Architecture Program Report

The Pennsylvania State University

Spring 2023

National Architectural Accrediting Board, Inc.

NAAB

Architecture Program Report (APR)

2020 Conditions for Accreditation
2020 Procedures for Accreditation

Institution	The Pennsylvania State University
Name of Academic Unit	Department of Architecture
Degree(s) *(check all that apply)* **Track(s)** *(Please include all tracks offered by the program under the respective degree, including total number of credits. Examples:* *150 semester undergraduate credit hours* *Undergraduate degree with architecture major + 60 graduate semester credit hours* *Undergraduate degree with non-architecture major + 90 graduate semester credit hours)*	☒ Bachelor of Architecture Track: 162 semester undergraduate credit hours ☒ Master of Architecture Track: 97 semester graduate credit hours Track: ☐ Doctor of Architecture Track: Track:
Application for Accreditation	**Continuing Accreditation**
Year of Previous Visit	2014 (B.Arch)
Current Term of Accreditation *(refer to most recent decision letter)*	Continuing Accreditation (Eight-Year Term)Continuing Accreditation (Eight-Year Term) 2014–2022 with Covid extension to 2023
Program Administrator	Dan Willis, Interim Department Head and Professor
Chief Administrator for the academic unit in which the program is located *(e.g., dean or department chair)*	Dan Willis, Interim Department Head and Professor
Chief Academic Officer of the Institution	Dr. Justin Schwartz, Interim Executive Vice President and Provost
President of the Institution	Dr. Neeli Bendapudi, President
Individual submitting the APR	Ross Weinreb, Assistant Department Head

Name and email address of individual to whom questions should be directed	Dan Willis – dew2@psu.edu Ross Weinreb – rew5144@psu.edu

Submission Requirements:

- The APR must be submitted as one PDF document, with supporting materials
- The APR must not exceed 20 MB and 150 pages
- The APR template document shall not be reformatted

NAAB

TABLE OF CONTENTS

INTRODUCTION

Progress since the Previous Visit (limit 5 pages)

In this Introduction to the APR, the program must document all actions taken since the previous visit to address Conditions Not Met and Causes of Concern cited in the most recent VTR.

The APR must include the exact text quoted from the previous VTR, as well as the summary of activities.

Program Response

In the 2014 VTR, only one SPC was marked "Not Met," with no other conditions. This SPC was satisfied with the 2016 IPR, and we did not need to re-report in the 2019 IPR. A brief version of the 2016 report is copied below under "C. 1. Collaboration."

CONDITIONS NOT MET

C. 1. Collaboration, specifically "multidisciplinary collaboration" within the required core.

2014 Team Assessment: *While there are multiple opportunities for students to develop collaborative skills and abilities (notably in ARCH 132 Basic Design Studio II, ARCH 431 Architectural Design V, and ARCH 432 Architectural Design VI), there is no evidence of demonstrated ability to work in multi-disciplinary teams in the required course work. The elective Integrated Delivery Project Studio provides an exemplary opportunity for students to work collaboratively in multidisciplinary teams to accomplish a comprehensive design project; however, it appears that only a small percentage of students have access to this studio each year. The program is encouraged to capitalize on opportunities to increase the number of B.Arch. students participating in this studio.*

Penn State, 2016 Response

ARCH 132 – Basic Design Studio II: The objectives of this course highlighted under "Conditions Met with Distinction" in the initial report and characterized as "exceptional" (p. 22) in the VTR, require the students to work with a team that includes specialists, consultants, and user groups. Although they do not collaborate with students from other disciplines, first-year students do work across disciplines as indicated by collaborations with numerous professionals including structural engineers, general contractors, code compliance officers, environmental health and safety professionals, accessibility professionals, municipal zoning officers, police and fire safety officers, and grounds and maintenance professionals.

ARCH 332 – Architectural Design IV: Students conduct peer-to-peer consultations with structural engineering students and landscape architecture students.

AE 211 – Introduction to Environmental Systems: Beginning fall semester 2014, selected lectures in AE 211 have been delivered in a common setting with AE 202: Concepts in Architectural Engineering for architectural engineering students. The joint sessions encourage interactions between architecture and architectural engineering students.

Cross-departmental Upper-level Studios: We have formalized the cross-departmental upper-level studios between the Departments of Architecture, Architectural Engineering, and Landscape Architecture. Each semester, one of our upper-level studios is dedicated to collaborative studies between students and faculty of the three departments.

Additional New Impactful Studio Opportunities: Since the 2016 IPR, we have instituted Directed Research Studios (DRS) as a requirement for all fourth- and fifth-year students. Due to their emphasis on research, these studios have a collaborative aspect with other disciplines. For a full list/matrix of DRS offerings since fall 2019, please see Appendix 7.3.

CAUSES OF CONCERN

1. Administrative Structure & Governance: There are communication issues between the Department of Architecture and the College of Arts and Architecture. This could be disruptive to the overall mission of the Department of Architecture if not addressed productively.
[X] Administrative Structure is adequate for the program

2014 Team Assessment: *Administrative Structure was noted as a cause for continual concern through multiple conversations with various constituencies within the school. The topic needs to be described on both the level of the department head (locally) and then at the extended level to be fully understood.*
At the local level the department head and his administrative team seem to be properly suited for the staffing levels of the program. He has adequate resources for the role. Mr. Hadighi is universally respected by his faculty and is seen as a transparent and fair leader. We received compliments for the Department Head on multiple occasions.
The condition of the Stuckeman Endowment requiring a director over the department heads of architecture and landscape architecture was recently occupied by an architect who was abruptly removed from the position in 2013 without the prior knowledge or consultation of the department head and faculty.
The role is currently occupied by an interim director while a search occurs for a permanent director. There is a lack of clarity from the perspective of the department on exactly what the relationship will be of this director of Stuckeman School/ associate dean of the College of Arts and Architecture relative to the department and the institution as a whole.

Beyond the future director/associate dean position, there appears to be a lack of accessibility and communication between the department and the dean in regard to decision making. The lack of clarity and perceived lack of involvement by faculty is leading to more concern. This affects conversations about tenure and promotion, finances, and other areas of governance. In conclusion, the department head is a tremendous resource for the faculty; however, the extended chain of command appears to be cause for concern. This issue appears as if it could be disruptive to the overall mission of the faculty if not addressed productively.

Pennsylvania State University, 2019 Response: The Stuckeman Governance Document was voted upon and adopted on February 15, 2017, by the faculty of the Stuckeman School (Architecture, Landscape Architecture, and Graphic Design). The document, as adopted, can be found at THIS LINK. The governance document has clarified the relationships between the Head, the Director, and the Dean in writing.

In August 2022, Mallika Bose was appointed the Stuckeman School Interim-Director.

In January 2020, B. Stephen Carpenter II was appointed Dean of the College of A&A.

2. Diversity: Efforts to increase student and faculty diversity have been made and must be an ongoing initiative.
[X] The program has demonstrated that it provides a culturally rich environment in which each person is equitably able to learn, teach, and work.

2014 Team Assessment: *Documentation of the Stuckeman School of Architecture and Landscape Architecture (SALA) Studio Culture Policy can be found on its website, and both the faculty and students are aware of its contents. There is an evidenced respect for the value of learning and for a diversity of ideas in the ways in which the faculty speak of other faculty work, range of student work presented, positive descriptions of the studio environment, and respect for the exploration of design that is voiced by the students. Students are exposed to a range of teaching styles but all with a strong student-centered learning pedagogy. The studio culture is both positive and valued.*
Social equity is addressed on two fronts: efforts undertaken by Pennsylvania State University (PSU) initiatives and policies of the SALA. Through the work of PSU Office of the Vice President for Educational Equity, PSU offers provisions and assistance for a wide range of students to ensure diversity of opportunity and ability. These include the College Assistance Migrant Program, Educational Opportunity Center, Multicultural Resource Center, Office for Disability Services, Office for Veteran Programs, Student Support Services Program, Talent Search through the US Department of Education TRIO program, Upward Bound, and various commissions for equity, LGBTQ+, racial/ethnic diversity, and women. First-year student admissions are controlled at the university level, not the school level at PSU, and the student demographic statistics of racial diversity have improved from 2007 to 2012.

For our ongoing initiatives related to Equity, Diversity, and Inclusion please refer to Shared Values: Equity, Diversity, and Inclusion in this APR.

3. Digital Technology: Conventional skills in digital representation are evident. The Beehive student initiative to augment digital currency is laudable; however, the presence of cutting-edge digital technologies are not integrated into the required core nor seen as a priority for the program. Exposure to and mastery of versatile digital technology is a necessary capability during educational preparation and for future professional occupation.

Realm A. General Team Commentary: *There is evidence in the student work showing strong foundational skills in communication, design thinking, ordering, applied research, use of precedents, and technical documentation. The visiting team observed exceptional student achievement in the first-year studio sequence relative to a collaborative design-build experience in fundamental and investigative design skills. Although student work demonstrates understanding of historic traditions, global culture, cultural diversity, it is something that the program could further expand upon. The visiting team observed digital technology fluency in student work, but has concerns about lack of exploration of advanced computing technologies.*

Penn State University, 2019 Response
With the aim of encouraging the use of digital technology in creative design explorations, we expose the students to these technologies at various points throughout the architecture curriculum, starting from the first year of undergraduate education up through the fifth year. Since 2016, we have developed new courses and studios and made changes to existing offerings in order to better integrate cutting-edge digital technologies into the curriculum. These are primarily offered to students in the first two years of the undergraduate curriculum as well as to upper-level, i.e., 5th-year, students.

Digital content is offered to/accessed by the students in three ways. The first way, primarily in the first two years of the curriculum, students learn this content in required digital courses and through embedded modules/exercises in existing design studios. These modules and exercises rely on the use of a range of digital design and fabrication technologies.

The second way, primarily accessed in the fourth and fifth years of the undergraduate curriculum are independent options studios and elective courses focusing on computation and digital design.

The third way, open to all students at the Stuckeman School is computational and digital workshops and seminars.

REQUIRED COURSES/STUDIOS ON DIGITAL TECHNOLOGIES

ARCH 122 – Visual Communications II: For first-year undergraduate students: It lays the foundation for digital technology education in our curriculum. The course is designed to introduce students to digital design and fabrication tools and technologies used in both the development of architectural form and the representation of architectural ideas.

ARCH 132 – Basic Design Studio II: The studio runs in tandem with ARCH 122: Visual Communications II in the spring. Students work on two main projects throughout the semester, and faculty teaching different sections rotate between the projects.

- **Digital Crafting Module:** This module involves designing and making material systems to serve as lanterns. The overall purpose is to strengthen the students' visual and spatial reasoning skills through simultaneous hands-on work and digital experimentation in the 3D design space.

ARCH 231 – Architectural Design I: The faculty teaching the second-year design studios integrate digital technology into the course by including modules focused on specific digitally oriented exercises. The following computation modules are taught in ARCH 231 and 232:

- **Module 1**: A digital fabrication exercise that re-introduces students to laser cutting for study models. The students are then introduced to the CNC milling process for milling masonite in order to fabricate their final products.
- **Module 2**: This module introduces students to the basics of Virtual Reality (VR).

ARCH 232 – Architectural Design II: Offers a studio design that highlights the use of Concrete Masonry Units. The computational modules support this studio's goal. This studio teaches parametric design, visual computing, and 3D digital modeling/printing.

- **Module 1**: Students design their own CMU's. They are taught to digitally model their block as a solid and then print it using 3D technology.

In both ARCH 231 and 232, the **Digital Beehive** holds workshops during class time. They include rendering, workflow and basic digital modeling, board layout, and visual storytelling.

EXAMPLES OF OPTIONS STUDIOS WITH COMPUTATION AND DIGITAL CONTENT

ARCH 491 – Advanced Computation Studio: This advanced computation studio explores the use of computation to address complex design problems.

ARCH 491 – Open-Source Housing Systems: In this studio, students design open-source systems for expandable and customizable housing units. In doing so, they explore and test their design ideas through physical prototypes at various scales by integrating computational design and digital fabrication technologies into the design process.

ELECTIVE COURSES WITH COMPUTATION AND DIGITAL CONTENT

ARCH 481 – Digital Design Media: The primary goal of ARCH 481 is to introduce students to the digital design tools available and investigate their potential in design through a project-based approach.

ARCH 497 – Inquiry into Design Computing: The course topics expose students to key design computational paradigms such as visual calculating, rule-based design, parametric practices, spatial syntax, pattern language, simulation and modeling, digital fabrication, and computational materials, as well as intelligent and augmented spaces and cities.

ARCH 497 – Introduction to Shape Grammars: This course provides an in-depth introduction to shape grammars and their applications in architecture and related areas of design.

ARCH 497 – Additive Manufacturing of Concrete Structures: The course explores the use of concrete 3D printing in the design of architectural structures. In this context, students in the participating departments work in multidisciplinary groups, each of which designs a small house for 3D printing in concrete.

ARCH 497 – Computer Programming for Artists and Designers: The course introduces students to the fundamentals of computer programming in the creative fields of arts and architecture, leading to the idea of generative design systems. The main software packages used in this course are Rhino and Python.

ARCH 497 – Hacking Materials and Production Methods: Everyone in the course makes their own machines and hacks existing ones. Contributing to open-source projects, the course has a purpose of extending the physical boundaries of the classroom by collaborating with people worldwide.

ARCH 497 – Softbuilt: Crafting Technology with Textiles: This course introduces students to the hands-on skills needed to work with soft materials for architectural and other design applications.

ARCH 497 – Virtual Reality for Design: This course introduces students to the application of immersive technologies such as virtual reality in the fields of architecture, landscape architecture, and engineering design.

For a full list/matrix of DRS and Elective offerings since fall 2019, please see Appendix 7.3.

WORKSHOPS AND SEMINARS

Light It Up! Workshop on Design Computation: In January 2018, this four-day workshop focused on designing and building large-scale lanterns, students learned about the geometry of polyhedra and how to model them on a computer. For more information CLICK HERE.

Fiber Composite Workshop: A yearly workshop sponsored by the American Composite Manufacturers Association (ACMA), the Fiber Composite Workshop introduces faculty, staff, and students to case studies, expert knowledge, and fabrication techniques using fiberglass and other commonly used fabrics for fiber composite layup.

Stuckeman Robots Workshops: In Fall 2019, these workshops focused on design robotics: https://stuckemanrobots.wixsite.com/workshops.

RESOURCES

Digifab Lab, SOFTLAB@PSU Computational Textiles Lab, ForMat Lab, Immersive Environments Lab (IEL), Remote Collaboration Lab (CoLab), Advanced Geometric Modeling Lab (AdGeomLab), Swarm Render Farm. See section 5.6 in this APR for more details.

Digital Beehive: As previously described, the Digital Beehive is a student group that offers workshops on digital technologies for architecture students in the Stuckeman School.

4. SPC B.3. Sustainability: While other sustainable topics are addressed in great depth, sustainability that concerns material selection in regard to life-cycle analysis, embodied energy, and resource reuse could be improved. **[X] Met**

2014 Team Assessment: *Evidence of these abilities is found in the ARCH 332 Architectural Design IV sequence and the concurrent sequencing of ARCH 480 Technical Systems Integration. There is insufficient engagement of sustainability as it relates to material use, material selection, and life-cycle analysis.*
ARCH 204, Materials and Methods of Construction has included additional material in order to address this "cause of concern," directly addressing material Selection in regard to lifecycle analysis, embodied energy, and resource reuse.

Penn State University, 2019 Response

Since the previous visit, **ARCH 204**: Materials and Methods of Construction has included material that specifically addresses the "cause of concern" stated. Greater emphasis is, therefore, now placed on directly considering material selection in regard to lifecycle analysis, embodied energy, and resource reuse.

On completing the course, students should be familiar with contemporary advances in materials and construction, including earth technologies, brick masonry, CMU, glass construction and assembly, structural textiles, grid modules, pre-fabrication technologies, the evolution of special connectors and hardware, and the development of membranes. Students should also have gained some familiarity with the rise of composite materials in building construction and be able to demonstrate a basic command of building components together with the ability to represent materials in construction documents. Work in the second-semester design studio should show evidence of the class objectives and demonstrate competence in the art, craft, and technologies of making buildings. Students are asked to articulate their opinions of various architectural materials and technologies as the class develops.

In addition, although at an introductory level, **ARCH 203** already begins to introduce students to the energy implications of materials and assemblies. Class lectures cover many common materials related to each topic and emphasize the sustainable design considerations for material choice and design. Each common building material is introduced in its historical context and with emphasis on contemporary considerations in relation to issues such as the qualities of a material as abundant, renewable, and/or recycled, its embodied energy including transportation, and its impact on the energy performance, adaptability, and maintenance of buildings over time.

For our ongoing initiatives related to sustainability and environmental stewardship, please refer to Shared Values: Environmental Stewardship & Professional Responsibility in this APR.

5. SPC B.6. Comprehensive Design: While the visiting team appreciates opportunities for collaboration for various points in the curriculum, it finds cause for concern regarding the decision to structure collaborative work within the Comprehensive Design Studio. This is the dedicated place in the curriculum where individuals must demonstrate ability

in the integration of a number of key aspects of architectural and professional competency. **[X] Met**

2014 Team Assessment: *Collectively between ARCH 331 Architectural Design III, ARCH 332 Architectural Design IV, ARCH 431 Architectural Design V, and ARCH 432 Architectural Design VI (comprehensive studio), there is clear evidence of student ability to produce a comprehensive architectural project. While the visiting team appreciates opportunities for student design collaboration in various points in the curriculum, it finds cause for concern regarding the decision to structure collaborative student teams within the context of the comprehensive studio. This is the dedicated place in the curriculum where each student must demonstrate ability in the integration of a number of key aspects of architectural and professional competency. Since the respective roles of student contributors, and specific authorship and therefore independent ability are unclear in the design.*

Program Response

The NAAB review has been addressed as part of a multi-year self-assessment driven by the Undergraduate Curriculum Committee (UGCC). As a direct response to the review, the Department now introduces “building design” in the first year of the B.Arch program, leading to the integrative studio in the third year in which students now demonstrate architectural and professional competency working on a solo rather than a team basis. Though handled as a content change rather than a “curriculum change,” this step to improve the instruction offered is an important example of the Department’s thorough self-assessment process, even leading to additional action.

With the goal of delivering a curriculum that strongly promotes an appropriate level of comprehensive design competency gained over three years, the Department has taken two related steps at each year level: (1) strengthened existing sequences of courses (studio, visual communications and representation, and history and theory courses, as well as supporting courses taught by the Department of Architectural Engineering) and (2) created new bridges or reinforced existing bridges between studio and support courses.

In most cases, studio objectives are well supported by the arrangement of the skills and content courses and the concurrent support courses such that students receive sufficient instruction to apply information effectively in a given sequence. For the AE sequences, however, ensuring that this is the case is challenging. Given that the AE courses are based on technical analysis, it is difficult for students to apply their architectural engineering coursework to their studio projects. One function of the existing materials and methods sequence during the second year is to provide a bridge between the studio and the structures sequence. The instructors coordinate assignments and projects between these courses. This approach has produced strong results in relation to the students’ ability to incorporate structures into their design work. Yet, the environmental control systems courses (**AE 211** and **AE 424**) offered during the third year lacked a potential bridging course. To address shortcomings of this nature, as of fall 2021, those courses have been taught by a member of the architecture faculty. In addition, **ARCH 480**: Technical Systems Integration has been moved to the spring semester of the third year as a bridging course coordinated with **ARCH 332**.

DESIGN STUDIOS

First Year (Introduction to the Making of Architecture): The first year of the architecture curriculum immerses students in the traditions of architecture and current trends in practice: the design studio, techniques of representation, and the historical foundations of the discipline. In this studio, architectural thinking is developed through materials imagination

work in an articulated context. Students engage in the process of design from the introduction of basic site analysis and documentation to the interplay of language, context, function, materials, and structure in design-build exercises. Design and representation are inextricably linked in the studio and supported by the integration of related history and theory of architecture courses.

Second Year (Understanding of Context and Materials): The second-year curriculum translates the basic design process into fundamental architectural design components including site, materials, structure, program, order, precedent, and environment. Representational skills continue to be developed through 3D digital modeling for design visualization, design production, and environmental analysis tools. Contemporary architectural examples and theories provide a context in which students can explore simple design solutions while engaging in current discourses in the field of architecture.

Third Year (Synthesis of Architectural Components): The primary objective of the third-year studio is to integrate and synthesize formal, spatial, functional (including life safety, accessibility, and introductory code issues), and technical requirements, in addition to sustainability, site, and contextual concerns. Emphasis is placed on developing a schematic resolution of structural and environmental systems, sustainable design practices, life safety requirements, and identification of primary building materials consistent with design intentions.

Fourth & Fifth Year (International Experience and Multiple Studio Options): All students are required to spend a semester abroad to develop awareness as global citizens. While abroad, students are introduced to urban design issues in a rich historical context. The creation of the Directed Research Studios (DRS) afford students opportunities in interdisciplinary collaborative design and sustainable design with greater flexibility over four semesters at the upper-year level. This approach provides potential for greater specialization in architecture and related fields, thereby leading to better-defined career tracks and/or to further specialization through graduate school enrollment.

For more information related to comprehensive design, please see SC.4 Design Synthesis and SC.5 Building Integration.

6. SPC C.2. Human Behavior: This criteria is not strongly evidenced in the body of student work. **[X] Met**

2014 Team Assessment: *This condition is most clearly met by ARCH 499C Urban Studies Topics offered in Rome. Through an immersive experience, students encounter firsthand the relationship between human encounters with the built environment; however, evidence of this analysis is not clear in ARCH 210 Introduction to Architectural and Planning Theories and ARCH 311w Advanced Architectural Theory. We see tremendous promise in the development of this criteria in ARCH 331 Architectural Design III and/or ARCH 332 Architectural Design IV.*

We have worked to heighten student awareness of the interdependencies between design and the natural and human environment in several ways:

- **ARCH 210** now includes student assignments and in-class discussions drawing on primary-source readings and projects connecting architecture and city design to larger cultural, political, and environmental aspirations, implementation, and their consequences. Human behavior is understood as embodied at scales ranging from the societal to the individual. Establishing chronological connections between

intentions, ideas, and works of design reveals how larger-scale human behavior (that of architects, institutions, and society) shapes the processes and artifacts of the built environment over time. The course also critically examines the consequences — intended or otherwise — of historical developments for individuals and groups. This includes examining the impact of architecture on cultural values and physical health; the relationship between architecture and issues of race, gender, and social justice; and the effects of cultural impositions (including colonialism and resistance) on architectural production.

- Increased readings on social issues now included in **ARCH 311W**.
- Theory faculty now participate more fully than before in fifth-year thesis project development. This ensures that students integrate the most up-to-date knowledge about social, cultural and environmental issues into their research & design solutions.
- Deliberate sequencing of student learning from **ARTH 201/202** (survey courses, broad stroke introductions to buildings and periods) to **ARCH 210** (development of ideas in architecture and city design from antiquity to the late 20th century, grounded in social, political, environmental, and philosophical contexts) to **ARCH 311w** (contemporary issues in theory), and finally to **ARCH 419** (design research methods and programming).
- In response to feedback included in the 2014 NAAB Requirements for Pre-Design, fourth- and fifth-year students are now required to take a new 3-credit course, **ARCH 419**: Design Research and Spatial Programming, offered in the fall semester.

Program Changes

Further, if the Accreditation Conditions have changed since the previous visit, the APR must include a brief description of changes made to the program as a result of changes in the Conditions.

This section is limited to 5 pages, total.

Program Response

In light of the 2014 NAAB accreditation review, the Department of Architecture's Undergraduate Curriculum Committee (UGCC) evaluated both the strengths of the Bachelor of Architecture curriculum and the challenges associated with it. Based on this self-assessment, since 2019, we have focused on working with students to achieve integrative design competency within the first three years of the program, thereby allowing each student the opportunity to pursue advanced design and research interests with greater flexibility for four semesters at the upper-year level. This change allows more studio options and strengthens the existing studios by providing students with opportunities in diverse fields of design supported by the research interests of the faculty. This new approach gives rise to potential for greater specialization in architecture and other areas of related study and can lead to better-defined career tracks and/or to interest in further specialization through graduate school enrollment. Specific changes made by the Department in 2019 and maintained since are as follows:

- **ARCH 332: Architecture Design IV** is now an Integrative Design Studio.
- Students now take **ARCH480: Technical System Integration** in the sixth semester. Further, the course is taught in conjunction with ARCH 332 to ensure that we meet the Integrative Design Studio criteria defined by the NAAB.
- In order to maintain current total credit hours at 16.5 for the sixth semester, other courses have been moved to the fourth or fifth year.
- **ARCH 419: Design Research and Spatial Programming** has been added.

In order to promote students' achievement of an appropriate level of integrative design competency in the first three years, the committee examined and made needed changes to the first three years of the curriculum (studio, history and theory, technical). The sequence has been strengthened in strategic ways to prepare students for the Integrative Design Studio in the sixth semester.

The specific changes made and maintained by the Department are as follows:

- Students are now required to participate in a Study Abroad Design Studio (fall, spring, or summer). The longstanding option of Rome is still offered, but new options have been added.
- The studio designations have been modified. The courses are essentially the same, but with slightly altered suffix designations: ARCH 491: Architectural Design VII – Thesis and ARCH 492H: Architectural Design VIII – Thesis are now ARCH 491A and ARCH 491B, respectively, for the Directed Research Studios (DRS).

Additionally, in response to feedback included in the 2014 NAAB Requirements for Pre-Design and Human Behavior, a 3-credit required course, ARCH 419 Design Research and Spatial Programming, is now offered in the fall. Its purpose is twofold: to ensure that undergraduate architecture students (1) acquire the skills and become conversant with the tools needed to conduct rigorous, in-depth research in pursuit of an architectural idea and (2) are prepared to draw on the acquired knowledge in developing ideas through the completion and presentation of a thoroughly considered building, component or system, and architectural design project. The course is designed to help students prepare for their independent or directed DRS through exploring foundational approaches and methodologies in the field. The defining goals of the fifth-year component of the Bachelor of Architecture program are to foster a spirit of in-depth design inquiry and research; to build on and reiterate design awareness and related skills and methods introduced in previous years; and to introduce, discover, and develop new ones. This course helps prepare students to identify significant design project topics, select a suitable methodology, and engage in independent or directed research.

1—Context and Mission

To help the NAAB and the visiting team understand the specific circumstances of the school, the program must describe the following:

The institutional context and geographic setting (public or private, urban or rural, size, etc.), and how the program's mission and culture influence its architecture pedagogy and impact its development. Programs that exist within a larger educational institution must also describe the mission of the college or university and how that shapes or influences the program.

Program must specify their delivery format (virtual/on-campus).

Program Response

Penn State Background and Mission: The Pennsylvania State University, also known as Penn State, is a multi-campus, public research university that educates students from around the world and supports individuals and communities through integrated programs of teaching, research, and service. As Pennsylvania's only land-grant university, Penn State provides unparalleled access to education and public service to support the citizens of the Commonwealth and beyond. The University engages in collaborative activities with private sector, educational, and governmental partners worldwide to generate, integrate, apply, and disseminate knowledge that is valuable to society. The University's instructional mission includes undergraduate, graduate, professional, continuing, and extension education offered through both resident instruction and distance learning.

Accredited by the Middle States Commission on Higher Education and a member of the Association of American Universities, the University has 24 locations across Pennsylvania as well as a strong presence online through the Penn State World Campus. Strategically located at the center of the state, University Park campus is Penn State's largest and most well-known location and serves as home to the Penn State College of Arts and Architecture and, hence, also to the Department of Architecture.

The University's overall approach to teaching, research, and service, as described in its mission statement, centers on "discovery-oriented, collaborative, and interdisciplinary research and scholarship [to] promote human and economic development, global understanding, and advancement in professional practice through the expansion of knowledge and its applications in the natural and applied sciences, social and behavioral sciences, engineering, technology, arts and humanities, and myriad professions."

Key Statistics: One out of ten college students in Pennsylvania attends Penn State. Total enrollment for fall 2021 was almost 89,000 for all locations comprising undergraduate enrollment of more than 73,000 and graduate enrollment of more than 15,000. As a major research facility, the University administers over $93.1 million in sponsored research with research expenditure of $993.1 million. The campus physical plant includes over 32 million square feet of buildings and auxiliary structures and 22,000 acres of land. The current value of the endowment is more than $4.5 billion dollars. In terms of economic impact, Penn State contributes more than $11.6 billion to the state's economy, supporting, directly and indirectly, more than 105,000 jobs across Pennsylvania in FY 2017, according to a 2019 study. For more information and statistics, visit https://stats.psu.edu/.

Academic Colleges: The University includes eleven academic colleges, The Schreyer Honors College, the Division of Undergraduate Studies, the University System of Commonwealth Campuses, the College of Medicine, the Dickinson School of Law, the

Graduate School, and the World Campus. Library services come under the direction of the Dean of Libraries. The University's academic colleges offer undergraduate majors leading to baccalaureate and associate degrees in agriculture, arts and architecture, business, communications, earth and mineral sciences, education, engineering, health and human development, information sciences and technology, liberal arts, nursing, and science. In addition, Penn State Harrisburg, the Capital College; Penn State Erie, The Behrend College; and the Pennsylvania College of Technology in Williamsport provide alternative educational settings where students can enroll in selected undergraduate degree programs. The Dickinson School of Law, the Penn State Great Valley School of Graduate Professional Studies near Philadelphia, and The Milton S. Hershey Medical Center near Harrisburg offer a number of advanced degree programs.

Governance, Charter, and State Support: The University's general operations are supported by appropriations from the State Legislature, tuition and fees, and appropriations from the Federal Government. Governance and control of the institution is vested in the 32-member Board of Trustees of Penn State. This corporate body was established with a charter affording it complete responsibility for the governance and welfare of the University. To execute this responsibility, the authority for day-to-day management and control of the University and for establishing policies and procedures for the educational program and other operations of the University is delegated to the President. In turn, the President delegates certain responsibilities to the faculty and staff and also consults with the faculty and the student body on matters in accordance with the general directives of the board.

Penn State Impact on the Department of Architecture: The philosophy and practice of the Department of Architecture are shaped in profound ways by the institutional context of the University, its commitment to local, state, national, and international impact. The land grant mission of the University supports interest in and a consideration of education and our architectural subjects within a context of service. The long history (stretching back to 1855) and the stable governance of the University benefit the Department and the strong name recognition and extensive alumni network supports applications to the Departments and efforts to help students launch their careers. The Department also benefits from the University's robust Division of Development and Alumni Relations at Penn State with a development effort located in the College of Arts and Architecture in connection with that division. The Department benefits from multiple endowments established in recent years for student, faculty, and program support.

