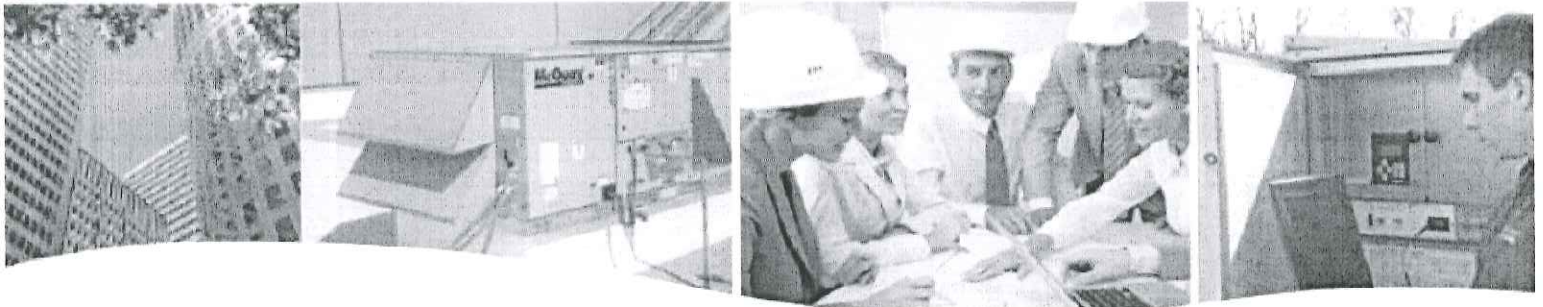
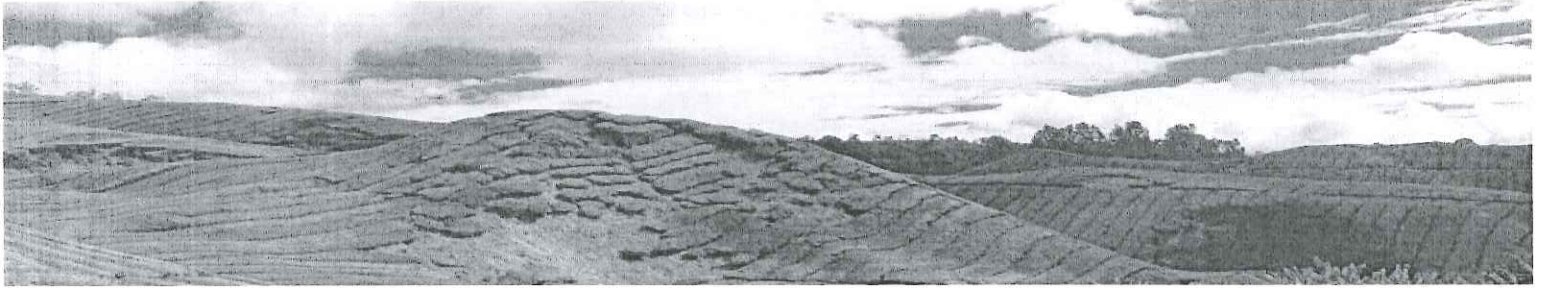
**SUBJECT:** Chill Water System – River Ridge Middle/High School

Subject: Daikin Applied Americas Inc., Formerly McQuay International, Chill Water System at River Ridge Middle / High School (RRMHS)

The District currently has an agreement with Daikin Applied Americas Inc., formerly McQuay International, to provide services for McQuay equipment throughout the District. These services were solicited through RFP# 11-067-AF HVAC Factory Chiller Services and Board approved September 6, 2011.

Representatives from the Maintenance and Facility Services HVAC Department met with Daikin personal to determine the serviceability, status of life cycle and energy efficiency of the chill water system at RRMHS. It was determined it would be cost effective and in the best interest of the District to replace two of the three chillers in the system rather than attempt to rebuild equipment at the end of its life cycle. Negotiations with Daikin to replace this equipment resulted in the attached proposal.

At this time, we are recommending acceptance this proposal and requesting the Board to approve increasing the amount approved for services approved for this vendor by \$400,000. Coding for this project is 3714.0471.13.85110.568000.7400.0000. Please contact me at your earliest convenience if you have any questions.



