

Request for Qualifications (Architect / Engineer)

State of Ohio Standard Forms and Documents

Administration of Project: Local Higher Education

Project Name	<u>South Quad/Bunger Field Hot Water Conversion</u>	Response Deadline	<u>April 3, 2017</u>	<u>2:00pm</u>	local time
Project Location	<u>Miami University</u>	Project Number	<u>MUN-100072</u>		
City / County	<u>Oxford / Butler</u>	Project Manager	<u>Doug Hammerle</u>		
Owner	<u>Miami University</u>	Contracting Authority	<u>Local Higher Education</u>		
Delivery Method	<u>CM at Risk</u>	Prevailing Wages	<u>State</u>		
No. of paper copies requested (stapled, not bound)	<u>3</u>	No. of electronic copies requested (PDF)	<u>1</u>		

Submit the requested number of Statements of Qualifications (Form F110-330) directly to Elizabeth Davidson at Cole Service Building, Room 114, 101 S. Fisher Street, Oxford, OH 45056. See Section H of this RFQ for additional submittal instructions.

Submit all questions regarding this RFQ in writing to Elizabeth Davidson at davidsea@miamioh.edu with the project number included in the subject line (no phone calls please). Questions will be answered and posted to the Opportunities page on the OFCC website at <http://ofcc.ohio.gov> on a regular basis until one week before the response deadline. The name of the party submitting a question will not be included on the Q&A document.

Project Overview

A. Project Description

Miami University is soliciting qualifications for professional engineering services. Miami University has developed a ten year Utility Master Plan that has at its core the migration from Steam/condensate distribution to Heating Hot Water(HHW) Distribution. This project's will convert and/or modify the Steam/Condensate infrastructure in the area of Central/South Quad and Bunger Field over from Steam to Heating Hot Water. Along with piping distribution changes the South Chiller Plant will be reconfigured to be not only a chilled water plant but a Heating Hot Water Plant. Modifications include adding Heat Pump Chillers, Steam to HHW heat exchangers, Primary/Secondary piping and pumping, thermal storage and freecooling. The South Chiller Plant will be converted from operating only during warm weather into a 24/7/365 operation for both cooling and heating production. In addition 15 buildings served with Heating Hot Water will be converted from Steam. These are: Hamilton, Richards, Porter, Anderson, Minnich, Scott, MacCracken, Dodds, Stanton, Harris, Logan Lodge, Rec. Sports Center, Goggin Ice Arena Phillips, and Health Service Center. Building HVAC and Process systems in each will be modified, examples include, Domestic Hot Water, Humidification, Dehumidification, Kitchen's, Dishwashers, Laundry, and Pool Heat.

The project will also adapt the existing Steam Plant to better handle the anticipated reduction in summer steam demand. The shutdown on the existing boilers will be insufficient and new summer steam boilers designed for N+1 redundancy will be installed. Coordination of shutdowns and startup of systems will be critical for a smooth transition.

B. Scope of Services

This Request For Qualifications (RFQ) is for an Engineering Firm. The required engineering services include but are not limited to the following:

The project will require the successful engineering firm to display excellence in Central Plant Design, both Steam, Chilled Water and Heating Hot Water, Hydronic & Steam/Condensate Distribution, Building MEP systems in areas that are pertinent to the challenges posed in transitioning away from Steam/Condensate to Heating Hot Water Distribution. In addition expertise in energy modeling and Life Cycle Cost Analysis are important attributes to properly sizing and accessing the best course of action for the University.

Energy modeling to ascertain the summer/winter heating loads will be required to right size the hp chillers/steam to HHW HX's. The University has 1 and possible 3 HP Chillers in its possession that can be used in the South Chiller Plant. The intent is that all heating loads above 55F outside air be satisfied from the rejected heat off the HP Chiller's. The HHW distribution temperatures shall be designed for 130F supply in the summer and have the ability to be reset to a maximum of 200F when outside air is 0 F.

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Steam to HHW Heat Exchanger's shall be used in the SCP to provide the heating needs of the buildings planned to be served in a N+1 redundant configuration. The Utility Master Plan (UMP) has Steam being served to the SCP from now until 2026 when this area of campus then transitions completely to Heating Hot Water. The HX's used shall be designed to be converted from Steam to HHW over to HHW to HHW in 2026. Design should maximize the delta t to minimize flow requirements.