The program's role in and relationship to its academic context and university community, including how the program benefits–and benefits from–its institutional setting and how the program as a unit and/or its individual faculty members participate in university-wide initiatives and the university's academic plan. Also describe how the program, as a unit, develops multidisciplinary relationships and leverages unique opportunities in the institution and the community.

Program Response

Department: The Department of Architecture was established in 1910 with a four-year program in architectural engineering in the College of Engineering. Later, the Department moved to the College of Arts and Architecture. Since 1979, the emphasis of our organizational structure has been the five-year professional Bachelor of Architecture degree, which requires a total of 162 credits and includes core courses in history, design, technology, and theory. The admission requirements, which are based on overall academic performance, are stringent. In more recent history, we have greatly increased and improved our graduate programs, i.e., the M.Arch, MS,

and PhD. The M.Arch program runs parallel to the B.Arch program, whereas the two research degrees, the MS and PhD, provide alternative tracks of learning and research. Each of our degrees is designed to be independent; yet, each intersects with one or more of the other degrees at key points in order to produce the best learning outcomes. The Directed Research Studios (DRS) serve as a platform for the exchange of ideas among the B.Arch, M.Arch, and MS students. In addition, all our elective courses are offered and available to and regularly include students from all cohorts. Our B.Arch students who intend to earn a graduate degree follow an Integrated Undergraduate Graduate (IUG) path, which puts them in classes with the M.Arch and MS students.

Providing study abroad opportunities to our students is also a central part of our educational mission. Since 1991 all fourth-year students are required to spend a full semester of study abroad in Rome. In recent years, however, we have expanded the location options and also provided the study abroad options to fifth-year students. To date, most of the students have selected Rome, but others have chosen a Denmark or a South Korea and Japan option. The quality and location of the instructional facilities are key elements in the success of the program. Another unique educational opportunity for students was initiated in 1994: The Raymond A. Bowers Program for Excellence in Design and Construction of the Built Environment was established as an endowed fund to support interdisciplinary cooperation between the Departments of Architecture, Landscape Architecture, and Architectural Engineering.

Architecture Program Mission: Our mission centers on providing a leading national and international studio-centered program in the art and science of architecture that is responsive to the most important social, environmental, technological, and cultural challenges of the twenty-first century through excellence in teaching, research, design, outreach, advising, and service to society. In support of this mission, we aim to:

- Educate undergraduate and graduate students in the discipline of architecture and to prepare them for a life of creative engagement and personal fulfillment in the practice of architecture and related fields.
- Encourage the production of exemplary works of architectural design, theory, critical analysis, and research in a studio-centered learning environment.
- Increase the cultural, religious, ethnic, and gender diversity in the student body, the faculty, and the curricular subject matter.
- Provide an educational environment that encourages the cross-fertilization of knowledge from all the arts and sciences, where students and teachers are motivated to participate in the most urgent contemporary social, cultural, and environmental issues.
- Provide education in the areas of ethical behavior, critical thinking, lifelong learning, and service to society.
- Develop a teaching/learning environment that encourages collaboration and teamwork, as well as individual research and creative activity.
- Serve the regional area, the Commonwealth of Pennsylvania, the nation, and the international community by increasing public awareness of architecture.

Synergies with and Contributions to the University: As a Department in a research-intensive institution, we make important contributions to the University and to society, through our teaching, research, and service endeavors. Our faculty members collaborate with peers representing many disciplines across and beyond Penn State on a multitude of research projects. This is a defining characteristic of our department. We also routinely engage in productive teaching relationships with the Department of Architectural Engineering and the Department of Art History. Further, several members of our faculty are co-funded by university institutes, principally the Institutes for Energy and the Environment (IEE) and the Materials Research Institute (MRI), whereas other faculty serve on the boards of other university institutes. The purpose of the institutes is to encourage interdisciplinary research between departments, across campuses, and to provide needed research laboratories and equipment to faculty researchers. We also have faculty members with joint appointments within the School and with other departments at Penn State.

Several faculty pursuing research directions aligned with our research interests hold affiliate appointments in our department, and our faculty hold similar affiliate appointments in other departments and institutes. Further, our faculty have served as PI's on University strategic initiative grants to advance topical research.

On the governance front, all architecture faculty contribute to the Department, School, College, and University by participating in committees at all levels. Particularly significant are the contributions that many of our faculty members make to Penn State via their work on key University committees. For example, many of our faculty have served on the Architect Screening Committee, which has responsibility for reviewing the credentials of architectural firms competing for commissions for buildings on campus. Our faculty have also participated in the interview process of the Architect Selection Committee, which comprises three trustees, to help select the most qualified architectural firm for construction at the University. Professors Denise Costanzo and Felecia Davis currently serve on the University Senate as elected representatives of the College. Professor Aviles has contributed to the University through participation in the Graduate Council. Architecture faculty members also contribute through leadership positions at the College and School levels: Professor Willis chairs the College Promotion and Tenure Committee; Professor Shaffer serves on the College Faculty Council; Professor Braasch serves on the College Academic Integrity Committee; Professor Azari serves on the College Sustainability Council, and Professor Cooper serves on the School's Undergraduate Curricular Affairs Committee.

Stuckeman School: The Stuckeman School has two important centers established through endowment funds:

- Established in 1998, the Stuckeman Center for Design Computing, which began as the expansion of an existing design computing center, is now an advanced design computing research center with its own director, dedicated space, and funding. The center reflects our philosophy of integrating design computing into the studio environment instead of isolating computer facilities in "labs."
- The Hamer Center for Community Design, which began operation in 1999, offers design assistance to communities and planning agencies in the Commonwealth of Pennsylvania — and advances cutting-edge research to develop sustainable communities.

In addition to these two thriving centers, E+D (Ecology and Design) is a nascent research center with an application currently under consideration with the University for official "center" status.

The Stuckeman School also enriches the academic environment through seven named and funded professorships as well as the Collaborative Design Research Fund, which funds faculty research every year. Faculty research labs, such as the Softlab, the ForMat Lab, the HuMat Lab, and the Re2 Lab, are housed within the research centers. Overall, the centers are interdisciplinary environments where faculty and students from many disciplines collaborate on projects.

College of Arts and Architecture: The College's vision for 2020–2025 is for its faculty to be nationally and internationally recognized as scholars, innovators, practitioners, educators, curators, and performers who integrate arts and design research, creative practice, and transformative learning and teaching in order to investigate, inspire, and improve cultural, social, and environmental conditions.

The College advances the University's mission in general education, enhanced through online pedagogy where appropriate. Through public performances, community design services, and exhibition schedule, the College supports the University's outreach mission in ways that are unique to arts and architecture. Individual artists, designers, and scholars who teach and learn in the College shape the future of their professions through creative contributions.

The College's five-year (2020 – 2025) strategic plan centers on four goals, each with objectives directly connected to Penn State's strategic plan (2016 – 2025):

1. Cultivate transformative arts and design opportunities and experiences.
    a. Increase engagement opportunities and experiences
    b. Increase financial support for our students
    c. Provide opportunities to enrich, deepen, and catalyze environmental, cultural, and social awareness

2. Establish a culture of anti-racism and anti-oppression that embraces individual identities, fosters a culture of inclusion, and promotes equity through our curricula, values, standards, ideals, policies, and practices.
    a. Uphold anti-racism and equitable standards and ideals within College procedures and policies
    b. Uphold anti-racism and equitable standards and ideals within College curricula
    c. Increase anti-racist and equitable professional development, programs, collections, exhibitions, and performances

3. Advance innovative practices in teaching and learning, research, creative activity, performances, and professional development
    a. Promote student success and cultivate global citizens while being responsive to changing societal needs and values
    b. Highlight the significance of the United Nations (UN) Sustainable Development Goals and further understanding of commitment to equity and social relevance
    c. Expand arts/design curricula to a wider range of students, both in residence and online

4. Develop strategic alliances, partnerships, and collaborations to broaden impact and promote a culture of research and creative activity.
    a. Increase visibility through communications, engagement, programs, exhibitions, performances, and publications
    b. Foster partnerships, collaborations, and practices in research and creative activity
    c. Enhance the impact of the work in sustainability

The ways in which the program encourages students and faculty to learn both inside and outside the classroom through individual and collective opportunities (e.g., field trips, participation in professional societies and organizations, honor societies, and other program-specific or campus-wide and community-wide activities).

Program Response

Student Involvement in the Life of the Department: Due to the high demand for admittance to the Department of Architecture, we are one of the most selective units in the University and as a result have many exceptional students. The unique nature of architectural studio education creates an environment where students are intimately involved in the day-to-day activities of the program. Their constant presence in the Stuckeman Family Building naturally invites them to participate in shaping all aspects of our curriculum.

Studio and Collaboration: By definition, the "design critique/jury" involves the students individually and collectively in the directing their own education. In fact, the faculty regularly invites upper-level and graduate students to serve as guest jurors for lower-year courses. This intermixing of students across year levels contributes to an integrated and cohesive student body. Additionally, the open studio design of the Stuckeman Family Building

promotes student interaction and mutual awareness, not only within the architecture student body, but also between architecture and landscape architecture students. We believe that involving our students in the business of our department in this way adds a profoundly empowering dimension to architectural education and encourages them to share and enter into debates about ideas such that they both hone their critical-thinking skills and learn to engage productively across related disciplines.

Charettes and Competitions: A number of departmental traditions related to the curriculum support interactions between students across year levels. These include multiple charrettes and competitions such as the Corbelletti Design Charrette in which students respond to a brief focusing on the use of hand drawing and rendering, the Stewardson and Hajjar Competition, the Kossman Design Thesis Reviews, and the Haider Award for Design Excellence in Graduate Studies. At the conclusion of these competitions, the student designs are always exhibited, and there are generally public presentations to announce the winners and discuss the projects.

Study Abroad: All students in the B.Arch program are required to study abroad for a semester. For many decades, Penn State architecture students were required to attend our program in Rome. Today, students have additional options, and soon Barcelona will be added to the list. The Rome program includes numerous required field trips to locations such as Villa Adriana, Florence, Venice, Verona, Vicenza, Pompeii, and Paestum as integral to the curriculum. Most of the students also take the opportunity to travel across Europe in the tradition of the Grand Tour. As an extra-curricular undertaking, this commitment of time and money to visit the great buildings and cities of Europe reflects our students' dedication to shaping and enhancing their own education and growth as designers.

Since 2018, some Penn State architecture students have spent their required study abroad semester at the Danish Institute for Study Abroad (DIS) in Copenhagen, which offers a dedicated architecture program for students from all over the world. In addition to the requisite studio design courses, students have many course options ranging from art and architectural history classes to watercolor and drawing classes. A required field trip course affords the students opportunities for first-hand study of urban architecture and design at a variety of cities in Scandinavia.

Another very popular program takes place in South Korea and Japan. Architects have a great deal to learn from the innate densities of well-established mega-cities in Asia, such as Tokyo and Seoul. Designed primarily for architecture students, but open to students from other design majors, the program focuses on contemporary architecture, urbanism, and high-density urban culture in Japanese and South Korean contexts. Time spent in these megatropolis cities exposes our students to innovative and culturally unique takes on urban planning, tall-building design, housing solutions, materials development, and cultural continuity. Students are also exposed to non-Western architectural traditions and construction technologies in East Asia. They visit historical sites spanning 4,000 years of cultural development from the bronze age to the present in Japan and the Korean peninsula.

Students as Leaders in Their Education: Our design/build and service-learning projects reflect a commitment to creating opportunities for students who assume a leadership role in their education, making a unique contribution to the "distinctiveness, self-worth and dignity" of our students.

A particularly exciting example of this kind of project is the Department's participation in the annual U.S. Department of Energy (DOE) Solar Decathlon Design Challenge (referred to as the Challenge Home competition in 2013–2014 and Race to Zero in 2014–2015), which focuses on dramatically limiting the use of energy in contemporary design. Each year, a student team, consisting primarily of undergraduate and some graduate architecture and engineering students, partners with a local housing not-for-profit or developer to research and design a net-zero or zero-energy single-family, duplex, or townhouse complex in response to client need and project site.

Since the competition's inception in 2013–2014, faculty in the Department of Architecture, facilitated through the Hamer Center for Community Design, have worked with representatives of the Pennsylvania Housing Research Center in the College of Engineering to co-advise a team of students taking part in this competition. Each year, our classes and DOE training modules contribute to student learning and competition objectives, although the initiative is extracurricular and student-led. In 2016, students founded a University student group that provides some financial support to the student team for travel to the competition, which takes place in April at the National Renewable Energy Laboratory in Golden, Colorado. Students participating in this international collegiate competition gain valuable community engagement and research skills, deep knowledge of building science and integrative design, and experience with collaboration on a large team and smaller sub-teams. Students typically meet as a team once or twice a week to coordinate project design and details. Documentation developed and submitted consists of a presentation and booklet communicating key information about the partnership, project decisions, and winning strategies in each of ten categories in the competition along with detailed construction documents to create a new construction or retrofit an existing one for a highly resolved residential project.

Departmental Social Traditions: Our students also engage in more light-hearted traditions that contribute to the social environment of the Department such as the Annual Architectural Costume Parade and the Pumpkin Carving Competition. These serve as social celebrations in the manner of traditional Beaux-Arts Balls. Students are vital participants in the planning and administration of all these events and activities. We should note that several of these in-person activities were put on hold during the pandemic. However we are now seeing a gradual return to these popular traditions.

Orientation, Advising, and Mentoring: The Department prides itself on creating and maintaining a close and productive relationship between faculty and students, and thus student advising, formally and informally, is a high priority. The School's two Academic Advisors, Robin Bierly and Sarah Watson, provide incoming architectural students with a summer orientation session in collaboration with College personnel who counsel them on registration, performance expectations, their upcoming lives as students, and the profession. Academic and Career Advisors offer one-on-one advising sessions for students as well as other programs designed to promote academic and professional success. Over time, faculty members (along with the Stuckeman School Career Advisor) advise students on career choices and coursework selection and also provide general guidance. We acknowledge that experienced students are often more effective advisors to our younger students than are faculty. For this reason, we offer our Mentor Program, which focuses on formal student-to-student advising. The program has evolved over the years, and we continue to try out different structures to ensure that it serves all involved. Its work is supported in an informal way through our studios, the physical adjacency of which creates multiple opportunities for inter-studio mentoring. Further, the Architecture Alumni Group (AAG) provides the Alumni Mentoring Program, through which students connect with alumni who are excited to share their professional experience and discuss industry opportunities and trends.

Lecture Series and Workshops: The Department is committed to providing extracurricular events that expose students to a wide range of ideas and productions from professional practice and allied design disciplines. For example, we offer a lively and well-attended lecture series supported by an influx of new funding from the Stuckeman Endowment. We coordinate the Department of Architecture lecture series with the Department of Landscape Architecture's lecture series, which together offer several jointly funded lectures. In addition, College and University organizations sponsor visiting lectures of interest to architects. In recent years, we have encouraged guest lecturers and exhibitors to offer workshops when they come to campus. One particularly successful example was an exhibition/gallery talk by Kiesuke Oka in 2019. Before exhibiting his work at Penn State, Oka conducted a workshop with graduate students in the ARCH 504 materials course. Students cast concrete panels using Oka's methods, and when he returned to exhibit his concrete work, the students showed their panels in the gallery alongside his panels. During the previous summer, a fourth-year student traveled to Tokyo on an Erickson Discovery Grant to 3D scan a house Oka was working on there. These connections to and around the exhibition and lecture were instructive and inspirational for all the students (and faculty and staff) involved.

Career Day: The annual Stuckeman School Career Day is a vibrant event that enables professional firms to interact directly with the School's students. The event provides students with direct industry connections and a focused way to learn about the profession through opportunities that encourage discovery, student engagement, and networking with alumni and professionals across the architecture, landscape architecture, and graphic design professions.

Exposure to Professional Practice: Prior to Covid-19, the Architectural Professional Practice course, ARCH 451, always included a two-day field trip to New York City to visit architecture firms and related businesses. The class would be broken up into smaller groups, and all the students would visit at least one large practice (usually SOM or KPF), some mid-size to large firms known for their design excellence (SHoP Architects, Snohetta, Ennead), some small firms or small offices of large firms (ARO, LTL, Goshow, Studio Gang's New York office), and a large real estate firm (CBRE). Whenever possible, we would also visit a construction site and meet with a construction manager. In fall 2020 and 2021, given the University's restrictions on field trips and the remote-work arrangements of many of the offices we typically visit, we arranged virtual firm visits, which took place on Zoom. The one advantage of this approach was that we were able to introduce some geographic diversity in terms of the firms we selected. For example, in both years, Chris Goode, AIA, a partner in Atlanta-based MBE firm Goode/Van Slyke Architects, spoke to the class. To represent career paths outside the typical firm context, Carla Bonacci, AIA, spoke about her role as program executive for the Port Authority of New York and New Jersey, where she led the redevelopment of the World Trade Center site after 9/11. We will continue to offer these virtual/hybrid experiences moving forward.

Student Organizations: Four independent student organizations provide ways for students to become active in the life of the Department, the University, and the community, including by assuming leadership roles: the Penn State chapter of the AIAS, a chapter of Alpha Rho Chi (APX) (a co-ed professional fraternity dedicated to architecture and allied arts), the National Organization of Minority Architecture Students (NOMAS), and Students for Environmentally Enlightened Design (SEED). These groups are instrumental in helping with and, at times, leading major events, activities, and programs. Additionally, the Penn State Digital Beehive workshops are student-organized events through which Beehive students help peers in the Stuckeman School master state-of-the-art computer programs.

The APX and AIAS chapters participate in such campus-wide events as homecoming preparations, Penn State's Dance Marathon, "THON" (the nation's largest student-run philanthropy, which provides aid to families of children with cancer) and other social and charitable activities, in addition to academic events, such as portfolio workshops and lectures.

AIAS: The AIAS maintains ties to the Middle Pennsylvania Chapter of the AIA, which usually supports our AIAS officers in participating in the organization's national meetings. AIAS activities have expanded considerably in the past few years, and the Penn State chapter had 133 active members in 2021–2022.

The AIAS also participates in Penn State's THON event. The organization has its own executive board consisting of eight members, who are responsible for fundraising for the event through initiatives and events such as offering professional headshots and putting on hand-made craft sales. In 2020, the AIAS raised $9,500 for the event.

Other AIAS initiatives include:

- An advocacy committee to help students prioritize their mental health, physical health, and the well-being of others
- A landscape architecture student chair to collaborate with landscape architecture students and promote interdisciplinary projects/activities
- A graduate student position to increase membership beyond undergraduate students
- A "big-little family system" to create a mentorship connection from year-to-year
- Professionally-themed seminars with industry representatives and alumni.
- Participation in the "Freedom by Design Competition" to radically impact the lives of people in the community through modest design and construction solutions https://www.aias.org/freedom-by-design/

APX: Alpha Rho Chi (APX) has organized "firm crawls" in Philadelphia, New York, and Pittsburgh, taking a group of students to various firms in the area (usually hosted by alumni) to learn about the profession, hear about active projects, and get a glimpse of the day-to-day activities of a design team. APX has also organized professionally themed seminars, inviting alumni to participate as panelists in a roundtable discussion with topics including learning, construction, adaptive reuse, and business administration.

National Organization of Minority Architects Student Chapter (NOMAS): NOMAS competes in an annual design competition coordinated through NOMA. It is open to all chapters nationwide, with changing themes/program requirements depending on the year and the location of the annual NOMA Conference. Students from all the schools of design are eligible for the team, from first-year to graduate students.

Other current/future NOMAS initiatives include:

- Workshops to help students with their design workflows when using both analogue and digital technologies
- Social events open to both students and faculty, such as a Jenga tournament in 2021
- An international food and architecture event to introduce specific cultural/regional foods (and architecture) to members

Students for Environmentally Enlightened Design (SEED): With sustainable practices as its focus, SEED educates students by:

- Hosting professional firms to present sustainable design projects
- Offering portfolio reviews
- Participating in Greenbuild, which provides attendees with opportunities to learn and grow as designers
    - Greenbuild's expo provides students with opportunities to network with industry representatives of impactful architecture and landscape architecture firms as well as professionals working in sustainable product and material manufacturing

Summary Statement of 1 – Context and Mission

This paragraph will be included in the VTR; limit to maximum 250 words.

Program Response

Penn State's professional architecture program is committed to maintaining and advancing its status as one of the most innovative, technologically progressive, and pedagogically distinctive programs among its peers. Our goal is to ensure that entrants to the architectural field have well-developed, broad-based skills. Given the increasingly complex and diverse nature of architectural practice, we believe that tomorrow's practitioner is best served by achieving excellence in specific areas in the architecture discipline, whether sustainability, digital design, digital fabrication, project/practice management, urban and community design, and/or other considerations.

Broadly, our pedagogical approach is designed to facilitate a wide range of options so that our graduates, tomorrow's architects, can immediately bring highly developed specialty interests to bear on their work as practitioners. Specifically, we require several electives and offer a variety of fourth- and fifth-year vertical Directed Research Studios (DRS) to encourage students to develop specialized skills in the areas that interest them most and for which they have particular talent.

To this end, the Stuckeman Family Building, the supportive nature of the faculty, and the diversity of ideas presented in the program create an environment conducive to the productive and spirited exchange of ideas. We are committed to preparing our students for professional practice by providing them with what only a university can offer: a sense of intellectual presence and responsibility in a world where their general intelligence and humanity is as valuable as their vocational expertise.

2—Shared Values of the Discipline and Profession

The program must report on how it responds to the following values, all of which affect the education and development of architects. The response to each value must also identify how the program will continue to address these values as part of its long-range planning. These values are foundational, not exhaustive.

SV.1 Design

Architects design better, safer, more equitable, resilient, and sustainable built environments. Design thinking and integrated design solutions are hallmarks of architecture education, the discipline, and the profession.

Program Response

The Department of Architecture has a long history of design-centered education, with the design studio the centerpiece of that education. We pride ourselves on our design studio curriculum and its delivery in the studio environment. The well-established multi-disciplinary nature of our discipline continues to introduce complexities in the ways we teach and practice architecture. Fundamentally, we recognize architecture as a synthetic discipline that requires knowledge and expertise in composition (arts), history and theory (humanities), structural, environmental, and mechanical systems (engineering), material properties (material sciences), land use and policy (law), computation (computing), and human factors — all in relation to the architect's professional responsibility to protect the public's health, safety, and welfare. Students and architects alike are constantly asked to integrate and synthesize information from many distinct fields of study. The architectural education provided through our curriculum is, therefore, a circulation between the disciplinary logic of each of the subjects and the inherent tectonic and synthetic model of architectural learning, added to the professional concerns of practice. Providing architecture students with instruction regarding the core intellectual domains of each subject is central to the pedagogic mission of any architecture program and critical to the progress of the profession. Yet, this mission must be tempered by a shift towards synthetic, integrative, and professional considerations.

The curriculum of the professional Bachelor of Architecture degree is organized to reflect this dual nature: On the one hand, students learn the core disciplinary practices of every field that influences architecture. On the other, they learn to synthesize and integrate information and considerations in the service of architectural production. To that end, our program circulates curricular content horizontally, among courses within each semester, as well as vertically, from semester to semester and year to year. Each year's curriculum, therefore, consists of design studios, lectures, seminars, and workshops that examine the focal areas of a given year in the program through multiple lenses. In each year, we concentrate on integrating non-studio with studio content. The first year concentrates on history, the second on integrating the structures, materials, and methods of construction, the third on integrating environmental systems and technical systems, and the fourth and fifth on research. We do this by pairing courses with studios and by ensuring that the faculty teaching the courses and those leading the design studios collaborate to deliver a curriculum in which content introduced in the classroom is applied in the studio. Our aim is that our students graduate as well-rounded, sensitive, and sensible designers with great ability relative to integrating social, cultural, historical, environmental, and technical content into their design work. The curriculum belongs to the faculty and its enactment is also the territory of the faculty, with oversight from the Department Head. Each studio year is coordinated by a seasoned tenured faculty

member who ensures that the content as determined and monitored by the faculty through the Undergraduate Curriculum Committee (UGCC) is delivered.

We engage in multiple layers of assessment throughout the curriculum. There is the one-on-one assessment between a faculty member and student, which happens on a day-to-day basis and results in trouble-shooting, course-correction, advice-giving, and more. Our studios are taught by teams, with each team serving as a layer of assessment for the faculty and student cohort. Change, as a result of this assessment, can be affected internal to the faculty and student cohort for that year. We hold informal reviews of work that engage other Penn State faculty and upper-level students, which provides continuity among the faculty from year to year in regard to knowledge of the curriculum. External reviewers engage in formal reviews, for mid-term assessments and finals. These assessments bring an external vantage point to the particulars of each course or studio. The discussions often give rise to improvements at both the individual student and the studio level. The Department Head also participates in studio reviews, which provides a full curricular view of the Department. All this information is synthesized through the Coordinators and Curriculum Committees, assessments conducted, and changes/improvements proposed. The proposals are then discussed and voted on at our monthly faculty meetings, and if approved put into action. In addition to the external reviewers with whom we engage throughout the curriculum each semester, we also work with our alumni and other architects who hire our students and graduates. Through our Stuckeman Career Advising Office, we have regular communication with industry representatives and alumni to ensure that we are apprised of the performance of our students and graduates. Many of these offices come back each year to hire our students and graduates such that we maintain clear lines of communication with them. We also have an Architecture Alumni Group (AAG) with which we meet four times a year, with the Department Head, a faculty member, and a graduate from the previous year in attendance. The Stuckeman School also has an advisory board with members of the architecture community, comprising a mix of alumni, academics, and professionals. We meet with the advisory board twice a year to share our curriculum and research/creative practice and to obtain their feedback and assessments. We report back to these external bodies at each meeting with an account of the Department's actions relative to the assessments.

Curricular Reflections on Design: In foundational architectural history classes, students learn about the design processes that went into historic buildings and how architects, engineers, and designers surmounted challenges through design thinking. On this basis, students learn that structures don't merely "happen," but instead evolve, change, and improve through complex and sometimes protracted thought processes. In working towards this pedagogical goal, it is important to stress that history classes are not about the history of design(s) per se, but about the history of designing and human activity. By presenting architectural history and theory from the perspective of architects as a complement to the foundational work of the Department of Art History, our courses connect ideas to practice in ways that are directly tied to architectural imagination and production. Buildings, landscapes, and cities are the artifacts of a continuum of development across many times and cultures. Each represents a unique manifestation of culture, tectonics, economics, and formal ambitions. We strive to find the connections of form, precedent, antecedent, and ideas across time.

The building environmental systems courses cover sustainability topics with the purpose of enabling students to integrate various building systems to achieve design excellence with design values that both ensure occupant comfort and limit the building's carbon

footprint. In these courses, through learning about climate change and its drivers and exploring how the construction and operation of buildings contribute to climate change, students achieve an understanding of the role of design in climate change. They come to understand the interrelations between design and climate, thermal comfort, thermal envelope, passive heating and cooling, and building energy use. They learn to use climate analysis tools to understand the climate of a given location and simulation tools to model and mitigate the energy consumption of buildings and also to develop effective thermal envelopes — all to integrate environmental thinking into building design. Moreover, they are introduced to the interrelations between building design and systems (e.g., mechanical, lighting, and acoustics) and thermal, visual, and acoustical comfort. The students learn how these systems in buildings work and become familiar with the sustainability guidelines (as specified in codes, LEED, the Living Building Challenge, etc.) that exist for these systems. They also learn about important daily practical considerations such as fire safety concerns and design and means of egress as a fundamental part of design.

In the materials and building technology courses, students are encouraged to come up with design strategies in which materials are selected for environmental benefits — for example, strategies that have a limited carbon impact and that rely on reusing materials, using materials that are healthier in terms of production, and/or use less drinkable water. Students also learn how the production of architectural materials, bricks, concrete, etc., impacts the health of the communities in which it takes place, as well as how industrialization affects the environment.

In the structures course sequence, the architect's contributions to the structural design process are considered including in relation to how the architectural impact on structural design is integrated into larger design ideas.

Driven by questions pertaining to how a building's design idea and technical systems support each other to create a meaningful whole, the third-year design studio and the technical systems integration course are taught in close relationship with each other. The technical systems integration course is updated every teaching cycle to keep pace with changing codes, new metrics, and new equipment, as well as the direction of general philosophical discussions on matters such as energy efficiency. Such updates also change the design process.

In our vertical studios (DRS), we enable our students to specialize in their areas of interest, thus preparing them for alternative career paths in the discipline (for a full list/matrix of DRS offerings since fall 2019, please see Appendix 7.3). For example, the focus of the High-Performance Buildings DRS is to enable students to design a high-performance building with superior performance in relation to multiple perspectives including energy, daylighting, embodied carbon, and resource efficiency. The studio is structured around the AIA Framework for Design Excellence, and the students design their projects to achieve the sustainability metrics in 10 categories of the AIA framework. The students submit their work to the AIA+ACSA COTE Top Ten competition.

Non-curricular Reflections on Design: The Department is committed to providing extracurricular events that expose students to a wide range of diverse ideas and work from professional practice and allied design disciplines. Our lecture series is supported by an influx of new funding from the Stuckeman Endowment, which we have used to invite major practitioners and theorists to the Department. Over the past five years, we

have placed great emphasis on making certain that our lecture series includes voices that reflect our student population, i.e., more women and more representatives of the global majority: Jenny Sabin (2021), Lois Wienthal (2021), the Black Reconstruction Collective (2021), Dongsei Kim (2020), Studio Sumo (2020), and Dream the Combine (2020).

We encourage our faculty to envision their ideas in the context of international symposia and support them in doing so. And, in recent years, we have hosted at least one symposium annually, including Italian Imprints, Bauhaus Transfers, Ethics in the Built Environment, and Embodied Carbon. Our students played multiple roles in each symposium ranging from planning to hosting to attending. Our faculty have drawn on these opportunities to generate edited books on their research topics.

Similarly, we encourage and provide support to our students to attend and present their work at national and international conferences and to publish in the associated proceedings. We also provide support to our student groups to attend national conferences, such as the AIAS Forum and the NOMAS national competition.

Integrated into our curriculum are concerns about sustainable practices, urban and community configurations, collaborative and social conditions, and the development of a humanitarian perspective. We train our students to act as ambassadors of excellence in the design of the built environment and as stewards of the natural environment. Design is the centerpiece of our curriculum, and all the students participate in a design studio in each semester of the program. All our faculty are design faculty who teach both courses and design studios, which fosters integration and cross-fertilization between the courses and studios. Design excellence is central to all our long-range planning as evidenced in our current strategic plan.

SV.2 Environmental Stewardship and Professional Responsibility

Architects are responsible for the impact of their work on the natural world and on public health, safety, and welfare. As professionals and designers of the built environment, we embrace these responsibilities and act ethically to accomplish them.