Project Proposal  
Chiller Replacement  
Proposal #CS03072014A

Prepared for:  
Mr. Mike Woodall

*River Ridge High School*

District School Board of Pasco County  
11835 Treebreeze Drive  
New Port Richey, Florida 34654

March 12, 2014

Prepared by:  
Craig Szenay  
District Manager

*Engineered for flexibility and performance™*

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## *Company Information*

### **I. Philosophy**

Daikin Applied is the premier supplier of high efficiency HVAC equipment and is a recognized leader in energy conservation solutions. We incorporate leading edge technology and system design to minimize energy consumption and optimize financial incentives and provide lifecycle support. We strive to partner with our clients to understand their specific needs to deliver the best possible solution for their building.

### **II. Our Company**

Daikin Industries, Ltd. is a Fortune 1000 company with 2008 revenues in excess of \$12 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 chemical products. Daikin is a leader in providing solutions for customers in Asia and Europe.

Daikin Applied Americas Inc. dba Daikin Applied, a wholly owned subsidiary of Daikin Industries, Ltd., delivers engineered, flexible solutions for commercial, industrial and institutional HVAC requirements with reliable products, knowledgeable applications expertise and responsive support. Daikin Applied products and services are provided through a worldwide network of dedicated sales, service and parts offices. We provide total customer care from design, to installation, to maintenance, throughout the life of your equipment.

Daikin has been named as one of the 100 Most Sustainable Companies in the world for three consecutive years. Our factories in Japan have been certified to the ISO 14001 Environmental Standard since 1996. All Daikin Applied facilities will be ISO 14001 certified by 2012.

### **III. Owner Sales**

Daikin Applied Owner Sales Team partners with you to identify and address specific business goals - such as maximizing your building's performance, minimizing energy costs and reducing carbon emissions.

From design through commissioning, we help you meet your goals by developing complete turnkey HVAC systems. You can expect a comprehensive evaluation of your situation and single-source solution that improves your business, both environmentally and economically.

We work closely with our National Accounts and Service Groups to provide the highest standards of customer care through the design, construction, and maintenance phases of a facility's life.

### **IV. Service and Customer Training**

After you have invested in efficient, flexible HVAC equipment, taking care of your investment should be a top priority. The Daikin Learning Institute offers training classes, so you can learn firsthand how to get the most out of your mechanical system.

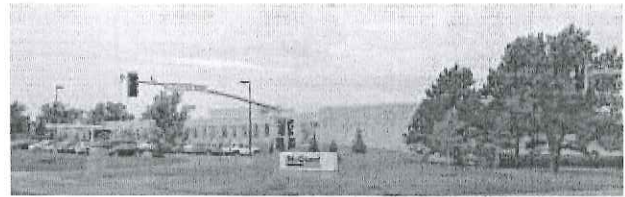
Our Service offices can also help you get the most of your operations budget by controlling maintenance costs and protecting your HVAC investment. Our factory trained technicians and service representatives can provide quick response and pro-active services for all types of HVAC systems and non-Daikin brands. For Service and Operator Training questions contact your local Daikin Applied office.

## ***Our Company***

**Daikin Industries, Ltd.** is a Fortune 1000 company with 2011 revenues in excess of \$13 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](http://www.daikin.com).

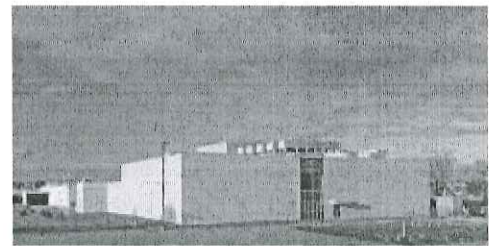


**Daikin Applied Americas**, a wholly owned subsidiary of Daikin Industries, Ltd., is a global leader in the design and manufacture of HVAC systems that are unmatched in efficiency, reliability and sustainability. Examples of our innovative technologies include the Magnitude® Magnetic Bearing Centrifugal 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.

The award winning Daikin 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.



## Executive Summary

Dear Mike:

In review of your facility and per your request, this proposal includes the following information for replacement of the existing McQuay chiller model PEH063 S/N#5VF0100900 and the replacement of existing McQuay model PEH087 S/N# 5VF0101500. The chillers were installed and commissioned in 1990. These chillers are now 24 years old and based on ASHRAE standards are at the end of their useful life.

We have made a few site visits and evaluated the condition of this equipment. Some areas of concern are the age of the equipment, they operate on CFC R-12 refrigerant and the fact there has been no major overhauls or upgrades to the chiller. Another area to consider is energy consumption. The existing chillers in new condition were designed at .65 kilowatt per ton in full load conditions. The magnetic bearing compressor technology will deliver part load values as low as .27 kilowatt per ton.

