Major Project Request
2017-19 Biennium

G16

Agency University of Wisconsin

Institution Platteville

Project Title Sesquicentennial Hall

Project Request

The UW System requests enumeration of $55,189,000 ($54,602,000 General Fund Supported Borrowing and $587,000 Program Revenue Supported Borrowing) to construct a new mechanical and industrial engineering building at UW-Platteville.

Project Description and Scope

This project constructs a new 47,513 ASF/ 76,900 GSF academic engineering facility on a surface parking lot directly across the street from and east of Engineering Hall to provide instructional laboratory suites (~26,340 SF); project and research laboratories (~4,000 SF); and general assignment classrooms (~3,450 SF), including those configured and equipped for active learning. The campus data center will also be relocated into this building from the basement of Gardner Hall and a new surface parking lot will be constructed to replace the one serving as the site for this building. The following spaces and quantities will be included in this project:

SPACE TYPE	SF
Classrooms, Collaboration, and Study Space	6,450
Instructional/Project/Research Laboratories	30,340
Offices, Support, and Storage Space	7,923
Campus Data Center	2,800
TOTAL	**47,513**

The new facility will provide adequate space to resolve demonstrated quantitative and qualitative space shortages in Ottensman Hall. Approximately 19,700 SF of computing, dry, and wet instructional and project laboratory space will be relocated from Ottensman Hall to the new facility because the existing space cannot be effectively renovated to accommodate the engineering program. These spaces include laboratories for computer aided engineering, mechanical systems, metallurgy and materials, thermo science, and thermal systems. The new facility will be constructed with adequate structural bay sizing and floor to floor clearance necessary for the engineering laboratories and mediated general assignment classrooms. An additional ~15,000 SF of new laboratory space will be constructed for specialized computing, equipment and service, manufacturing, machine shop/project making, and research lab space that does not exist on campus. The new campus data center will provide adequate cooling and ventilation for the servers, workstations, uninterruptible power supplies, and other computing equipment as well as being located within the building with appropriate fire protection, electrical capacity and distribution, and environmental/flood protection measures.

At the completion of this project, approximately 25,000 SF in Ottensman Hall will be vacated and made available for reallocation for other departments on campus. More than 73,000 SF of space deficiencies have been identified across campus, primarily those 28 departments operating in the four relic and former residence hall facilities (Brigham Hall, Gardner Hall, Royce Hall, and Warner Hall) planned for eventual demolition due to their poor functional and physical condition assessments. Campus space planning initiatives have determined that these 28 departments will all eventually relocate into a renovated Ottensman Hall once the science, technology, engineering, and mathematics (STEM) academic programs currently housed there are relocated to adequate facilities.

Background

UW-Platteville is a STEM-focused campus, with 58% of graduates earning a degree in those fields. The mechanical engineering program alone accounts for 12% of the overall enrollment. Since the inception of the Tri-State Initiative in 2005, campus enrollment has been increasing at a steady pace. Headcount enrollment has grown by almost 40%, from 6,415 in Fall 2005 to 8,967 in Fall 2015. The enrollment has more than doubled since 2003 to a high point of 1,044 majors in Fall 2013. This growth within mechanical engineering and all other engineering programs on campus is projected to continue.

The campus is integral in consistently providing skilled graduates, particularly engineers, to meet the increasing needs of Wisconsin industry. Job placement and hiring of UW-Platteville engineering graduates by Wisconsin employers is substantial. The engineering programs are currently served by two buildings, Engineering Hall (108,500 GSF constructed in 2009) and Ottensman Hall (168,829 GSF constructed in 1965). The mechanical engineering program is housed in the basement level of Ottensman Hall within spaces that have not been significantly upgraded since the building was originally constructed. Engineering Hall, designed to complement and not replace Ottensman Hall, is fully utilized and is not able to accommodate the quantitative or specialized functional space needs to support the significant and sustained growth of the mechanical engineering program.

