THE UNIVERSITY OF WISCONSIN SYSTEM

Request for

State Building Commission Action

May 2013

1. Institution: The University of Wisconsin System

2. Request: (a) Authority to construct various maintenance and repair projects at an estimated total cost of $5,758,800 ($3,876,000 GFSB – Facility Maintenance and Repair; $254,300 GFSB – Special and Movable Equipment; $726,000 GFSB – Utility Repair and Renovation; $852,500 Program Revenue Cash; and $50,000 Gifts and Grants); (b) Authority to transfer all approved GFSB All Agency allocations to the UW Infrastructure Maintenance appropriation; and (c) Permit the Division of Facilities Development to adjust individual project budgets.



1. Description and Scope of Project: This request provides maintenance, repair, renovation, and upgrades through the All Agency Projects Program.

#### Capital Equipment Acquisition

#### EXT - 13B3B - Vilas Hall WHA-TV Studio B Equipment Replacement ($304,300): This project replaces obsolete analog television equipment with digital television equipment in Studio B to provide programming in high definition (HD), the prevailing industry standard. The project provides funding to purchase three HD studio cameras and associated video controllers, one multichannel video storage system, and miscellaneous support equipment. The video storage system consists of a digital video server, digital video input/output port, and a digital media controller/interface. Equipment will be purchased through the university and state purchasing process and will be installed by WHA-TV staff.

The studio upgrade includes replacement of cameras and video storage equipment that is now at or beyond its useful life. The equipment is obsolete and manufacturer support has been discontinued. The equipment does not integrate with industry standard infrastructure production equipment. The new digital multi-channel video server will serve Studio B and the other TV production facilities in Vilas Hall. This request completes the ongoing replacement of WHA-TV's analog studio production equipment as part of the digital transition.

Studio B only has analog capabilities, which is problematic for several reasons. Studio B is used as an uplink facility for network shows, all of which are HD quality, the prevailing industry standard. WHA-TV has increased demand for greater production capability than the current infrastructure can accommodate. WHA-TV is unable to use Studio B as a programming resource for their primary channel, which is all HD. Studio B is the last analog production facility in the entire Wisconsin Public Television video infrastructure in Vilas Hall. Studio B is a rapid-response studio that fills a variety of purposes that are central to the station’s mission. The studio is used by public officials to provide emergency information to Wisconsin residents and to participate in national news programs, by educators to contribute to distance education activities, by candidates for public office to record public statements for voter information, and as a venue for recording presentations and lectures for "University Place,” a program that provides broader access to the university.

#### Facility Maintenance and Repair

MIL - 13B3A - Multi-Building Emergency Generator Replacement ($600,100): This project replaces three obsolete emergency generators that serve five academic facilities to provide emergency power required for health and safety purposes, to protect on-going research, and to protect building contents. Cunningham Hall work includes replacing the 50kW, 480-volt natural gas water-cooled generator located on the basement level with a new natural gas air cooled unit of similar size located on a pad outside the building. Garland Hall/Pearse Hall work includes replacing the 55kW, 208-volt natural gas water-cooled emergency generator located on the first level of Garland Hall with a new approximate 75kW natural gas air cooled unit located on a pad outside the building. The Garland Hall/Pearse Hall emergency circuits will be extended from the new optional load panel to serve air handlers and associated equipment supporting the research animal holding rooms. Physics Building work includes replacing the 25kW, 480-volt natural gas air-cooled emergency generator located in the roof level generator room with a new approximate 100kW natural gas unit. The Physics Building emergency circuits will be extended from the new optional load panel to serve the refrigeration units and associated equipment supporting the gravitational wave research facility. Project work includes replacing the automatic transfer switches, installing a second automatic transfer switch to provide power to critical loads, separating the life-safety loads from critical loads, and installing two new emergency panels in all three buildings.

The generators in Cunningham Hall, Garland Hall/Pearse Hall, and the Physics Building were installed in 1965, 1964, and 1982 respectively. They require increased maintenance and are difficult to repair since replacement parts are no longer available. The emergency power distribution systems do not meet current code requirements since all emergency loads are fed from one panel. The current code requires separate life-safety and critical load distribution systems. The generator in Physics does not have adequate capacity to serve critical building systems and the gravitational wave research facility support equipment. The generator in Garland Hall/Pearse Hall does not have adequate capacity to serve critical building systems and research animal holding room support systems. Operation of these generators is essential to maintain life-safety, critical building systems, and critical research support systems during a power outage.

MSN - 13B2G - Van Hise Exterior Envelope Repair and Replacement ($2,233,000): This project repairs or replaces exterior doors, exterior windows, storefront glazing systems, and curtain wall systems on the first four floors. Project work includes 28 exterior doors; 141 exterior windows (~2,100 SF with 88 2-foot by 9-foot and 53 1-foot by 9-foot units); and ~9,100 SF of storefront and curtain wall systems. Exterior door work includes the hardware and hollow metal frames. The automatic door operators will be removed and reinstalled as necessary to accomplish the repair or replacement work. All joints between aluminum and masonry abutments will receive new joint sealant. Interior finishes (concrete block, plaster soffits and walls, stone windows stools, suspended acoustical ceilings, tile) will be repaired to match existing as necessary. The insulation integrity will be maintained or restored as necessary.