Program Response

Environmental Stewardship: The Department of Architecture acknowledges the key role of buildings and cities in contributing to GHG emissions and other adverse environmental impacts. For example, buildings alone account for more than 40% of primary energy use and 30% of CO2 emissions. The Department is, therefore, fully committed to advancing knowledge in the field of environmentally sustainable built environments and training students so that they acquire the understanding, knowledge, and skills needed to create such environments.

Penn State Resources and the Hamer Center for Community Design: Housed in the Stuckeman Family Building — the first LEED-certified building at Penn State — the Department has access to various resources at the University to support its leadership in environmental stewardship research and instruction. As part of the Stuckeman School of Architecture and Landscape Architecture, the Department is closely connected to the Penn State Sustainability Institute and the Institutes of Energy and the Environment (IEE). In fact, the IEE has co-funded some of the architecture faculty positions in the Department and the Department has access to other resources available at the IEE, including SEED grants.

Internally, the Department is connected to the Hamer Center for Community Design, a research center in the Stuckeman School of Architecture and Landscape Architecture. The Hamer Center facilitates outreach/research projects focused on ecological knowledge and responsibility and sometimes coordinates collaborations with the University's Sustainability Institute, Sustainable Communities Collaborative, and Institutes of Energy and the Environment. The Hamer Center has a trajectory of research on sustainable, affordable, and resilient housing and communities. It also builds relationships between the Hamer Center faculty and students and other Penn State faculty and students focused on research to expand community engagement programs and ensure their longevity. Additionally, the Center hosts and advises students on urban/community design competitions (e.g., Department of Energy (DOE)–sponsored collegiate competitions). Finally, the Center builds recognition for the "role of design" in research with focus on industry-community-University partnerships. For example, the Center:

- Offers a regular public presentation/discussion forum to encourage inter-faculty, inter-campus, and University-state/regional participants to enhance learning/research opportunities and funding opportunities.
- Builds on Hamer Center/Energy Efficient Housing Research Group (EEHR) experience and expertise facilitating symposia and community engagement/design charrettes to inform research, education, and outreach directions in association with the University's strategic plan.
- Expands partnerships to develop a University-wide network with the goal of facilitating collaboration by aligning research expertise and interests, identifying potential funding sources, and leveraging opportunities to respond quickly to calls for external funding.

Research: Our faculty and students engage in interdisciplinary research at multiple scales (materials, buildings, communities, and urban areas) to quantify, assess, mitigate, and reverse the environmental impacts of built environments. For example, Professor Jose Duarte and doctoral student Elena Vazquez in collaboration with professionals from the Skidmore Owings & Merill (SOM) Foundation and material scientists at Penn State, received an AIA Upjohn Grant in 2020 to develop design guidelines for adaptive building envelopes using bistable laminates. Professor Benay Gursoy has received multiple research grants from Upjohn, SOM, the AIA, and the Penn State Institutes of Energy and the Environment (IEE) to develop biodegradable structures with local fungi species using waste. Professor Rahman Azari received an AIA Upjohn grant for his research on artificial leaf-based façade cladding systems that generate energy and absorb carbon. Azari has also received SEED grants from the Penn State IEE to develop new methodologies for measuring urban embodied carbon.

The Department also hosts the RE2 Lab run by Professor Rahman Azari, as a research unit focused on environmental research. Professor Azari is currently organizing the International Embodied Carbon Symposium to be held in fall 2022 at which more than 30 professors from international universities including ETH Zurich, Columbia, Harvard, IE University, Penn State, and the University of Cambridge will present research on embodied carbon.

The Department's research on environmental stewardship is not limited to the examples above. Our faculty conduct research in diverse areas from measuring and reducing the embodied carbon of buildings (Professor Rahman Azari), to developing sustainable building skin solutions (Professors Rahman Azari, Jose Duarte, and Benay Gursoy),

creating net-zero carbon buildings (Professors Lisa Iulo, Rahman Azari, Rebecca Henn, and Ute Poerschke), to addressing flooding and creating resilient communities (Professor Lisa Iulo).

Environmental concerns are also evident throughout the curriculum and in special events. For example, in 2017 the Department hosted City Energy Information, a two-day symposium with academics and industry representatives from across the country. Further, Sustainability is one of the four research clusters in the Department, which clearly indicates the Department's commitment to supporting architectural work engaged with this concern.

Teaching: The Department's teaching practice also reflects a strong commitment to ensuring that students understand the key role that architects can play in limiting climate change and global warming. Our students regularly participate in the US Department of Energy (DOE) Solar Decathlon Competitions. Most recently, our faculty and students, in collaboration with engineering students and faculty at Penn State Harrisburg, were shortlisted in the 2023 Solar Decathlon Build Competition, receiving a $50,000 grant and approval to proceed to the build phase. They also secured third place in the Housing Retrofitting category of the 2022 Solar Decathlon Design Competition. Further, Professor Lisa Iulo, in collaboration with other University faculty and our students, won the DOE's 2018 national Race to Zero competition for zero-energy suburban single-family housing.

The Department's Directed Research Studios (DRS) offer a platform for integrating the faculty's environmental sustainability research into pedagogical practice. For example, Professor Rahman Azari's High-Performance Building (HPB) Design Studio draws on the AIA Framework for Design Excellence to help students develop an understanding of how building design can address environmental concerns such as embodied carbon, operational carbon, daylighting, and thermal comfort and develop the skills needed to develop designs of this nature. Another example is Professor Benay Gursoy's DRS in which students learn about the potentials of structures made out of biodegradable materials.

Architecture students also take two required courses that address environmental systems in buildings. Previously titled AE 211: Intro to Environmental Systems and AE 424: Environmental Systems 1, these courses are now offered, as of fall 2022, as ARCH 380: Building Environmental Systems I and ARCH 381: Building Environmental Systems II, respectively. They are taught internally by Professor Rahman Azari.

ARCH 380 and 381 cover theories and applications of building systems including passive heating and cooling, shading and daylighting, mechanical heating and cooling, thermal comfort, acoustics, electrical systems, fire safety, water supply, and waste. These courses also help students develop building performance modeling skills such as energy simulation, daylighting simulation, and lifecycle assessment (LCA). The Department (in conjunction with the U.S. Green Building Council, the Department of Architectural Engineering, and the Department of Landscape Architecture) also participates in teaching a University course to train and qualify students as LEED-accredited professionals.

To acknowledge students' efforts in the field of environmental stewardship, the Department presents the Goshow Award to students who demonstrate outstanding sustainable building design and whose gender, ethnic, cultural, and/or national background contribute to the diversity of the student body.

More details about how the Department addresses environmental stewardship through our instruction can be found under PC.3. Ecological Knowledge and Responsibility.

Community Engagement: The Hamer Center for Community Design also serves as a conduit for the Stuckeman School and the Department of Architecture to establish strong and lasting partnerships with not-for-profit community groups and professional mentors in pursuit of environmental stewardship. Partners participate in classes and extracurricular activities by providing presentations on best practices and professional collaboration, serving as guest reviewers, and working closely with students as mentors on the design and development of design projects. The Hamer Center for Community Design provides financial and partnership support for a curricular-based project each semester to encourage community engagement and student learning about environmental stewardship and professional responsibility in the architectural studio environment. Students from the second through the fourth year, and occasionally first-year students and students engaged in thesis (fifth-year capstone) projects have benefitted from these courses and extracurricular opportunities.

Collaboration with a community partner/client is a primary goal of curricular and research-based projects sponsored or facilitated by the Hamer Center for Community Design. Students, guided by faculty advisors, work closely with representatives from a partner organization and with professional mentors to set project goals, explore design options, and communicate a decision rationale and performance objectives. Student projects are presented and assembled into materials and then shared with community partners as a basis for promoting visionary ideas that often then lead to professional projects.

Founded in 2008 by Penn State students, the Students for Environmentally Enlightened Design (SEED) group has evolved over time. At first, the group focused on shaping sustainability content in all departmental classes and studios. In a second phase, SEED took on a large project of designing a shipping-container library for donated books to be transported to a school in rural Kenya. For five years, the students devoted energy to this time-intensive project, which included experiments with building shading devices and shelving constructions and creating electrical lighting and PV-panel configurations. In most years, the student group has attended the Greenbuild International Conference and Expo, most recently in San Diego, California, in 2021.

Professional Responsibility: Courses in the B.Arch program are designed to help students develop an understanding of the historical forces that shape the built environment, building and site design sensibilities, specific methods for addressing design criteria, environmental issues, life safety, building materials and construction methods, structural concepts, construction standards and regulations, and ethical responsibilities.

Incoming students are given an Architecture Department information packet that includes access to the ACSA Guide to Architecture Schools, which, in turn, provides an overview of architectural education, degree options, and the path to licensure, including the Architectural Experience Program (AXP) and the Architectural Registration Examination (ARE). Additionally, a “Paths to Architecture Licensure in the USA” handout is included in the package.

The Stuckeman School has a Career Advisor whose responsibilities focus on advising students on possible career choices and working with both firms and students to create

positive internship opportunities. Professor Ross Weinreb, R.A., Assistant Department Head for Administration and the School AXP Coordinator, currently fills this role.

Early each fall semester, an AXP/ARE information session is held for all architecture students. Presented by either a representative of the NCARB or the Pennsylvania AXP State Architect Licensing Advisor in conjunction with the School AXP Architect Licensing Advisor, this sixty-minute session includes a Q & A segment. Kathryn Doyle, the current State of Pennsylvania AXP Coordinator participated in the fall 2021 presentation. At this session, information related to the NCARB AXP/ARE and to state-specific licensure information is provided and students are introduced to student resources such as the State and School Architect Licensing Advisor. The School AXP/Licensing Advisor also sends emails to all architecture students at least once a semester encouraging them to establish NCARB records, reminding them of the need to establish a date of eligibility, and providing links to detailed NCARB AXP/ARE information. The Architect Licensing Advisor also corresponds with students through email and meets with students and colleagues on an as-needed basis.

The overarching goal of **ARCH 451**: Professional Practice is to ensure that students develop a thorough understanding of the history of the profession of architecture, its current structure, and opportunities and practices, as well as potential future roles for architects. The course examines the changing relationships among architects, clients, and builders and the impact of new technology/new techniques such as Building Information Modeling (BIM) and Integrated Practice.

Through the course, students should acquire a thorough understanding of the NCARB AXP process, licensing, and examination requirements, and also of the importance of lifelong learning, including required continuing education. The curriculum includes a segment in which licensing requirements in different countries are compared and covers the respective roles, relationships, and responsibilities of clients, contractors, construction managers, technical consultants, interior designers and other designers and how these interface with the architect's charge.

Students should complete the course with a clear and comprehensive understanding of the architect's administrative role and legal responsibilities during design and construction, including in regard to contracts (AIA and other forms), management of consultants, contractor pay applications, and life-safety codes/zoning and other standards, as well as the implications of various project delivery strategies such as design-bid-build, design-build (architect-led vs. contractor-led), guaranteed maximum price (GMP) and "cost plus" contracts, fast tracking, Integrated Project Delivery (IPD), and other hybrid approaches.

The course also covers the importance and legal implications of the Americans with Disabilities Act (ADA) and the Fair Housing Act (FHA). The impact of LEED and other environmental rating systems on practice is also considered. Contemporary ethics and professional judgment issues, including professional organizations' rules of conduct and ethics, are discussed in conjunction with the importance of diversity in the workplace and as a responsibility of firm/professional leadership, as well as in the community more generally. The roles and value of professional organizations such as the AIA, NOMA, and NCARB are also discussed.

The Department Head often works with the Middle Pennsylvania AIA Chapter to arrange meetings with students. We have coordinated lecture schedules and arranged for continuing education credits to be granted at most Department presentations. The Middle

Pennsylvania AIA Chapter typically sponsors one lecture a year. In addition, the Department Head also consults on a regular basis with the Architecture Alumni Group, which comprises architectural practitioners and AIA members, as well as educators from other architecture schools. To facilitate professional dialogue, architecture alumni are invited to join a reception at the AIA's national convention. The reception is a collaborative effort of the AIA-Pennsylvania and Pennsylvania schools of architecture, including Penn State, Carnegie Mellon University, Temple University, and the University of Pennsylvania such that alumni from all these schools are invited.

Driven by our faculty and advanced in our curriculum, environmental stewardship and professional responsibility always play a central role in our long-range plans. Our current strategic plan has a section on sustainability, and one of our three priorities points to our student-centered professional curriculum. These values are central to faculty research and creative practice and thus foundational to who we are.

SV.3 Equity, Diversity, and Inclusion

Architects commit to equity and inclusion in the environments we design, the policies we adopt, the words we speak, the actions we take, and the respectful learning, teaching, and working environments we create. Architects seek fairness, diversity, and social justice in the profession and in society and support a range of pathways for students seeking access to an architecture education.

Program Response

Overall Philosophy: Equity, diversity, and inclusion in an architect's education intersect with class, culture, and geography to profoundly impact the ways we see and value ourselves, one another, the planet, and each and every resource around us. This understanding serves to align the policies we adopt, the words we speak, the actions we take, and the respectful learning, teaching, and working environments we create with a vision that goes beyond awareness of equity and access to one of justice design. At the core of this design ideal is a mandate of creating and maintaining a curriculum and a learning environment that support pathways through which students can access and identify with an architectural vision intent on a just and equitable society.

Justice, Equity, Diversity, and Inclusion (JEDI) Report: In 2020, the Department initiated a discussion leading to a report on justice, equity, diversity, and inclusion (JEDI). The following is an excerpt:

> Events of the past year have inspired re-thinking equity in our daily lives, but also in our professional environments. In order to get a better sense of the experiences of our students of color, the Department Head reached out to a group of alumni of color and spoke with them, in order to hear directly about their experiences as students in our Department. Meeting notes were collected, collated into common topics and shared with the Architecture faculty in our fall retreat, August 21, 2020. We spent significant time discussing equity, the conversations with alumni, and have participated in ongoing meetings with the Penn State Architecture Alumni Group's Diversity Inclusion and Equity Task Force. This resulted in the following document on "justice, equity, diversity, inclusion." The document outlines topics brought up by our alumni, and in each case records how we approach the topic as a Department and our ongoing efforts towards positive change. In that sense, it is a self-reflective document that lays out who we are and how we will address positive change in relation to the topics of justice, equity, diversity, and inclusion.

Student-Centered Culture and Philosophy: Our Department philosophy has evolved to become student-centric. We want to help every student achieve success and ensure that all students have agency and guidance so they can accomplish their best work and discern their own paths. The gate-keeping philosophy once prevalent in some schools — even the faculty's own education decades ago — is not our current culture. There is no quota and no "boot camp" philosophy. We advocate for every student admitted to our program. Each student receives our attention. We are committed to helping each student succeed.

We recognize that embodying this culture and philosophy will require participation and reflection from all members of the administration, faculty, and staff. This effort is ongoing. Currently, for example, a disproportionate number of students of color (Black, Latinx, Asian American, and others) leave the program or struggle to succeed academically. We are committed to ongoing effort towards positive change as described in the Department's JEDI Report:

- Serve as advocates for every engaged student
- Work collectively to uphold our Department philosophy
- Work as educators, not as gate-keepers
- Evaluate why students of color leave the program in disproportionate numbers
- Investigate and understand areas of bias in the program"

For the Department's full JEDI Report, please see Appendix 7.1.

Learning Culture: The Department of Architecture Studio Culture Policy was initially developed and continues to evolve based on both student and faculty participation. The most recent iteration was completed in 2019. The policy stresses the need to create and maintain a shared culture and spirit of unity in the studio without relying on conformity. To benefit from the Stuckeman Family Building environment, students must commit to working in the studio space as a setting that enables them to collaborate with and learn from not the faculty—and also from each other.

In addition, the policy strongly encourages students to respect their classmates and their ideas without regard to race, skin color, religion, gender, sexual orientation, or disability status.

We expect everyone in the Department of Architecture to promote and enforce a safe and efficient place of work, which includes deterring harassment and addressing it promptly and effectively on those occasions when it does take place. We understand that harassment is not limited to overt actions, but also applies to situations that interfere with the performance of another student, faculty, or staff member, and/or that create an intimidating, hostile, or offensive environment. The Studio Culture Policy, therefore, fundamentally encourages students to be fully engaged in their quest for architectural excellence and to continually reinvigorate our scholarly community of future architects by contributing to an environment that is truly conducive to learning.

Compliance with the policy is monitored through regular meetings between the Department Head and student representatives, who keep the overall student body informed; surveys of student opinions and concerns; regular meetings of the Studio Coordinators Faculty Committee; and student reports to the faculty and the Department's Academic Advisors.

First-Year Experience: The first-year experience is critical to creating a culture that promotes equity, diversity, and inclusion in immediate and future educational and professional environments. In particular, efforts made in the first year are also key to supporting the academic success of and thus to retaining students of color. We have developed several initiatives in recent years with the purpose of promoting equity, diversity, and inclusion goals broadly and to support students of color specifically:

- **Curriculum**: We emphasize collaboration to build a welcoming and inclusive studio culture. Students work in teams of various sizes throughout the year, and we discuss strategies for better collaborative practices. We have also diversified the authors and communities of architectural precedents included in lectures and projects. In conjunction with our research, we have developed a database of documentation associated with projects by global-majority designers to create more equitable and accessible teaching materials.
- **Assessment**: In the interest of consistency and transparency, we provide grading rubrics for each project. The first-year assessment emphasizes personal growth so that students are not penalized for lacking access to an art or architecture education.
- **Material Costs**: We have reduced the incoming students' material costs significantly by offering materials and supplies maintained by the Department. Our Architecture Alumni Group (AAG) also raises money to offset the costs of materials and supplies (please see section below).
- **Mentorship**: We connect all lower-level students with upper-level student mentors. They also have College-wide mentors. In addition, we offer and monthly programming for students of color (please see below).

Support for Students of Color: Outside of the classroom, we offer Welcome Events for Incoming Students of Color and ongoing monthly programming for the Stuckeman School. The goals of these events are to build a self-supporting social cohort of peers, connect incoming students with allies and resources across campus, and highlight successful models of practice developed by designers from underrepresented groups. We plan these events in conjunction with the National Organization of Minority Architects (NOMAS) Student Chapter to increase their visibility and help support their work.

Architecture Alumni Group (AAG) Support: The Architecture Alumni Group (AAG) formed a Diversity and Inclusion Task Force in July 2020. Composed of over 60 passionate alumni, the task force strives to enact change and implement proactive strategies to address short- and long-term concerns regarding diversity and inclusion in the Department. The group identified three areas in which issues serve as potential barriers to student success:

- Cost of architectural education and licensure (financial)
- Access to architectural education and the profession (opportunity)
- Curriculum (positive culture and diversity of education)

To facilitate progress on addressing these critical areas, three Working Groups were established:

- **Financial Access Working Group**: This group's first effort was the immediate launch of a crowdfunding campaign to provide direct support to first-year students with the greatest financial need through the Architecture Alumni Material Resource Fund. The fund is used to offset the substantial cost of architectural supplies and materials for students.

- **Access to Opportunity Working Group**: This group focuses on connecting students, particularly from minority backgrounds, with alumni, internships, and jobs and to provide them with overall exposure to the profession. The group has developed the Opportunity Pipeline, an initiative to connect minority students and recent graduates from the Stuckeman School of Architecture to professional opportunities.
- **Positive Culture and Diversity of Curriculum Working Group**: This group is concerned with providing input into how course offerings, studio projects, precedents, and study abroad opportunities could be expanded to extend beyond the non-Western to include a diversity of viewpoints.

Recruitment:

- We recruit annually at the National Organization of Minority Architects (NOMA) conference. We provide funding to our NOMAS representatives so that they can attend the conference and recruit for us. In 2021, we provided NOMAS with a total of $7,302 in financial assistance. We also purchased recruitment booths at the conference. We are committed to maintaining this support.
- We make recruitment trips to high schools throughout Pennsylvania and the broader region to ensure that our program is well known and that students regardless of background understand that opportunities may be open to them in our Department.
- We send recruitment material to all ACSA architecture programs, reaching a very wide audience. We will maintain this practice.
- We provide scholarships and recruit from the ACE Mentor Program and other organizations for our exploratory summer camp for high schoolers.
- We are working to address the K-12 pipeline at a regional scale through our membership in the Justice Alliance for Design Education in Philadelphia (JADE-PHL), a collective of educators, professionals, non-profit leaders, students, and administrators in the greater Philadelphia area.

Ethnic Comparison Study: In 2020, the College of Arts and Architecture Multicultural and Recruitment Programs conducted an ethnic comparison study. that outlines the statistics and overall ethnic makeup of the College over the course of the previous 10 years. The study provides charts based on a 10-year and 3-year comparison using the 2010–2011, 2017–2018, and 2019–2020 academic years. The study found that between 2010 and 2019 the proportion of underrepresented students increased by 5% in the Department (22% in the College). Between 2017 and 2019, the proportion of underrepresented students increased by 6% in the Department (6% in the College).

The fall 2019 enrollment in B.Arch included 83 students from under-represented minority groups, which represents 27% of the total enrollment of 303 students. That figure was slightly higher than the overall University percentage of 26% in the same year and also represented a steady increase in the diversity of the B.Arch population. In fall 2020, under-represented minority students together with international students made up 39% of the B.Arch population. Additionally, in 2019–2020, the gender representation was 60% women and 40% men.

Governance and Policy Change: Faculty, staff, and students are consistently involved in the development and implementation of Department policies and procedures, including curriculum and program development. Faculty, students, and staff participate in a variety of standing committees that cover most departmental issues. In addition, each class elects a student representative to meet monthly with the Department Head to discuss

issues and grievances and to plan for new program opportunities. The student representatives, as well as an AIAS officer and a graduate student representative, keep the overall student body informed and engaged. Overall, this arrangement provides students with direct and regular access to administration without filtering through the faculty.

General Institutional Environment: The Department of Architecture, the Stuckeman School, the College of Arts and Architecture, and Penn State are committed to equality and diversity in all aspects of operations. The Office of the Vice Provost for Educational Equity serves as a catalyst and advocate for Penn State's diversity initiatives. Educational Equity's vision is an inclusive and welcoming Penn State community for all. Since establishing an initial framework in 1998, Penn State has made considerable strides towards building a truly diverse, inclusive, and equitable institution and in establishing an infrastructure to facilitate effective diversity planning, implementation, and reporting processes. Fostering diversity must be recognized as a concern at the heart of our institutional viability and vitality, a core value of the academic mission, and a priority of the institution.

College Level: Advancing in relation to diversity, equity, and inclusion is a prominent goal in the College of Arts and Architecture's strategic plan: https://arts.psu.edu/wp-content/uploads/2021/04/AA_StratPlan_Sheet_210224.pdf.

In fact, significant progress has been made in this direction, beginning with hiring a new Associate Dean for Access and Equity, Folayemi Wilson, who will lead efforts to achieve the plan's diversity, equity, and inclusion goals across the college and its units.

The College also has a Coordinator of Multicultural Programs who serves on the University Council of College Multicultural Leadership. The Coordinator, Curt Marshall, leads programs focused on minority recruitment, retention, outreach, and diversity within the College.

In February 2022, the Interim Stuckeman School Director organized the "I HEART Studio" event (so named for its proximity to Valentine's Day). The event brought together students from all three departments to discuss and anonymously post comments and opinions about the existing studio culture and work environment. For more information, please see PC.7 Learning and Teaching Culture.

University Level: The College and the University have dedicated significant effort to social equity. The University evaluates its performance in regard to progress made in line with its strategic plan, and in turn, its units, such as the Department of Architecture, are also evaluated accordingly in relation to the stated goals.

For additional University-wide EDI initiatives and resources, please review the following resources:

- Penn State's Diversity Statement: http://equity.psu.edu/diversity-statement
- Penn State Office of Educational Equity: http://equity.psu.edu/
- Penn State Office for Disability Services (ODS): http://equity.psu.edu/student-disability-resources

SV.4 Knowledge and Innovation

Architects create and disseminate knowledge focused on design and the built environment in response to ever-changing conditions. New knowledge

advances architecture as a cultural force, drives innovation, and prompts the continuous improvement of the discipline.

Program Response

Comprehensive Curriculum Evaluation and Studio Focus: Since the last Accreditation visit, we completed a comprehensive evaluation of the Bachelor of Architecture (B.Arch) curriculum in relation to strengths, opportunities, and weaknesses. Based on this evaluation, the goal In the first three years is to ensure that the students gain comprehensive design competency. To build on this foundation, students now participate in vertical studios to pursue advanced design and research interests with greater flexibility for four semesters at the upper-year level. This curricular change allows more studio options and strengthens the current studios by providing students with opportunities in diverse fields of design supported by the faculty's research interests. The change directly advances the production of knowledge and confirms architecture as a cultural force that drives innovation. The change also offers potential for greater specialization in architecture or areas of related study and may lead to more defined career tracks and/or to interest in further specialization through graduate study. The Directed Research Studios (DRS) change from semester-to-semester based on the teaching and research interests of the faculty, although at least one DRS focused on each the Department's four research clusters (Design Computing, Material Matters, Sustainability, and Culture, Society, Space) is offered each semester. DRSs are generated by faculty research (which in itself involves the profession and the industry), involve students in research and the production of knowledge, and feed back into research, thereby creating new questions for future students to explore. This feedback loop is critical to the continuity and health of research and exploration in our Department, and, of course, involves students and faculty, but most importantly, it incorporates the profession and the industry. For a full list/matrix of DRS offerings since fall 2019, please see Appendix 7.3.

Most of the DRSs are based on multidisciplinary research projects. Two examples closely tied to the research efforts of faculty in the **Design Computing** research cluster are the Additive Manufacturing of Architectural Structures Directed Research Studio and the Decoding and Recoding Informal Settlements/World Studio Directed Research Studio. The first of these has led to the development of new design and building technology, winning several international competitions and generating multiple publications, patents, and public presentations. The focus is now on transferring the technology to practice, helping design firms to adopt the technology while continuing to develop it. The second has led to the development of a new approach to urban planning that favors bottom-up processes, dweller participation, and co-design processes with the support of digital technology. Multiple publications and public presentations have also been produced in the context of this project.

Other DRSs offered by the Design Computing research cluster include the Open-Source Housing Systems DRS, the Myco-Dwelling DRS, and the Lightweight Tension Structures DRS — all heavily focused on making and prototyping using various digital and analogue fabrication tools. These studios have also contributed extensively to faculty research, and several publications have come out of collaborations between faculty and students. It should be noted, too, that PhD students whose research aligns with the DRS also

serve as studio teaching assistants, which enables them to gather input for their research.

The focus is also on making and prototyping in the Experiments in Building DRS offered by the **Material Matters** research cluster. This studio is structured entirely around giving design students the opportunity to focus on what might be new in a material or process realm. The DRS begins with a research component focused on traditional work flows, conventional material processing, and standard/common construction practices to enable students to find potential spaces within existing structures for innovation. Students have routinely focused on safety, labor-saving/mechanization, new material applications, low- or no-skilled construction systems, tooling, material hybridization, re-application of vernacular traditions, and recycling/re-use of waste. Providing students with a safe environment for experimentation that includes the freedom to fail is critical to making space for innovation. No less critical is recognizing shops/facilities as spaces of research and innovation.

Two interdisciplinary DRSs are offered by the **Sustainability** research cluster: the High-Performance Building DRS and the Sustainable Urban Density DRS. In the first of these studios, the students design projects with the goal of achieving superior energy and environmental performance. They study innovative sustainable precedents and use them in the context of ambitious sustainability guidelines such as the Living Building Challenge to inspire the design of successful high-performance buildings. Co-taught by architecture and landscape architecture faculty, the second studio includes students from both programs. The students collaboratively design a high-rise building in an urban context, focusing on density as a contributor to sustainability. Prior to Covid-19, the studio included a two-day in-person workshop on parametric design using Grasshopper software, conducted by an architect from SHoP Architects. The workshop/demonstration showed the students how professional offices use parametric software to explore different building shapes and configurations. For 2020 and 2021, the students had access to videos of the prior workshops and to other videos prepared by the same guest speaker.

Several DRS's have been offered by the **Culture, Society, Space** research cluster. In the Paris DRS, for example, students explored the analysis, design and making of ambiances as an urban and architectural mode of place-making. The Intimate Monument DRS dealt with heritage and explored historic monuments in the context of considerations such as maintenance, inhabitation, preservation, history, and research. The goal was to encourage students to seek and incorporate innovation in regard to historicity and contemporaneity into the design of an architectural proposal. Overall, the studio point of view reinforced the commitment of architecture to place and site and affirmed its relevance as a cultural force. The Coal Culture DRS concentrated on researching and documenting the coal industry in Pennsylvania, especially in reference to its sites of operation. Its aim was to propose productive architectural solutions for these sites, thus maintaining their economic viability and yet maintaining a critical engagement with their history. The Activist Architecture DRS explored architecture as a potentially powerful participant in societal and environmental change.

In addition, we have added ARCH 419: Design Research Methods and Programming to the curriculum in order to prepare students to be successful in the DRS context. Offered

in a seminar format, the course engages students in problem identification and definition, research, analysis, and critical thinking, all in the context of design research and innovation. The course also prepares students for a self-initiated semester-long thesis. Because a thesis exploration can involve any number of topics ranging from theories to typologies to technologies or materials to methods to models, students are tasked with defining a research topic and determining an appropriate direction for and approach to their investigation. The goal in this regard is that the students learn how to establish a clear and articulated foundation for their topic through various exercises, such as mapping, modeling, stakeholder diagrams, time-lines, and extensive literature and precedent research.

Research produced in the DRS context has been recognized by professional organizations with awards including three AIA UpJohn Research Initiative grants (2019, 2020, 2021) and a SOM Foundation Research Prize (2021).

Please see Section 5.6.4 for a detailed list of our facilities. In addition to our wood and metal shops, digital fabrication lab, robotics lab, laser-cutters, and spray booths, all of which are used in our Material Matters research cluster studios, we also host several specialized labs in our research centers. These specialized labs include the Virtual Reality Lab (used in the World Studios), the Soft Lab (textiles fabrication used in the Tension Structures DRS), the ForMat Lab (mycelium production used in the Myco-Dwelling DRS), the CITEL Lab (robotic concrete additive manufacturing used in the Extreme Habitats DRS), and the Re2 Lab (used in the High Performance Buildings DRS).

As a department in a research-intensive university, our strategic planning must reflect the ambitions and priorities of our host institution. As discussed in this section, through a multi-year assessment of our curriculum, the faculty re-shaped the academic plan in order to position research as a central differentiating factor of our department. This research-centric mindset is integral to our Department's philosophy and practice and foundational to our role within the University. Our multi-year strategic plan reflects this priority as central to our longer-range planning.

SV.5 Leadership, Collaboration, and Community Engagement

Architects practice design as a collaborative, inclusive, creative, and empathetic enterprise with other disciplines, the communities we serve, and the clients for whom we work.