The following proposal will not only position River Ridge High School for years of dependability and comfort cooling, but will also ensure that your chiller plant is operating in the most efficient optimized running condition. The potential energy savings of the new Daikin Magnitude Magnetic Bearing Chiller is outstanding and the reliability of this machine has been proven over 10 years in the field. We have included potential energy savings of the new chiller within this proposal and the ROI for your review. Daikin Applied is prepared to move forward with this project and we look forward to the implementation of a very energy efficient system.

Sincerely,

Craig Szenay  
District Manager  
Tampa Office  
Mobile: 813-480-9628  
Email: craig.szenay@daikinapplied.com

### **McQuay 200 ton Chiller Upgrade**

We recommend replacing the existing 200 Ton McQuay centrifugal chiller with a new *DAIKIN 200Ton WMC200D Magnitude™* Water Cooled Centrifugal Chiller.

The WMC Magnitude™ 200 ton chiller is the most energy efficient chiller in its size range that features tremendous part-load performance as low as .29kW/Ton and 40% more efficient than a standard centrifugal chiller.

### **McQuay 450 ton Chiller Upgrade**

We recommend replacing the existing 450 Ton McQuay centrifugal chiller with a new *DAIKIN 500Ton WME500 Magnitude™* Water Cooled Centrifugal Chiller.

The WME Magnitude™ 500 ton chiller is the most energy efficient chiller in its size range that features tremendous part-load performance as low as .27kW/Ton and 40% more efficient than a standard centrifugal chiller.

We estimate an average monthly savings in energy costs of \$8,300 due to the additional chiller capacity and improved part-load performance of the WMC and WME chillers.

**The total estimated electrical and maintenance savings is \$111,590 per year or \$2,231,800 over 20 years**



**Building Information**

User: Craig Szenay  
 Date: 3/28/2014  
 Facility Name: River Ridge High School  
 City: Tampa, FL  
 Building Type: Secondary School  
 Design Cooling Load: 650 tons  
 Energy Rate: \$0.10 /kWhr

**Chiller Comparison**

Base Chiller 1: PEH063 - 200 tons  
 Oil Degradation Factor: 2%  
 Base Chiller 2: PEH087 - 450 tons  
 Oil Degradation Factor: 2%  
 Base Configuration: Two Parallel Chillers  
 Alternate Chiller 1: WMC200 - 200 tons  
 Oil Degradation Factor: 0%  
 Alternate Chiller 2: WME450 - 450 tons  
 Oil Degradation Factor: 0%  
 Alternate Configuration: Two Parallel Chillers

