



Office of the Chief Financial Officer and Treasurer

April 14, 2023

The Honorable Eric J. Holcomb
Governor of the State of Indiana
Statehouse
Indianapolis, IN 46204

Dear Governor Holcomb:

At its meeting on April 14, 2023, the Purdue University Board of Trustees approved the planning, financing, construction and award of construction contracts for the Birck Nanotechnology Center Clean Room Modernization, Related Renovations and Equipment Purchases on the West Lafayette campus.

This project will renovate approximately 13,000 GSF of existing clean room space to accommodate new research. Existing occupants will be relocated, and space will be renovated as needed to accommodate them. This project includes the purchase of specialty research equipment and the installation of new air handling units and upgraded utility equipment.

This project helps create the environment required for new semiconductor and quantum-focused research that helps attract industrial partnerships to the university. The project supports the *Purdue Moves 2.0: National Security and Technology Initiative* and enables Purdue to be competitive in future CHIPS Act grant opportunities.

The estimated total project cost is \$49,000,000, to be funded by \$30,000,000 of Operating Funds – Reserves and \$19,000,000 in Gift Funds.

Subject to review by the Commission for Higher Education and recommendation by the State Budget Committee and the Budget Agency, we request your approval to proceed with this project. Attached are the completed forms that the Commission has prescribed for its review of such projects. We will be happy to answer any questions you or your staff may have or to provide any additional information that is needed.

Sincerely,

A handwritten signature in black ink, appearing to read 'CARuhl', written over a light blue horizontal line.

Christopher A. Ruhl
Chief Financial Officer and Treasurer

Attachments

c: Seth Hinshaw, Chief Financial Officer, Indiana Commission for Higher Education
Zachary Jackson, Director, Indiana State Budget Agency
Jasmine Williams, Assistant Director, Indiana State Budget
Kathleen Thomason, Comptroller, Purdue University
Anne Hazlett, Senior Director, Government Relations, Purdue University

PROJECT COST SUMMARY

Birck Nanotechnology Center Clean Room Modernization, Related Renovations and Equipment Purchases

Institution:	<input type="text" value="Purdue University"/>	Budget Agency Project No.:	<input type="text" value="B-1-23-2-15"/>
Campus:	<input type="text" value="West Lafayette"/>	Institutional Priority:	<input type="text" value="N/A"/>
Previously approved by General Assembly:	<input type="text" value="No"/>	Previously recommended by CHE:	<input type="text" value="No"/>
Part of the Institution's Long-term Capital Plan:	<input type="text" value="Yes"/>		

Project Size:	<input type="text" value="20,000"/> GSF (1)	<input type="text" value="15,500"/> ASF (2)	<input type="text" value="0.78"/> ASF/GSF
Net change in overall campus space:	<input type="text" value="0"/> GSF	<input type="text" value="0"/> ASF	

Total cost of the project (3):	<input type="text" value="\$ 49,000,000"/>	Cost per ASF/GSF:	<input type="text" value="\$ 2,450.00"/> GSF
Total cost of the demolition:	<input type="text" value="\$ -"/>		<input type="text" value="\$ 3,161.29"/> ASF
Funding Source(s) for project (4):	Amount	Type	
	<input type="text" value="\$ 30,000,000"/>	<input type="text" value="Operating Funds - Reserves"/>	
	<input type="text" value="\$ 19,000,000"/>	<input type="text" value="Gift Funds"/>	
	<input type="text" value=""/>	<input type="text" value=""/>	
	<input type="text" value=""/>	<input type="text" value=""/>	
Estimated annual debt payment (6):	<input type="text" value="\$0"/>		
Are all funds for the project secured:	<input type="text" value="Yes"/>		

Project Funding:
 The project is being funded primarily by Operating Funds - Reserves with remaining contributions from Gift Funds.

Project Cost Justification
 This project's scope and cost are described more in the Capital Project Details section. The above calculated \$2,450/GSF cost includes a large amount of specialty equipment purchases (\$19M in moveable equipment as noted in the Estimated Construction Cost For Project section). Removing the equipment purchases, leaves \$30M in capital construction costs, which equates to \$1,500/GSF.