Program Response

General Student Service and Community Leadership Roles: The Department of Architecture ensures that students have opportunities for leadership in curricular and co-curricular contexts, including in relation to collaborations and service across the University and in the context of local and national student organizations.

Many of our students belong to and take leadership roles in student organizations, including national groups such as the American Institute of Architecture Students (AIAS) and the National Organization of Minority Architecture Students (NOMAS), as well as local ones such as Students for Environmentally Enlightened Design (SEED). In 2021, one of our AIAS leaders served as the Forum president and the national AIAS president. Our AIAS members have engaged many members of our community through Freedom by Design, designing and building assistive projects for the community. The organization

also has its own committee for Penn State's Dance Marathon, "THON" (the nation's largest student-run philanthropy, which provides aid to families of children with cancer).

NOMAS is a vital student organization in our community. With additional faculty support providing continuity, the group has grown from 5 to 40 members (pre-Covid-19) who participate in the organization's annual architectural competition and a regional Jenga competition. NOMAS students regularly attend national conferences such as Black in Design and the annual NOMA meeting. They are partners in planning the Welcome Events for Incoming Students of Color and ongoing monthly programming. In addition, our NOMAS members have welcomed students from the Department of Landscape Architecture and the Department of Graphic Design, which have much smaller cohorts providing service to the larger community. For more information on the Department's involvement with AIAS, NOMAS, and our other student organizations, please see the Context and Mission section of this APR.

University-focused Student Leadership: Students in each year elect a student representative annually to be their voice at monthly meetings with the Department Head. At these meetings, students share individual or group concerns and the Department Head keeps the student body informed about departmental and curricular matters. The elected student representatives are essential to departmental well-being and communication.

The University-level President's Leadership Council includes student members, and we regularly have architecture students on the board. In 2022, a first-year student served as a representative. Our students have also participated in the University's Student Engagement Network, which connects students with curricular and co-curricular opportunities such as research, student organization involvement, community leadership, study abroad, internships, arts and performances.

Students also elect a representative from their graduating class to serve on the board of the Architecture Alumni Group (AAG) annually. This leadership position has often led to longer-term service with the AAG.

Our faculty and students regularly contribute service to the University system in general, including in relation to the selection process through which architecture firms are chosen for new construction and renovation projects. This participation has served to improve the architectural quality of campus facilities and has projected students into leadership roles. Respected architects such as Rafael Vinoly, Robert Stern, Bohlen Cywinski Jackson, HOK, KieranTimberlake, Payette Associates, the Polshek Partnership, and the Overland Partners have all designed campus projects in recent years. Many members of the faculty also practice architecture locally, nationally, and internationally.

The Hamer Center for Community Design is a School-level research and practice center that provides support and opportunities for engagement and collaboration to students at all year levels. Collaboration with a community-partner/client is a primary goal of curricular and research-based projects sponsored or facilitated by the Hamer Center such as Penn State's entry to the Department of Energy (DOE) design challenge competition. With guidance from faculty advisors, students work closely with partner organizations and professional mentors to set project goals, explore design options, and communicate the decision rationale and performance objectives. Student projects are publicly presented and shared with community partners in order to promote visionary ideas that often lead to professional projects. For more information about the Hamer Center, please see Section SV.2.

Studio Work: Several studios offered by the Department include a focus on leadership and collaboration opportunities:

- In **ARCH 491: CoLab (Collaborative Studio)**, students work with community partners and professional firms on real architectural projects, typically at the pre-design or conceptional phases. Teams of architecture, landscape architecture, and architectural engineering students work together in an integrated team to produce highly resolved site development and architectural design projects.

- Co-taught with a landscape architecture professor, the **Sustainable Urban Density Directed Research Studio** includes upper-level (fourth- or fifth-year) architecture and landscape architecture students. The studio explores ways in which architects and landscape architects can intervene in an existing American city, Cleveland, to create sustainable, healthful, and safe urban neighborhoods. Studio projects are completed by interdisciplinary teams of four or five students. In addition to developing a design to intervene in a city in the ways stated, the architecture students are required to design at least one high-rise building.

  The studio begins with groups of students working within their home discipline to discuss how building design and landscape design can work together. The design projects then start with a small three- or four-day team project that blends the typical boundaries of the two professions: the design of a memorial. Next, a short-duration “balcony” project allows the students to focus on their area of expertise: the students are given the floor plans of several high-rise apartment buildings and choose one plan to modify by adding balconies to all apartments. Critiques throughout the semester, as well as the final review of the studio projects, always involve professionals from both disciplines.

  Prior to Covid-19, the studio included two-day site visits to the Cleveland project site for a large mixed-use design project, including tours of the city; meetings with local architects, landscape architects, and city planners; and a group bonding activity such as bowling or attending a play. Eventually, we anticipate reintroducing these aspects of the course.

Departmental Infrastructure Summary: Each activity discussed in this section is part of the Department’s organizational and administrative infrastructure, and each relies on the involvement of multiple parties, such as students, student leaders, faculty advisors, and department staff and administration. This broad involvement ensures that the activities remain central to the Department’s organization. All these efforts collectively point to an environment that encourages collaboration among architecture students and with other University students, while supporting leadership roles and community service for our students.

SV.6 Lifelong Learning

Architects value educational breadth and depth, including a thorough understanding of the discipline’s body of knowledge, histories and theories, and architecture’s role in cultural, social, environmental, economic, and built contexts. The practice of architecture demands lifelong learning, which is a shared responsibility between academic and practice settings.

Program Response

Departmental Environment, Community, and Independence: The Department models and encourages lifelong learning on the part of our students by fostering a sense of personal responsibility and independence in a multitude of ways, including in relation to the environments students, faculty, and staff enjoy:

- **Stuckeman Family Building**: The building itself reflects our commitment to the shared studio environment and the sense of community this creates.
- **Studio Space**: On day one of their academic careers with the Department, each student is assigned a space with a desk, locker, and stool. This openness and free access to the studio environment supports a sense of individual freedom and responsibility based on which students are well positioned to make judicious choices that benefit themselves and the community. This ideal and practice aligns with modern, open-studio professional practice environments.

Curriculum, Educational Breadth, and Lifelong Learning: Our curriculum is designed to offer education through the circulation of knowledge in multiple modes simultaneously. For example, in our second year, students concentrate on the structures, materials, and methods of construction. They acquire knowledge of these aspects in studio projects, in structures classes, in theory classes, and in a hands-on materials and methods course. Each course/studio creates a distinctive learning environment, and cumulatively they deliver content and offer hands-on practice. In our view, this multi-modal approach encourages lifelong learning by demonstrating to students that learning happens all the time and in many ways. In addition, we offer a robust extra-curricular program of lectures, symposia, and workshops, many of which carry AIA continuing education credits. In these ways, we not only invite our faculty and students to share ideas and experiences, but we also engage a larger community of professionals.

Although specific courses and coursework are described in the Program and Student Criteria sections of this APR, the following are examples of the ways in which we support the development of a lifelong-learning practice:

- By building an understanding of architecture as both theory and practice and creating a legacy that extends across time and space, our history and theory courses embed students in an ongoing process. As their life experience grows richer over time, they will have the tools to make connections drawing on their vocabulary of architectural precedents, to apply their critical thinking abilities to look beneath the surface of form, and to locate themselves within a larger, ever-evolving professional trajectory. **ARCH 210** engages students in a series of informal debates in which propositions about current issues are linked to historical debates, thereby connecting past and present in an informed and spirited conversation.
- In our history courses, we aim to make the lectures as diverse and contextually rich as possible. A broad array of investigative approaches are taught in order to connect with students' existing interests and knowledge bases.
- **ARCH 311** fosters lifelong learning by promoting a collaborative, holistic approach to architectural education that emphasizes skills focused on areas such as critical inquiry in conjunction with the diverse interests of clients, users, and the public who utilize and shape the built environment.
- **ARCH 419** introduces students to both the process of and the products expected from high-level thesis research. Tools include a wealth of thesis examples, guest presentations from thesis prize–winning authors, and exemplary work from notable firms, architects, theorists, designers, and makers. Students are guided

through exercises such as mapping a problem, modeling experiments, prototyping, stakeholder diagramming, developing timelines of histories and key systems-wide events, and conducting extensive literature reviews and precedent analysis. Students come away with a breadth of knowledge of the range of skills and tools supporting design research for lifelong learning and apply this knowledge to their own thesis endeavors.

- One of the **ARCH 491** DRS options introduces students to the city of Paris — its urban and architectural history and contemporary preoccupations — and the practice of designing urban and architectural ambiances and narratives. Students engage in deep reading of the context through the collaborative production of maps, resulting in architectural propositions in conversation with the urban and architectural point of view explored.
- In **ARCH 451** (Professional Practice), students should gain a thorough understanding of the NCARB AXP process, licensing, and examination requirements and of the importance of lifelong learning, including the need for and expectations associated with required continuing education. The course emphasizes the need for architects to continually update their knowledge of building technologies, building systems, construction materials, codes and regulations, and project delivery methods and of strategies to minimize environmental impact — whether or not they are required to complete formal continuing education requirements. For more information on the Professional Practice course, please see Section PC.1 Career Paths.

- **Option Studios (DRS)**: Students select areas of concentration during the final two years. For a full list/matrix of DRS offerings since fall 2019, please see Appendix 7.3.
- **Faculty Rotations (Years 1 and 2)**: This practice exposes students to an array of teaching styles, attitudes, content, values, and beliefs.
- **Reduced Studio Days (Year 4)**: In year four, students transition from three days a week in the studio to only two days a week as a way to support progress to becoming independently responsible for their work without the need to rely on faculty contact time.
- **Required Study Abroad**: A major benefit of studying abroad is the independence it affords students to explore, discover, and learn on their own without the guiding hand of the faculty. Our study abroad programs are not field-trips — they are semester-long opportunities for students to experience international architecture in context and to understand it through living independently in a foreign culture. The educational programming generally involves direct exploration of multiple architectural productions so that students become familiar with local styles and architectural techniques. Yet, considerable valuable learning takes place outside the formal educational work as students navigate the challenges of living abroad in general terms such as overcoming language barriers and understanding local culture and in specific aspects such eating, shopping, and traveling using local transportation. Meeting the challenges of living abroad develops a confidence and sense of responsibility that students will carry with them throughout their lives.

Selected Stuckeman School Support for Professional Connections and Lifelong Learning:

- **Career Day**: As described in PC.1 Career Paths, the Stuckeman School Career Day event brings our students face to face with industry professionals with whom they can discuss career path choices, review their portfolios and résumés, and talk about opportunities to gain professional experience.
- **Seminars**: Once or twice a semester, our Stuckeman School Career Advisor hosts professionally themed seminars with industry professionals and alumni. Conversations often cover topics pertinent to lifelong learning and interconnections between academia and the profession.

3—Program and Student Criteria

These criteria seek to evaluate the outcomes of architecture programs and student work within their unique institutional, regional, national, international, and professional contexts, while encouraging innovative approaches to architecture education and professional preparation.

3.1 Program Criteria (PC)

A program must demonstrate how its curriculum, structure, and other experiences address the following criteria.

PC.1 Career Paths

How the program ensures that students understand the paths to becoming licensed as an architect in the United States and the range of available career opportunities that utilize the discipline's skills and knowledge.

Program Response

Career Preparation Background and Strategic Plan Focus: The architecture program at Penn State is structured to prepare students with the theoretical background, professional, and practical skills necessary to become licensed architects in a fast-changing world. The Stuckeman School's strategic plan and the Department's strategic plan offer specific approaches and information in this area. The University affords all necessary support to the Department in complying with AXP and NCARB requirements. The Department, in turn, provides wide-ranging annual reviews of accreditation status and compliance with all conditions and procedures. The Stuckeman School's strategic plan stresses the importance of advancing a vision that addresses increasingly complex problems in global contexts. The plan, therefore, emphasizes the imperative need to identify new opportunities to build collaborative efforts between the Departments of Architecture, Landscape Architecture, and Graphic Design, and other allied disciplines. This perspective is particularly useful in incorporating the professional community into the long-range planning process.

The Department plan calls for recognizing the need to enhance students' readiness to contribute to a global marketplace of ideas and to innovate through the vigorous pursuit of international professional partnerships, faculty exchanges, and study abroad. The plan's goals and initiatives in this area are multifaceted and include developing alumni relations, maintaining and strengthening close interactions with professional advisory boards, and offering lectures on critical architectural practice vis-à-vis diverse communities. To this end, the Stuckeman Endowment has an implied mandate to work closely with professional bodies such as the AIA and the ASLA. The Stuckeman School Professional Advisory Board, which comprises faculty and practitioners from architecture, landscape architecture, planning, and graphic design has become an additional resource for the architecture program.

Professional Practice and Pathways Coursework: Potential career paths for holders of the B.Arch accredited degree are explored in **ARCH 451**: Architectural Professional Practice. The course focuses on the most typical career path for graduate architects: professional practice in an architectural firm. A multitude of additional viable career paths are also discussed — including in relation to design-build opportunities and career

opportunities and trajectories with government agencies; developers, construction managers, or contractors; non-profits and media and publishing companies; and institutions such as universities, hospitals, and museums. Alternative careers outside the profession, including facilities management, building inspection, construction management, owner representation, and marketing and sales are all covered briefly. Also discussed are the stages of an architect's career, the different ownership structures of architectural firms, and how firms typically transition from one group of owners to another. Classroom lectures and reading assignments are supplemented by an annual field trip to New York City, which includes visits to a range of architectural firms from small, medium, and large offices, a prominent real estate developer/property owner, and a government agency that employs architects. Many of the firms/offices are owned by Penn State alumni, who are very supportive of this course. In the 2020 and 2021 academic years, however, due to restrictions imposed in response to the pandemic, visits were conducted virtually.

Practitioners' Contributions to Lecture Series: Our lecture series brings in a wide variety of practitioners who not only show their work, but also share the story of their development. David Levin of Levin Betts (2021) and Yolande Daniels of Studio Sumo (2019) stand out in recent years for their important contributions to the series.

Student Chapters of Professional Organizations: As previously noted in this APR, our AIAS, NOMAS, and Alpha Rho Chi (APX) chapters are involved in many initiatives including professional development. These organizations host firms for "lunch & learns" in which professional representatives, in person or virtually, talk about their firm's work and potential opportunities, usually followed by a Q&A session. Both APX and AIAS have hosted résumé and portfolio workshops as well.

Career Advisor: The Stuckeman School Career Advisor works one-on-one with students to discuss professional development, career paths, internships and licensure, résumé and portfolio development, and alumni/professional networking. He is also the faculty AXP advisor and attends the yearly NCARB summit to stay up to date on licensure requirements. For more information on our career advising resources, please visit https://sites.psu.edu/stuckemancareers/.

AXP/ARE: Early in the fall semester, an AXP/ARE information session is held for all architecture students. Presented by either a representative of NCARB or the Pennsylvania AXP State Architect Licensing Advisor in conjunction with the School AXP Architect Licensing Advisor, this sixty-minute session includes a Q & A segment. Kathryn Doyle, the current State of Pennsylvania AXP Coordinator participated in the fall 2021 presentation. At this session, information related to NCARB AXP/ARE and state-specific licensure is provided, and students are made aware of resources designed to assist them, such as the State and School Architect Licensing Advisor.

Career Day: The Stuckeman School hosts an annual Career Day early each spring semester. This is a vibrant event in which an average of 80 firms (and over 100 alumni) engage with our students about career/internship opportunities, career paths, and general networking. In 2021, the event was held virtually and attracted 64 firms with over 150 representatives. A total of 250 Stuckeman students attended. In 2022, a hybrid event was offered, with 63 firms attending in person and over 15 virtually. For more information, including a full list of participating firms to date, please visit https://arts.psu.edu/stuckeman/career-day/.

Student Connections to Alumni: The Architecture Alumni Group (AAG) is very involved in professional development opportunities for our students through seminars, portfolio workshops, and the AAG Alumni-Student Mentoring Program, which was created in 2018 to match Penn State architecture alumni with current students in one-on-one relationships. With the exception of incoming first-year students, the mentoring program is open to all our graduate and undergraduate students. After completing a survey with their basic information and ranking the importance of four categories (location, area of practice, firm size, and background/experience), students are paired with an alumna/us for virtual and in-person communication. The formal program runs from October to May with the expectation that pairs are in touch at least once a month. To support the mentoring relationship, monthly discussion topics (such as portfolio review, alternative careers, community involvement, and interview preparation) are recommended and relevant materials distributed, but these need not be directly followed. At the end of the program, pairs have the option of continuing their mentoring relationship informally. In addition, new matches are created each year. This format allows for variety, given that students can work with and maintain relationships with several mentors across their years in school. The first year of the program (2018–2019) had 98 pairs. Subsequent years have averaged around 75 pairs (75 in 2019–2020, 88 in 2020–2021, and an anticipated 65 for 2021–2022). Mentors have included alumni who graduated in 1965 all the way through those who graduated as recently as 2020 — the latter participating in the program as both mentees and mentors. Most of the participating alumni are located in the Northeast and Midwest of the United States, but also hail from all over the country and as far away as Ecuador, New Zealand, and South Korea. In total, roughly 150 alumni have taken part in the program, with the vast majority returning for multiple years and a handful of new participants joining each year.

The AAG also supported a series of virtual seminars (hosted by the School Career Advisor) in summer 2020 to help offset the lack of in-person internships due to the pandemic. Twelve seminars, held every other week, covered topics ranging from developing alternative career paths to creating high-performance façade design to “demystifying” the ARE/AXP.

PC.2 Design

How the program instills in students the role of the design process in shaping the built environment and conveys the methods by which design processes integrate multiple factors, in different settings and scales of development, from buildings to cities.

Program Response

Structure of the B.Arch Degree Evolved Based on Recent Evaluation: Our professional B.Arch program is design-centric with required design studios in each of the ten semesters. Our faculty and the Undergraduate Curriculum Committee (UGCC) are tasked with executing ongoing assessment of our curriculum. Given our R-1 university context, the UGCC assesses our curriculum in terms of research and innovation and the creation of knowledge through design. Through a multi-year dialogue and assessment that involved faculty, students, and administration, with the involvement of the Stuckeman Advisory Board and the Architecture Alumni Group (AAG), we modified the B.Arch curriculum and the associated coursework and made a proposal — which was accepted — to include Directed Research Studios (ARCH 491) and Design Research and Spatial Programming (ARCH 419) in the fourth- and fifth-year curriculum. In addition,

the UGCC mandated content changes in the required design studios for the first through the third years to progress towards the integrative design studio in the spring semester of the third year.

Structure of the B.Arch Degree: Evolved through a recent evaluation and redesign with the involvement of the Stuckeman Advisory Board and the Architecture Alumni Group (AAG), the design-centric nature of our professional B.Arch program has been significantly reinforced to better serve students' development as interpreters and designers of the built environment. Subject to extensive ongoing review, the curriculum is explicitly designed so that coursework and multiple design studios are offered whereby students gain the philosophy, foundation, and general skills and background needed to succeed in the architectural profession and the specialized skills needed to pursue differentiated careers. In particular, The degree is design-centric with required design studios in each of the ten semesters. Overall, the studio structure is designed so that students are fully prepared for the capstone integrative studio in the final year.

Studio Work: The first six studios progress in scale, program, structure, life safety, and other building complexities to achieve integrative design by the end of the sixth semester. The remaining four design studios are meant to expose students to novel ways of thinking and researching in architecture, from architectural detail to landscapes and cities. In parallel, students acquire the necessary technical, theoretical, and critical skills in their coursework. Developing design skills in a progressively complex educational context requires critical thinking skills and demands strategies to thrive in a global and diverse environment. Our curriculum is designed to deliver education by circulating knowledge through multiple learning modes and putting knowledge into practice in the studio environment. For example, our second-year studios take advantage of pairings with the structures courses and the materials and methods courses. In each of these sequences of courses, students learn the technical material in a particular mode, specific to that aspect of the discipline, and are required to apply that learning in the studio in an architectural context. In essence, all these courses share content, yet differ in the mode of delivery, so that students can learn from many vantage points.

Another such pairing is between the third-year Integrative Design Studio and the Technical Systems Integration (ARCH 480) course. Taught by the same group of faculty and in close relation to each other, both courses are driven by the question of how a building's design idea and technical systems can support each other to produce a meaningful whole. The studio and the course are not unidirectionally related: technical systems are introduced in the studio, and design processes are introduced in the course. Topics covered are (1) how climate and context trigger design ideas, (2) how passive and active strategies for energy reduction and environmental responsibility can be developed specific to a design project, (3) how daylighting and electrical lighting can create comfortable spaces and emphasize important design elements, (4) how general life-safety requirements must be applied to unique projects, (5) how HVAC distribution systems depend on specific design concepts, (6) how structure and façades (wall sections) can support a specific design, and (7) how designed spaces can be acoustically manipulated by changing materiality and room geometries. How best to integrate computational environmental and energy simulation into the curriculum is a continuing discussion topic, particularly in regard to whether, how, and at which year level of the B.Arch program such tools should be introduced. The course contents

require continued updates in every teaching cycle to account for changes in codes and metrics, developments in technology, and general philosophical discussions focused on energy efficiency. Such updates also inform the design process.

As previously mentioned, our fourth- and fifth-year B.Arch students participate in Directed Research Studios (DRS), where they gain and apply design knowledge and expertise to addressing society's problems. Each studio presents an opportunity for students to become familiar with a knowledge domain and locate and address knowledge gaps in that domain as a basis for contributing to society through innovation in architectural production.

Due to Covid-19, Arch 419 has been delivered exclusively online via Zoom in recent years. Initially, many students were quarantined in other countries and, therefore, living according to a variety of time zones. In addition to the curricular content, the course gave students and faculty a sense of the range of digital and technical tools and innovations available for communication and collaboration worldwide. Guests from around the world were also able to participate in the course. Based on self-assessment and surveys, we envision a hybrid delivery for future offerings. Faculty share material, deliver lectures, and offer examples centered on a given topic. Breakout groups allow for more personalized discussions and critique of student progress. Mid-term and final reviews of student work are consistent with other studio efforts — a guest jury is invited to engage with the students.

Institutional Context of the Stuckeman School's Strategic Plan: The Department's direction in relation to ensuring student preparation is aligned with and supported by the Stuckeman School's strategic plan, which envisages design engagement that more effectively integrates our students, our service, and our scholarship into the global community by expanding beyond traditional programs and emphasizing challenges beyond comfortable borders. Specific strategies revolve around increasing the number of travel programs and alternative studio sites included, connecting more strongly to international research communities, and pursuing more external funding. More generally, through addressing universal problems, goals include achieving international excellence and pursuing intra- and inter-institutional dissemination and sponsorship of experiences. In this context, all three of our strategic priorities feed directly into design as a complex and multi-dimensional process that is about a particular type of problem-solving — one invested in ideas and concepts that add value to our daily lives in a democratic and civil society.

Additional Specific Examples of Design Thinking in Architecture Courses

- **ARCH 210: Ideas Across Time** seeks to make connections across eras, but also to show how the synthesis of older ideas or types with new uses can result in innovations. Also considered is how a range of factors drive new building and landscape forms, often in response to larger societal currents. One example of this kind of work is an in-class, interactive demonstration of how Gothic cathedrals acquired their familiar form. The problem of a church for Christian worship rituals is considered in relation to the environmental aspects of northern European forests, the structural aspects of masonry, the geometric permutations of simple drawing devices, and the impact of Scholasticism as a philosophical basis. Similarly, the course covers the relationships between Sublime, Romantic landscape paintings; the costs and benefits of industrialization, urbanization, and Modernity; and the role of constructed landscape parks within the cityscape of capitalism.

- **ARCH 204** addresses design thinking through discussions around building automation (with the goal of developing safer, higher-quality construction that limits environmental damage) and the need to improve material performance (smarter material compositions, more durable materials that last longer or can be recycled and re-used). Students are always encouraged to come up with design strategies that reduce carbon impact and that rely on reused materials, healthier materials, and/or on materials that use less drinkable water than is standard. The impact of industrialization is a central concern of the course. For example, the course covers the impact of making architectural materials, bricks, concrete, etc., on the health of the communities where production processes take place.
- In our **Art History** course(s), the quizzes demand that students not only identify the buildings and texts discussed in class, but also demonstrate an ability to integrate the multifaceted nature of given design histories into their understanding of the artifacts. This is achieved through multiple-choice questions that ask about the various forces that had an impact on a given building's design history.

Lecture Series: Students also benefit from our robust lecture series. Please see Section SV.1 Design for a brief account of recent speakers.

PC.3 Ecological Knowledge and Responsibility

How the program instills in students a holistic understanding of the dynamic between built and natural environments, enabling future architects to mitigate climate change responsibly by leveraging ecological, advanced building performance, adaptation, and resilience principles in their work and advocacy activities.

Program Response

Sustainability Research Cluster: Environmentally responsible design research and teaching is guided by the Sustainability Research Cluster, one of the four research clusters in the Department of Architecture.

The cluster investigates architecture's potential to improve the quality of life of current and future societies around the globe, addressing issues of natural resource consumption, greenhouse gas (GHG) emissions, pollution prevention, and organizational dependencies. From working through design processes, the historical and theoretical aspects of sustainability, and material reclamation and reuse to identifying social structures preventing sustainable practice, this research cluster offers a comprehensive view of sustainability that promotes interdisciplinary integration. Faculty bring both professional and academic experience to their investigations, producing generalizable knowledge that can also be applied in the professional practice of architecture.

B.Arch Program Third Year: Key Points in Curriculum for Ecological Knowledge: The third year is where students develop an holistic understanding of and skills related to ecological knowledge and responsibility. In this year, students enroll in design (ARCH 331, ARCH 332) and building environmental systems courses (AE 211, AE 424, ARCH 380, ARCH 381, ARCH 480) that provide the theoretical framework and design and technical skills needed to integrate architectural design and building technical systems in order to achieve environmentally responsible design in an integrative studio project.

- **AE 211 (Introduction to Environmental Systems)** is a required course offered in the fall and the first in a two-series sequence in which lectures, assignments, invited

speakers, and in-class activities and discussions are used to introduce the students to climate change, the role of building environment in environmental challenges, and the need for sustainable design. Students learn about green building rating systems (such as LEED and the Living Building Challenge) and develop the understanding and skills needed to design buildings that maintain thermal comfort through efficient use of energy and other resources. Example topics include passive heating, passive cooling, shading, daylighting, heat transfer in buildings, thermal envelope, thermal load calculations, energy simulations, mechanical systems in buildings, and embodied carbon.

- **AE 424 (Environmental Control Systems I)** is a required course offered in the spring and the second in a two-series sequence in which lectures, assignments, invited speakers, and in-class activities and discussions are used to cover photovoltaic systems, lighting systems, electrical systems, fire safety, sound and acoustics, water supply, and waste. In both AE 211 and AE 424, students become familiar with the relevant codes governing the design of various building systems. The emphasis in both courses is on integrating knowledge into design.
- **ARCH 480 (Technical Systems Integration)** is a lecture-based required course with design orientation offered in spring that stresses environmental stewardship, public health, safety, and welfare — and how these are related to the architect's task of designing spaces. The course is divided into six topics — active systems, passive systems, structure, life safety, lighting, and acoustics — with environmental responsibility as the common connecting thread. Students learn about best practices relating to environmentally conscious and energy-efficient design, life safety, and equal/inclusive access to spaces. Emphasis is placed on strategies applied in the early design process (e.g., appropriate siting and passive system techniques) as fundamental to designing environmentally responsible buildings. We believe that by requiring students to implement these aspects meaningfully in their designs, they learn to apply these practices not as technical requirements but as the essential basis of good design.
- **ARCH 331 and ARCH 332 (Architectural Design III and IV)** are two required design studio courses offered in fall and spring. They serve as the first key point in the curriculum where students learn to integrate various technical systems (which they have learned about in the same year) into architectural design in a holistic way. Using the integrative skills gained in the third year, students can develop integrative design projects in further design studios, in the fourth and fifth years. ARCH 331 and 332, in conjunction with ARCH 480, AE 211, and AE 424, address current understanding of the principles of sustainable development. The students then apply the principles to project work, which begins with individual site evaluation and building massing studies, followed by structural solutions and technical systems/sustainability concepts including building envelope design, natural and augmented lighting scenarios, and solutions relative to HVAC, energy, and water.

Advancement of Ecological Knowledge in the Fourth and Fifth Years: The Department offers additional opportunities for students to advance their ecological knowledge and skills. Through the Directed Research Studios (DRS), in particular, our faculty offer students opportunities to focus on environmental sustainability in design. Some specific examples of DRS opportunities are as follows:

- The **High-Performance Building (HPB) Studio** focuses on building performance and energy and environmental impact over the whole lifecycle of a building. The course enables students to develop innovative building design solutions that are net-zero lifecycle carbon by integrating architectural design and building systems. The students use Life Cycle Assessment (LCA), energy simulation, daylighting

simulation, and embodied carbon assessment as analytical tools to inform the process of design decision making. Using the AIA Framework for Design Excellence to guide the design process, the course emphasizes embodied and lifecycle carbon as rising areas of concern in built environment design. The student projects developed in this studio are submitted to the AIA+ACSA COTE Top Ten Competition.

- **Collaborative Studio (CoLab)** students work with community partners and professional firms on a real architectural project, typically at the pre-design or conceptional phase. Teams of students from architecture, landscape architecture, and architectural engineering work together in an integrative team on a highly resolved site development and architectural design project. The teams design buildings that respond to the program through an environmentally responsible design solution. In spring 2022, more than 40 students from various disciplines organized into five teams designed a cancer center in Harrisburg, Pennsylvania. Each team represented architecture, landscape architecture, mechanical engineering, lighting/electrical engineering, construction management, and structural engineering disciplines. The five design proposals, each highly integrated, were developed in a close-to-reality professional design process. All projects were required to include sustainability as a core criterion of the design.
- The **Myco-Dwelling Studio** (fall 2021) focused on the interplay of matter, form, and fabrication in the design of tiny house systems using mycelium-based building components. Mycelium-based materials are biomaterials obtained from mycelium, the fibrous root systems of fungi. There is growing interest in materials of this kind from the architecture community due to their sustainable features. The students worked in teams to develop customizable tiny house systems, including exploring and testing their design ideas by cultivating physical mycelium-based prototypes in various scales and integrating computational form-finding and fabrication technologies into the design process. The studio focused on two principal areas: the analysis, synthesis, and generation of systems for customizable dwelling/housing units and the interplay between mycelium-matter, form, and fabrication processes.

For a full list/matrix of DRS offerings since fall 2019, please see Appendix 7.3.