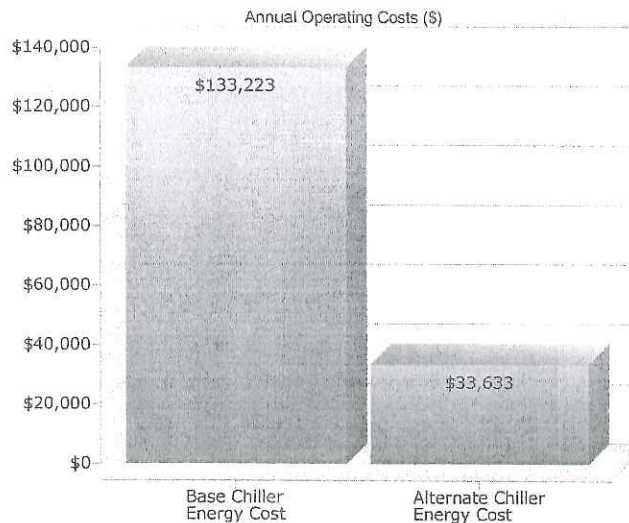
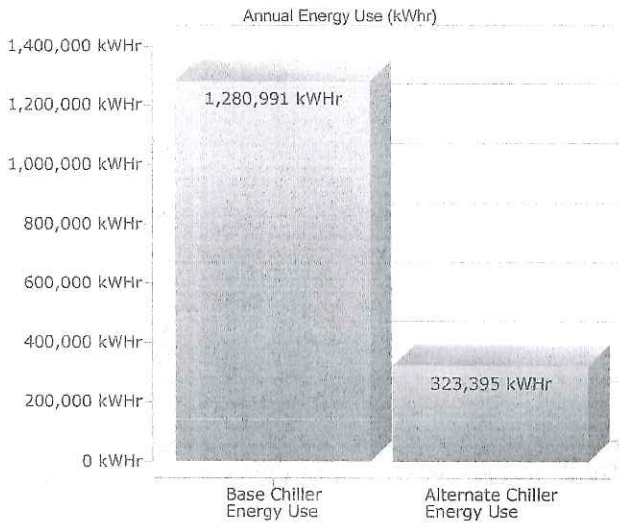
Design Load %	Annual Operating Hours	Base					Alternate				
		Design Load %	Chiller 1 kw/Ton	Chiller 2 kw/Ton	Totals		Design Load %	Chiller 1 kw/Ton	Chiller 2 kw/Ton	Totals	
					kWhr	Energy Cost				kWhr	Energy Cost
100%	100	100%	0.776	0.816	42,878	\$4,459	100%	0.598	0.562	4,024	\$418
90%	300	90%	0.752	0.791	116,700	\$12,137	90%	0.536	0.499	7,362	\$766
80%	800	80%	0.738	0.776	277,259	\$28,835	80%	0.469	0.438	8,923	\$928
70%	1000	70%	0.745	0.783	300,004	\$31,200	70%	0.412	0.376	2,594	\$270
60%	1000	60%	0.763	0.802	290,175	\$30,178	60%	0.362	0.321	167,895	\$17,461
50%	800	50%	0.744	0.781	185,574	\$19,300	50%	0.312	0.276	99,437	\$10,341
40%	300	40%	0.659	0.693	56,082	\$5,833	40%	0.303	0.284	27,292	\$2,838
30%	80	30%	0.648	0.680	11,111	\$1,155	30%	0.292	0.297	5,291	\$550
20%	20	20%	0.666	0.700	1,209	\$126	20%	0.294	0.376	578	\$60
10%	0	10%	0.598	0.000	0	\$0	10%	0.000	0.000	0	\$0
	<b>4,400</b>				<b>1,280,991</b>	<b>\$133,223</b>				<b>323,395</b>	<b>\$33,633</b>

**Savings**

Expected Rebate: \$0  
 One Time Deferred Repair/Update or Other Cost: \$0.00 / Year  
 Expected Maintenance/Repair Reduction: \$12,000.00 / Year  
 "Other Tangible" Savings/Benefits:  
 Energy Savings: \$99,590 / Year

**Payback**

Initial Investment Differential: \$298,642  
 Initial Investment After Rebate/One Time Cost: \$298,642  
 Total Annual Savings: \$111,590 / Year  
 Simple Payback Without Rebate: 2.68 Years  
 Simple Payback With Rebate/One Time Cost Savings: 2.68 Years





## Scope of Work

### **200 and 500 ton Magnetic Chiller Replacement Scope of Work:**

1. Furnish and install (1) Daikin WMC200D- 200 ton chiller to replace existing McQuay Model #PEH063 chiller.
2. Furnish and install (1) Daikin WME500- 500 ton chiller to replace existing McQuay Model #PEH087 chiller.
3. Shutdown chilled water system and isolate chilled water plant from the school buildings utilizing existing isolation valves. (Note: If valves do not hold then the entire chiller plant must be drained.)
4. Install (8) new butterfly isolation valves, 2 chilled water and 2 condenser water at each new chiller.
5. Provide associated labor, materials, rigging and crane to remove existing water cooled Chillers through opening of wall ( remove existing louver and reinstall) and install new Daikin Water Cooled Chillers. Any necessary disassembly or reassembly of compressors or vessels to remove and install chillers is included in this proposal
6. Disconnect existing power supply to chillers and reconnect to new chillers.
7. Remove old chillers and properly dispose of per EPA standards.
8. (Note: scrap value of chillers and refrigerant was used to reduce cost for this chiller project. If the School Board wishes to keep chillers and R-12 Refrigerant, the deducted amount of \$16,500 must be added back to the installed price of 2 chillers.)
9. Disconnect and reconnect chilled water and condenser water piping from new butterfly valves to new chiller.
10. Provide new gauges and thermometers on the condenser and chilled water pipes of both chillers.
11. Furnish labor and materials to connect new chillers to existing refrigerant relief vent line in mechanical room.
12. All associated labor and materials to install new 2" foam glass insulation with ASJ jacket on the straight piping and fabricate and mastic on the fittings on the chilled water piping that was disturbed.
13. Painting of new condenser piping.
14. Any Permit and fees included.
15. Factory Service startup and training.
16. Five year factory parts and labor warranty included.
17. Maintenance and inspections are not included.