Analysis of Need

Ottensman Hall does not have adequate structural bay spacing or floor to ceiling clearance to house modern STEM disciplines. The structural bays are 20-feet by 27-feet and 27-feet by 27-feet with a 13-foot 4-inch floor to ceiling clearance. A modern STEM facility would be constructed with dimensions based on multiples of 11-feet deep and up to 35-feet wide to accommodate standard equipment and furnishings and typical laboratory configurations, and floor to ceiling height clearances of 18 to 20-feet on the first floor and 14 to 16-feet on all other floors to accommodate building infrastructure and still allow mediated instructional spaces. Renovating this building for more infrastructure intensive laboratory needs would compromise ceiling heights, inhibit future flexibility, create the need for excessive fittings that would result in higher pressure drops and fan energy consumption, force service access of piping and terminal units to be located directly over laboratory spaces, and cause extremely congested use of additional vertical shafts. The added vertical shafts would be expensive to create and would reduce usable square footage, lowering building efficiency to an unacceptable level.

This facility also does not have enough physical space to accommodate the specialized laboratory needs of the industrial and mechanical engineering programs. Space utilization analysis reveals that the mechanical engineering instructional laboratories are well utilized, averaging ~27 hours per week and two laboratories reached 40 and 53 hours of scheduled instruction per week. This intensive use profile is further amplified by the unique specialized equipment and machinery used in the spaces. There is a limit to the number of students that can safely and functionally access the rapid prototyping machines, three-dimensional printers, metal shop machinery, and industrial/advanced manufacturing simulation units.

Due to the structural limitations and condition of the building infrastructure, this facility is planned to be reallocated to less intensive academic and student support services uses once the academic programs can be housed in appropriate STEM facilities and this building can be completely renovated. The mechanical, electrical, telecommunications, and plumbing systems are all obsolete and nearing the end of their useful lives. Some of the specialized equipment critical to teaching is housed in basement spaces that do not comply with current codes for occupancy due to lack of ventilation and proper emergency egress. To meet the undergraduate research and experiential project-based pedagogy space needs, modular research and project spaces will be shared by faculty and students. This arrangement creates future flexibility to respond to changing program needs.

The Gardner Hall basement provides an inadequate data center location due to lack of appropriate fire suppression systems, adequate ventilation and cooling systems, undersized electrical capacity and distribution, and lack of environmental/flood control. Water infiltration into the data center space nearly shut it down twice in the past few years. The data center space was not designed for its current use, resulting in congested work and equipment operating space, which contributes to the high temperatures within this location.

Alternatives

The Academic Buildings Feasibility Study (12L1K) completed in 2015 explored multiple alternatives to address the space shortages identified in the 2010-11 Space Utilization Study and Campus Master Plan. The feasibility study ultimately recommended a five phase implementation plan that balances programmatic priorities, projected incremental enrollment growth, funding realities, existing space use, and existing building conditions. This project implements Phase I of the recommended approach which culminates in the full renovation of Ottensman Hall and the razing of the four relic and former residence halls (Brigham Hall, Gardner Hall, Royce Hall, and Warner Hall) in Phase V.

Major Project Request
2017-19 Biennium

Project Budget

Construction Cost:	$	41,795,000
A/E Design Fees:	$	3,477,000
Other Fees:	$	476,000
DFD Management Fees:	$	1,839,000
Contingency:	$	4,180,000
Movable/Special Equip.:	$	3,422,000
	$	**55,189,000**

Funding Source	Total	
General Fund Supported Borrowing	$	54,602,000
Program Revenue Supported Borrowing	$	587,000
Building Trust Funds	$	0
Gifts and Grants	$	0
Program Revenue Cash	$	0
	$	**55,189,000**

Fee Impact

None, not applicable.

Impact on Operating Budget

	FTE		Cost
Custodial Staff	2.00	$	80,000
Maintenance Staff	0.50	$	26,000
Supplies		$	20,000
Utilities		$	181,000
	2.50	$	307,000

It is estimated that an additional $307,000 will be required annually to support the completion of this project for staffing, supplies and equipment, and energy bills. Adequate and appropriate operational budget sources have been identified and internally allocated/committed to support this proposed project.

Project Schedule

A/E Selection:	Jan 2018
Design Report:	Jan 2019
Bid Date:	Jul 2021
Start Construction:	Sep 2021
Substantial Completion:	Jul 2023
Final Completion:	Dec 2023

Project Delivery

At the present time, it is anticipated that the standard state project delivery process will be used.