Additional Opportunities to Advance Ecological Knowledge:

- As noted in Section SV.2, Department of Architecture students regularly participate in the US Department of Energy (DOE) Solar Decathlon Competition. Most recently, they secured third place in the Housing Retrofitting category of the 2022 competition. In another project, our students received DOE funding and were shortlisted to build their entry for the 2023 Solar Decathlon Build Competition. In 2018, our students won the DOE's national Race to Zero competition for zero-energy suburban single-family housing.
- In **AE 421** and **AE 422**, the choice of structural materials based on sustainability criteria is considered in the discussion of structural design.
- In **ARCH 204**, earth technologies are explored as a powerful way to address ecological concerns. The course covers a range of earth-based constructions, always beginning with a consideration of methods, traditions, and vernacular use — and progressing to contemporary applications. Earth is also considered as a healthy material taken from the ground locally, and an earth-wall section (Ricola Storage Building) is compared to a typical 12–14 ft. material wall section (Penn State Rec Hall) that includes concrete, plastic, and other synthetics. Students are always encouraged to come up with design strategies that limit carbon impact and employ healthier materials, re-use materials, and/or take advantage of materials that use less drinkable water. The course also has a significant focus on the impact of

industrialization, which includes how making architectural materials, e.g., bricks, concrete, impacts health in communities where production takes place.

- Architectural history and theory refer to the story of how humans shape the natural and the artificial in order to manage their worlds. Each era faces its own challenges through its technologies, and the profession of architecture realizes these ambitions. Each era benefits from the successes and confronts the shortcomings of preceding times, leading to eternal questions about what is the right thing to do now. By situating the built environment at the nexus of these considerations, our courses reveal the ways in which the profession has responded in the past, build the conceptual foundation needed to understand the present, and seek to inform how the profession faces the future.
- In **ARCH 419**, the quest is to provide a deeper look at the ways we extract theory and meaning from a milieu, i.e., commons environments (at risk for degradation and overuse), human behavior (self-interest, cooperation, and coordination as a response to others), and institutions (formal and informal mechanisms that societies create to manage the other two). The goal is to leverage design thinking to recast design as an actor advancing in the interest of a more a just and equitable society.

PC.4 History and Theory

How the program ensures that students understand the histories and theories of architecture and urbanism, framed by diverse social, cultural, economic, and political forces, nationally and globally.

Program Response

Culture, Society, Space (CSS) Research Cluster: History and theory design research and teaching is guided by the Culture, Society, Space (CSS) cluster, one of the four research clusters in the Department of Architecture. The cluster examines how built spaces — from the artifact to the urban — affect those who interact with them and, conversely, how cultural, societal, and disciplinary values shape the spaces we create.

CSS Student Projects in the CSS Cluster: Projects within this cluster can address individual buildings, public spaces, communities, and/or cities, as well as engage in typological, institutional, and wider forms of inquiry. Research methods include formal, theoretical, historic/historiographical, sociological, and systemic analyses. Studies can focus on spaces and ideas as forms of cultural expression, the people who produce and use them, and/or the ideological forces in which they operate, including all aspects of sustainability.

History and Theory Courses: Taught by Stuckeman School and Department of Art History faculty, required history and theory courses in the B.Arch program are as follows: ARTH 201, ARTH 202, ARCH 210, ARCH 312 or 317, ARCH 311W, and ARCH 499A, B, and C.

All architectural history and theory courses focus not only on works of architecture but also on the ongoing role of architecture in the formation and development of cities, landscapes, and culture in general. It is critical to introduce cultural, socio-political and economic history, the allied arts, and technological history in order to avoid the common pitfall of many history surveys in which buildings are superficially understood as stylistically, historically, and physically isolated objects. Students must, therefore, study the critical role architects and architecture have historically played in society to apprehend the possibility of architecture as a product of creative, socially responsible

builders and architects with deep knowledge and understanding of the society and culture their architecture is to serve, such that their designs become inextricable and vital components of that culture.

Students are also exposed to history and theory in a variety of other courses and venues, including the first-year visual communication courses, where buildings and sites of historic importance serve as the subject for lessons in drawing and analysis. Students also regularly carry out in-depth precedent analyses in design studio courses. Further, each semester, faculty offer a variety of elective courses and seminars that deal with issues of theory and history, including urban history.

Study Abroad: All students in the architecture program are required to attend one of our approved study abroad programs for a semester in either their fourth or fifth year. Currently, students can choose between programs in Rome and Copenhagen, although other locations are currently under consideration, including Barcelona. In addition to participating in a required program, students can take advantage of a variety of optional study abroad opportunities, including programs in South Korea and Japan. (The study abroad opportunities in South Korea and Japan enable students to build on their classroom work in **ARCH 317** in relevant contexts.)

In all cases, students study primary sources from both historical and contemporary design perspectives with opportunities to apprehend buildings in their urban, sociopolitical, and cultural contexts. Students learn first-hand about historical buildings and sites and the fundamental principles of design that contribute to their ongoing appeal in the society and culture of which they are a part. Each program requires courses in architectural history that include field trips and on-site instruction focusing on important precedents as well as urban and landscape form and morphology.

Lecture Series: As described in Section SV.1 – Design, our lecture series often includes scholars of architectural history and theory.

PC.5 Research and Innovation

How the program prepares students to engage and participate in architectural research to test and evaluate innovations in the field.

Program Response

Department of Architecture Research Clusters: Given Penn State's status as a research intensive (R-1) university, our faculty are required to produce new knowledge through research and innovation as part of the DNA of the University and of the Department. Our faculty members each work in one of four research clusters: Design Computation (DC) Culture, Society, Space (CSS), Material Matters (MM), and Sustainability (SUST). All our elective offerings and upper-level Directed Research Studios (DRS) are organized into these four clusters, and we ensure equitable representation of the expertise of each collective across our electives and studios. Our students are initially exposed to these clusters and through them to research and innovation during their first few years in elective offerings. In their fourth and fifth years, students participate in the DRS's associated with the clusters, thereby gaining knowledge in research and innovation methods in given areas. Students can choose to concentrate in one of the clusters or take a broader approach to acquiring a level of

expertise. A comprehensive list of the DRS's offered is provided in Section SV.4 – Knowledge and Innovation.

Significant Recent Curricular Improvements: Since our last NAAB visit, we have added the ARCH 419: Design Research Methods and Programming course to the curriculum to better prepare students for success in the DRS context. Offered in a seminar format, the course engages students in problem identification and definition, research, analysis, and critical thinking — all in the context of design research and innovation. The course also prepares students to conduct in-depth research on an independent basis for a "thesis" studio (DRS-Independent Investigation). Both the Design Research Methods and Programming course and the "thesis" studio (DRS-Independent Investigation) involve students in high-level research to advance design thinking, making, and discovery. Many of the topics explored entail undertaking materials research, contesting/testing traditional models and methods of design or practice, and deploying and advancing technologies in relation to new questions and concerns. The intended outcome is a statement — articulated through architectural discovery — of ways and means to advance the profession and the domain knowledge of our field.

Student Involvement in Faculty Research: There are also opportunities for students to be directly involved in research and innovation by assisting faculty on their research projects. Some of our students have received Erickson Discovery Grants, i.e., undergraduate summer grants, to work with faculty on research. And, in addition to working with individual faculty on their research projects, our students are involved with our research centers, the Stuckeman Center for Design Computing (SCDC) and the Hamer Center for Community Design.

The SCDC is dedicated to the use and development of digital technology for design and construction with a mission of contributing to the achievement of the United Nations Sustainable Development goals. Faculty and students engage in research by participating in research projects funded by internal and external sources, and undergraduate students have opportunities to work alongside faculty and graduate students on completing specific project tasks. Through this experience, students learn how to write research proposals, prepare and submit papers for publication, and develop scientific presentations. They also learn how to relate to research funders and tailor their work to the needs of society. Moreover, there are opportunities for graduate students to take positions as teaching assistants for the fourth- and fifth-year Directed Research Studios (DRS) as a way to gain instructional and mentoring experience and advance their research by bringing research problems to the studio to tackle in collaboration with the undergraduate students. One such example is from the Open-Source Housing Systems DRS offered in spring 2021. Following the successful completion of the studio, a faculty member and a fourth-year undergraduate participant continued to work together. The faculty member offered the studio to fabricate components of the student's design on a 1:1 scale and to conduct structural tests at the labs in the Department of Architectural Engineering. Through this collaboration, the student published and presented a conference paper with the studio faculty at the 6th Residential Building & Construction Conference.

The Hamer Center for Community Design is an endowed center with a purpose of drawing on the expertise of Stuckeman School faculty and students to address a range of issues impacting the quality of communities. The Hamer Center's work addresses public issues such as community-based design/planning, affordable housing,

sustainability, park and recreation planning, environmental and ecological analysis, and the development of design guidelines. For more information about the Hamer Center, please see Section 1: Context and Mission.

Department of Energy (DOE) Solar Decathlon: Penn State began participating in the U.S. Department of Energy Solar Decathlon Design Challenge, a well-known international collegiate competition, in 2013–2014. Each year, Department of Architecture faculty, facilitated through the Hamer Center, collaborate with representatives of the College of Engineering's Pennsylvania Housing Research Center to co-advise a team of primarily undergraduate students and some graduate architecture and engineering students. The team partners with a local housing not-for-profit or developer to research and design a net-zero or zero-energy ready single-family, duplex, or townhouse complex in response to the client's needs and the nature of the project site. Although courses and U.S. Department of Energy (DOE) training modules contribute to student learning and competition objectives, the competition entry is largely extracurricular and student led. In 2016, students initiated a University student organization that provides some financial support for the student team to travel to the competition each April at the National Renewable Energy Laboratory in Golden, Colorado. Students participating in the competition gain valuable community engagement and research skills, deep knowledge of building science and integrative design, and significant experience with collaboration on a large team and smaller sub-teams. Students typically meet as a team once or twice a week to coordinate project design and details. Documentation developed and submitted typically comprises a presentation and booklet communicating key information about the partnership, project decisions, and winning strategies in each of ten competition categories along with detailed construction documentation for a new or retrofit construction of a highly resolved residential project.

PC.6 Leadership and Collaboration

How the program ensures that students understand approaches to leadership in multidisciplinary teams, diverse stakeholder constituents, and dynamic physical and social contexts, and learn how to apply effective collaboration skills to solve complex problems.

Program Response

Stuckeman School Institutional Context: The Stuckeman School of Architecture and Landscape Architecture at Penn State was founded on the principles of collaboration and leadership. Collaboration is expressed by bringing together three independent departments that share a mission of design excellence. Leadership is expressed through the goal of maintaining national prominence. The Stuckeman School's strategic plan focuses on the importance of scholarship as a principal means of strengthening our contributions to and reputation in design-related fields, including in relation to capitalizing on advanced technology in service of design solutions. In turn, the Department's strategic plan recognizes the value and strength of collaborative research and its potential to strengthen our reputation. It is also the case that the Department is already strong in this aspect of architectural education.

Upper-level Studios and Research Clusters: The Department's upper-level studios highlight collaboration among faculty and students as content is delivered through four research clusters: Design Computing, Material Matters, Sustainability, and Culture, Society, Space. Through these research clusters, faculty and students work in teams,

often across clusters, to produce design research and scholarship and publications. Our recent record shows significant accomplishments in these areas.

Leadership-oriented efforts associated with the research clusters are complemented by carefully focused curricular opportunities such as the CoLab and Directed Research Studios (DRS) together with engagement with research centers such as the Hamer Center for Community Design. Through these opportunities, students can engage with diverse stakeholder constituents and dynamic physical and social contexts while learning how to apply effective collaboration skills to solve complex problems.

Outside of the DRS offerings, collaborative opportunities are part and parcel of electives such as in the 2017 offering of ARCH 410: Material Reclamation and Reuse in which architecture students collaborated with architectural engineering students and faculty to design and build a Tiny House made entirely of reclaimed materials.

Collaboration Across Departments: The Department of Architecture maintains strong ties with the Department of Architectural Engineering through collaborative programs, interdisciplinary faculty research, and other cooperative endeavors. Currently, the Department of Architectural Engineering provides architecture students with required coursework in structural and mechanical systems, whereas the Department of Architecture reciprocates by providing architectural design courses to engineering majors. In addition, the Department of Art History teaches the required history of architecture survey courses for our undergraduate students. The Department also offers an Architectural Studies Minor for non-professional degree students seeking an architecturally related career.

Acknowledging the complexities of contemporary architecture, the Department's strategic plan focuses on improving the quality of the program through the research and creative pursuits of our faculty. Strategies designed to increase research, creative, and professional activity in the Department include decreasing the demands on faculty time for departmental service assignments, realigning teaching obligations to better accommodate faculty interests in the studio and classroom, and increasing support and incentives for faculty members who seek external research funding. The underlying spirit of the Department's long-range planning inheres in supporting liberal education through architecture and exploring new and innovative models of professional education at Penn State.

PC.7 Learning and Teaching Culture

How the program fosters and ensures a positive and respectful environment that encourages optimism, respect, sharing, engagement, and innovation among its faculty, students, administration, and staff.

Program Response

Institutional University Context: All our work takes place in the context of Penn State's core values encompassing integrity, respect, responsibility, discovery, excellence, and community developed as the core ethical aspirations of all our daily activities at the University. For more information, please visit https://www.psu.edu/this-is-penn-state/mission-and-values/.

Stuckeman School Culture: The Stuckeman School emphasizes respect as a paramount ideal — whether respect for race, color, religion, gender, and sexual orientation or for different ideas, philosophies, and methods within our field. We strongly

encourage our faculty to respect the ideas and individual goals of our students, understanding that a diversity of ideas and goals in the student body constitutes a great educational asset. Universities exist to promote new knowledge, not hinder it. Individual actions that are disrespectful of others cannot be tolerated in our community. Yet, it is still the case that freedom of expression must be carefully balanced with freedom from intimidation and ridicule.

As a recent example of the Stuckeman School's commitment to fostering an open and communicative environment, the interim Stuckeman School Director organized the I HEART Studio event in spring 2022. The event encouraged all Stuckeman School students to gather to talk about wellness and studio culture during the pandemic and ways of moving into a post-pandemic world. A poster board was set up with specific questions about the studio culture and environment, with students participating by adding post-it notes to the board in an anonymous setting. The board remained up in the lobby to encourage continued participation and discussion about studio culture. The Stuckeman Director eventually collected the feedback and posted and summarized the findings to capture and actually listen to the students' voices so that they could have a meaningful impact on the future of our studio culture.

Studio Culture: The culture and atmosphere in the studio play a vital role in the quality of the architectural education provided. Our community of educators, scholars, students, and professionals brings us in frequent contact with others sharing similar interests. Such a shared culture does not, however, suggest conformity. The success of our educational community depends on the ability of everyone to speak freely, to take risks, to dissent from the majority opinion, and to seek new and untested ways of doing things.

In the architecture program, "studio" is our shorthand term for a series of courses, but it is also a physical place in which students are positioned to learn from each other in addition to learning from the faculty. We are fortunate that the studio spaces in the Stuckeman Family Building have been carefully designed to maximize interactions between students in all studio levels and programs. We, therefore, encourage all architecture students to take full advantage of the educational environment in the Stuckeman Family Building, and whenever possible to complete their architecture course assignments within the physical limits of our educational setting.

To help maintain professionalism within the studio, students are encouraged to deal with grievances in a professional and mature manner. We provide several channels of communication for students to bring concerns to the Department, be they intra-student or otherwise. Any student who has a specific problem in a course is asked to address it first by speaking with the course instructor. Only when this step fails to resolve the problem are students encouraged to meet with the Faculty Coordinator (each year level has a representative) or the Department Head. Student representatives meet monthly with the Department Head to exchange ideas, providing a venue for students to bring concerns to the Department Head directly.

Architecture students at Penn State are well known for their positive work ethic and the high quality of the physical work they produce. The principle of respect for property, both individual and institutional, therefore, is fundamental to our studio culture. Students must always respect the products of their classmates' work. In a more general sense, it is also incumbent on all of us as the designers of buildings and environments to show respect for the facilities we occupy. If we do not respect the places in which we live and work, we set a poor example for those around us.

In order to promote a healthy working environment, it is important that everyone's time be respected. Students have a right to expect not only that faculty will be on time and prepared to teach, but also that they will respect students' non-studio time commitments. Likewise, students should be on time for class, come prepared to work, and understand the commitment of time and energy that faculty have made to prepare and present course material. Further, students are encouraged to manage their time to promote a healthy work-life balance, including adequate sleep, nutrition, and physical and social activities.

Architectural education employs a variety of means to review students' ideas and work. An essential aspect of studio culture, reviews present an opportunity to discuss broad issues and consider a range of viewpoints and approaches. For formal reviews, students and faculty are expected to be fully and productively engaged throughout the review process. In advance of the reviews, faculty are responsible for sharing information about the background and goals of the project with invited guests and reviewers and for communicating the expectation that the review will reflect the Department's commitment to a culture of respect, engagement, and professionalism. Students are expected to be prepared to discuss their work and to participate in discussions of their peers' work.

PC.8 Social Equity and Inclusion

How the program furthers and deepens students' understanding of diverse cultural and social contexts and helps them translate that understanding into built environments that equitably support and include people of different backgrounds, resources, and abilities.

Program Response

Social Equity and Inclusion Background: Please see Section SV.3 – Equity, Diversity, and Inclusion (EDI) for an account of the Department's policies and resources in relation to this section.

A focus on EDI topics trickles down from the University, the College, and the School to the Department itself leading to specific curricular and extracurricular offerings for our students.

As a general comment, we note that our students work individually and collaboratively to understand their identities, improve verbal and visual communication, and build community. We emphasize students' lived experiences as an opportunity for them to discover their passions and share new points of view with their classmates. We encourage students to try out and develop diverse modes of representation in addition to learning professional conventions. We work as a faculty to model both respectful behavior and accountability. We learn students' names promptly. We strive to be engaged listeners and teach students to be vocal, critical, and encouraging team members. We believe that faculty can create a rigorous environment that is also flexible enough to adapt to the unique needs and concerns of individual students.

Examples of Department Curriculum with a Strong Social Equity and Inclusion Lens:

- **First-year Studios**: Our studio curriculum integrates varied and topical perspectives to deepen students' understanding of diverse cultures and social contexts. For example, in 2020, first-year students studied the campus through the lens of "access" in celebration of the 30th anniversary of the Americans with

Disabilities Act (ADA) and examined our changing understanding of public space during the pandemic and after the murder of George Floyd.

- **ARCH 317 – Japanese Modern Architecture**: This course focuses on crucial moments in the development of Modern Japanese architecture with reference to key parallel developments in the West. The course highlights reciprocal and transformative cross-cultural interactions in the development of Modern Japanese architecture and the unique process of "Japanization," in which ideas from the West are adapted, refined, and absorbed into Japanese architecture through specific buildings and architects. Inversely, examples of traditional Japanese architecture are introduced as a counterpoint to the Western "modern," and several topics such as the evolution of Japanese symbolic and spatial traditions in art, architecture, and landscape architecture (gardens) are discussed. The course provides opportunities for students to identify, study, and understand architectural elements that are unique to the Japanese culture and, therefore, differ drastically from those established in Western traditions. In discussions of the evolution of Japanese culture, aesthetics, and religions, Chinese and Korean influences are also considered to help students achieve a fuller and more accurate understanding of Japanese architectural productions and broaden their understanding of Eastern architecture.
- **Directed Research Studios (DRS**): The studios are inclusive intellectual environments where students with diverse backgrounds and identities find equal opportunities to learn, discuss, and contribute. It is also the case that students in these studios learn how equity in design is achieved. In the High Performance Buildings (HPB) DRS, for example, students use the Design for Equitable Communities principle (i.e., one of the 10 principles of the AIA Framework for Design Excellence) as a guide to develop design solutions that address inclusion and diversity in architectural projects. For a full list/matrix of DRS offerings since fall 2019, please see Appendix 7.3.
- **CoLab**: In the Collaborative Studio (CoLab), interdisciplinary teams comprising students with diverse backgrounds work on a "real world" project. Students meet with project stakeholders, including owners, users, project designers, and construction managers, to gain exposure to and practice in real-world problem solving. Recent projects have included medical facilities with strict ADA and additional accessibility guidelines.
- **Study Abroad:** The primary objective of our study abroad program is to immerse students in a culture, society, and environment that differs significantly from their own. Living, studying, and traveling abroad exposes students to a greater diversity of attitudes, values, and lifestyles than they are accustomed to. Our current required semester-long programs are in Western Europe (Rome and Copenhagen). However, we are constantly exploring more diverse options, and additional shorter-term and optional programs have included South Korea-Japan, Tanzania, and Barcelona.

College and Department Lectures Demonstrating a Commitment to Social Equity and Inclusion Values: As discussed throughout this APR, the Department is committed to providing extracurricular events that expose students to a wide range of diverse ideas and work from professional practice and allied design disciplines.

In terms of diversity, over the past five years, in particular, we have brought a new emphasis to ensuring that our lecture series includes voices that reflect our student population — i.e., more women, and representatives of the global majority. Jenny Sabin

(2021), Lois Wienthal (2021), the Black Reconstruction Collective (2021), Dongsei Kim (2020), Studio Sumo (2020), and Dream the Combine (2020) are a few recent examples.

In 2020, the College of Arts and Architecture co-hosted a virtual event at which Ibram X. Kendi talked about his book *How to Be an Antiracist*. Due to the Covid-19 pandemic, the event was livestreamed. More information can be found here: https://www.psu.edu/news/campus-life/story/historian-ibram-x-kendi-discuss-how-be-antiracist-virtual-event/.

3.2 Student Criteria (SC): Student Learning Objectives and Outcomes

A program must demonstrate how it addresses the following criteria through program curricula and other experiences, with an emphasis on the articulation of learning objectives and assessment.

For a visualization of how courses meet SC requirements, please see Appendix 7.4.

For a description of the design studio sequence, please refer to the Introduction.

SC.1 Health, Safety and Welfare in the Built Environment

How the program ensures that students understand the impact of the built environment on human health, safety, and welfare at multiple scales, from buildings to cities.

Program Response

General Department Commitment: The program ensures that students understand the impact of the built environment on human health, safety, and welfare at multiple scales through design studios, engineering courses, and a technical systems integration course, as well as theory courses that address both underlying and large-scale questions.

Curriculum: In the first year, students begin the structural design sequence comprising **AE 210, AE 421, and AE 422**. In these courses, students learn how to correctly calculate safe loading of building materials and how to correct the fire protection of such structural materials. Assessment in these courses is based on homework, exams, and a building analysis project. AE 421 has a single building analysis project, whereas AE 422 has three projects of this kind. In recent iterations of **ARCH 132**, part of the first-year studio sequence, students have engaged in the analysis of cities, including a Robert Moses project.

In the second year, the structural design courses continue, complemented by courses focused on building materials and assemblies: **ARCH 203 and ARCH 204**. In these courses, material selection instruction includes a focus on the human health impacts of manufacturing, distribution, and final material installation. Assessment in these courses is based on homework and in-class assignments. In addition, the second-year studio course (**ARCH 232**) concentrates on urban sites, including recent inquiries pursued through site visits to New York City.

In the third year, students learn building environmental systems design in **AE 211** and **AE 424 (ARCH 380 and ARCH 381**). These sequential courses consist of modules on

thermal conditioning, indoor air quality, daylight, electrical loads, acoustic concerns, life safety design, and plumbing systems. Each module gives consideration to strategizing building design for better-performing buildings with respect to energy consumption, human health, comfort, and productivity, as well as in regard to achieving a better connection between human occupants and the natural environment. Student knowledge in **AE 211** and **AE 424** is assessed through weekly quizzes, assignments, discussions, and a final examination.

The most robust engagement with the theme of health, safety, and welfare in the built environment is in the combined teaching of **ARCH 331/332** (third-year studio) and **ARCH 480** (Technical Systems Integration). Design synthesis and building integration are achieved through a design project that begins in mid-fall of **ARCH 331**. Students have a single instructor from October through April for **ARCH 331** (second half), **ARCH 332**, and **ARCH 480**. In AY 2021–2022, six faculty members taught 67 third-year students. Each student received a grade in each course from a single primary instructor based on a single design project. All formal design reviews teamed two studios together to provide a knowledgeable yet “external” critique of each student’s design proposal and completed project. In **ARCH 480,** students complete eight assignments based on their studio projects, which they present for the design studio project reviews. The formal review pairing rotates so that all six instructors eventually saw each of the 67 projects at least once. All instructors assess their own students’ work using similar grading rubrics for the review stages, evaluating student work against learning objectives. The rubric content originated from previous NAAB student criteria, with further elaboration by instructors on specific student work expectations. In studio, any student criterion (such as “Ordering Systems”) that is “met” at an earlier point in the studio curriculum remains as an evaluation mechanism of student work in the interest of prerequisite knowledge accountability.

Issues pertaining to health, safety, and welfare in the built environment are an integral part of all discussions in these courses. Definitions of safety range from structural system design (ARCH 480: Assignment 4) to International Building Code analysis, which includes important accessibility conditions (ARCH 480: Assignment 3). In addition to requiring the students’ work to account for wheelchair accessibility afforded by ramps and appropriate toilet room design, faculty also expect to see vertical projection protection, ambulatory stalls, areas of refuge in stairwells, and “family” toilet rooms for a diverse range of accommodations to serve multiple populations with special needs. Welfare and well-being considerations are engaged in conversations about cultural norms pertaining to physical and social comfort and connections to the natural world and natural processes. These conversations involve student solutions for access to daylight (ARCH 480: Assignment 6), natural ventilation (ARCH 480: Assignments 2, 7, and 8), and welcoming external spaces in a temperate climate (ARCH 480: Assignment 1). Discussions centering on health emerge from the selection of building materials to create façade/envelope design in both elevations (ARCH 332) and wall sections (ARCH 480: Assignment 7), with material lifecycle an integral part of the building envelope assignment (ARCH 480: Assignment 7). Students also consider access to alternative modes of transportation and ways to promote a healthy lifestyle. For example, in previous years, projects have included an urban farming high school and an environmental education center.

SC.2 Professional Practice

How the program ensures that students understand professional ethics, the regulatory requirements, the fundamental business processes relevant to architecture practice in the United States, and the forces influencing change in these subjects.

Program Response

Curricular Focus:

- **ARCH 451: Architectural Professional Practice**: All students in the B.Arch professional degree program are required to take ARCH 451: Architectural Professional Practice. The course covers professional internship and licensing requirements, the business structures of architecture firms, project and firm management, regulatory requirements, professional ethics, and the basics of contracts and contract law, etc.

  For the last few years, ARCH 451 has commenced with a survey administered to the students on the first day of class. The survey, which is not graded, asks each student to review a list of 50–60 words and terms that correspond to or represent the learning objectives in the syllabus. Examples include “A.R.E.,” “Arbitration,” “Occupancy Permit,” “Performance Bond,” and “Substantial Completion.” The students respond to each word or term by choosing “Know it” if they think they understand what it means, “Heard of It,” if they have heard the term used but don’t know its meaning, and “Neither” if their experience does not fit either of the other responses. On the last day of class, the survey is repeated and the results compared with those from the first day. In fall 2020, for example, none of the students knew what a performance bond was, only 20 selected “Heard of It,” and 62 chose “Neither.” On the last day of class, 43 students said they knew what it was, 35 had heard of it, and only 9 still chose “Neither.” These data are used to assess how information is presented and to determine how much time should be devoted to these topics in coming years. In addition to the survey, we monitor the students’ understanding based on their class participation, including their responses to questions posed, and their performance on assignments and exams. For more information about our Professional Practice course, please see Section PC.1 – Career Paths in this APR.

- **ARCH 491 (DRS Course CoLab (Collaborative Studio):** Although not required for all students, ARCH 491 (DRS course CoLab (Collaborative Studio)) provides students with an opportunity to work with community partners and professional firms on a real architectural project, typically at the pre-design or conceptional phase. Teams of students from architecture, landscape architecture and architectural engineering work together in an integrated team on a highly resolved site development and architectural design project. This experience directly addresses the SC.2 requirements.

SC.3 Regulatory Context

How the program ensures that students understand the fundamental principles of life safety, land use, and current laws and regulations that apply to buildings and sites in the United States, and the evaluative process architects use to comply with those laws and regulations as part of a project.

Program Response

Curricular Structure: As noted previously in this APR, our curriculum is organized through pairing courses and studios with content delivered at increasing levels of complexity from the first to the fifth year (please see Appendix 7.4 for a visualization). Knowledge is delivered in classrooms and applied/tested in studios. Thus, the regulatory context of architecture is introduced initially in our first-year studios, second-year structures courses and materials and methods courses, third-year environmental systems courses, a technical systems integration course and a comprehensive studio. Knowledge acquired in these contexts is then applied in our fourth- and fifth-year Directed Research Studios (DRS) and finally in our professional practice course (ARCH 451).

For example, life safety is covered first through structures, material and methods, and environmental systems, and then reinforced/applied in studio problems that pose specific life safety questions to students. Means of egress are first addressed and tested in first-year studios, and then in second-year studios and third-year studios, each time with added complexity. In the spring semester of the third year curriculum, the studio is paired with ARCH 480: Technical Systems Integration. In this course, each week, a content area is reviewed and then tested in the students' design proposals in studio.

Specific Examples Integrated into Multiple Courses:

- **AE 211/ARCH 380: Building Environmental Systems I** includes study of several American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards that are commonly referenced in construction codes and considered part of the standard of care, including standards 55 (thermal comfort), 62.1 (indoor air quality), and 90.1 (energy efficiency).
- **AE 424/ARCH 381: Building Environmental Systems II** includes study of various sections of the National Electrical Code (NEC) and the International Plumbing Code (IPC) in reference to the standards applied in commercial building design and construction. Assessment is based on exams addressing the electrical and plumbing sections of the course and on practicums and a project.
- **ARCH 480: Technical Systems Integration** combined with the DRS covers zoning code(s), ADA standards, and the International Building Code and its adaption in specific city codes. Students learn how to find specific regulations for their design context, site, and program; to interpret them for the specific design case; and to come up with design solutions that correspond to these regulations. Thus, the fundamental principles of life safety, zoning, and accessibility are not only introduced in theoretical terms, but are brought to life in the design process. Invited experts talk with the students about the latter's design solutions and help them improve and revise specific aspects for compliance. Assessment information for this course can be found in Section SC.1.
- **ARCH 451: Architectural Professional Practice** focuses on the architect's administrative role and legal responsibilities during design and construction including contracts (AIA and other forms), management of consultants, contractor pay applications, life-safety codes/zoning and other regulatory standards, and the implications of various project delivery strategies such as design-bid-build, design-build (architect-led vs. contractor-led), guaranteed maximum price (GMP) and "cost plus" contracts, fast tracking, Integrated Project Delivery (IPD), and other hybrid approaches.

