



REQUEST FOR ARCHITECTURAL & ENGINEERING DESIGN SERVICES

Birge Hall Conservatory Addition and Renovation

August 2011

Project No. 11F2G

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Background-and Purpose

The University of Wisconsin-Madison Department of Botany is at the forefront of research into the biology of plants, expending \$2.7 million dollars a year in federally funded, botanical research. At the same time, the department has a well-deserved reputation for contributions to the education of undergraduate and graduate students and outreach to schools and the general public. Degree programs are offered in the studies in molecular, genetic, cellular, and developmental biology, through physiology, structural botany, molecular systematics, taxonomy, ecology, ethnobotany and evolution. The success and integration of the teaching, research and outreach missions of the Botany Department is critically dependent on facilities that include the greenhouses, growth chambers and the Botany Garden.

The eight greenhouses, encompassing 8,000 square feet, are located north of University Avenue and bounded by Chamberlain, Lathrop and Birge Halls. The facility features more than 1,000 species and aquatic, desert and tropical communities. Botany and other UW departments make extensive use of this working facility, permitting faculty and students to undertake a variety of research projects in plant geography, physiology, anatomy, ecology, taxonomy and other related areas.

In addition to meeting essential teaching and research interests, the greenhouses and garden are an aesthetic resource for students and the community. Botany staff assist visitors seeking advice on plants for their homes and gardens. Both greenhouse and botanical garden serve as a vibrant classroom for school children and other visitors; they allow local and national outreach to the general public and they supply the essential infrastructure for the world-class research performed in the department. The continuing and expanding success of all these programs is making more and more significant demands on access to modern facilities.

The project to renovate portions of Birge Hall's existing facilities and add a conservatory will not only provide an important education and research resource, but also improve the campus aesthetically. A conservatory overlooking the botanical garden will provide a high-visibility feature for the campus that will enhance the beauty of the UW-Madison for employees, community residents and visitors. Within an increasingly urbanized environment, the conservatory, with the botanical garden below, will not only provide a venue to immerse the visitor in the science of botany but also become a year-round oasis of greenery and serenity for the campus and the city.

Project Description

This project will construct an approximately 2,000 GSF conservatory attached to the existing botany greenhouses on the south side of Birge Hall; renovate 1000 GSF of existing headhouse space; update an adjacent 1100 GSF instructional laboratory; and replace nine existing environmental growth chambers within the building. An exterior concrete ramp for building accessibility will also be required to the east of the existing headhouse.

The new conservatory will be attached to the existing range of greenhouses on the slope just south of Birge Hall and north of the Botany Garden. The advanced design aluminum frame greenhouse will have an approximately 25- to 30-foot eave height. Systems for irrigation/misting and supplemental lighting (to compensate for low light levels on cloudy days and to extend the day length in the winter) will be installed.

Steam, compressed air, heating, cooling and electricity service will be extended to the conservatory from the existing greenhouses. An environmental control computer will monitor all systems to provide the desired plant growth environment.

The headhouse renovation will create separate rooms out of the existing long and narrow headhouse space. It will provide spaces for hands-free pesticide control, offices, cold room facilities, and storage space; as well as provide a direct and accessible route to the conservatory from the east side of the facility.

Work in the existing instructional lab (Room B249) will provide updated finishes, furniture, equipment, and storage casework to accommodate Botany courses and outreach activities that utilize the adjacent greenhouse. This is a dry lab space that accommodates classes or groups of up to 25 and that function will not change.

Lastly, six existing reach-in chambers in B222 Birge Hall will be replaced as will three walk-in chambers in B251 Birge Hall. Since these rooms currently house environmental growth chambers, much of the infrastructure for them is in place. Some additional electrical power will need to be installed and softened water capacity upgraded.

Scope of Services

The consultant team should have experience within the last ten years of designing a greenhouse, for a four-year college or university, of a scope and size similar to this project. The consultant team should have expertise in sustainable design. The consultant team should have experience in working with a diverse constituency in a highly interactive design process.