Previous Action

None.

PLATTEVILLE – SESQUICENTENNIAL HALL

UNIVERSITY OF WISCONSIN
PLATTEVILLE
AGENCY GFSB PRIORITY #16

Request: $55,189,000
$54,602,000 GFSB
$587,000 PRSB
$0 CASH
2017-19

PROJECT REQUEST:

The UW System requests enumeration of $55,189,000 ($54,602,000 General Fund Supported Borrowing and $587,000 Program Revenue Supported Borrowing) to construct a new mechanical and industrial engineering building at UW-Platteville.

PROJECT DESCRIPTION:

This project constructs a new 47,513 ASF/ 76,900 GSF academic engineering facility on a surface parking lot directly across the street from and east of Engineering Hall to provide instructional laboratory suites (~26,340 SF); project and research laboratories (~4,000 SF); and general assignment classrooms (~3,450 SF), including those configured and equipped for active learning. The campus data center will also be relocated into this building from the basement of Gardner Hall and a new surface parking lot will be constructed to replace the one serving as the site for this building.

The new facility will provide adequate space to resolve demonstrated quantitative and qualitative space shortages in Ottensman Hall. Approximately 19,700 SF of computing, dry and wet instructional and project laboratory space will be relocated from Ottensman Hall to the new facility because the existing space cannot be effectively renovated to accommodate the engineering program. These spaces include laboratories for computer aided engineering, mechanical systems, metallurgy and materials, thermo science, and thermal systems. The new facility will be constructed with adequate structural bay sizing and floor to floor clearance necessary for the engineering laboratories and mediated general assignment classrooms. An additional ~15,000 SF of new laboratory space will be constructed for specialized computing, equipment and service, manufacturing, machine shop/project making, and research lab space that does not exist on campus. The new campus data center will provide adequate cooling and ventilation for the servers, workstations, uninterruptible power supplies, and other computing equipment as well as being located within the building with appropriate fire protection, electrical capacity and distribution, and environmental/flood protection measures. At the completion of this project, approximately 25,000 SF in Ottensman Hall will be vacated and made available for reallocation for other departments on campus. More than 73,000 SF of space deficiencies have been identified across campus, primarily those 28 departments operating in the four relic and former residence hall facilities (Brigham Hall, Gardner Hall, Royce Hall, and Warner Hall) which are planned for eventual demolition due to their poor functional and physical condition assessments.

PROJECT JUSTIFICATION:

Ottensman Hall does not have adequate structural bay spacing or floor to ceiling clearance to house modern STEM disciplines. Renovating this building for more infrastructure intensive laboratory needs would compromise ceiling heights; inhibit future flexibility; create the need for excessive fittings that would result in higher pressure drops and

fan energy consumption; force service access of piping and terminal units to be located directly over laboratory spaces; and cause extremely congested use of additional vertical shafts. The added vertical shafts would be expensive to create and would reduce usable square footage, and lower building efficiency to an unacceptable level.

This facility also does not have enough physical space to accommodate the specialized laboratory needs of the industrial and mechanical engineering programs. Intensive space use is further amplified by the unique specialized equipment and machinery used in the spaces. There is a limit to the number of students that can safely and functionally access the rapid prototyping machines, three-dimensional printers, metal shop machinery, and industrial/advanced manufacturing simulation units. The mechanical, electrical, telecommunications, and plumbing systems are all obsolete and nearing the end of their useful lives. Some of the specialized equipment critical to teaching is housed in basement spaces that do not comply with current codes for occupancy due to the lack of ventilation and proper emergency egress. To meet the undergraduate research and experiential project-based pedagogy space needs, modular research and project spaces will be shared by faculty and students. This arrangement creates future flexibility to respond to changing program needs.

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PROPOSED SCHEDULE:

A/E Selection:	Jan 2018
Design Report:	Jan 2019
Bid Date:	Jul 2021
Start Construction:	Sep 2021
Substantial Completion:	Jul 2023
Final Completion:	Dec 2023

CAPITAL BUDGET REQUEST:

Construction:	$41,795,000
Design:	$3,477,000
DFD Fee:	$1,839,000
Contingency:	$4,180,000
Equipment:	$3,422,000
Other Fees:	$476,000
TOTAL:	$55,189,000

OPERATING BUDGET IMPACT:

It is estimated that an additional $307,000 will be required annually to support the completion of this project for staffing, supplies and equipment, and energy bills. Adequate and appropriate operational budget sources have been identified and internally allocated/committed to support this proposed project.