The course also covers the importance and legal implications of the Americans with Disabilities Act (ADA) and the Fair Housing Act (FHA). Other topics include the impact of LEED and other environmental rating systems on practice. Contemporary ethics and professional judgment issues, including professional organizations' rules of conduct and ethics, are also covered. The course includes consideration of the importance of diversity in the workplace, including in relation to the responsibility of firms and professional leadership, and in the community context. The role and value of professional organizations such as the AIA, NOMA, and NCARB are also discussed.

The evaluative process involves the assessment of design solutions by faculty, code experts invited to lecture or review, and other architects attending studio reviews. Iterative in nature and carried out throughout each semester, the process begins with initial assessments of schematic proposals to determine whether, at the very initial stages, an architectural solution under consideration does or does not have the potential to address regulatory requirements. The process then continues with more developed schemes and through the final proposal, which is subject to assessment from external jurors and code experts.

SC.4 Technical Knowledge

How the program ensures that students understand the established and emerging systems, technologies, and assemblies of building construction, and the methods and criteria architects use to assess those technologies against the design, economics, and performance objectives of projects.

Program Response

Foundational Curriculum Emphasis: The most robust introduction to technical knowledge in architecture is provided in the building materials and assemblies courses (ARCH 203 and ARCH 204) in the second year. The course material covers the building components (foundation, structure, exterior walls, floors, and roofs) and how these relate to each other. As **ARCH 204** has evolved, increasing emphasis has been placed on the wall section centering on material, technical, structural, and economic/labor concerns. Students are assigned large-scale wall section drawings of key/essential houses from 1950 to 2015. They are required to produce large axonometric drawings employing a material language so that they can see how buildings have been put together in the past. Simultaneously, wall sections are used in lecture settings to demonstrate how a range of materials — earth, brick, concrete block, and concrete — are orchestrated to make buildings stand up. Lastly, as a studio tie-in, we discuss concrete block wall section conventions (load-bearing and framed) to ensure that students will know how to structure their National Concrete Masonry Association competition designs. Students learn about conventional building with concrete masonry units (CMU), from foundations to roofing, and apply this knowledge to their studio work.

Extended Curriculum Work: In the third year, **AE 211/ARCH 380** and **AE 424/ARCH 381** cover emerging building systems, assemblies, and technologies associated with heating, cooling, lighting, comfort, etc. For example, in a lecture focused on the thermal envelope in **AE 211**, students learn how the building envelope addresses heat, vapor, air, and water flows by using a variety of materials from insulation to phase change materials and from air/vapor barriers to rainscreen systems. The instructor uses case studies to reinforce the concepts. For example, the air-inflated ethylene

tetrafluoroethylene (ETFE) skin of the Kaplan Institute in Chicago, designed by John Ronan, is examined as an example of emerging assemblies. Then, to build on the lectures, students evaluate the wall section of a successful precedent in regard to its thermal performance, color-coding portions of the wall section that provide structure, thermal protection, water and moisture protection, and daylight. Student knowledge in AE 211 and AE 424 is assessed through weekly quizzes, assignments, discussions, and the final exam.

As noted, students demonstrate their knowledge of and ability to deliver design synthesis and building integration through a design project that begins in mid-fall of **ARCH 331** and continues in spring through the combined assignments in **ARCH 332** (studio) and **ARCH 480** (technical systems integration). One of the primary assignments in ARCH 480 is to design a building envelope. This includes not just a large-scale wall section coded to the performance components as in the precedent exercise in AE 211, but also the connection to structure and articulation of material selection in reference to the material's impact on environmental sustainability. Submitted early in the spring, Assignment 2 in ARCH 480 requires students to select passive heating, ventilation, and daylight strategies to integrate into the innate design of the project, rather than offering a superficial application after much of the design work has been completed. In both ARCH 332 and ARCH 480, the students' work is assessed based on course rubrics.

Integrative Project Participation: An assessment of a curricular change whereby the integrative studio now takes place in the third year showed that some students who have fulfilled the minimum requirements still need to work on an integrative project before they graduate. As of spring 2022, students who did not perform to a high standard in ARCH 332 are asked to enroll in a second integrative studio in the first semester of their fourth year.

SC.5 Design Synthesis

How the program ensures that students develop the ability to make design decisions within architectural projects while demonstrating synthesis of user requirements, regulatory requirements, site conditions, and accessible design, and consideration of the measurable environmental impacts of their design decisions.

Program Response

Integrated Approach to Design Projects Evolving and Revisited to Replicate Real-World Conditions and Support Flexible Decision-making:

As noted in Section SC.4 –Technical Knowledge, students are expected to gain and demonstrate robust knowledge of design synthesis and building integration through a design project that begins in mid-fall of ARCH 331 (third-year design studio). Students have a single instructor from October through April for ARCH 331 (second half), ARCH 332, and ARCH 480. In AY 2021–2022, six faculty members taught 67 third-year students. Each student receives a grade in each course from the single primary instructor, as the result of work submitted for a single design project. All formal design reviews team two studios together to provide a knowledgeable yet "external" critique of the student's design proposal and completion. Students complete eight assignments in ARCH 480 based on their studio projects, which they present at design studio project reviews. The formal review pairing rotates so that all instructors eventually saw each project at least once. All instructors assess their own students' work using similar grading rubrics for the review stages, evaluating student work against learning objectives. The

rubric content originated from previous NAAB student criteria, with further elaboration by instructors on specific student work expectations. In studio, a student criterion (such as “Ordering Systems”) that is “met” at an earlier point in the studio curriculum remains as an evaluation mechanism of student work in the interest of prerequisite knowledge accountability.

The length of the project, which takes place over 22 in-class weeks, ensures that students revisit earlier decisions for the project based on multiple criteria. The assessment in ARCH 480 involves eight distinct assignments, and though students submit these assignments over the course of the spring semester, instructors mark the work and allow resubmission of each assignment until the end of the course. This approach allows students to make design changes as they gain a consequential understanding of multiple areas of concern, whether in regard to decisions pertinent to structure, acoustics, life safety, and/or building material selection for the structure or envelope. Additionally, the assignment calls for students to reflect on their designs by providing a list of tradeoffs associated with their decision decisions. For example, a more efficient plan may reduce the level of daylight in certain areas. Alternatively, an increase in daylight access may require increased solar shading design on exposed façades. Given a sloped site, some students struggle with accessibility design when locating the accessible parking away from the building given that they do not want the parking lot to be visible from their main entrance. Because the students must contend with multiple requirements and evaluations of their single design project, they learn how to synthesize design components to serve multiple aims.

Project Work Focused on Broad-Scope Issues: Subsequent to the third-year studio, all students must take ARCH 419: Design Research and Architectural Programming. This course requires students to identify a larger problem that their envisaged architectural proposition is to address and then find out how others before them have addressed that problem and how they themselves will address it. Many students in this course are in the process of preparing background research for a self-initiated thesis investigation in the next semester. User groups, stakeholders, influencers, and regulatory systems impacting the investigation are mapped and modeled. Precedent research and literature reviews include laws, guidelines, regulatory standards, and best practices for topics under investigation. Emphasis on sustainability, environmental and climate impact, social equity, and diversity and inclusion are priorities for measuring success and completeness. Faculty and student cohorts regularly critique the work, and guest experts are included in mid-term and final reviews to discuss the findings. Every effort is made to ensure that the work is competent and complete—and that it reflects a compassionate and conscientious approach to design.

SC.6 Building Integration

How the program ensures that students develop the ability to make design decisions within architectural projects while demonstrating integration of building envelope systems and assemblies, structural systems, environmental control systems, life safety systems, and the measurable outcomes of building performance.

Program Response

Synthesis and Building Integration Curricular Focus: Building on the curriculum as described in SC.5 – Design Synthesis, the most robust design synthesis and building

integration work in which all students engage is through a design project that begins in mid-fall of ARCH 331. Students have a single instructor from October through April for ARCH 331 (second half), ARCH 332, and ARCH 480. In AY 2021–2022, six faculty members taught 67 third-year students. Each student receives a grade in each course from a single primary instructor, for work submitted for a single design project. All formal design reviews team two studios together to provide a knowledgeable yet "external" critique of the student's design proposal and completed project. Students complete eight assignments in ARCH 480 based on their studio projects, which they at the design studio project reviews. The formal review pairing rotates so that all six instructors eventually saw each of the 67 projects at least once. All instructors assess their own students' work using similar grading rubrics for the review stages, evaluating student work against learning objectives. The rubric content originated from previous NAAB student criteria (v.2014 and earlier), with further elaboration by instructors on specific student work expectations. In studio, a student criteria (such as "Ordering Systems") that was "met" at an earlier point in the studio curriculum remains as an evaluation mechanism of student work in the interest of prerequisite knowledge accountability.

ARCH 480 comprises eight topics and eight associated assignments. Each assignment has an equal (12.5%) weight for the course grade:

A1: Site design
A2: Passive strategies (energy, daylight)
A3: Life safety, accessibility, and circulation
A4: Structural systems
A5: Acoustics
A6: Architecture and light (daylight and electrical lighting)
A7: HVAC/plumbing
A8: Building envelope

The assignments are submitted to instructors after one or more lectures articulate the topic. Though submitted separately from their studio projects, assignments are still presented during studio critiques. Instructors mark up the assignments, and return them to students for revision up until the end of the semester, at which point a final grade is assigned. This process allows students to correct any misunderstandings or errors and revise any given aspect of their design in relation to design changes made throughout the semester.

Curricular Changes: As previously described in this APR, in 2019–2020, the Curriculum Committee moved ARCH 480 and the criteria of design synthesis and building integration into the third year of the program. As a result, the projects developed in fourth- and fifth-year design studio work are more architecturally proficient and comprehensive than in previous years. Though challenging for the students, this move has led to many "aha!" moments, especially during the third year. Further, students have reported feeling more empowered in both designing and *looking at* buildings in their everyday lives.

After their third-year coursework, students customize their final four studios, selecting from study abroad, thesis, Directed Research Studio (DRS), and CoLab studio options. In CoLab, students work in an integrated design team comprising students from architecture, landscape architecture, and multiple engineering disciplines. The team must

integrate technical expertise and skillful leadership to provide an innovative forum for learning. This course provides a pedagogical solution to this challenge to fulfill the following learning objectives:

- Promote an interdisciplinary learning environment with students of each option
- Foster individual engagement and collective teamwork
- Promote design processes that focus on the mission of a real-world project
- Engage in an outcome-focused design process (vs. output-focused)
- Gain working knowledge on the mission of the project
- Understand special issues with building systems, infrastructure, and sustainable practices

For more information about the fourth-and fifth-year studio options, please see the Program Changes section in the Introduction of this APR.

4—Curricular Framework

This condition addresses the institution's regional accreditation and the program's degree nomenclature, credit-hour and curricular requirements, and the process used to evaluate student preparatory work.

4.1 Institutional Accreditation

The APR must include a copy of the most recent letter from the regional accrediting commission/agency regarding the institution's term of accreditation.

Program Response

Institutional Accreditation by the Middle States Commission on Higher Education: https://www.msche.org/institution/0544/.

4.2 Professional Degrees and Curriculum

The NAAB accredits professional degree programs with the following titles: the Bachelor of Architecture (B. Arch.), the Master of Architecture (M. Arch.), and the Doctor of Architecture (D. Arch.). The curricular requirements for awarding these degrees must include professional studies, general studies, and optional studies.

4.2.1 Professional Studies. Courses with architectural content required of all students in the NAAB-accredited program are the core of a professional degree program that leads to licensure. Knowledge from these courses is used to satisfy Condition 3—Program and Student Criteria. The degree program has the flexibility to add additional professional studies courses to address its mission or institutional context. In its documentation, the program must clearly indicate which professional courses are required for all students.

Programs must include a link to the documentation that contains professional courses are required for all students.

Program Response

Requirements for the Bachelor of Art Degree: To graduate from the Bachelor of Architecture degree at Penn State, students are required to pass 108 credits of professional architectural studies courses. This requirement includes 6 credits of art history courses, comprising two architectural history survey courses, which also account for the General Education requirement. Included in the 108 total credits are 15 credits (five courses) taken in the Department of Architectural Engineering, whose faculty teach our structures and environmental systems courses: https://bulletins.psu.edu/undergraduate/colleges/arts-architecture/architecture-barch/#programrequirementstext

4.2.2 General Studies. An important component of architecture education, general studies provide basic knowledge and methodologies of the humanities, fine arts, mathematics, natural sciences, and social sciences. Programs must document how students earning an accredited degree achieve a broad, interdisciplinary understanding of human knowledge.

In most cases, the general studies requirement can be satisfied by the general education program of an institution's baccalaureate degree. Graduate

programs must describe and document the criteria and process used to evaluate applicants' prior academic experience relative to this requirement. Programs accepting transfers from other institutions must document the criteria and process used to ensure that the general education requirement was covered at another institution.

Programs must state the minimum number of credits for general education required by their institution and the minimum number of credits for general education required by their institutional regional accreditor.

Program Response

General Education Requirements: To graduate with the Bachelor of Architecture degree from Penn State, students are required to pass 45 credits of General Education courses. The 45 General Education credits include 6 credits of art history courses comprising two architectural history survey courses, which also account for the student's professional architectural studies.

There are three General Education components:

- Foundation courses in writing, speaking, and quantification (15 credits), each requiring a grade of C or better
- Knowledge domains in the Arts, Humanities, Natural Sciences, Social and Behavioral Sciences, and Health and Wellness (30 credits)
- Integrative studies that bridge and intersect with the Knowledge Domains

The General Education requirements can be broken down further as follows:

- Writing/speaking: 9 credits
- Quantification: 6 credits
- Health and Wellness: 3 credits
- Natural Sciences: 9 credits
- Arts: 6 credits
- Humanities: 6 credits
- Social and Behavioral Sciences: 6 credits
- Integrative Studies: 6 credits (may overlap with other Knowledge Domain credits)

Baccalaureate students are required to complete 3 credits each in United States and International Cultures based on the principle that understanding of these area is connected to certain Knowledge Domain courses.

In order to promote their ability to explore and integrate information beyond the special focuses of their major, students cannot fulfill the General Education Knowledge Domain components by taking courses in the department or program in which they are pursuing their academic major.

Credit Transfer: Students can receive credit for courses completed at other institutions providing certain criteria are met. To request a credit transfer, students must submit a syllabus to the Undergraduate Admissions Office, which will then send the syllabus to the appropriate faculty review committee for a decision.

4.2.3 Optional Studies. All professional degree programs must provide sufficient flexibility in the curriculum to allow students to develop additional expertise, either by taking additional courses offered in other academic units

or departments, or by taking courses offered within the department offering the accredited program but outside the required professional studies curriculum. These courses may be configured in a variety of curricular structures, including elective offerings, concentrations, certificate programs, and minors.

The program must describe what options they provide to students to pursue optional studies both within and outside of the Department of Architecture.

Program Response
Optional Studies: To graduate with the Bachelor of Architecture degree from Penn State, students are required to pass 18 credits of optional studies. The Department offers approximately six "supporting courses" (our term for electives) each semester. Students may also enroll in non-architecture courses to satisfy the supporting course degree requirement.

This category of coursework gives students the freedom to explore a range of academic interests, develop concentrations, or pursue a minor. Penn State offers more than 200 minors and 100 undergraduate certificates across the University.

NAAB-accredited professional degree programs have the exclusive right to use the B. Arch., M. Arch., and/or D. Arch. titles, which are recognized by the public as accredited degrees and therefore may not be used by non-accredited programs.

Programs must list all degree programs, if any, offered in the same administrative unit as the accredited architecture degree program, especially pre-professional degrees in architecture and post-professional degrees.

Program Response
Other Degrees Offered by the Department of Architecture: In addition to the Bachelor of Architecture degree, our program also offers the following degrees:

- **Bachelor of Science in Architecture**: We do not admit any students into this degree. This degree is reserved as an "exit" degree for students who complete four years of the B.Arch degree but decide not to achieve a professional degree. We may have one or two students every few years who take this path.
- **Master of Architecture**: This is an accredited professional degree program. It shares 12 credits of architectural engineering (structures and environmental systems) courses and the professional practice course with the B.Arch degree.
- Master of Science: This is a post-professional research degree that does not share any coursework with the B.Arch.
- **PhD**: This is a post-professional, post-MS research degree that does not share any coursework with the B.Arch.

The number of credit hours for each degree is outlined below. All accredited programs must conform to minimum credit-hour requirements established by the institution's regional accreditor. Programs must provide accredited degree titles, including separate tracks.

4.2.4 Bachelor of Architecture. The B. Arch. degree consists of a minimum of 150 semester credit hours, or the quarter-hour equivalent, in academic coursework in general studies, professional studies, and optional studies, all of which are delivered or accounted for (either by transfer or articulation) by the institution that will grant the degree. Programs must document the required professional studies courses (course numbers, titles, and credits), the elective professional studies courses (course numbers, titles, and credits), the required number of credits for general studies and for optional studies, and the total number of credits for the degree.

Program Response

The Bachelor of Architecture professional accredited degree requires 162 credits for graduation:

General Education	45
Requirements for the Major	123

(Six of the 45 credits for General Education are included in the requirements for the major. This includes 6 credits of General Education GA courses)

PRESCRIBED COURSES		
PRESCRIBED COURSES: REQUIRE A GRADE OF C OR BETTER		
AE 210	Introduction to Architectural Structural Systems	3
AE 211	Introduction to Environmental Control Systems	3
AE 421	Architectural Structural Systems I	3
AE 422	Architectural Structural Systems II	3
AE 424	Environmental Control Systems I	3
ARCH 121	Visual Communications I	2
ARCH 122	Visual Communications II	2
ARCH 131	Basic Design Studio I	4
ARCH 132	Basic Design Studio II	4
ARCH 203	Materials and Building Construction I	3
ARCH 204	Materials and Building Construction II	3
ARCH 210	Ideas Across Time in Architecture and Urbanism	3
ARCH 231	Architectural Design I	6
ARCH 232	Architectural Design II	6
ARCH 311W	Architectural and Planning Theories	3
ARCH 331	Architectural Design III	6
ARCH 332	Architectural Design IV	6
ARCH 431	Architectural Design V	6

ARCH 451	Architectural Professional Practice	3
ARCH 480	Technical Systems Integration	3
ARCH 499A	Rome Study-Architectural Design	6
ARCH 499B	Architectural Analysis	3
ARCH 499C	Urban Studies	3
ARCH 491	Architectural Design Studio (6 per semester, maximum of 12)	6-12
ARTH 201	Ancient to Medieval Architecture	3
ARTH 202		3
ADDITIONAL COURSES		
ADDITIONAL COURSES: REQUIRE A GRADE OF C OR BETTER		
Select 6 credits of the following:		6
ARCH 491	Architectural Design Studio (6, maximum 12)	
ARCH 492H	Architectural Design Studio	
ARCH 499F	Architectural Design Foreign Study	
SUPPORTING COURSES AND RELATED AREAS		
SUPPORTING COURSES AND RELATED AREAS: REQUIRE A GRADE OF C OR BETTER		
Select 3 credits in non-Western traditions in architecture from approved department list		3
Select 15 credits in consultation with an academic advisor [1]		15

4.2.5 Master of Architecture. The M. Arch. degree consists of a minimum of 168 semester credit hours, or the quarter-hour equivalent, of combined undergraduate coursework and a minimum of 30 semester credits of graduate coursework. Programs must document the required professional studies classes (course numbers, titles, and credits), the elective professional studies classes (course numbers, titles, and credits), the required number of credits for general studies and for optional studies, and the total number of credits for both the undergraduate and graduate degrees.

Program Response

Master of Architecture Degree: The Master of Architecture professional accredited degree is subsequent to a four-year baccalaureate degree and requires 97 credits. For students who have completed a pre-professional architecture degree, the number of credits may be reduced to a minimum of 57 credits of core courses. At least 36 credits must be at the 500 level, and at least 57 credits must have been taken in residence at University Park. In order to assess the adequacy of a pre-professional degree for the Master of Architecture degree, the student's coursework and transcripts and associated coursework are reviewed and an examination is required.

4.2.6 Doctor of Architecture. The D. Arch. degree consists of a minimum of 210 credits, or the quarter-hour equivalent, of combined undergraduate and graduate coursework. The D. Arch. requires a minimum of 90 graduate-level semester credit hours, or the graduate-level 135 quarter-hour equivalent, in academic coursework in professional studies and optional studies. Programs must document, for both undergraduate and graduate degrees, the required professional studies classes (course numbers, titles, and credits), the elective professional studies classes (course numbers, titles, and credits), the required number of credits for general studies and for optional studies, and the total number of credits for the degree.

Program Response
We do not offer this degree.

4.3 Evaluation of Preparatory Education

The NAAB recognizes that students transferring to an undergraduate accredited program or entering a graduate accredited program come from different types of programs and have different needs, aptitudes, and knowledge bases. In this condition, a program must demonstrate that it utilizes a thorough and equitable process to evaluate incoming students and that it documents the accreditation criteria it expects students to have met in their education experiences in non-accredited programs.

4.3.1 A program must document its process for evaluating a student's prior academic coursework related to satisfying NAAB accreditation criteria when it admits a student to the professional degree program.

See also Condition 6.5

Program Response
Transfer and Change of Major Departmental Practice: Our program is essentially a first-year entry into the major. Each year, we receive a number of transfer and change-of-major applications, almost all of which are considered for admission into our first year. We rarely admit transfer students into our upper years, and those we do accept at this stage must be from other professional B.Arch-accredited programs. We have had only one such student in the past ten years.

Penn State evaluates, for possible transfer credit, coursework that students have completed at other colleges and universities. The Undergraduate Admissions Office determines which credits transfer to the University, and the academic unit determines how those credits can be used to fulfill degree requirements in the program of study.

Admission Decision Process for Advanced Standing Admission: Students who wish to be considered for advanced standing admission to Penn State in the Bachelor of Architecture program are required to submit an application for admission to the Undergraduate Admissions Office and a portfolio of creative work to the Department of Architecture. A Department of Architecture faculty committee reviews the portfolios and makes recommendations to the Department Head concerning admission to the program and the appropriate studio level if admission is recommended. The Department Head selects students for admission based on the committee's recommendations, the

availability of space in the program, and the determination of the Undergraduate Admissions Office that students have met the institution's academic standards for advanced standing admission.

Students who are offered advanced standing admission to the program will have coursework, which may be used to satisfy the University's General Education requirements, evaluated by the College of Arts and Architecture. The Department of Architecture evaluates transcripts and descriptions of courses that may be relevant to the major to determine how students can use that coursework to fulfill degree requirements. The determinations of both the College and the Department are entered into the University's degree audit system and students are sent copies of their degree audits.

4.3.2 In the event a program relies on the preparatory education experience to ensure that admitted students have met certain accreditation criteria, the program must demonstrate it has established standards for ensuring these accreditation criteria are met and for determining whether any gaps exist**.**

Program Response
The Penn State B.Arch degree program does not require students to have acquired preparatory educational experience.

4.3.3 A program must demonstrate that it has clearly articulated the evaluation of baccalaureate-degree or associate-degree content in the admissions process, and that a candidate understands the evaluation process and its implications for the length of a professional degree program before accepting an offer of admission.

Program Response
This consideration is not relevant to the Bachelor of Architecture degree program.

5—Resources

5.1 Structure and Governance

The program must describe the administrative and governance processes that provide for organizational continuity, clarity, and fairness and allow for improvement and change.

5.1.1 Administrative Structure: Describe the administrative structure and identify key personnel in the program and school, college, and institution.

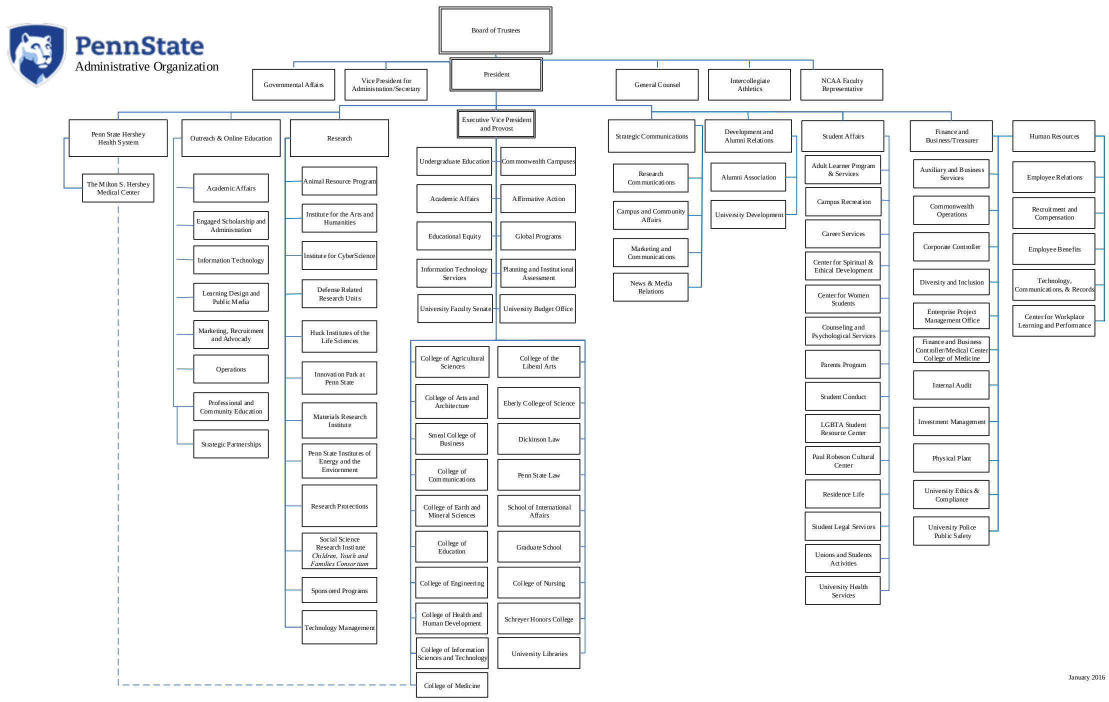
Program Response

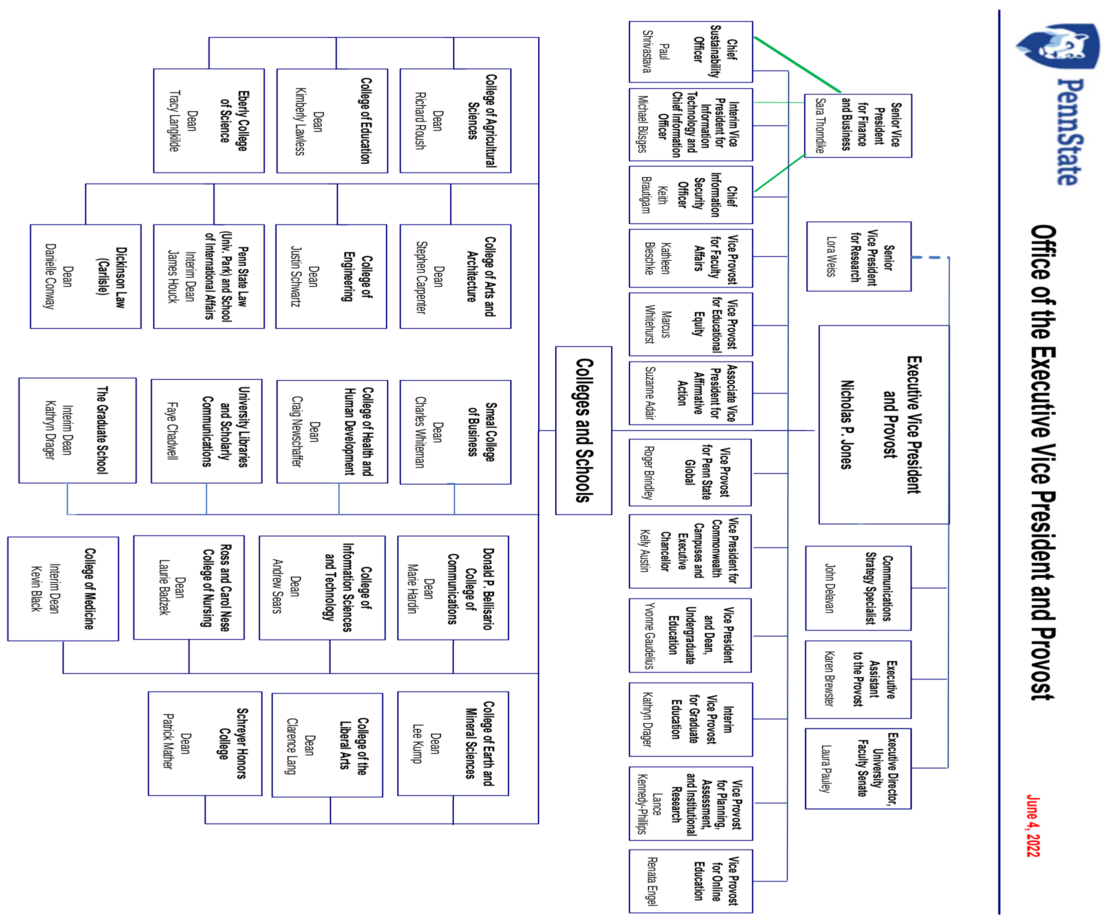
University Level Structure: The Pennsylvania State University is a state-related land-grant university serving the Commonwealth of Pennsylvania. The University is accredited by the Middle States Association of Colleges and Schools and is a member of the Association of American Universities. The College of Arts and Architecture is one of sixteen colleges, in addition to the Graduate School and the Schreyer Honors College. Each college is structured independently, but most have similar substructures of schools and departments.