**Note:** Average lead-time for Magnetic bearing chillers is 7 weeks for delivery.

The installation time to complete this project is approximately 2 weeks from receipt of the new equipment.

### **Exclusions / Clarifications**

1. Supply and install of refrigerant monitor
2. Installation of refrigerant monitor, exhaust ductwork or fan
3. Any additional work to bring mechanical room to ASHRAE Std. or to meet code requirements.
4. Controls of any kind
5. Design or Structural Engineering if required for permit
6. Any Test and Balance of Systems
7. Any additional items not associated with this work
8. Asbestos abatement
9. All work to be performed during normal working hours Monday through Friday.

### **General**

1. Any work, parts, equipment, materials, labor or subcontracted services, unless specifically described in the scope of work, is not included in this proposal.
2. Removal of hazardous materials or asbestos abatement is not included.
3. All work will be performed during normal business hours unless specifically included in this proposal.
4. Daikin Applied will not be responsible for delays or costs incurred due to limited or no access to the building or building equipment.
5. Unless otherwise noted, patching and/or repairs to the building envelope are not included.

6. Bid Bond, Performance Bond and/or Payment Bonds, unless otherwise noted are not included.
7. Any existing code violations unless specifically noted are not included.

### **Engineering**

1. Unless otherwise specified in the scope of work, professional engineering services including Mechanical, Electrical, Structural or other are not included.
2. Third Party Commissioning is not included unless specifically called out in this scope of work.

### **Mechanical**

1. Mechanical installation including labor and materials (pipe, insulation, valves, fittings, etc.) is limited to the mechanical equipment defined in this proposal.

### **Electrical**

1. Electrical Installation including labor and materials (conduit, wire, fittings, panels, breakers, etc.) is limited to the electrical work specifically included in this proposal.
2. Emergency Power is not included in the scope of work.

### **Controls**

1. Daikin Applied is not responsible for the repair or replacement of the existing Building Automation System, unless otherwise noted in the scope of work.
2. The connection of the new chillers to the existing Building Automation System is included.

## Milestone Billing Schedule

Per this agreement, payments shown below shall be made as per the following Milestone billing amounts. Each amount shall be invoiced at the completion of each milestone period and shall constitute Customer's acceptance of the Work. All payments are due upon receipt.

EQUIPMENT TO PREMISE CHARGES -----	\$298,642
EQUIPMENT INSTALL -----	\$ 98,471
START UP / TRAINING CHARGES -----	<u>\$1,287</u>
TOTAL PROJECT COST CHARGES -----	\$398,400