Pumping design for the SCP for the Heating System will be Variable Flow Primary/Secondary with Secondary pumps located in the SCP. N+1 redundancy will be required as plant will run year-round 24/7/365.

Freecooling shall be designed into the SCP to handle any cooling loads required when HP chillers can't run due to greater than 135 F HHW supply temperatures. Design should be for sending out 50F CHWS temperature when freecooling is activated. Design will also evaluate the best way to accomplish freecooling.

SCP will have major equipment added, these will consist of at a minimum; 2 or 3 HP Chillers, 2 or 3 Steam to HHW HX's, 2 or 3 Primary HHW pumps, 2 or 3 Secondary HHW pumps, Freecooling HX's, expansion tanks and makeup water for HHW. The reconfiguration of the plant to best serve the maintainability and serviceability along with minimizing costly rework is vitally important. 3D modeling of plant will be required to accurately depict existing conditions. Accessing the electrical service needs with the available spare capacity in the plant. The SCP has two unit substations and the design shall ensure that the primary/secondary heating pumps can be served by either of the two unit substations. No one failure shall take the plant down.

The University desires to incorporate thermal storage into either the South Chiller Plant or the North Chiller Plant. An analysis of correctly sizing the tank shall be undertaken, with the main drivers being to facilitate reducing the Peak Demand Electric load. The successful firm will need to demonstrate an understanding of the PJM PLC methodology along with Duke's TS rate rider's in evaluating rightsizing the tank for maximum cost/benefit. Preliminary sizing has a 2.2 million gallon tank. The design of the tank needs to be sensitive to the aesthetic of the campus and architecture considerations will weigh into the successful design.

An assessment of how to best convert the Steam/Condensate distribution system over to heating hot water shall be performed. The desire is to reuse the existing Steam lines as much as possible and remove and replace the existing condensate lines with properly sized heating hot water lines. There is a combination of direct buried and tunnel piping in this area. Sizing of piping should recognize the future new HHW distribution plant that will be created in 2021 located in the southwest basement of Upham Hall. The two locations SCP and Upham Hall distribution piping will be physically connected and run together. The existing steam/condensate lines in the South/Central quad area do have asbestos insulation and lines designated for removal will need to be abated.

Each one of the 15 buildings has their unique challenges to convert over from steam to heating hot water. Systems that need converted that presently use steam are the following:

Logan Lodge: Domestic Hot Water, Heating Hot Water
Rec Sports Center: Domestic Hot Water, Heating, Pool Heat, Laundry
Goggin Ice Arena: Regenerating Dessicant Wheel (3), Preheat Coils, Heating Hot Water, Domestic Hot Water, ice melt system, Laundry
Phillips Hall: Domestic Hot Water, Heating Hot Water
Health Service Center: Domestic Hot Water, Heating Hot Water
Hamilton Hall: Domestic Hot Water, Heating Hot Water
Minnich Hall: Domestic Hot Water, Heating Hot Water
Scott Hall: Domestic Hot Water, Heating Hot Water
MacCracken Hall: Domestic Hot Water, Heating Hot Water
Richards Hall: Domestic Hot Water, Heating Hot Water
Dodds: Domestic Hot Water, Steam Convectors
Stanton: Domestic Hot Water, Steam Convectors
Porter: Domestic Hot Water, Steam Convectors
Harris Dining Hall: Dishwasher, Kitchen Equipment, Domestic Hot Water, Heating Hot Water
Anderson Hall; Domestic Hot Water, Heating Hot Water

MacCracken and Richards Hall will be going under a separate renovation starting in May of 2018 and will be finished in July of 2019. This project will not be responsible for the building conversions only to bring the Heating Hot Water Distribution to a point 5 feet from the building in the existing tunnel.

Porter, Dodds and Stanton have fin tube steam convectors, there are two courses of action that are being considered for conversion to heating hot water. The base plan would add a dedicated outside air system with restroom exhaust heat

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recovery along with reusing the fin tube for heating hot water with minor improvements in piping distribution. The larger plan would convert the buildings into a 4-pipe fan coil system along with DOAS units with heat recovery. Harris Dining Hall may undergo a transition and not be used as a dining hall in the future, the future use will be ironed out and this project is to adapt the conversion as needed.