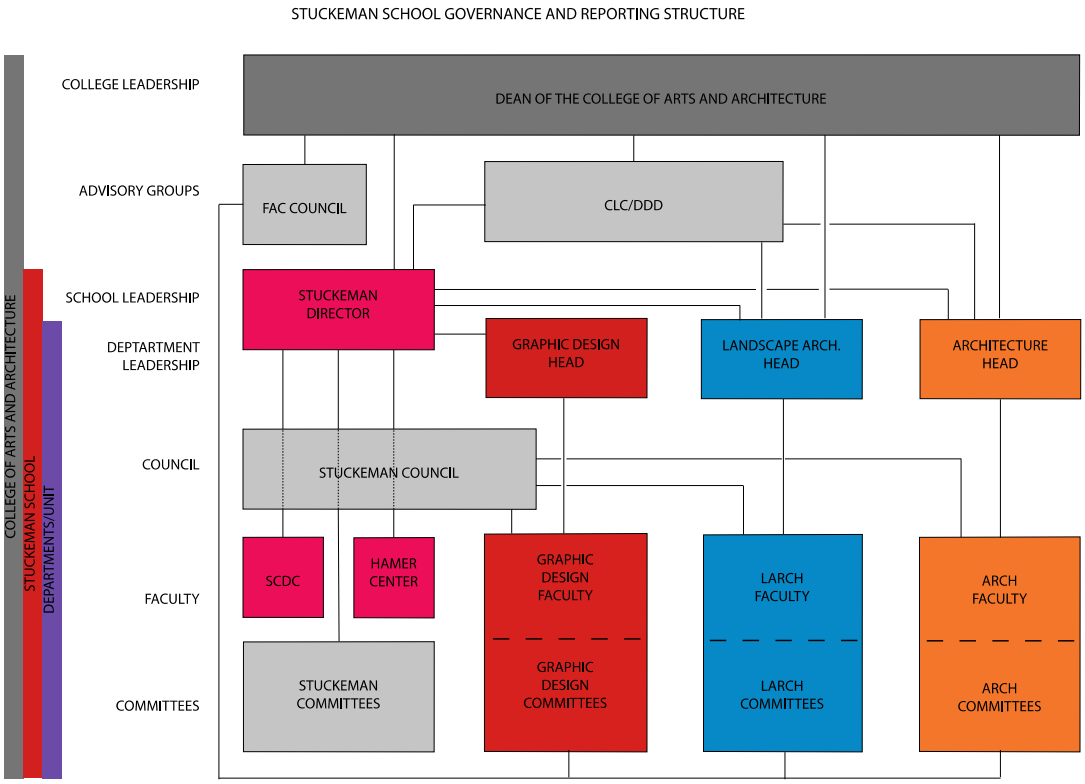
Stuckeman School Structure: The Department of Architecture and the Department of Landscape Architecture, two independent departments in the College of Arts and Architecture, together, formed the School of Architecture and Landscape Architecture in 1997. The Stuckeman Endowment and the completion of the Stuckeman Family Building, which houses the operations of both departments, promoted and continues to promote cooperation and joint efforts between the departments under the newly named Stuckeman School of Architecture and Landscape Architecture. The School hired an interim-director, starting summer 2022, and has taken steps to optimize its governance structure over time. In 2021, the Department of Graphic Design was added to the School.

Key Personnel:

Neeli Bendapudi, University President
Justin Schwartz, Interim Executive Vice President and Provost
Stephen Carpenter II, Dean, College of Arts & Architecture
Mallika Bose, Interim Director, Stuckeman School
Dan Willis, Interim Department Head, Architecture Department
Jamie Behers, Business Operations Manager, Stuckeman School
Chrissy Leidy – Program Coordinator, Architecture Department


PennState
Administrative Organization
Board of Trustees
President
Governmental Affairs
Vice President for Administration/Secretary
General Counsel
Intercollegiate Athletics
NCAA Faculty Representative
Executive Vice President and Provost
Penn State Hershey Health System
The Milton S. Hershey Medical Center
Outreach & Online Education
Academic Affairs
Engaged Scholarship and Administration
Information Technology
Learning Design and Public Media
Marketing, Recruitment and Advocacy
Operations
Professional and Community Education
Strategic Partnerships
Research
Animal Resource Program
Institute for the Arts and Humanities
Institute for CyberScience
Defense Related Research Units
Huck Institutes of the Life Sciences
Innovation Park at Penn State
Materials Research Institute
Penn State Institutes of Energy and the Enviornment
Research Protections
Social Science Research Institute Children, Youth and Families Consortium
Sponsored Programs
Technology Management
Undergraduate Education
Commonwealth Campuses
Academic Affairs
Affirmative Action
Educational Equity
Global Programs
Information Technology Services
Planning and Institutional Assessment
University Faculty Senate
University Budget Office
College of Agricultural Sciences
College of the Liberal Arts
College of Arts and Architecture
Eberly College of Science
Smeal College of Business
Dickinson Law
College of Communications
Penn State Law
College of Earth and Mineral Sciences
School of International Affairs
College of Education
Graduate School
College of Engineering
College of Nursing
College of Health and Human Development
Schreyer Honors College
College of Information Sciences and Technology
University Libraries
College of Medicine
Strategic Communications
Research Communications
Campus and Community Affairs
Marketing and Communications
News & Media Relations
Development and Alumni Relations
Alumni Association
University Development
Student Affairs
Adult Learner Program & Services
Campus Recreation
Career Services
Center for Spiritual & Ethical Development
Center for Women Students
Counseling and Psychological Services
Parents Program
Student Conduct
LGBTA Student Resource Center
Paul Robeson Cultural Center
Residence Life
Student Legal Services
Unions and Students Activities
University Health Services
Finance and Business/Treasurer
Auxiliary and Business Services
Commonwealth Operations
Corporate Controller
Diversity and Inclusion
Enterprise Project Management Office
Finance and Business Controller/Medical Center College of Medicine
Internal Audit
Investment Management
Physical Plant
University Ethics & Compliance
University Police Public Safety
Human Resources
Employee Relations
Recruitment and Compensation
Employee Benefits
Technology, Communications, & Records
Center for Workplace Learning and Performance
January 2016


PennState
Office of the Executive Vice President and Provost
June 4, 2022
Executive Vice President and Provost
Nicholas P. Jones
Senior Vice President for Finance and Business
Sara Thorndike
Senior Vice President for Research
Lora Weiss
Communications Strategy Specialist
John Delavan
Executive Assistant to the Provost
Karen Brewster
Executive Director, University Faculty Senate
Laura Pauley
Chief Sustainability Officer
Paul Shrivastava
Interim Vice President for Information Technology and Chief Information Officer
Michael Bilsgess
Chief Information Security Officer
Keith Brautigam
Vice Provost for Faculty Affairs
Kathleen Bieschke
Vice Provost for Educational Equity
Marcus Whitehurst
Associate Vice President for Affirmative Action
Suzanne Adair
Vice Provost for Penn State Global
Roger Brindley
Vice President for Commonwealth Campuses and Executive Chancellor
Kelly Austin
Vice President and Dean, Undergraduate Education
Yvonne Gaudelius
Interim Vice Provost for Graduate Education
Kathryn Drager
Vice Provost for Planning, Assessment, and Institutional Research
Lance Kennedy-Phillips
Vice Provost for Online Education
Renata Engel
Colleges and Schools
College of Agricultural Sciences
Dean
Richard Roush
College of Education
Dean
Kimberly Lawless
Eberly College of Science
Dean
Tracy Langkilde
College of Arts and Architecture
Dean
Stephen Carpenter
College of Engineering
Dean
Justin Schwartz
Penn State Law (Univ. Park) and School of International Affairs
Interim Dean
James Houck
Dickinson Law (Carlisle)
Dean
Danielle Conway
Smeal College of Business
Dean
Charles Whiteman
College of Health and Human Development
Dean
Craig Newschaffer
University Libraries and Scholarly Communications
Faye Chadwell
The Graduate School
Interim Dean
Kathryn Drager
Donald P. Bellisario College of Communications
Dean
Marie Hardin
College of Information Sciences and Technology
Dean
Andrew Sears
Ross and Carol Nese College of Nursing
Dean
Laurie Badzek
College of Medicine
Interim Dean
Kevin Black
College of Earth and Mineral Sciences
Dean
Lee Kump
College of the Liberal Arts
Dean
Clarence Lang
Schreyer Honors College
Dean
Patrick Mather



5.1.2 Governance: Describe the role of faculty, staff, and students in both program and institutional governance structures and how these structures relate to the governance structures of the academic unit and the institution.

Program Response

Faculty and Staff Participation in Governance: Faculty participate in the governance of the University through election to the University Faculty Senate and the Graduate Council. They participate in the College through appointment or election to standing committees, such as the College Curriculum Committee, the Promotion and Tenure Committee, the Faculty Council, the Academic Integrity, Research and Creative Activity Committee, the Sabbatical Leave Committee, the Scholarships and Awards Committee, the IT Committee, and the Equity, Diversity, and Inclusion Committee. The Stuckeman School has a committee structure that involves faculty, staff, and students. All three of these groups also engage in the governance of the Department via membership on standing committees. The establishment and implementation of policies and procedures and curriculum review and development are discussed in detail at committee meetings.

Committee recommendations are brought to faculty meetings and faculty retreats for discussion by the entire faculty as well as student representatives and, whenever needed, staff representatives. The Department also regularly meets staff and elected student representatives to discuss issues, policies, and procedures.

Faculty Responsibilities: Faculty distribution of effort between teaching and other responsibilities varies. However, on average 60% of a faculty member's time is dedicated to teaching (and related preparation time), 30% to research and creative activities, and 10% to service and community outreach. The Department of Architecture has an average of 33.5 full-time equivalent (FTE) faculty. This figure includes 22.5 FTE tenured/tenure-track faculty.

Administrative Responsibilities: The Department of Architecture is part of the Stuckeman School of Architecture and Landscape Architecture, which, in turn, is part of the College of Arts and Architecture. The Department of Architecture has a Department Head, which is a full-time administrative position. The Head spends approximately 20% of his/her time on University-wide responsibilities, 20% on College-wide business, and 60% on Departmental and School administrative tasks. There is an Associate Head for Graduate Education, a faculty appointment, and an Assistant Head for Administration, in addition to a Departmental Staff Administrative Assistant who assists the Department Head.

Staff Responsibilities: The Department is supported by a Departmental Staff Assistant (referenced above), whose time is dedicated entirely to the Department of Architecture. In addition, the Department benefits from a school-wide staff that manages graduate education. There are three other full-time staff positions in the Stuckeman School that are shared across departments, including the Department of Architecture: a Budget Coordinator, an HR Coordinator, and a Supervisor of Administration. Two professionals staff the architectural model shop, both of whom spend 100% of their time on duties related to managing the operation of the shop, supervising work study employees, monitoring machinery, and ensuring adherence to safety operational procedures. Another staff member supports the digital fabrication equipment with 50% of his time dedicated to this task.

5.2 Planning and Assessment

The program must demonstrate that it has a planning process for continuous improvement that identifies:

5.2.1 The program's multiyear strategic objectives, including the requirement to meet the NAAB Conditions, as part of the larger institutional strategic planning and assessment efforts.

Program Response

University, College, and departmental Strategic Planning: The University and all its units follow a five-year strategic planning cycle. The Department of Architecture faculty, through a committee, developed the Department's most recent plan (2015–2020), which was ratified by the entire faculty. However, in an unusual move, the University decided to extend its plan for another five years (2020–2025) and asked all units to update their plans to reflect this continuation. It should be noted, however, that due to a change of leadership at the College level, the College has embarked on a new strategic plan, currently underway. The Department of Architecture's strategic plan, with 2021 updates can be found here.

5.2.2 Key performance indicators used by the unit and the institution

Program Response

Key Impact Metrics: Each of the program's goals and objectives, as stated in our strategic plan, is supported by unique performance indicators. These include metrics related to the number of articles, books and other peer-reviewed productions published; the number of design awards received; the number of product innovations and research projects completed; the dollar amount of funding sought and received; the number of student awards received; and applicant numbers, selectivity, and yield. These are outlined in more detail in our response to a recent plan update as follows:

Strategic Plan Reflection and Impact Assessment: Three priorities are identified in the Department of Architecture's strategic plan as most impactful in determining the Department's success. We have concentrated on achieving the goals, and all faculty, administration and research centers have worked together to meet the goals as stated in the strategic plan. The impact of the strategic plan is captured in the outcomes in each of the three priorities. Highlights are listed below:

- **Priority 1: Produce substantive design scholarship through research and creative accomplishment**
    - Faculty published over 30 books (15 books in 5 years – 30 books in 10 years)
    - Two Rome Prize winners
    - One MoMA Ps-1 finalist
    - MoMA exhibition
    - *ARCHITECT* Next Progressive
    - Faculty selected to the Architectural League's *"Emerging Voices"*
    - Host for two international architecture journals
    - Multiple awards on "NASA 3D printed Habitat on Mars" international competition
    - Two Graham Foundation Fellowships
    - Juried participation at the Seoul Biennale by several faculty
    - Juried participation at the Oslo Triennale by faculty
    - Several symposia hosted, with resulting books (two published, one at publisher)
    - Significant number of faculty sole-authored and faculty-student joint-authored journal articles (125 in 2020)
    - Significant progress in faculty research and creative practice: 32 current research projects, 22 faculty product innovations, and 62 faculty awards and recognitions
    - 22 Office of Sponsored Programs research grant proposals submitted from the Department of Architecture with 18 architecture faculty PIs in 2020
    - PI on Penn State Strategic Planning RFP

- **Priority 2: Build on our excellent student-centered programs**
    - Successful accreditations of both of our professional programs, continuously ranked among the top 20 architecture programs by Design Intelligence (DI)
    - Growing numbers of undergraduate applications (from 600 to 1,450 in the past ten years)
    - Increasing student quality as measured by the Admissions Index (AI) (the University's quality index for applicants)

- **Priority 3: Strengthen graduate education**

We have become a very diverse program with three thriving graduate degrees — M.Arch, MS, and PhD — in addition to our excellent B.Arch program:

- Four research clusters with positive impact on our ability to focus research and production energies at both student and faculty levels
- Robust PhD program with 30 students at present
- Seven students comprised our first PhD cohort: six have secured faculty positions; one to defend her dissertation in fall 2022
- PhD selectivity of about 12%
- M.Arch program grown to a stable 29 students—with projection of 30, maintaining selectivity
- Multiple recruitment programs for M.Arch, almost doubling the application pool
- Annual awards from the competitive campus-wide Graduate School Exhibit and from national organizations received by our graduate students
- National dissertation awards received by our PhD students and multiple papers co-authored and co-presented by MS and PhD students annually

5.2.3 How well the program is progressing toward its mission and stated multiyear objectives.

Program Response

As the list in the previous section (**5.2.2** – Key Performance Indicators Used by the Unit and the Institution) demonstrates, the program is well underway in regard to achieving and exceeding the goals set in our strategic plan. However, we still need to make progress in the following areas:

- **Priority 1: Produce substantive design scholarship through research and creative accomplishment**
  - Develop indoor facilities for large-scale faculty research
- **Priority 2: Build on our excellent student-centered program**
- **Priority 3:** Strengthen graduate education
  - Improve the financial sustainability of our graduate programs: Additional permanent grant-in-aid (GIA) support and stipends for our MS and PhD programs are needed
  - Enhance visibility, ranking, and reputation through targeted marketing, promoting our accomplishments and strengths to a national audience
- Produce infrastructure that concentrates on presence and visibility beyond the University and Penn State alumni focused on:
  - Special projects initiated at Penn State, which may require a Special Projects Coordinator
  - A more robust and expanded lectures and exhibitions program
  - Expanded outreach concentrating on the “influencers” in our discipline with more print material disseminated

5.2.4 Strengths, challenges, and opportunities faced by the program as it strives to continuously improve learning outcomes and opportunities.

Program Response

Strengths: Our Bachelor of Architecture program is one of the most selective programs at Penn State with very high-quality applicants (based on the University's Admission Index). As members of an R-1 institution, our faculty members are dedicated to and realize significant achievements in relation to their research and creative work and their instructional and mentoring practice. We are fortunate to inhabit a recently constructed (2005) LEED building that is remarkably conducive to learning. In short, our facilities are superb. We have a strong group of alumni who are very involved in our program at every level, from working with entering students to participating in curricular assessment to offering internships and post-graduation employment.

Challenges: The principal challenges the Department faces are associated with the need to make further progress relative to the priorities of our strategic plan, as set out in Section 5.2.3. We do not face challenges associated with Priority 2, which centers on our B.Arch program. However, further work to improve visibility would benefit the program.

Opportunities: As a department in a research-intensive university, we have developed dynamic and rewarding relationships with other departments and research institutes in order to secure new co-funded hires (additional lines), thereby increasing the size of our faculty and the extent of our research/creative practice capacity. We will continue advancing in this direction.

5.2.5 Ongoing outside input from others, including practitioners.

Program Response

Reviews, Competitions, and Coordinated Studio Work: Our program has a history of inviting reviewers from outside the course or studio to take part in all reviews of student work. Invited reviewers include other Penn State faculty for interim reviews, and alumni, practitioners, subject experts, and faculty from other schools for mid-term and final reviews. The Department also runs/participates in established endowed competitions that rely on external reviews each year: Kossman Reviews, Haider Reviews, Bowers Reviews, the NCMA Competition, the Stewardson Competition, the Hajjar Competition, the Corbelletti Charrette, and so on. In addition, our studios are coordinated, meaning that our senior faculty coordinate each year/semester of our program and are responsible for ensuring the delivery of the curriculum as designed and recorded by the Undergraduate Curriculum Committee (UGCC). As a result, a curricular conversation is maintained among all the faculty participating in the coordinated studios, enhanced by review attendance and supported by regular review attendance on the part of the Department Head. The first layer of the assessment is the purview of the faculty of each studio; the next layer involves other Department faculty; and the next, the Department Head. Any issues or concerns are explored with the UGCC and solutions sought.

External Bodies: Another and different set of assessments are used by external bodies, alumni, practitioners, subject experts, and faculty from other schools. These assessments both run parallel to and inform our internal assessments. In essence, they are folded into our internal assessments and given agency through the UGCC and the Department Head. In addition to these reviews, we also have NAAB reviews, to which we respond both annually and periodically with progress reports.

The program must also demonstrate that it regularly uses the results of self-assessments to advise and encourage changes and adjustments that promote student and faculty success.

Program Response
History of Curricular Changes: Our history of curricular changes as recorded with the NAAB clearly indicates our commitment to taking effective action based on assessments of our program.

New Studio Organization and Emphasis: Based on assessments from the NAAB and our Kossman reviewers, we de-coupled the thesis from the comprehensive studio. Subsequent to that decision and based on a multi-year engagement of the Undergraduate Curriculum Committee (UGCC) with our faculty and students and many end-of-year retreats, and in order to take advantage of our context in a research-intensive university, we began conducting an integrative studio in the third year of the B.Arch program. At the same time, we re-designed the curriculum of the first- through third-year studios so that our students could build architectural capacity in preparation for integrative design work in the third year. We also extended the integrative project halfway into the fall semester, essentially turning the studio work into a 22-week project. All these decisions were the result of self-assessment and curricular engagement by the faculty and the UGCC.

5.3 Curricular Development

The program must demonstrate a well-reasoned process for assessing its curriculum and making adjustments based on the outcome of the assessment.

Programs must also identify the frequency for assessing all or part of its curriculum.

Program Response
Each year, the Department Head presents each of the many Departmental committees with its charge for the year. The Undergraduate Curriculum Committee (UGCC) includes the Coordinators of the studio years in addition to others selected to contribute to the committee's work. The charge is informed by all the assessment processes stated in the previous section (5.2.5 – Ongoing Outside Input from Others, Including Practitioners) in addition to the Coordinators Committee, student representatives, and other inputs. The UGCC seeks advice and information from other faculty, administrators, and staff. The UGCC reports its findings at a Departmental faculty meeting, where proposed curricular changes must be discussed and then put to a faculty vote. Thus, the cycle is annual and is initiated by the charge, which is, in turn, informed by all the assessment processes described.

The annual cycle also corresponds to the annual review cycle for the faculty, which includes an assessment of teaching, research, and service. As a standard aspect of the faculty reviews, Student Ratings of Teaching Effectiveness (SRTE) are considered by the Department Head in assessing faculty performance. Repeated or continued student concerns also become a part of the annual assessment of the curriculum. The Department Head and the UGCC assess the possible sources of any concerns identified and seek solutions.

5.3.1 The relationship between course assessment and curricular development, including NAAB program and student criteria.

Program Response
Process of and Multiple Sources Considered in Course Assessment: Our courses and curricula are assessed in a multitude of ways. We have described the formal assessment processes built into the curriculum. In addition, Student Ratings of Teaching

Effectiveness (SRTE) provide a basis for identifying and addressing deficiencies, whether curricular-, personnel-, equipment-, or environment-related. Student representatives meet with the Department Head monthly and may also report on courses where problems are occurring. Not all concerns lead to curricular changes. It is the UGCC, in consultation with the Department Head, that researches the possible sources and identifies the most effective path forward. In cases of formal assessments, such as the NAAB review and other external reviews, the Department Head and the UGCC work with the Department faculty to determine the best path forward.

Contextual Consideration of Curricular Changes: The most recent curriculum change — that of moving the Integrative Design Studio from the fourth year to the second semester of the third year — rendered it necessary for the UGCC to assess the curriculum in the lower three years to ensure that it met NAAB 2020 conditions. The committee evaluated the sequences in the design studio, the history and theory courses, and the technical support courses. Based on the review, changes were made such that the curricular objectives of the studio and courses were addressed in a way that strengthened the curriculum both vertically and horizontally.

5.3.2 The roles and responsibilities of the personnel and committees involved in setting curricular agendas and initiatives, including the curriculum committee, program coordinators, and department chairs or directors.

Program Response

Parties Involved in Curricular Development: The parties are described in Section 5.3 Curricular Development: the Department Head, the Undergraduate Curriculum Committee (UGCC), and the Department's entire faculty body.

Department Head and the Undergraduate Curriculum Committee (UGCC): The Department Head collects and organizes assessments, formal and informal, and charges the UGCC with examining and seeking solutions to any concerns that have arisen and with considering proposed ideas for improvements.

In discharging this responsibility, the UGCC consults relevant faculty, students, administrators, and staff and collects needed data. The UGCC is required to bring proposals for curricular changes to the faculty as a whole for discussion and vote.

Faculty are appointed to the UGCC annually by the Department Head and its charge is given at the beginning of the fall semester. The committee usually consists of one member from every studio year level, often a year-level Design Studio Coordinator. In addition to the charge given by the Department Head, the UGCC, in conjunction with the Design Studio Coordinators' Committee, defines the curriculum objectives for each studio year level and the supporting courses. The committee also oversees the sequence and bridging between each year level and identifies agendas necessary to ensure the continuity of the existing sequences in the design studio and other required electives.

Design Studio Coordinators' Committee: The faculty members on this committee are appointed annually by the Department Head and include the Coordinators of each design studio year level. The Committee conducts reviews of studio project proposals, coordinates studio schedules, monitors conformance with NAAB requirements and the Department's Studio Culture Policy, makes recommendations in regard to studio facilities, and advises the UGCC on other issues related to the design studio sequence.

5.4 Human Resources and Human Resource Development

The program must demonstrate that it has appropriate and adequately funded human resources to support student learning and achievement. Human resources include full- and part-time instructional faculty, administrative leadership, and technical, administrative, and other support staff. The program must:

5.4.1 Demonstrate that it balances the workloads of all faculty in a way that promotes student and faculty achievement.

Program Response

Faculty Responsibilities and Work Load and Student to Faculty Ratio: Full-time architecture faculty load accounts for the University's tripartite mission of teaching, research, and service. During the 36-week academic contract, 60% of faculty time is devoted to teaching, 30% to research, and 10% to service. Teaching load comprises a studio and a course each semester. This is uniform across all full-time faculty. Our student to faculty ratios are 15:1 in the first year, 12:1 second year, 11:1 third year, and 9:1 in our upper-level studios. Teaching assistants are assigned to all studios, and in first year they also assist in teaching, which helps reduce the daily workload associated with providing instruction to fifteen students.

5.4.2 Demonstrate that it has an Architect Licensing Advisor who is actively performing the duties defined in the NCARB position description. These duties include attending the biannual NCARB Licensing Advisor Summit and/or other training opportunities to stay up-to-date on the requirements for licensure and ensure that students have resources to make informed decisions on their path to licensure.

Program Response

NCARB/AXP Faculty Advisor: The Department of Architecture's NCARB/AXP Faculty Advisor, Professor Ross Weinreb, R.A., Assistant Department Head for Administration, currently fills this role. He stays up to date on licensure requirements, including by attending the biannual Licensing Advisor Summit. A yearly NCARB/AXP seminar is coordinated and hosted in the Stuckeman Family Building for all architecture students as described in more detail in this APR's PC.1.

5.4.3 Demonstrate that faculty and staff have opportunities to pursue professional development that contributes to program improvement

Program Response

Faculty: All tenure-track faculty are eligible for a one-semester release from teaching during the tenure-track period. This release allows junior faculty to focus on their research, creative work, or professional practice. Tenured faculty members with at least seven years of service to Penn State are eligible to apply for a one- or two-semester sabbatical leave. Professors granted a one-semester sabbatical receive their full salary during the sabbatical; those on a two-semester leave receive two-thirds of their regular salary.

The Department of Architecture supports faculty development and provides funding for conference attendance and other development opportunities. Recently, with added emphasis on faculty research, creative activity, and publications, the Department has significantly increased its financial support for faculty presentations, to roughly $26,000. All faculty are encouraged to submit funding requests to the Department at the beginning of each semester, and all are reviewed collectively. During the past year, all requests were funded, most in full, although some received partial support. In addition to Department funding, the Department Head has committed an additional $15,000 per year to support faculty publications from his Stuckeman Chair of Integrative Design fund.

It is the practice of the Department to assign teaching responsibilities and committee work in a way that permits faculty to pursue professional practice, research, or creative work. Faculty members may use external grant support or professional commissions to "buy out" of course assignments in order to pursue research or creative work. Faculty service to professional bodies and on government and community boards is encouraged. This service to the University, the profession, and society is evaluated during annual reviews and promotion and tenure reviews. The Departmental service expectations for professors who engage in these activities, or who help to arrange and host conferences and symposia, are adjusted accordingly.

Support for faculty developing new courses is available in the form of College Incentives and Innovations Grants. Support is also available for work focused on transforming traditional courses to web-based delivery methods through the College eLearning initiative, the Penn State World Campus, and the University's Campus Course Exchange initiative. Innovative courses can also compete for support from the Bowers Program, the Stuckeman Endowment for Design Computing, and the Schreyer Honors College.

Faculty research and creative work is supported by the College Faculty Research Grant program. The Stuckeman School offers faculty a number of grant opportunities through the Hamer Center for Community Design and the Stuckeman Center for Design Computing. The Stuckeman School offers the following research grant opportunities to faculty through an internal competition every year:

- The H. Campbell and Eleanor R. Stuckeman Fund for Collaborative Design Research promotes collaboration in design innovation. The purpose of the fund is to provide seed funding for projects with special promise likely to attract external support from agencies beyond Penn State; to enhance funding from sources external to Penn State; and to support faculty research and scholarship. Up to $50,000 per project is available.

- The H. Campbell and Eleanor R. Stuckeman Fund for Design Computing promotes design research, theoretical investigations and academic opportunities under the general heading of design computing. The Stuckeman Fund is used to provide seed funding for projects with special promise likely to attract external support from agencies beyond Penn State; to enhance funding from sources external to Penn State; and to support faculty research and scholarship. Up to $50,000 per project is available.

In addition to research funding, continuing education opportunities are also available to Penn State faculty and staff. Courses designed to improve faculty teaching are offered by the Center for Excellence in Learning and Teaching (CELT), and courses to help faculty master the University's web-based course-management system (Canvas) are

offered annually at no charge. The Department provides substantial support for faculty to participate in educational seminars directly related to their teaching and/or advising responsibilities.

Staff: All full-time staff members must participate in an annual assessment cycle that involves setting goals and frequent check-ins with supervisors. The assessment includes taking account of professional development, evidence of which is required. Staff members can participate in multiple courses and seminars offered by Penn State Human Resources. They can also take professional development courses (as can faculty) free of charge online as offered by the University on subjects ranging from building a persona brand online to conflict resolution to conversations around diversity.

Penn State Tuition Discount: The University provides a 75% tuition discount for full-time employees and their immediate family members

5.4.4 Describe the support services available to students in the program, including but not limited to academic and personal advising, mental well-being, career guidance, internship, and job placement.

Program Response

Office of Student Affairs: Consistent with Penn State's land-grant mission, the University's Office of Student Affairs assists in students' general personal development by offering services and programs that support and augment the formal classroom experience. Student Affairs services include personal and educational counseling, career development and placements, diagnosis and remediation of learning problems, general personal assistance, financial aid, and health services.

Orientation for New Students: New Student Orientation (NSO), a full-day parent and student orientation program, is conducted annually by the University, College, and Department in the summer to assist with fall registration procedures and to impart basic information pertaining to the structure, goals, and objectives of the program. The students receive advice from the Department Faculty Advisor to help them with course selection while parents are hosted at a general information session where they are invited to ask questions to obtain relevant information about Penn State.

Educational Opportunity Program (EOP):The Educational Opportunity Program (EOP) is a special admissions program that demonstrates the University's commitment to equal access in higher education throughout the Commonwealth of Pennsylvania. The program is designed for residents who are recent high school graduates with academic promise, but who are both educationally and financially disadvantaged. Established in 1969, the EOP provides access to Penn State at all locations. EOP candidates apply for admission to Penn State through the usual channels and must meet the high school graduation requirement (high school diploma or its equivalent) for admission.

Students who meet EOP academic and financial guidelines are granted a personal interview. Based on the interview, a student may be offered admission to University Park campus through the Comprehensive Studies Program (CSP) or admission at another Penn State location. Once accepted, EOP students are admitted as resident degree students and are offered counseling, study skills programs, and tutoring and learning support with emphasis on highly individualized support. While the Undergraduate Admissions Office is primarily responsible for the recruitment and admission of EOP students, all the support services offered by the program at University Park campus are

administered through the Vice Provost for Educational Equity. Most programs at other Penn State locations have EOP coordinators who offer support services and maintain a close connection with University Park campus.

Mental Health Support: Counseling and Psychological Services (CAPS) is the primary mental health provider for Penn State students at the University Park campus. CAPS' mission is to support students' mental health and well-being as they pursue their academic and career goals. As a comprehensive counseling center, CAPS provides a full range of short-term clinical services including individual, group, and couples counseling; crisis intervention; psychiatric services; case management; wellness and self-help options; and education and outreach. Essential to this mission is fostering a welcoming and affirming environment that honors diversity and values individual and cultural differences. CAPS services are available in a variety of modalities to accommodate students' needs.

Schreyer Honors College: The Schreyer Honors College allows academically superior students to select from a wide variety of special honors sections of courses. Student progress can be enhanced with special courses, independent study and research, graduate-level courses, and honors-option work in regular courses. To remain in good academic standing, all students admitted to the Schreyer Honors College must attain both a semester and a cumulative grade point average (GPA) of at least a 3.40 while maintaining full-time enrollment (a minimum of 12 credits) in the fall and spring semesters.

Student Advising: The Department encourages close interaction between faculty, staff, and students such that student advising, formal and informal, is a high priority. Robin Bierly and Sarah Watson are the School's Academic Advisors. Incoming architectural students are greeted in a summer orientation session in collaboration with College personnel who counsel them on registration, performance expectations, and their upcoming lives as students, and the profession. The College has a dedicated Academic Advising and Support website: https://arts.psu.edu/advising/.

The Stuckeman School Career Advisor plays a significant role in advising students by sharing portfolio and résumé examples and making introductions to alumni, industry representatives, and graduate programs. Other responsibilities include résumé and cover letter writing, portfolio presentation, professional interviews, salary and benefits, the Architectural Registration Exam (ARE), and the Architectural Experience Program (AXP). These topics are all reinforced in the Professional Practice course, which also includes architects and recent graduates as guest speakers, as well as a required field trip to the offices of architect companies. C the Department AXP Advisor.

