

# All Agency Project Request

2013 - 2015 Biennium

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<b><u>Agency</u></b>	<b><u>Institution</u></b>	<b><u>Building No.</u></b>	<b><u>Building Name</u></b>
University of Wisconsin	Oshkosh	285-0F-0053A	BLACKHAWK COMMONS

<b><u>Project No.</u></b>	14A3R	<b><u>Project Title</u></b>	Blackhawk Commons AHU Repl
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## **Project Intent**

This project provides investigation and research, pre-design, and design services to replace outdated and inefficient heating, ventilating and air-conditioning units serving the main dining and dish room areas. Pre-design services will provide scope options, recommendations, constructability analysis, detailed cost estimates, and project schedule confirmation.

## **Project Description**

Project work includes replacing roof-located steam/chilled water HVAC units AC-3, AC-4, and AC-5 which serve the east half of the main dining level, and heating and ventilation unit HV-2, serving the dish washing area; modifying or replacing the three (3) associated equipment penthouses as needed to accommodate new unit dimensions and configurations, or furnishing a new single penthouse sized to enclose all roof mounted air handling units and the existing roof access point. HVAC unit AC-6 (located within the existing roof access penthouse) will not be replaced. Project work also includes replacing the in-line return/exhaust (R/E) fans associated to AC-3, AC-4, and AC-5 with similar style fans or incorporate R/E fans within associated air handler unit housings. The replacement unit for HV-2 will include a chilled water coil section to provide air conditioning to the dishwashing room.

Unit replacement includes removal and disposal of equipment, installation of new equipment, modification of sheet metal ductwork to suit new unit configurations, piping and electrical re-connections and reconfigurations, testing and balancing of the associated air distribution systems, air measurements and re-balancing of the whole facility to recalculated design values, new HVAC unit controls to monitor and manage the new air handling systems, and all related components and labor to provide a complete replacement of the listed HVAC units.

Pre-design services will provide, at a minimum, the following design options for review and approval:

- Option 1 - Base Scope: Complete replacement of air handling and in-line return/exhaust units and connecting services in their original location, with required individual penthouse modifications including roof steel structural analysis and rework to accommodate penthouse remodeling.
- Option 1 – Additive Scope: Completely replace HV-4, including unit control upgrade from pneumatic to DDC, in their original location. HV-4 heats and delivers ventilation air to the main 1st floor kitchen. HV-4 is located in basement mechanical room #1.
- Option 2 - Base Scope: Complete replacement of air handling and in-line return/exhaust units and connecting services in their original location, with a new single penthouse enclosing HVAC units and roof access point.
- Option 2 – Additive Scope: Completely replace HV-3, HV-5, and AC-2, including unit control upgrade from pneumatic to DDC, in their original location. HV-3 is located in room basement mechanical room #23 and serves the 1st floor kitchen bakery area. HV-5 and AC-2 are located in basement mechanical room #1 and serve the dry storage area of the 1st floor kitchen and 1st floor offices respectively.

## **Project Justification**

The HVAC units do not have sufficient capacity to deliver the required make up air for the dishwasher exhaust system and due to the unit inlet configurations, the units cannot meet code required ventilation rates for the east half of the main dining area in the winter months due to air stratification and freeze-trips. Outside air has to be greatly restricted in the winter months to keep the units operational. All units referenced were installed with the original building construction in 1969 and therefore are at the end of the expected useful lives. Some of the condition and design issues include: damper blade/linkage damage (no seals, stroke issues), dirty and fouled coils, fan wheel and bearing wear, no chilled water control valves (run wide open), face & bypass control sequence inoperability, no mixing box or blender sections, and cobbled low performance pneumatic unit controls with little or no remote monitoring or alarming capability. To make up for these limitations, AC-1, which is relatively new and serves the west half of the dining area and office spaces, is run beyond its

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original design conditions causing balance problems in the areas served. To provide sufficient make up air to the facility and to address maintenance and reliability issues, the units need to be replaced. Replacing unit controls will allow remote performance and alarm monitoring, and facilitate unit scheduling and discharge temperature reset when the facility is unoccupied, saving significant heating and cooling energy in off hours.

## A/E Consultant Requirements

A/E Selection Required?