The project will also outfit the existing campus steam plant with 3 summer steam boilers. The intention is to size boilers to take advantage of the Ohio Revised Code's recent enactment of regulations that do not require a stationary engineer to operate at all times if size is small enough and controls are designed appropriately. Design shall incorporate these new regulations into the summer steam boilers. Preliminary sizing has 3 steam boilers sized at 12.5 mmbtu' each. These boilers shall be constructed in such a way that they can be easily moved to a new location. The UMP in 2026 converts the Steam plant into a HHW plant and these boilers will be moved in the vicinity of the Engineering building.

The steam plant consists of four boilers. Three of the boilers are stoker coal boilers that have been retrofitted with gas burners. All three boilers have the capability of burning either coal or natural gas, with the exception of one that can burn fuel oil as well. The fourth boiler is a package boiler that strictly burns natural gas or fuel oil. Fuel oil is only used in the case of an emergency. The boilers are capable of producing 80,000 pounds of steam per hour, except for the package natural gas boiler, which can produce 100,000 pounds of steam per hour. It should be noted that Boiler's 2 & 3 are derated for Natural Gas each approx.. 60,000 lb/hr. Steam is generated at a pressure of 115 pounds per square inch, and a temperature of 348°F.

Boiler Number	Manufacturer	Fuel Type	Boiler Capacity (lb/hr)	Steam Pressure (psi)	Steam Temperature (°F)	Year Installed
1	Keeler	Coal, Natural Gas, or Fuel Oil	80,000	115	348	1979
2	Keeler	Coal or Natural Gas	80,000	115	348	1979
3	Keeler	Coal or Natural Gas	80,000	115	348	1979
4	Nebraska	Natural Gas or Fuel Oil	100,000	115	348	1995

The South Chiller Plant is the original chilled water plant, which was built in 1969. An addition was put on the plant in 1997 to allow space for two more chillers. The South Chiller Plant is located on the south end of campus across from Harris Dining Hall.

South Chiller Plant Details

Chiller Number	Manufacturer	Chiller Type	Refrigerant	Chiller Capacity (tons)	Year Installed
1	Trane	Electrical Centrifugal	R-123	1480	2003
2R	Trane	Electrical Centrifugal	R-123	1500	2010
4	York	Electrical Centrifugal VFD	R-134A	1730	2012
5	York	Electrical Centrifugal VFD	R-134A	1375	2006

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The campus consists of two centralized chilled water plants (SCP & NCP) that presently serve the cooling needs of 63 campus buildings(as of Summer 17). In each plant, primary constant volume chilled water pumps dedicated to each chiller circulate water through their respective chillers. Each building served by the central chiller plants has its own secondary pumps with variable speed drives. Chilled water is circulated through each building and the distribution system by these building pumps in what is referred to as a distributed pumping system. The NCP and SCP are interconnected. There are currently sixty-three buildings on campus served by these two central chiller plants with seven more to be added over the next few years. Total cooling only installed capacity is 6085 tons at the SCP and 5200 tons at the NCP for a total of 11285 tons. The NCP also has 2-HP Chillers that supplement the NCP capacity, each unit has a nominal 220 tons of added cooling capacity. Each plant is designed for 44°F chilled water supply. All building cooling coils are designed for a 14°F delta T 44°F – 58°F.

Verification of programming will be required for overall plan and a detailed programming on how each building will be modified upon award of the Agreement, commence by developing the Program of Requirements.

The selected A/E, as a portion of its required Scope of Services and prior to submitting its proposals, will discuss and clarify with the Owner and/or the Contracting Authority, the cost breakdown of the Architect/Engineer Agreement detailed cost components to address the Owner's project requirements. Participate in the Encouraging Growth, Diversity & Equity (EDGE) Program as required by statute and the Agreement.

As required by the Agreement, and as properly authorized, provide the following categories of services: Program Verification, Schematic Design, Design Development, Construction Document Preparation, Bid and Award Support, Conformed Documents, Construction Administration, Post-Construction, and Additional Services of all types.

Refer to the *Ohio Facilities Construction Manual* for additional information about the type and extent of services required for each. A copy of the standard Agreement can be obtained at the OFCC website at <http://ofcc.ohio.gov>.

During the construction period, provide not less than 12 hours (excluding travel time) on-site construction administration services each week, including (1) attendance at progress meetings, (2) a written field report of each site visit, (3) on-site representation comprised of the A/E and its consultant staff involved in the primary design of the project, all having relevant and appropriate types of construction administration experience.