### Options for Consideration:

- If multiple gas refrigerant monitor is required to comply with code. ADD \$7,300.00
- Re- work existing mechanical room exhaust ductwork to comply with code. ADD \$2,200.00
- If new mechanical room exhaust fan is required. ADD \$2,800.00
- Total for listed options: \_\_\_\_\_ \$13,700.00

~~~~~  
Mobilization Costs covers, submittal preparation, preparation work and site inspections.

Equipment to Premises indicates successful delivery, inspection and acceptance of equipment by customer or his agent at installation site.

Equipment Install denotes that the unit has been set, all rigging, piping connections, electrical connections and control work, under the direct supervision of Daikin Applied, has been successfully and satisfactorily completed.

Start Up/Training indicates that the unit/system has successfully been started and the completed startup logs have been witnessed and signed. Training indicates that the Customer has received initial owner/operator instruction from Daikin Applied commissioning technician. Additional detailed Owner/Operator training is available from the Daikin Learning Institute.

### Acceptance:

\_\_\_\_\_  
 District School Board of Pasco County

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Daikin Applied Americas Inc.

\_\_\_\_\_  
 Date

# 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. dba Daikin Applied. Company offers to sell the materials, equipment or services indicated, including but not limited to those products sold under the brand name Daikin 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; (e) have been exposed to contaminants, or corrosive agents, chemicals, or minerals, from the water supply source, or (f) have not been fully paid for by Owner. 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

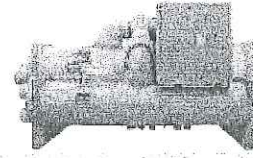
450 Ton WME

**MAGNITUDE™ Water Cooled Centrifugal Chiller**



**Job Information** **Technical Data Sheet**

|                  |                       |
|------------------|-----------------------|
| Job Name         | Pasco School Chillers |
| Date             | 3/7/2014              |
| Submitted By     | Debbie Horsey         |
| Software Version | 09.10                 |
| Unit Tag         | WME 450 TONS          |



**Unit Overview**

| Model Number | Capacity ton | NPLV kW/ton | Voltage       | Drive Type | ASHRAE 90.1    |
|--------------|--------------|-------------|---------------|------------|----------------|
| WME0500S     | 450.0        | 0.326       | 460 V / 60 Hz | VFD/UM     | '04, '07 & '10 |

**Unit**

|               |                                                          |
|---------------|----------------------------------------------------------|
| Model Number: | WME0500SSM2R/E3012-CE-2**/C2612-DLY-2****/R134-BAAAPAB-U |
| Approval:     | AHRI and ETL / cETL                                      |
| Vessel Code:  | ASME                                                     |

|                     |                         |                  |                    |
|---------------------|-------------------------|------------------|--------------------|
| Compressor Quantity | Capacity Control        | Refrigerant Type | Refrigerant Weight |
| 1                   | VFD / Inlet Guide Vanes | R134a            | 1067 lb            |

| Evaporator                 |                           | Fluid Type | Actual Fluid Flow | Minimum Fluid Flow |
|----------------------------|---------------------------|------------|-------------------|--------------------|
| Entering Fluid Temperature | Leaving Fluid Temperature | Water      | 900.07 gpm        | 263.5 gpm          |
| 55.99 °F                   | 44.00 °F                  |            |                   |                    |

| Length | Diameter | Number of Passes | Material | Tube Wall Thickness | Fouling Factor                    |
|--------|----------|------------------|----------|---------------------|-----------------------------------|
| 12 ft  | 30 in    | 2                | Copper   | 0.025 in            | 0.00010 °F.ft <sup>2</sup> .h/Btu |

| Condenser                  |                           | Fluid Type | Fluid Flow  |
|----------------------------|---------------------------|------------|-------------|
| Entering Fluid Temperature | Leaving Fluid Temperature | Water      | 1350.00 gpm |
| 85.00 °F                   | 94.27 °F                  |            |             |

| Length | Diameter | Number of Passes | Material | Tube Wall Thickness | Fouling Factor                    |
|--------|----------|------------------|----------|---------------------|-----------------------------------|
| 12 ft  | 26 in    | 2                | Copper   | 0.025 in            | 0.00025 °F.ft <sup>2</sup> .h/Btu |

**Unit Performance**

| Capacity ton | Input kW | Efficiency kW/ton | RLA A | NPLV kW/ton | Part Load Efficiency |            |            | Evaporator Fluid                  |                         | Condenser Fluid                   |                        |
|--------------|----------|-------------------|-------|-------------|----------------------|------------|------------|-----------------------------------|-------------------------|-----------------------------------|------------------------|
|              |          |                   |       |             | 75% kW/ton           | 50% kW/ton | 25% kW/ton | Pressure Drop ft H <sub>2</sub> O | Entering Temperature °F | Pressure Drop ft H <sub>2</sub> O | Leaving Temperature °F |
| 450.0        | 253.1    | 0.562             | 356   | 0.326       | 0.408                | 0.276      | 0.308      | 19.4                              | 55.99                   | 26.2                              | 94.27                  |

**Performance Points Rated at AHRI Condenser Relief**

| Point # | % of Design Load | Capacity ton | Input kW | Efficiency kW/ton | RLA A | Evaporator Fluid |                         |                        | Condenser Fluid                   |          |                         |                        |                                   |
|---------|------------------|--------------|----------|-------------------|-------|------------------|-------------------------|------------------------|-----------------------------------|----------|-------------------------|------------------------|-----------------------------------|
|         |                  |              |          |                   |       | Flow gpm         | Entering Temperature °F | Leaving Temperature °F | Pressure Drop ft H <sub>2</sub> O | Flow gpm | Entering Temperature °F | Leaving Temperature °F | Pressure Drop ft H <sub>2</sub> O |