THE UNIVERSITY OF WISCONSIN SYSTEM PROJECT BUDGET WORKSHEET SUMMARY (Rev. 04/2016)

PROJECT TITLE:	**SESQUICENTENNIAL HALL (MECHANICAL ENGINEERING BUILDINC**	Date Prepared :	09/07/16
LOCATION :	UNIVERSITY OF WISCONSIN-PLATTEVILLE	Prepared By :	TJB
		Revised By:	XXX
OPTION NO. :	ACADEMIC BUILDINGS FEASIBILITY STUDY (12L1K) JANUARY 9, 201	TOT PROJ COST EST:	$ 55,189,000

NEW BUILDING AREA				
ASF New Const	0		Base Date:	07/2014
GSF New Const	0	0.00% Efficiency	Base Index	5383
			Projected Bid Date	07/2021
			Projected Bid Index	7698
REMODELING AREA			Escalation Factor:	1.43
GSF Remodeling	0			
GSF Total Bldg	0	0.00% Remodeling	Est. Occup. Date :	07/2023

$ -	/ASF: Construction Cost (building & site)
$ -	/GSF: Construction Cost (building & site)
$ -	/ASF: Total Project Cost
$ -	/GSF: Total Project Cost

NEW CONSTRUCTION			0
REMODELING			0
DEMOLITION			0
ADDITIONAL CONSTRUCTION & REMODELING			26,570,000
HAZARDOUS MATERIALS ABATEMENT			0
SUBTOTAL CONSTRUCTION COST			**26,570,000**
DESIGN CONTINGENCY	10.0%		2,657,000
SUBTOTAL UN-ESCALATED CONSTRUCTION COST			**29,227,000**
ESCALATION FACTOR	1.43		
TOTAL CONSTRUCTION COST		>>>> $	**41,795,000**
A/E BASIC SERVICES	8.0%		3,477,000
A/E ADDITIONAL SERVICES			476,000
PROJECT CONTINGENCY	10.0%		4,180,000
DFD MANAGEMENT FEE	4.0%		1,839,000
TOTAL FEES		>>>> $	**9,972,000**
SPECIAL & MOVABLE EQUIPMENT		>>>> $	**3,422,000**
TOTAL PROJECT BUDGET ESTIMATE	>>>>>>>	>>>> $	**55,189,000**

THE UNIVERSITY OF WISCONSIN SYSTEM PROJECT BUDGET WORKSHEET (Rev. 04/2016)

PROJECT TITLE:	**SESQUICENTENNIAL HALL (MECHANICAL ENGINEERING BUILDING)**	Date Prepared :	09/07/16
LOCATION :	UNIVERSITY OF WISCONSIN-PLATTEVILLE	Prepared By :	TJB
		Revised By:	XXX
OPTION NO. :	ACADEMIC BUILDINGS FEASIBILITY STUDY (12L1K) JANUARY 9, 2015	TOTAL PROJECT COST ESTIMATE:	$ 55,189,000

NEW BUILDING AREA				
ASF New Const	0		Base Date:	07/2014
GSF New Const	0	0.00% Efficiency	Base Index	5383
			Projected Bid Date	07/2021
REMODELING AREA			Bid Date Index:	7698
GSF Remodeling	0		Escalation Factor:	1.43
GSF Total Bldg	0	0.00% Remodeling	Est. Occup. Date :	07/2023

NEW CONSTRUCTION BY SPACE TYPE

Space Category	ASF	Eff	GSF	$/GSF	Category Cost
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
	0		0	Subtotal: $	0

SUBTOTAL CONSTRUCTION COST 0

REMODELING BY SPACE TYPE

Space Category	ASF	Eff	GSF	$/GSF	Category Cost
Classrooms	0	0.00	0	0	0
Laboratories	0	0.00	0	0	0
Offices	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
Function	0	0.00	0	0	0
	0		0	Subtotal: $	0