For purposes of completing the Relevant Project Experience Matrix in Section F of the Statement of Qualifications (Form F110-330), below is a list of relevant scope of work requirements for this RFQ:

1. Simultaneous Heating/Cooling Central Plant
2. Primary/Secondary Pumping
3. Heat Pump Chiller experience
4. FreeCooling
5. Distribution Piping Steam/Condensate & Heating Hot Water
6. MEP systems related to the following:
 - Domestic Hot Water
 - Humidification
 - Dehumidification(Ice Arena)
 - Plate & Frame HX's
7. Bidding State Contract work
8. BAS/Wonderware/Siemens Control experience.
9. Architecture
10. 3D BIM Modeling
11. Ohio State Contracting Experience
12. Construction Administration

C. Funding / Estimated Budget

Total Project Cost	<u>\$12,000,000</u>	State Funding	<u>\$0</u>
Construction Cost	<u>\$10,000,000</u>	Other Funding	<u>\$12,000,000</u>
Estimated A/E Fee	<u>4.0% to 6.0%</u>		

NOTE: The A/E fee percentage for this project includes all professional design services, and consultant services necessary for proper completion of the Basic Services for the successful completion of the project, including but not limited to: review and verification of the Program of Requirements provided by the Owner, validation of existing site conditions (but not subsurface or hidden conditions), preparation of cost estimates and design schedules for the project. Fees may be negotiated and allocated for Additional Services (e.g., extensive

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evaluation or validation of site conditions, extensive pre-design investigations, code-required special inspection and testing, Quality Assurance testing during the construction period, and testing due to unforeseen conditions).

D. Services Required (see note below)

Primary	<u>Mechanical Engineering</u>
Secondary	<u>Hydronic Engineering</u>
	<u>Plumbing Engineering</u>
	<u>Electrical Engineering</u>
	<u>Structural</u>
	<u>Architectural</u>

Others	_____

E. Anticipated Schedule

Professional Services Start	<u>04 / 17</u>
Construction Notice to Proceed	<u>05 / 18</u>
Substantial Completion of all Work	<u>06 / 19</u>
Professional Services Completed	<u>07 / 19</u>

F. EDGE Participation Goal

Percent of <i>initial</i> TOTAL A/E Fee	<u>7.0%</u>
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NOTE: The primary A/E shall be (1) a registered architect holding a license and certificate of authorization issued by the Ohio Architects Board pursuant to ORC Chapter 4703, (2) a landscape architect holding a license and certificate of authorization issued by the Ohio Landscape Architects Board pursuant to ORC Chapter 4703, or (3) a professional engineer or professional surveyor holding a license and certificate of authorization issued by the Ohio Engineers and Surveyors Board pursuant to ORC Chapter 4733.

G. Evaluation Criteria for Selection

- Demonstrated ability to meet Owner's programmed project vision, scope, budget, and schedule on previous projects.
- Previous experience compatible with the proposed project (e.g., type, size).
- Relevant past work of prospective firm's proposed consultants.
- Past performance of prospective firm and its proposed consultants.
- Qualifications and experience of individuals directly involved with the project.
- Proposer's previous experience (numbers of projects, sizes of projects) when working with its proposed consultants.
- Specification writing credentials and experience.
- Experience and capabilities of creating or using Critical Path Method (CPM) schedules and of using CPM schedules as a project management resource.
- Approach to and success of using partnering and Alternative Dispute Resolution.
- Proximity of prospective firms to the project site.
- Proposer's apparent resources and capacity to meet the needs of this project.
- The selected A/E and all its consultants must have the capability to use the Internet within their normal business location(s) during normal business hours.

Interested A/E firms are required to address how they will implement Building Information Modeling ("BIM") on the project, experience and level of training of staff related to BIM, incorporation of team partners that have previous BIM experience, and an understanding of collaborative BIM processes, including but not limited to the *State of Ohio BIM Protocol* available at the OFCC website at <http://ofcc.ohio.gov>.

Interested A/E firms are required to submit the Commitment to Participate in the EDGE Business Assistance Program form in its Statement of Qualifications (Form F110-330) submitted in response to the RFQ, to indicate its intent to contract with and use EDGE-certified Business Enterprise(s), as a part of the A/E's team. The Intent to Contract and to Perform and / or waiver request letter and Demonstration of Good Faith Effort form(s) with complete documentation must be attached to the A/E's Technical Proposal. Both forms can be accessed via the OFCC website at <http://ofcc.ohio.gov>. The Intent to Contract and to Perform form is again required at the Fee Proposal stage.