| 1       | 100.0            | 450.0        | 253.1    | 0.562             | 356   | 900.07           | 55.99                   | 44.00                  | 19.4                              | 1,350.00 | 85.00                   | 94.27                  | 26.2                              |
| 2       | 90.0             | 405.0        | 201.9    | 0.499             | 289   | 900.07           | 54.79                   | 44.00                  | 19.4                              | 1,350.00 | 81.00                   | 89.21                  | 26.6                              |
| 3       | 80.0             | 360.0        | 157.8    | 0.438             | 231   | 900.07           | 53.59                   | 44.00                  | 19.5                              | 1,350.00 | 77.00                   | 84.20                  | 27.0                              |
| 4       | 70.0             | 315.0        | 118.4    | 0.376             | 183   | 900.07           | 52.39                   | 44.00                  | 19.5                              | 1,350.00 | 73.00                   | 79.24                  | 27.4                              |
| 5       | 60.0             | 270.0        | 86.7     | 0.321             | 138   | 900.07           | 51.19                   | 44.00                  | 19.5                              | 1,350.00 | 69.00                   | 74.28                  | 27.9                              |
| 6       | 50.0             | 225.0        | 62.2     | 0.276             | 101   | 900.07           | 49.99                   | 44.00                  | 19.6                              | 1,350.00 | 65.00                   | 69.36                  | 28.4                              |
| 7       | 40.0             | 180.0        | 51.1     | 0.284             | 84    | 900.07           | 48.80                   | 44.00                  | 19.6                              | 1,350.00 | 65.00                   | 68.51                  | 28.4                              |
| 8       | 30.0             | 135.0        | 40.1     | 0.297             | 67    | 900.07           | 47.60                   | 44.00                  | 19.7                              | 1,350.00 | 65.00                   | 67.66                  | 28.4                              |
| 9       | 20.0             | 90.0         | 33.9     | 0.376             | 58    | 900.07           | 46.40                   | 44.00                  | 19.7                              | 1,350.00 | 65.00                   | 66.81                  | 28.5                              |
| 10      | 10.0             | 45.0         | 22.6     | 0.502             | 41    | 900.07           | 45.20                   | 44.00                  | 19.7                              | 1,350.00 | 65.00                   | 65.94                  | 28.5                              |



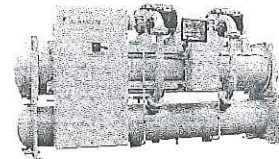
# MAGNITUDE™ Water Cooled Centrifugal Chiller



200 TON WMC

## Job Information Technical Data Sheet

|                  |                       |
|------------------|-----------------------|
| Job Name         | Pasco School Chillers |
| Date             | 3/7/2014              |
| Submitted By     | Debbie Horsey         |
| Software Version | 09.10                 |
| Unit Tag         | WMC 200 tons          |



## Unit Overview

| Model Number | Capacity ton | IPLV kW/ton | Voltage       | Drive Type   | ASHRAE 90.1    | LEED EA Credit 4 |
|--------------|--------------|-------------|---------------|--------------|----------------|------------------|
| WMC250D      | 200.0        | 0.354       | 460 v / 60 Hz | VFD/Integral | '04, '07 & '10 | Pass             |

## Unit

|                            |                                                          |                  |                  |                     |                      |  |
|----------------------------|----------------------------------------------------------|------------------|------------------|---------------------|----------------------|--|
| Model Number:              | WMC250DBS15R/E2609-CE-2**/C2209-CLYY-2*****/R134-DAABA-U |                  |                  |                     |                      |  |
| Approval:                  | AHRI and ETL / cETL                                      |                  |                  |                     |                      |  |
| Vessel Code:               | ASME                                                     |                  |                  |                     |                      |  |
| Compressor Quantity        | Capacity Control                                         |                  | Refrigerant Type |                     | Refrigerant Weight   |  |
| 2                          | VFD / Inlet Guide Vanes                                  |                  | R134a            |                     | 600 lb               |  |
| Evaporator                 |                                                          |                  |                  |                     |                      |  |
| Entering Fluid Temperature | Leaving Fluid Temperature                                | Fluid Type       |                  | Actual Fluid Flow   | Minimum Fluid Flow   |  |
| 53.99 °F                   | 44.00 °F                                                 | Water            |                  | 480.00 gpm          | 182.7 gpm            |  |
| Length                     | Diameter                                                 | Number of Passes | Material         | Tube Wall Thickness | Fouling Factor       |  |
| 9 ft                       | 26 in                                                    | 2                | Copper           | 0.025 in            | 0.00010 °F.ft².h/Btu |  |
| Condenser                  |                                                          |                  |                  |                     |                      |  |
| Entering Fluid Temperature | Leaving Fluid Temperature                                | Fluid Type       |                  | Fluid Flow          |                      |  |
| 85.00 °F                   | 94.34 °F                                                 | Water            |                  | 600.00 gpm          |                      |  |
| Length                     | Diameter                                                 | Number of Passes | Material         | Tube Wall Thickness | Fouling Factor       |  |
| 9 ft                       | 22 in                                                    | 2                | Copper           | 0.025 in            | 0.00025 °F.ft².h/Btu |  |