0

REMODELING BY TRADE

Trade Category		GSF	$/GSF	DFD $/GSF	Trade Cost
General	**Notes**				
-Surface Treatment		0	11.00	11.00	0
-Minor		0	38.00	38.00	0
-Partial		0	63.00	63.00	0
-Complete		0	75.00	75.00	0
Plumbing					
-Minor		0	12.00	12.00	0
-Partial		0	21.00	21.00	0
-Complete		0	24.00	24.00	0
-Special Laboratory Needs		0	45.00	45.00	0
Heat/Vent/Air Cond					
-Minor		0	16.00	16.00	0
-Partial		0	34.00	34.00	0
-Complete		0	51.00	51.00	0
Electric					
-Minor		0	13.00	13.00	0
-Partial		0	23.00	23.00	0
-Complete		0	29.00	29.00	0
				Subtotal: $	0

SUBTOTAL REMODELING COST 0

SUBTOTAL BUILDING & REMODELING COST >>>>>> **$** **0**

PROJECT TITLE:	**SESQUICENTENNIAL HALL (MECHANICAL ENGINEERING BUILDING)**				
SUBTOTAL BUILDING & REMODELING COST (from page 1)				>>>>>> $	0
ADDITIONAL CONSTRUCTION & REMODELING COSTS:					
HEADING NAME OR ITEM CODE	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	**SUBTOTAL**
DEMO	DEMOLITION	0.00	GSF	$ -	0
12L1K, VOLUME 2 APPENDIX					
	SECTION 9. BUDGET DETAIL (pp. 8-16)	1.00	LUMP SUM	$ 26,570,000.00	26,570,000
					0
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SUBTOTAL ADDITIONAL CONSTRUCTION & REMODELING COSTS:				**>>>> $**	26,570,000
SUBTOTAL CONSTRUCTION & REMODELING COST				**>>>> $**	**26,570,000**
HAZ MATS	HAZARDOUS MATERIALS ABATEMENT	0.00	GSF	$ -	0

PROJECT TITLE: **SESQUICENTENNIAL HALL (MECHANICAL ENGINEERING BUILDING)**

SUBTOTAL CONSTRUCTION & REMODELING COST (from page 2)				>>>> $	26,570,000
1. Total Construction Cost				>>>> $	**41,795,000**
- Design Contingency	10.0%		2,657,000		
- Overhead & Profit (OH&P)	0.0%		0		
- Building & Remodeling (from Page 1)			0		
- Demolition (from Page 2)			0		
- Subtotal Additional Construction & Remodeling Cost (from Page 2)			26,570,000		
- Hazardous Materials Abatement (from Page 2)			0		
- Subtotal Unescalated Construction Cost			29,227,000		
- Escalation Factor	1.43		41,794,600		
2. Architect/Engineer Basic Services					**3,477,000**
- Basic Services	8.0%		3,343,600		
- Reimbursible costs	4.0%		133,700		
3. Additional Design Services					**476,000**
- Pre-design	0.5%		209,000		
- LEED™ certification			0		
- Systems Furniture design	6.0%		2,800		
- Commissioning (specify level)	0.5%		209,000		
- EIS/EIA consultant			35,000		
- Construction Testing			0		
- Testing & Balancing			20,000		
- Specify			0		
- Specify			0		
- Specify			0		
- Specify			0		
- Specify			0		
4. Project Contingency	10.0%	41,795,000	4,179,500		**4,180,000**
5. DFD Project Management	4.0%	45,975,000	1,839,000		**1,839,000**
6. Movable Equip. Allowance	7.0%	41,795,000	2,925,700		**2,926,000**
7. Special Equipment					**496,000**
- Audio-Visual			210,000		
- Computer Equipment			229,500		
- Systems Furniture			46,000		
- WASTE MANAGEMENT/RECYCLING EQUIPMENT			10,000		
- Specify			0		
- Specify			0		
- Specify			0		
- Specify			0		
TOTAL PROJECT BUDGET ESTIMATE				>>>> $	**55,189,000**

$	-	/ASF: Construction Cost (building & site)
$	-	/GSF: Construction Cost (building & site)
$	-	/ASF: Total Project Cost
$	-	/GSF: Total Project Cost

NOTES:

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