For all Statements of Qualifications, please identify the EDGE-certified Business Enterprises, by name, which will participate in the delivery of the proposed professional services solicited in the RFQ.

H. Submittal Instructions

Firms are required to submit the current version of Statement of Qualifications (Form F110-330) available via the OFCC website at <http://ofcc.ohio.gov>.

Electronic submittals should be combined into one PDF file named with the project number listed on the RFQ and your firm's name. Use the "print" feature of Adobe Acrobat or similar software for creating a PDF rather than using a scanner. If

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possible, please reduce the file size of the PDF. In Acrobat, go to Advanced, then PDF Optimizer. Also, please label the CD or DVD and the sleeve with the project number and firm name if applicable.

Paper copies of the Statement of Qualifications, if requested, should be stapled only. Do not use special bindings or coverings of any type. Cover letters and transmittals are not necessary.

Facsimile copies of the Statement of Qualifications will not be accepted.

Firms are requested to identify professional registrations, memberships and credentials including: LEED GA, LEED AP, LEED AP+, CCCA, CCM, CCS, CDT, CPE, DBIA, and any other appropriate design and construction industry credentials. Identify that information on the resume page for individual in Block 22, Section E of the F110-330 form.

Architect / Engineer Selection Rating Form

State of Ohio Standard Forms and Documents

Project Name South Quad/Bunger Field Hot Water Conversion Proposer Firm _____
 Project Number MUN-100072 City, State, Zip _____

Selection Criteria		Value	Score
1. Primary Firm Location, Workload and Size (Maximum 10 points)			
a. Proximity of firm to project site	Less than 50 miles	5	
	50 miles to 150 miles	2	
	More than 150 miles	0	
b. Amount of fees awarded by Contracting Authority in previous 24 months	Less than \$100,000	2	
	\$100,000 to \$1,000,000	1	
	More than \$1,000,000	0	
c. Number of licensed professionals	Less than 2 professionals	1	Max = 3
	2 to 10 professionals	2	
	More than 10 professionals	3	
2. Primary Firm Qualifications (Maximum 30 points)			
a. Project management lead	Experience / ability of project manager to manage scope / budget / schedule / quality	0 - 10	Max = 20
b. Project design lead	Experience / creativity of project designer to achieve owner's vision and requirements	0 - 10	
c. Technical staff	Experience / ability of technical staff to create fully coordinated construction documents	0 - 5	
d. Construction administration staff	Experience / ability of field representative to identify and solve issues during construction	0 - 5	
3. Key Consultant Qualifications (Maximum 20 points)			
a. Key discipline leads	Experience / ability of key consultants to perform effectively and collaboratively	0 - 15	
b. Proposed EDGE-certified Consultant participation*	One point for every 2 percent increase in professional services over the EDGE participation goal	0 - 5	
4. Overall Team Qualifications (Maximum 10 points)			
a. Previous team collaboration	Less than 2 sample projects	1	Max = 3
	2 to 4 sample projects	2	
	More than 4 sample projects	3	
b. LEED** Registered / Certified project experience	Registered projects	1	Max = 2
	Certified projects	2	
c. BIM project experience	Training and knowledge	1	Max = 3
	Direct project experience	3	
d. Team organization	Clarity of responsibility / communication demonstrated by table of organization	0 - 2	
5. Overall Team Experience (Maximum 30 points)			
a. Previous team performance	Past performance as indicated by evaluations and letters of reference	0 - 10	
b. Experience with similar projects / delivery methods	Less than 3 projects	0 - 3	
	3 to 6 projects	4 - 6	
	More than 6 projects	7 - 10	
c. Budget and schedule management	Performance in completing projects within original construction budget and schedule	0 - 5	
d. Knowledge of Ohio Capital Improvements process	Less than 4 projects	0 - 1	
	4 to 8 projects	2 - 3	
	More than 8 projects	4 - 5	
		Subtotal	

* Must be comprised of professional design services consulting firm(s) and NOT the lead firm
 ** Leadership in Energy & Environmental Design administered by the Green Building Certification Institute

Notes:

Evaluator:

Name _____

Signature _____

Date _____