## Unit Performance

| Design       |          |                   |       |             |                      |            |            |                                   |                         |                                   |                        |
|--------------|----------|-------------------|-------|-------------|----------------------|------------|------------|-----------------------------------|-------------------------|-----------------------------------|------------------------|
| Capacity ton | Input kW | Efficiency kW/ton | RLA A | IPLV kW/ton | Part Load Efficiency |            |            | Evaporator Fluid                  |                         | Condenser Fluid                   |                        |
|              |          |                   |       |             | 75% kW/ton           | 50% kW/ton | 25% kW/ton | Pressure Drop ft H <sub>2</sub> O | Entering Temperature °F | Pressure Drop ft H <sub>2</sub> O | Leaving Temperature °F |
| 200.0        | 119.6    | 0.598             | 172   | 0.354       | 0.438                | 0.312      | 0.293      | 9.6                               | 53.99                   | 7.4                               | 94.34                  |

| Performance Points Rated at AHRI Condenser Relief |                  |                                                                          |          |                   |       |                  |                         |                        |                                   |          |                         |                        |                                   |
|---------------------------------------------------|------------------|--------------------------------------------------------------------------|----------|-------------------|-------|------------------|-------------------------|------------------------|-----------------------------------|----------|-------------------------|------------------------|-----------------------------------|
| Point #                                           | % of Design Load | Capacity ton                                                             | Input kW | Efficiency kW/ton | RLA A | Evaporator Fluid |                         |                        | Condenser Fluid                   |          |                         |                        |                                   |
|                                                   |                  |                                                                          |          |                   |       | Flow gpm         | Temperature Entering °F | Temperature Leaving °F | Pressure Drop ft H <sub>2</sub> O | Flow gpm | Temperature Entering °F | Temperature Leaving °F | Pressure Drop ft H <sub>2</sub> O |
| 1                                                 | 100.0            | 200.0                                                                    | 119.6    | 0.598             | 172   | 480.00           | 53.99                   | 44.00                  | 9.6                               | 600.00   | 85.00                   | 94.34                  | 7.4                               |
| 2                                                 | 90.0             | 180.0                                                                    | 96.5     | 0.536             | 140   | 480.00           | 52.99                   | 44.00                  | 9.6                               | 600.00   | 81.00                   | 89.27                  | 7.6                               |
| 3                                                 | 80.0             | 160.0                                                                    | 75.1     | 0.469             | 110   | 480.00           | 51.99                   | 44.00                  | 9.6                               | 600.00   | 77.00                   | 84.22                  | 7.7                               |
| 4                                                 | 70.0             | 140.0                                                                    | 57.7     | 0.412             | 85    | 480.00           | 50.99                   | 44.00                  | 9.6                               | 600.00   | 73.00                   | 79.22                  | 7.8                               |
| 5                                                 | 60.0             | 120.0                                                                    | 43.4     | 0.362             | 68    | 480.00           | 49.99                   | 44.00                  | 9.6                               | 600.00   | 69.00                   | 74.25                  | 7.9                               |
| 6                                                 | 50.0             | 100.0                                                                    | 31.2     | 0.312             | 52    | 480.00           | 49.00                   | 44.00                  | 9.6                               | 600.00   | 65.00                   | 69.31                  | 8.1                               |
| 7                                                 | 40.0             | 80.0                                                                     | 24.2     | 0.303             | 38    | 480.00           | 48.00                   | 44.00                  | 9.7                               | 600.00   | 65.00                   | 68.44                  | 8.1                               |
| 8                                                 | 30.0             | 60.0                                                                     | 17.6     | 0.292             | 29    | 480.00           | 47.00                   | 44.00                  | 9.7                               | 600.00   | 65.00                   | 67.57                  | 8.1                               |
| 9                                                 | 20.0             | 40.0                                                                     | 11.8     | 0.294             | 21    | 480.00           | 46.00                   | 44.00                  | 9.7                               | 600.00   | 65.00                   | 66.71                  | 8.1                               |
| 10                                                | 10.0             | Rating Point not within scope of Chiller - modify Input Conditions [270] |          |                   |       |                  |                         |                        |                                   |          |                         |                        |                                   |