The project replaces building envelope components that were installed when the building was constructed in 1965. The condition of the original envelope systems is compromising building envelope integrity, allowing water to infiltrate the building. Water penetration through the exterior wall has caused chronic leaks and continued damage to interior surfaces. Mold remediation has been necessary and indoor air quality concerns voiced by occupants are increasing. The aluminum framing systems and glass are not energy efficient. Maintenance calls concerning exterior doors that fail to close are increasing. Although this building is slated for removal under the campus master plan, the timeline for such removal has been pushed out indefinitely.

OSH - 13B2R - Kolf Physical Education Roof Replacement ($1,480,000): This project replaces roof coverings and completes all other associated ancillary work to maintain the building envelope integrity and prevent damage to the building and its contents. Project work includes replacing the ~83,800 SF roofing system with a fully-adhered 60-mil Ethylene Propylene Diene Monomer (EPDM) sheet rubber roof membrane. New insulation shall be flat stock and tapered polyisocyanurate insulation as required for proper drainage to achieve a minimum average rating of R-24. All of the existing roofing materials will be removed in their entirety to expose the concrete deck. The concrete deck will be prepared and cleaned to receive the new roofing materials. Metal edges and counterflashings will be removed and replaced with new material. Expansion and control joints will be restored. All perimeter wall coping metal will be replaced. All rooftop mechanical equipment will be elevated on new curbs to allow for proper installation of the roofing system.

The roof sections are more than 42 years old. Recent site inspections by the Physical Plant staff and DFD determined these roof sections require replacement to address current leaking, weathered, worn, and/or damaged sections. These repairs will extend the life of the roof sections and prevent moisture from penetrating the building envelope. During 2012, the original field house bleachers and interior track surface were replaced. This roof needs to be replaced to maintain the integrity of the overall structure and prevent damage to the new field house bleachers and flooring.

#### Programmatic Remodeling and Renovation

STO - 12K1A - Heritage Hall Meal Management Lab 240 Conversion ($222,400):

This project converts an instructional wet laboratory suite (Meal Management Laboratory) into a new academic office suite. Project work includes complete demolition and proper termination of all building systems (plumbing, electrical, data, and HVAC) within the project area. Drywall and concrete block partitions, floor covering, acoustical suspended ceilings, and drywall ceilings will be removed. New steel stud and drywall partitions will be constructed to create the offices. Ventilation will be improved and new telecommunication services installed. Energy efficient lighting and controls will be installed. New finishes include carpet and acoustical suspended ceilings.

The Meal Management Lab suite is obsolete and no longer required for the academic program. Additional faculty and staff offices are required due to increased enrollment and online course offerings. Some academic staff will be relocated to these offices from McCalmont Hall, which will be closed starting in January 2014 to be converted back into residential student housing. This space has never been altered since construction of the building in 1971.

#### Utility Repair and Renovation

MSN - 13B2S - Walnut Street Heating Plant (WSHP) Chilled Water Distribution Pump Variable Frequency Drive Replacement ($919,000): This project replaces two variable frequency drive (VFD) systems for the 4160-volt and 1,000 HP chilled water distribution pumps to allow effective, energy efficient pumping of chilled water throughout campus. Project work includes removing the two 4,160-volt VFDs and replacing them with new 4,160-volt VFDs. The new drive system will include a bypass motor starter. The 4,160-volt circuit and over-current protection serving the 1,000 HP motor will be modified per VFD manufacturer recommendations. Chilled water pressure and flow sensor signals will be routed to the VFD controller input for chilled water flow control. The VFD controller output will be connected to the chilled water plant digital control system for indication of all run and fault conditions. The supply air ductwork, overhead translucent vinyl retracting roofs, and vinyl strip doors will be modified to accommodate the new VFDs size and air inlet locations.

The VFDs are at the end of their useful life and need to be replaced. During the peak cooling season last year, the VFDs were unable to operate continuously and needed to be bypassed as the outdoor temperatures approached 100 degrees Fahrenheit. During the winter, WSHP is the base load chilled water plant for campus when the cooling loads are low and the benefits of the variable speed drives are the greatest. Failure of one VFD would eliminate the redundancy and failure of both VFDs would increase the operating cost of the pumps significantly.

1. Justification of the Request: UWS and DFD continue to work with each institution to develop a comprehensive campus physical development plan, including infrastructure maintenance planning. After a thorough review and consideration of approximately 450 All Agency requests and over 4,500 infrastructure planning issues submitted, and the UW All Agency funding targets set by DFD, this request represents high priority UWS infrastructure maintenance, repair, renovation, and upgrade needs. This request focuses on existing facilities and utilities, targets the known maintenance needs, and addresses outstanding health and safety issues. Where possible, similar work throughout a single facility or across multiple facilities has been combined into a single request to provide more efficient project management and project execution.
2. Budget:
3. GFSB – Facilities Maintenance and Repair [Z060] $3,876,000
4. GFSB – Special and Movable Equipment [Z051] $254,300
5. GFSB – Utilities Repair and Renovation [Z080] $726,000
6. Program Revenue Cash [AGF0] $852,500
7. Gifts/Grants Funding $50,000

## Total Requested Budget $5,758,800

6. Previous Action: None.

7. Agency Contact:

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