Consultants should have specific expertise and experience in the design and coordination of institutional Heating, Ventilating, & Air Conditioning systems as part of a design team. Work includes site surveys, acquiring field data, and verifying as-built conditions to assure accurate development of necessary design and bidding documents. Consultants should indicate specific projects from past experience (including size, cost, and completion date) in their letter of interest and when known, include proposed consulting partners and specialty consultants.

Special A/E services required:

- Heat loss/heat gain and exhaust system analytical skills and/or measurement capabilities to right size replacement HVAC units and to determine air balance design values throughout facility.
- Structural engineering analysis of roof steel and building column-loading capabilities in relation to roof mounted unit modifications and penthouse redesign options.
- A proficient understanding of JCI Metasys DDC control systems and industry standard unit control sequences and a general understanding of typical space temperature pneumatic controls as new DDC unit controls will be integrated with existing pneumatic space temperature controls.

The consultant will verify project scope, schedule, and budget estimates, and recommend modifications as required to complete the specified project intent. The consultant will prepare a pre-design document to establish an appropriate project scope, budget, and schedule prior to the university seeking authority to construct from the Board of Regents and State Building Commission.

## Commissioning

- Level 1
- Level 2

## Project Budget

Construction Cost:		
Haz Mats:		
Construction Total:		
Contingency:	15%	
A/E Design Fees:	8%	
DFD Mgmt Fees:	4%	
Equipment/Other:		
		<b>\$1,539,000</b>

## Funding Source

	<u>Total</u>
GFSB - []	\$0
PRSB - Facilities Maintenance & Renovation [T550]	\$0
Agency/Institution Cash [AGF0]	\$0
Gifts	\$0
Grants	\$0
Building Trust Funds [BTF]	\$0
Other Funding Source	\$0

## Project Schedule

SBC Approval: 09/2014  
 A/E Selection: 03/2014  
 Bid Opening: 01/2015  
 Construction Start: 05/2015  
 Substantial Completion: 09/2015  
 Project Close Out: 12/2015

## Project Contact

Contact Name: Kevin Shumann  
 Email: <shumannk@uwosh.edu>  
 Telephone No.: (920) 424-0220 x

## Project Scope Consideration Checklist

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1. Will the building or area impacted by the project be occupied during construction? If yes, explain how the occupants will be accommodated during construction.

All project work will be coordinated through campus physical plant staff to minimize disruptions to daily operations and activities. Work will be primarily on the roof, accessed from open areas adjacent to the building. This majority of this work will also be performed during the summer months, when the student population is at its lowest.

2. Is the project an extension of another authorized project? If so, provide the project #...

3. Are hazardous materials involved? If yes, what materials are involved and how will they be handled?

Required hazardous materials abatement of asbestos on piping and ductwork has been included in the estimated project schedule and project budget. Comprehensive environmental survey inventory data is available on Wisconsin's Asbestos & Lead Management System (WALMS) <<http://walms.doa.state.wi.us/>>.

4. Will the project impact the utility systems in the building and cause disruptions? If yes, to what extent?

This project will impact the utility systems in the building, but not cause disruptions. Major heating systems will be modified during the summer months, when these systems are not in operation.

5. Will the project impact the heating plant, primary electrical system, or utility capacities supplying the building? If yes, to what extent?

6. Are other projects or work occurring within this project's work area? If yes, provide the project # and/or description of the other work in the project scope.

7. Have you identified the WEPA designation of the project...Type I, Type II, or Type III?    
Type III.

8. Is the facility listed on a historic register (federal or state), or is the facility listed by the Wisconsin Historical Society as a building of potential historic significance? If yes, describe here.

9. Are there any other issues affecting the cost or status of this project?

10. Will the construction work be limited to a particular season or window of opportunity? If yes, explain the limitations and provide proposed solution.

This work involves replacement of major components of the building heating system, therefore work must be performed during the summer months unless alternate heating can be arranged.

11. Will the project improve, decrease, or increase the function and costs of facilities operational and maintenance budget and the work load? If yes, to what extent?

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Completion of this project will decrease operational maintenance costs.

12. Are there known code or health and safety concerns? If yes, identify and indicate if the correction or compliance measure was included in the budget estimate, or indicate plans for correcting the issue(s).
13. Are there potential energy or water usages reduction grants, rebates, or incentives for which the project may qualify (i.e. Focus on Energy <<http://www.focusonenergy.com>> or the local utility provider)? If yes, describe here.
14. If this is an energy project, indicate and describe the simple payback on state funding sources in years and the expected energy reduction here.