Design & Construction Services:

- Develop a 35% Design Report that includes preliminary documents as prescribed by the Division of State Facilities (DSF) / State of Wisconsin.
- Develop complete 100% Construction Documents as prescribed by the UW-Madison campus technical guidelines (<https://fpm-www3.fpm.wisc.edu/cpd/Default.aspx>) and Division of State Facilities Policy and Procedures Manual for Architects, Engineers and Consultants and Master Specifications/Design Guidelines
- Include DSF Level 2 commissioning as part of the scope of work
- Design and specify all building signage related to wayfinding and identification for the renovated and new facilities. The only exception is the exterior building sign which will be ordered by FP&M using project funds.
- Provide interior design services, including all interior furnishings, as required. A/E will provide contract administration services for receiving and installation of all required furnishings.
- This project will be designed to meet DSF Sustainability Requirements. A/E shall provide energy modeling for the proposed design and use that modeling to achieve the most energy efficient design feasible.
- Design all telecommunications (including network access and complete design of the wireless system), security access control systems, electronic menu boards and A/V and technology. All systems must meet DSF and UW specifications and are to be included in the base bid of the project.
- Provide presentation drawings appropriate to the phase and suitable for use in Board of Regents, State Building Commission, Campus Design Review Board, and public meetings as well as fundraising.

- Produce detailed 3D renderings for the campus and the Department of Botany to review for all exterior elevations and for all primary interior spaces. The renderings should show information appropriate to the phase of the work (early drawings will show the architecture of the spaces, later drawings will show all colors and materials).
- Prepare documents for, participate in, and assist campus staff in public review including Campus Design Review Board (DRB), and Integrated Design Review. Integrated Design Review shall consist of review by a group comprised of professionals from DSF and UW that will focus on both architectural and engineering schematic design in response to the identified program. Energy use reduction, other sustainability, and cost containment strategies will also be addressed in this forum. It is desired that the DRB meetings occur during the conceptual design phase, the schematic design phase and prior to the submission of the 35% Design Report.
- Provide landscape design services (for all areas of the site that are directly affected by this project) including the planning and specification of plant materials and hardscape, site furnishings, lighting and all improvements that may be required to complete the site development for pedestrian and bicycle movement, location of bicycle racks and moped parking, screening and integration of utility access and ventilation points, exterior signage, and snow removal/storage. The A/E shall also address any storm water issues that arise as a direct result of this project.
- The A/E will work with the DSF and the appropriate campus staff (UW FP&M, Physical Plant, Safety department, and UW Police) to review the 35% and 100% documents. The A/E team will attend review meetings for the 35% and 100% documents. The groups will provide written comments based on the documents, discuss the comments with the A/E and their sub consultants, and written responses are required to be provided by the A/E. The A/E will provide the campus with six complete review sets (in addition to the 15 review sets required for DSF) for the 35% and 100% reviews, as well as 6 complete sets of the bidding documents.
- Provide construction period services for this project.
- At the end of construction, the A/E will provide the campus with three electronic copies each of O&M manuals and record drawings/specifications in AutoCAD/MS Word/PDF format, including the work of all sub-consultants, furnishings, signage, etc, as well as three hard copies of same. Any renderings or models generated by the AE will also be turned over to the campus. This is in addition to the record drawing requirements of the Division of State Facilities.

Project Budget

<u>Budget Item</u>	<u>%</u>	<u>Cost</u>
Construction		2,226,000
Hazardous Materials Abatement		20,000
AE Design Fees	8.3%	185,000
Other Fees		25,000
DSF Management	4%	98,000
Contingency	10%	223,000
<u>Moveable & Special Equipment</u>		<u>190,000</u>
Estimated Total Project Cost		\$2,967,000

Project Schedule

A/E Selection	August 2011
BOR/SBC Approval (35% Design)	December 2011
Bid Date	March 2012
Start Construction	April 2012
Construction Complete	December 2012
Final Completion & Closeout	January 2013

Contacts

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General Requirements

Occupants: Birge Hall houses Botany Department faculty, academic staff, graduate and undergraduate students. The existing greenhouses and adjacent Botany Garden also host class visits, school-groups, and evening courses.