Estimated annual change in cost of building operations based on the project:	<input type="text" value="\$ 46,314"/>
Estimated annual repair and rehabilitation investment (5):	<input type="text" value="\$ 735,000"/>

(1) Gross Square Feet (GSF)- Sum of all area within the exterior envelope of the structure.
 (2) Assignable Square Feet (ASF)- Amount of space that can be used by people or programs within the interior walls of a structure. Assignable square feet is the sum of the 10 major assignable space use categories: classrooms, laboratories, offices, study facilities, special use facilities, general use facilities, support facilities, health care facilities, residential facilities and unclassified facilities. For information on assignable space use categories, see Space-Room Codes tab.
 (3) Projects should include all costs associated with the project (structure, A&E, infrastructure, consulting, FF&E, etc.)
 (4) Be consistent in the naming of funds to be used for projects. If bonding, note Bonding Authority Year (1965, 1929, 1927, etc.)
 (5) Estimate the amount of funding the institution would need to set aside annually to address R&R needs for the project. CHE suggests 1.5% of total construction cost
 (6) If issuing debt, determine annual payment based on 20 years at 4.75% interest rate
 - If project is a lease-purchase or lease, adjust accordingly. Note the total cost of the lease in the project cost, and annual payments in project description

PROJECT DETAILED DESCRIPTION - ADDITIONAL INFORMATION

Birck Nanotechnology Center Clean Room Modernization, Related Renovations and Equipment Purchases

Institution:	Purdue University	Budget Agency Project No.:	B-1-23-2-15
Campus:	West Lafayette	Institutional Priority:	N/A

Description of Project

This project will renovate an estimated 13,000 GSF of clean room space in the Birck Nanotechnology Center on the West Lafayette campus to accommodate new research. To condition and maintain the clean room space for new research capabilities, multiple new, air handling units will be installed. Related supporting equipment including fume hoods, controls and HEPA filters will be replaced. The new air handling units and upgraded equipment are required to support the larger clean room space and will result in more efficient use of energy. This project includes the procurement of specialty research equipment to fulfill current and planned sponsor commitments.

Separately, existing laboratory occupants and equipment that are currently in Birck will be relocated to approximately 7,000 GSF total of campus space that will be repurposed and renovated as part of this project.

Need and Purpose of the Program

Birck's clean room - a room to conduct research for the manufacture or assembly of precision parts that is maintained at a high level of cleanliness by special means - is the only one on campus. The enhancements and repurposing of clean room space will create the required environment for new semiconductor and quantum-focused research with industry partners, like SkyWater Technology. SkyWater Technology announced in July 2022 that it plans to open a \$1.8 billion state-of-the-art semiconductor manufacturing facility in the Discovery Park District at Purdue in the coming years.

Semiconductors are an essential piece of various electronics, including those that enable advances in communications, computing, healthcare, military systems, transportation, clean energy and many other applications. This project supports the global semiconductor shortage, U.S. supply chain and the *Purdue Moves 2.0*: National Security and Technology Initiative.

The completed space in Birck enables Purdue to be competitive in future CHIPS Act grant opportunities. The CHIPS Act is intended to strengthen American manufacturing, supply chains, national security, semiconductor research and development, science and technology, and the workforce of the future. The act supports the United States as a leader in emerging industries including nanotechnology, clean energy, quantum computer and artificial intelligence.

Space Utilization

The project primarily affects research lab space. However, in one of the facilities that will accept relocated lab occupants from Birck, just over 2,000 ASF will be reallocated to research space from storage space. The overall project will have no net impact on the campus ASF total.

Comparable Projects

Purdue Secure Research Facility, 2021

* \$5,500,000

* 7,000 GSF

* \$785/GSF

* This project constructed a small facility to support specialized research activities, including secure office and laboratory space for principal investigators.

The Purdue Secure Research Facility and the proposed project both add research laboratory space, but the Purdue Secure Research Facility did not include any clean room space, which is very expensive to modify with active clean room work ongoing. The proposed project has significant costs involved with the clean room space, required working conditions and the procurement of specialty research equipment.

Background Materials

CAPITAL PROJECT REQUEST FORM
INDIANA PUBLIC POSTSECONDARY EDUCATION
INSTITUTION CAMPUS SPACE DETAILS FOR Birk Nanotechnology Center Clean Room Modernization, Related Renovations and Equipment Purchases

(INSERT PROJECT TITLE AND SBA No.)	Current Campus Totals			Subtotal Current and Future Space	Capital Request		Net Future Space
	Current Space in Use	Space Under Construction (1)	Space Planned and Funded (1)		Space to be Terminated (1)	New Space in Capital Request (2)	
A. OVERALL SPACE IN ASF							
Classroom (110 & 115)	336,770	-	(2,758)	334,012			334,012
Class Lab (210,215,220,225,230,235)	821,564	4,425	(17,763)	808,226			808,226
Non-class Lab (250 & 255)	1,689,952	28,557	(6,857)	1,711,652		1,887	1,713,539
Office Facilities (300)	2,327,144	(3,312)	(47,907)	2,275,925			2,275,925
Study Facilities (400)	397,274	8,166	48,926	454,366			454,366
Special Use Facilities (500)	1,206,038	8,796	3,603	1,218,437			1,218,437
General Use Facilities (600)	1,018,077	6,056	(31,581)	992,552			992,552
Support Facilities (700)	2,934,774	(726)	(618)	2,933,430	(1,887)		2,931,543
Health Care Facilities (800)	217,205	-	-	217,205			217,205
Resident Facilities (900)	2,427,355	-	-	2,427,355			2,427,355
Unclassified (000)	115,749	-	-	115,749			115,749
B. OTHER FACILITIES (Please list major categories)							
TOTAL SPACE	13,491,902	51,962	(54,955)	13,488,909	(1,887)	1,887	13,488,909

Notes:

- Space/Room codes based on Postsecondary Ed Facilities Inventory and Classification Manual (2006)

(1) Identify in a footnote the specific facilities that are included in the data in these columns. Do not include pending approval, non-submitted projects or non-funded projects

Space under construction includes:

- Schleman/Stewart Renovation
- Whistler Mechanical Project
- Ross-Ade Stadium Renovation
- Zucrow High Speed Propulsion Lab
- Mackey Locker Rooms Renovation

Space planned and funded includes:

- Life Sciences Phenotyping Greenhouse Building
- Northwest Chiller Plant System Improvements
- Vawter Hall Electrical Enhancements and Replacement
- Brown Family Hall Renovation
- PMU 2nd Floor Hospitality Renovation
- Libraries Study Space Renovation
- University Hall and Related Renovations
- Mechanical Engineering Building Renovation
- Chilled Water Capacity Enhancement Projects

Space to be terminated as part of this project includes:

- Support (storage) space

(2) Space added as part of this project includes:

- Research space

CAPITAL PROJECT COST DETAILS

Birk Nanotechnology Center Clean Room Modernization, Related Renovations and Equipment Purchases

Institution:	Purdue University	Budget Agency Project No.:	B-1-23-2-15
Campus:	West Lafayette	Institutional Priority:	N/A

ANTICIPATED CONSTRUCTION SCHEDULE

	<u>Month</u>	<u>Year</u>
Bid Date	December	2023
Start Construction	January	2024
Occupancy (End Date)	September	2024

ESTIMATED CONSTRUCTION COST FOR PROJECT

	Cost Basis (1)	Estimated Escalation Factors (2)	Project Cost
<u>Planning Costs</u>			
a. Engineering	\$ 1,600,000		N/A
b. Architectural	\$ 550,000		N/A
c. Consulting	\$ 250,000		N/A
<u>Construction</u>			
a. Structure	\$ 8,000,000		N/A
b. Mechanical (HVAC, plumbing, etc.)	\$ 9,500,000		N/A
c. Electrical	\$ 2,500,000		N/A
<u>Movable Equipment</u>	\$ 19,000,000		N/A
<u>Fixed Equipment</u>	\$ 3,300,000		N/A
<u>Site Development/Land Acquisition</u>	\$ -		N/A
<u>Other (PM fees, contingencies, printing)</u>	\$ 4,300,000		N/A
TOTAL ESTIMATED PROJECT COST	\$ 49,000,000	\$ -	N/A

(1) Cost Basis is based on current cost prevailing as of: (INSERT MONTH AND YEAR)

(2) Explain in the Description of Project Section of the "Cap Proj Details" schedule the reasoning for estimated escalation factors

CAPITAL PROJECT OPERATING COST DETAILS

Birck Nanotechnology Center Clean Room Modernization, Related Renovations and Equipment Purchases

Institution:	<u>Purdue University</u>	Budget Agency Project No.:	<u>B-1-23-2-15</u>
Campus:	<u>West Lafayette</u>	Institutional Priority:	<u>N/A</u>

	<u>GSF OF AREA AFFECTED BY PROJECT</u>			
ANNUAL OPERATING COST/SAVINGS (1)				3,000
	Cost per GSF	Total Operating Cost	Personal Services	Supplies and Expenses
1. Operations	\$ 5.01	\$ 15,036	\$ 15,036	\$ -
2. Maintenance	\$ 0.51	\$ 1,528	\$ 1,528	\$ -
3. Fuel	\$ -	-	-	-
4. Utilities	\$ 8.98	\$ 26,930	-	\$ 26,930
5. Other	\$ 0.94	\$ 2,820	-	\$ 2,820
TOTAL ESTIMATED OPERATIONAL COST/SAVINGS	\$ 15.44	\$ 46,314	\$ 16,564	\$ 29,750

Description of any unusual factors affecting operating and maintenance costs/savings.

This project will renovate an estimated 13,000 GSF of clean room space in the Birck Nanotechnology Center on the West Lafayette campus. Space within the clean room will be repurposed to be more efficient, allowing 3,000 GSF more usable clean room space, though the total square footage remains the same. The operating cost of the building is projected to increase due to the amount of clean room space to be added.

(1) Based on figures from "Individual Cap Proj Desc" schedule