Site Considerations: The site for this project is directly adjacent to the southern end of the Birge Hall Greenhouse B271 and B272, directly adjacent to the existing Headhouse B278, the headhouse itself, existing Birge Hall Instructional Lab B249, and existing Growth Chamber rooms B222, and B251. A site survey will be required for the area south of the existing headhouse in order to delineate grades, preserve tree locations, and identify size and location of underground electrical, storm, and sanitary lines. A geotechnical survey will be required to identify existing soil conditions. Parking for automobiles and bicycles will not be affected by the addition. The existing sidewalk between Birge Hall and the Botanical Gardens to the south will not be affected by the addition. Access to an existing loading dock east of the headhouse will need to be maintained. This would also be a possible location for the addition of a ramp to provide an accessible entry to the south side of Birge Hall and to service the greenhouse.

Zoning: No change in zoning is expected for the proposed addition and renovation. No review by the City of Madison will be required.

Historic Preservation: Birge Hall is within the Bascom Hill Historic District and the building has been determined by the State Historic Preservation Office, (SHPO), to be eligible for listing on the National Register of Historic Places. Any changes to the building, including site design improvements/changes, as well as changes to interior spaces must be reviewed by the SHPO. Staff in FP&M and the UWSA Historic Preservation Officer will coordinate and facilitate communication with the SHPO to assure proper reviews are completed and proposed work complies with both Wisconsin Statutes and the National Park Service's Standards for the Treatment of Historic Properties. The AE team will provide drawings, present their design recommendations, and answer questions related to design intent as coordinated by FP&M and the UWSA Historic Preservation Officer.

Architectural: The existing exterior envelope within the area of the proposed greenhouse addition is in fair condition. The materials are predominantly glass and an exterior

insulation and finish system. Minor cracking appears on the west facade of the existing west greenhouse; repair of these cracks and other minor improvements is included in this project. The existing headhouse south facade appears sound and was recently repainted. The existing Birge Hall does currently have an ADA accessible elevator. An accessible route to the greenhouses is being proposed for the south end of the building as part of this project. The building will be occupied during construction of the addition and remodeling. Design sensitivity with respect to the greenhouse addition is expected, given the prominence of the elevated site along University Avenue, as it is clearly visible beyond the Botanical Garden.

Site Utilities: The existing Birge Hall has adequate electrical, heating, cooling and water service to handle a new 2,000 SF greenhouse addition.

Health & Safety, Hazardous Materials:

Birge Hall contains asbestos building materials that will require removal before renovations begin. DSF will contract separately with a firm to document removal as part of this project. Existing Instructional Lab B249 contains asbestos within the floor tile. A WALMS survey was completed and is on file on the DOA website.

Telecommunications: Hard wired outlets and wireless coverage shall be provided in all areas to meet the needs of the students, administration, and the operation. Replace any portions of the existing wireless system damaged during construction. Phone lines shall be provided in all offices, and to the elevators.

Campus Automation System: The building automation system and the access control system must be tied to the University's existing monitoring systems.

Access Control: Maintain the existing campus standard Andover building security access and camera system, and the University's existing Metasys system during construction. Maintain existing Card Readers on all doors at the exterior, and IDF and MDF access.

Note: DSF to select and contract for these services separately:

- Hazardous Materials Abatement per WALMS Study.
- WEPA-Compliance Documentation
In accordance with the Wisconsin Environmental Policy Act (WEPA), this project will require a Type II Environmental Impact Assessment (EIA). This requirement insures all fiscal impacts raised during the WEPA process will be addressed in the project budget estimate. Public review of the Type II assessment is required and a public information meeting may be held to gather input. If unresolved conflicts arise, the project could be elevated for consideration as a Type I, Environmental Impact Statement (EIS) and the earlier assessment used as an initial draft EIS. The entire WEPA process must be completed prior to bid solicitation.