Career Day: It falls to the Stuckeman School Career Advisor to organize a spring Career Day for Stuckeman students. The event provides students with an opportunity to prepare portfolios and interview with numerous reputable firms — many with branch offices worldwide. Career Day activities include assisting firms with internships and helping students with career placement. The University's Nittany Lion Careers offers a dedicated website where firms can post employment opportunities accessible to students and alumni: https://sites.psu.edu/hpainternship/nittany-lion-career-network/.

5.5 Social Equity, Diversity, and Inclusion

The program must demonstrate its commitment to diversity and inclusion among current and prospective faculty, staff, and students. The program must:

5.5.1 Describe how this commitment is reflected in the distribution of its human, physical, and financial resources.

Program Response

University Level: At the University level, Penn State strives to uphold six core values (or pillars), one of which is Respect: "We respect and honor the dignity of each person, embrace civil discourse, and foster a diverse and inclusive community."

The University's strategic plan for 2016–2025 includes a strong commitment to transformative education, advanced through four broad goals related to inclusion, equity, and diversity:

- Foster a culture of respect and inclusion that values the experiences and perspectives of faculty, staff, and students
- Develop and implement curricula and scholarship that interrogate social issues and inspire social responsibility
- Evaluate and rectify organizational structures, policies, and practices that cause differential impact and limit access and opportunities for faculty, staff, and students at Penn State
- Recruit, support, and advance a diverse student body, faculty, and staff

College Level: The College of Arts and Architecture named its inaugural Associate Dean of Access and Equity, Dr. Folayemi Wilson, to address the College's climate and curricular issues around equity, diversity, and inclusion. The position is effective as of August 14, 2022. https://arts.psu.edu/news/college-of-arts-and-architecture-appoints-first-associate-dean-for-access-and-equity/

The College's 2020–2025 strategic plan also addresses equity, diversity, and inclusion concerns in its second goal:

- "Establish a culture of anti-racism and anti-oppression that embraces individual identities, fosters a culture of inclusion, and promotes equity through our curricula, values, standards, ideals, policies, and practices. Uphold anti-racism and equitable standards and ideals within College procedures and policies. Uphold anti-racism and equitable standards and ideals within College curricula. Increase anti-racist and equitable professional development, programs, collections, exhibitions, and performances."

Departmental Involvement: The Department of Architecture has a representative on the College's current Diversity Committee, which has plans to develop a council in the near future.

To support the above initiatives, the Office of the Provost offers financial assistance (partial salary from 1/3 to 1/2) for diversity hiring and retention. We have benefitted from this assistance for two diversity hires, receiving permanent support for 50% of both salaries. In addition, we have received support from the Provost's office for three fixed-term female faculty.

For more information, please see Section SV.3 – Equity, Diversity, and Inclusion.

5.5.2 Describe its plan for maintaining or increasing the diversity of its faculty and staff since the last accreditation cycle, how it has implemented the plan,

and what it intends to do during the next accreditation cycle. Also, compare the program's faculty and staff demographics with that of the program's students and other benchmarks the program deems relevant.

Program Response
We believe that a diverse student, faculty, and staff body is imperative for our growth, both in terms of quality and quantity. To achieve diversity, we are working on multiple fronts. We recognize the importance of a welcoming and inclusive environment, an inclusive recruitment plan, a diverse review process, and equitable treatment that leads to retention of students, faculty, and staff.

We have put in place the following for the faculty:

- For every faculty search, we ensure that the search committee is composed of a diverse group of faculty. This diversity includes gender, rank, race, as well as ethnicity. The Department Head ensures that the diversity of gender, rank, race, and ethnicity is achieved with each search.
- In faculty searches, we advertise in a wide range of venues, including web and national print platforms. In addition, we specifically ask our faculty to reach out to appropriate colleagues. The range of our faculty's backgrounds has helped ensure diverse applicant pools.
- We will continue to draw on financial support from the Provost's office, as noted above, to support diversity hires.
- The Department Head is responsible for fixed-term (non-tenure line) hires. In that capacity, the Department Head annually hires faculty with an eye towards diversity. For example, this year, four of five multi-year fixed-term faculty are female.

5.5.3 Describe its plan for maintaining or increasing the diversity of its students since the last accreditation cycle, how it has implemented the plan, and what it intends to do during the next accreditation cycle. Also, compare the program's student demographics with that of the institution and other benchmarks the program deems relevant.

Program Response
Strategic Plan: Departmental strategic plans are developed through the Department's committees, which work in parallel with College and University committees. The plans are developed with the assistance of the Diversity Committee and the Office of Multicultural and Recruitment Programs, both in the College of Arts and Architecture. This practice helps to keep diversity and inclusion at the forefront of recruitment, retention, and curricular development. The Departmental committees receive their charge from the Department Head and report to the faculty at regularly scheduled meetings. Matters are discussed and voted on by all the Department's faculty.

Among the seven mission items included in the Department's strategic plan is that of "increasing the cultural, religious, ethnic, and gender diversity in the student body, the faculty and in the curricular subject matter." The College and the University dedicate significant effort to advancing social equity. The University assesses itself on its progress towards the goals stated in its strategic plan. Likewise, each and every unit within Penn State, such as the Department of Architecture, is also assessed based on strategic plan goals.

Students of Color: At the time of our last NAAB accreditation cycle, which took place in 2014, the number of first-year students of color entering the program stood at 15. Since then, over the last seven years, we have had an average number of 18 entering first-year students of color, with the number growing to 21 in 2021. Our progress in this regard is primarily due to consistent effort on the part of the College Admissions Office and its Multicultural Coordinator, Curt Marshall. Progress may seem modest. However, it should be understood in relation to the fact that our program has become twice as selective as it was in 2014 — as measured by the University's Admissions Index (AI). The College Admissions Office and its Multicultural Coordinator work together to expand the range of their recruitment visits to diversify our incoming student body. The Multicultural Coordinator works with the Access, Recruitment, and Retention Coordinator to target entities with the potential to help develop a diverse applicant pool for the undergraduate program (and also for the graduate program).

Standard Practice to Increase Diversity: As standard practice, we seek to increase the diversity of the Department's student body in the future:

- We recruit annually at the National Organization of Minority Architecture Students (NOMAS) conference, in part through purchasing recruitment booths. We enlist our NOMAS representatives to recruit at this conference and fund their travel for this purpose.
- We organize recruitment trips to high schools in Pennsylvania and the region to ensure wide awareness of our program. Local recruitment, in particular, addresses the land-grant University's goal of serving the people of the Commonwealth.

Key Statistics: As of 2021–2022, the male to female ratio of our student body stands at 50%. We would like to maintain this ratio. A total of 27% (83) of our B.Arch students are members of under-represented minority groups, which is quite a bit higher than the comparable figure for overall University enrollment (23%). The program is very strong currently in terms of diversity as it relates to religious and ethnic backgrounds, and we will maintain this diversity.

5.5.4 Document what institutional, college, or program policies are in place to further Equal Employment Opportunity/Affirmative Action (EEO/AA), as well as any other social equity, diversity, and inclusion initiatives at the program, college, or institutional level.

Program Response

University Statement: Penn State's Statement Against Discrimination and Harassment — which describes the University's policies and procedures relative to Equal Employment Opportunities and Affirmative Action (EEO/AA) for faculty, staff, and students — can be found at https://affirmativeaction.psu.edu/. The University's Nondiscrimination Statement and Affirmative Action and Equal Employment Opportunity Policy are excerpted here:

"It is the policy of The Pennsylvania State University to provide equal opportunity in all terms and conditions of employment, for all persons, as described in the University's Affirmative Action Plan and HR01. The intent of this policy is to prohibit discrimination (including sexual harassment) and to promote the full realization of equal employment opportunity through a continuing affirmative program in each administrative unit outlined in the Plan. This policy of equal opportunity applies to, and must be an integral part of,

every aspect of personnel policy and practice in the employment, development, advancement, and treatment of employees and applicants for employment at the University. Penn State's Office of Affirmative Action has developed Guidelines for a Diverse Workforce to assist deans, department heads, and search committee members in conducting affirmative searches that are consistent with the University's commitment to Affirmative Action and Equal Employment Opportunity and with applicable laws and regulations. More information is readily available in the Fair Employment Practices and Staff Employee Handbook."

5.5.5 Describe the resources and procedures in place to provide adaptive environments and effective strategies to support faculty, staff, and students with different physical and/or mental abilities

Program Response

Student Disability Resources (SDR) Office: The University's Student Disability Resources (SDR) office is charged with providing services to and ensuring that reasonable accommodations are made for students with disabilities enrolled at the University Park campus. The office has responsibility for:

- Recording information about requests for assistance and maintaining disability-related documents
- Certifying student eligibility for services
- Determining the need for reasonable accommodations and developing associated plans to provide, for example, academic adjustments, auxiliary aids, and/or services as mandated under Title II of the Americans with Disabilities Act Amendments Act (ADAAA) of 2008 and Section 504 of the Rehabilitation Act of 1973

Students who wish to seek services of this kind at Penn State must self-disclose their need for academic adjustments, auxiliary aids, and/or other services to the Student Disability Resources Office at the Penn State campus they are attending.

Process to Demonstrate Disability: For a student's disorder or impairment to be considered a disability, the student must provide documentation demonstrating that the disorder/impairment meets the definition of a disability under Title II of the ADA Amendments Act (ADAAA) of 2008 and Section 504 of the Rehabilitation Act of 1973. A disability is defined as a physical or mental impairment that substantially limits one or more major life activity. Disability specialists assist students who want to explore individualized reasonable accommodations for equal access to and full participation in academic pursuits; to seek interactions with peers or study space; to connect with on- and off-campus resources; and to promote disability as an important aspect of diversity. Appointments are available in-person and virtually.

Additional Information:
For additional information: http://equity.psu.edu/student-disability-resources,

For faculty and staff, the University's Affirmative Action Office provides information here: https://affirmativeaction.psu.edu/welcome/access-disability/reasonable-accommodations/.

5.6 Physical Resources

The program must describe its physical resources and demonstrate how they safely and equitably support the program's pedagogical approach and student and faculty achievement. Physical resources include but are not limited to the following:

5.6.1 Space to support and encourage studio-based learning.

Program Response
Outstanding Facilities: The Stuckeman Family Building is home to the Stuckeman School of Architecture and Landscape Architecture.

Completed in 2005, the Stuckeman Family Building was the first Penn State building designed to meet the national criteria for certification as part of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System. The 111,000-square-foot, $27.5 million facility earned a LEED Gold Rating, making it one of the first buildings on any college campus to earn that distinction. The energy-efficient design is projected to reduce the building's annual energy costs by 35% compared to a conventionally designed structure.

The facility is a model not only of sustainability, but also of collaboration among architects, landscape architects and the building's end-users. An advisory committee composed of architecture and landscape architecture faculty and students, as well as other University representatives, played an integral role throughout the design process. The building is maintained in full compliance with all applicable building codes. A facilities committee monitors use of the building and recommends improvements as needed.

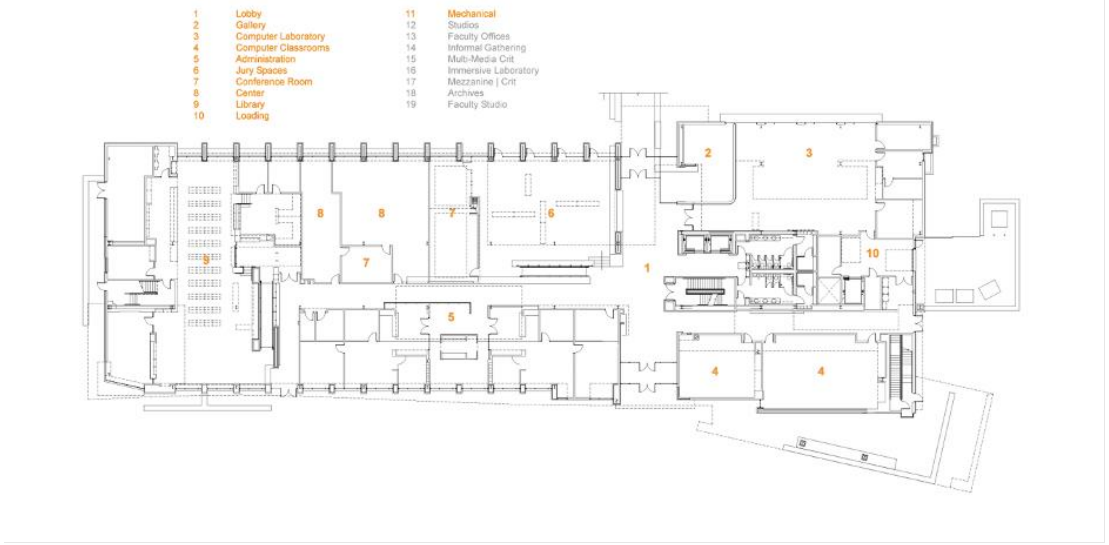
In alignment with the *spirit of collaboration* with which the building was designed, the building's open-plan design studios, which can seat 560 students on two floors, encourage collaboration between the disciplines. The openness of the building is a tangible expression of the potential for collaboration between the faculty, staff, and students of the Departments of Architecture and Landscape Architecture. The Stuckeman Family Building will continue to foster openness to collaboration through the creative use of our unique environment.

Southern Facades
Perspective

The Pennsylvania State University
School of Architecture & Landscape Architecture

Ground Level
Floor Plan

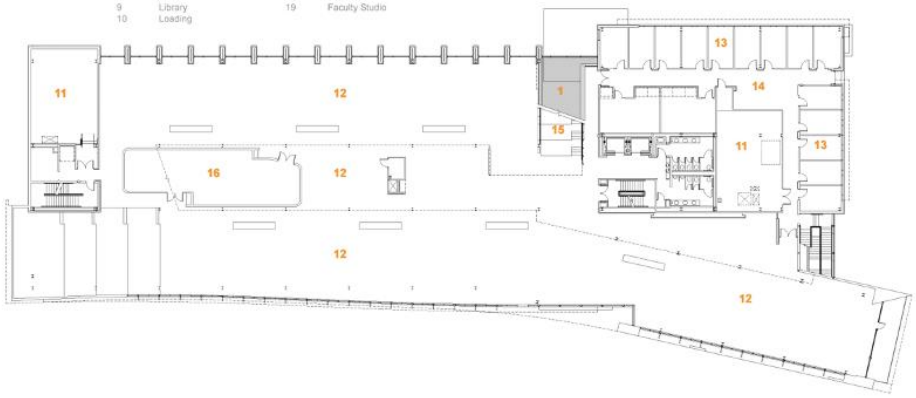
The Pennsylvania State University
School of Architecture & Landscape Architecture



Level Two
Floor Plan

The Pennsylvania State University
School of Architecture & Landscape Architecture

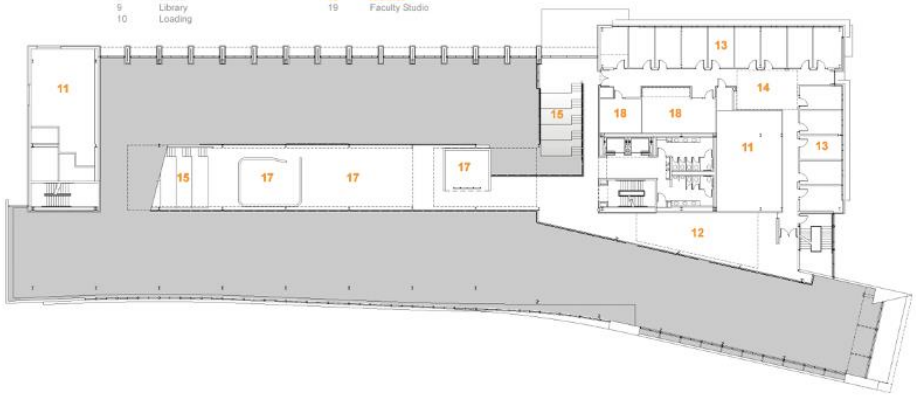
1 Lobby
2 Gallery
3 Computer Laboratory
4 Computer Classrooms
5 Administration
6 Jury Spaces
7 Conference Room
8 Center
9 Library
10 Loading
11 Mechanical
12 Studios
13 Faculty Offices
14 Informal Gathering
15 Multi-Media Crit
16 Immersive Laboratory
17 Mezzanine | Crit
18 Archives
19 Faculty Studio



Level Three
Floor Plan

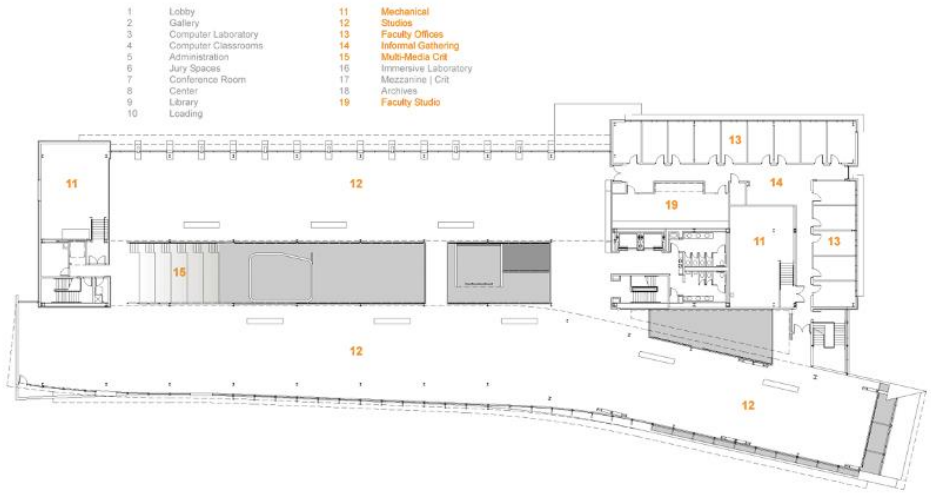
The Pennsylvania State University
School of Architecture & Landscape Architecture

1 Lobby
2 Gallery
3 Computer Laboratory
4 Computer Classrooms
5 Administration
6 Jury Spaces
7 Conference Room
8 Center
9 Library
10 Loading
11 Mechanical
12 Studios
13 Faculty Offices
14 Informal Gathering
15 Multi-Media Crit
16 Immersive Laboratory
17 Mezzanine | Crit
18 Archives
19 Faculty Studio



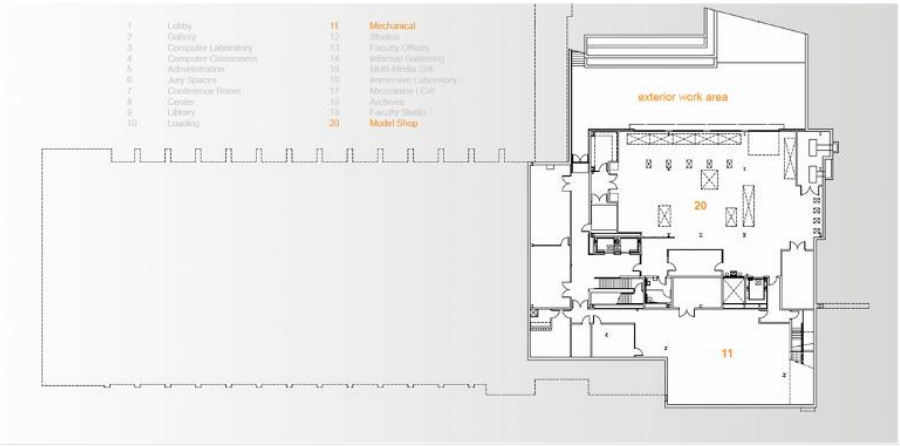
Level Four
Floor Plan

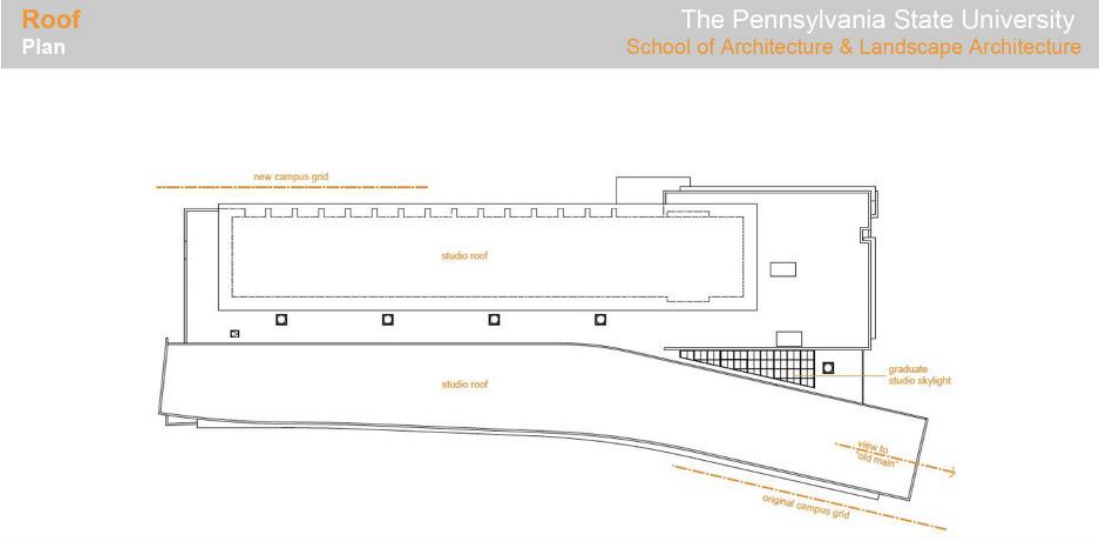
The Pennsylvania State University
School of Architecture & Landscape Architecture

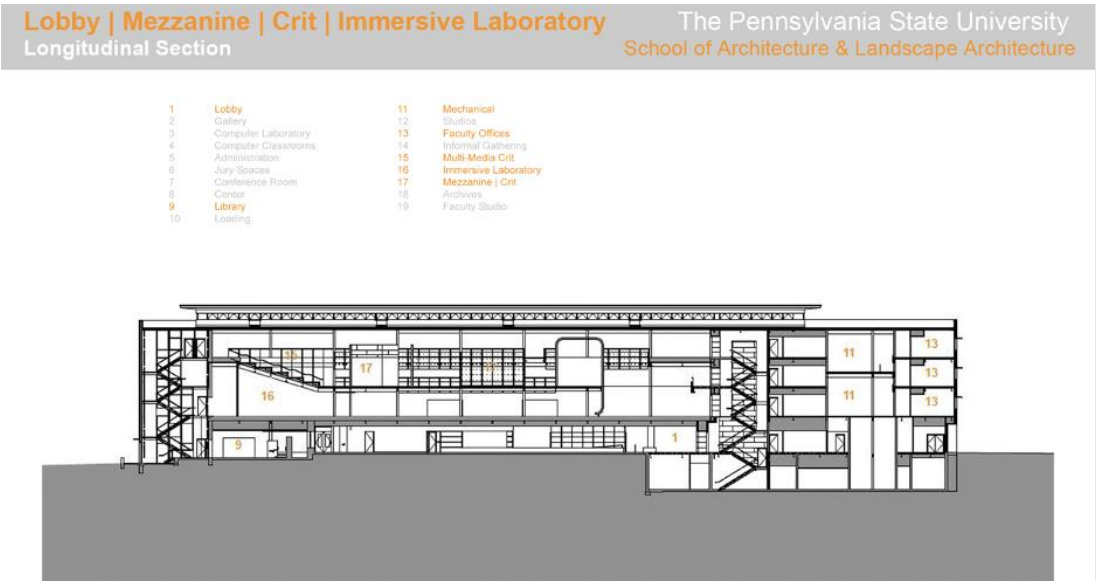


Basement
Floor Plan

The Pennsylvania State University
School of Architecture & Landscape Architecture







Design Studios: Occupying a total of 19,820 sq. ft., the design studios are located on the second and fourth floors of the Stuckeman Family Building. The studios offer approximately 300 workstations organized by academic year. An individual workstation consisting of a drafting table, studio chair, and storage locker is assigned to each student on a semester basis. The equipment is movable, thereby facilitating adaptation to a variety of class sizes, projects, methods of instruction, and review situations.

5.6.2 Space to support and encourage didactic and interactive learning, including lecture halls, seminar spaces, small group study rooms, labs, shops, and equipment.

Program Response
Exemplary Facilities: The program uses University-wide facilities for its large lecture classes. The Stuckeman Family Building encompasses two information technology

computer classrooms, a large conference room (which can be divided into two smaller rooms), two forum spaces, a 2,500 sq. ft. jury space with permanently installed projection equipment (located on the first floor), and several design review spaces on the third floor (mezzanine).

Other support spaces are listed in Section 5.6.4

Resources to Support All Learning Formats and Pedagogies in Use by the Program.

5.6.3 Space to support and encourage the full range of faculty roles and responsibilities, including preparation for teaching, research, mentoring, and student advising.

Program Response
General Facilities: The offices occupied by Department of Architecture faculty are located on the second, third, and fourth floors at the south end of the Stuckeman Family Building. All full-time faculty have their own offices, whereas visiting faculty generally share offices.

The administrative offices of the Stuckeman School are located on the first floor in the center of the building and include a galley kitchen open to all faculty and staff. Each administrator in the Stuckeman School has his or her own office, as do staff members with student advising functions. Support staff are located in an open office area. The Department Head's office opens into the general office space. A storage room is adjacent to the main office reception area. Additional storage facilities are located in the basement.

5.6.4 Resources to support all learning formats and pedagogies in use by the program.

Program Response
Architecture Model Shop: The architecture model shop occupies 5,250 sq. ft. in the basement of the Stuckeman Family Building. It is for the exclusive use of Department of Architecture and Department of Landscape Architecture students and faculty. A wide range of power, robotic, and CNC equipment as well as hand tools are provided for work with wood, metal, foam, and plastic. The shop is under the constant supervision and maintenance of two staff members. In addition to the full-time staff, students are trained and employed as shop monitors, usually as part of the work-study program at the University.

Before they are granted access to the model shop, students must complete the shop safety course, which is taught by a full-time staff member. Students complete a tour and must pass an exam on functionality and safety procedures and build a small project. Known as the "Pencil Box," this project is specifically designed to expose students to a variety of hand and power tools in the context of an introduction to woodworking theory. After passing the exam and then successfully completing the project, students are given access to all facilities in the shop and encouraged to use them as much as possible.

Technology Laboratories: The Department of Architectural Engineering plays a major role in the instructional programs of our architecture students. Penn State's architectural

engineering (AE) program is well known as one of the country's leading programs in this subject. The Department of Architectural Engineering maintains laboratories, which are used as a resource for technology classes with group assignments or demonstrations, for independent investigation, and for sponsored research. The labs include the Structures Studio, a materials laboratory, and an illumination laboratory, each of which is well-equipped for classes and experimentation.

Student Lounge: A furnished lounge for informal student discussions and gatherings occupies a space on the second floor. In addition, a graduate lounge has been added within the graduate studio area on the fourth floor of the Stuckeman Family Building.

Willard G. Rouse Gallery: Occupying 686 sq. ft. in the entryway of the Stuckeman Family Building, the Willard G. Rouse Gallery provides a premium location for internal and external exhibitions. Additional galleries on and off campus (the HUB-Robeson Center, the Zoller Gallery in the Visual Arts Building, the Downtown Theatre Gallery, and the Lipcon Auditorium in the Palmer Museum of Art) are used for special events and exhibits that require particularly stringent surveillance and security.

Computing Facilities and Resources: Having lived in our current building for over fifteen years, we have developed a facilities plan that explores the current and future needs of the School. The intent of this plan, as it relates to computing, is to place existing and anticipated digital fabrication equipment in its optimal curricular location in the building. Currently, we have a DigiFab Lab in the basement, which allows students and faculty in the Department of Architecture and in the College of Arts and Architecture more generally to gain firsthand experience using state-of-the-art tools, including a 6-axis CNC robotic arm and a CNC router, as part of their creative process. Creating this space has constituted a substantial endeavor given that it has entailed the installation of network ports, room ventilation, card access, and versatile electric service. With adequate utilities in place, the current facilities plan continually explores the expansion of our array of equipment and capabilities, including metal machining, waterjet cutting, welding, and vacuum forming. We have already begun including welding, machining, and other metal equipment, as well as vacuum forming.

Apple Laptop Initiative: The Laptop Initiative is a result of cooperation between the Department of Architecture, Information Technology Services (ITS) at Penn State, Arts and Architecture Information Technology (AAIT), and Apple. Based on a careful review of computing options, the Department has recommended Apple MacBook Pro as providing the most appropriate computer system to integrate with both Departmental and University systems. Selection criteria included price/value, support, value-added features, ease of use, and upgrade options. Laptop specifications are updated annually. Students who bring other laptop brands and models with comparable performance to the recommended MacBooks can participate in the Laptop Initiative, although support might be limited and integration with Departmental resources is not guaranteed.

Computing Infrastructure: The Stuckeman Family Building provides our students with a wireless environment, enabling them to remain connected to the network while at their desks or as they move between classes, studio spaces, the Immersive Environment Lab, workshop, and digital fabrication facilities.

Each design studio is equipped with a computer pod area where students can use high-end desktop computers. Many software programs are available free of charge to Penn State students, with programs specific to our discipline provided to our students on all University-owned computers.

The Stuckeman School provides virtual access to 15 rack-mounted workstations. The machine specs are DELL 3930, Intel Xeon E-2286G,(6 Core, 12MB Cache, 4.0Ghz, 4.9Ghz Turbo), Nvidia Quadro RTX4000, 8GB, and 32GB, DDR4 UDIMM ECC memory.

Students can access the machines by connecting to the Penn State VPN using the Global Protect utility. Once connected, they can point a browser to https://lic.arts.psu.edu/maps to gain access to the Architecture and Landscape Architecture Virtual Cluster where they can then select an available machine. Students running MacOS must install the free Microsoft Remote Desktop utility on their devices to connect to a remote PC workstation.

Penn State Software available free of charge:

- ITS Downloads: https://softwarerequest.psu.edu/
- WebApps: https://webapps.psu.edu/

For a full list of software programs available to our students, please see Appendix 7.2.

Stuckeman Center for Design Computing (SCDC)
Located on the main floor of the Stuckeman Family Building, the Stuckeman Center for Design Computing (SCDC) provides students and faculty with computing research hardware.

21 Workstations:

- (1) Alienware 15 R4 laptop
- (1) Alienware Area 51 R2
- (2) Alienware Area 51 R5
- (1) Alienware Aurora R6
- (6) Alienware Aurora R7
- (1) Dell Optiplex 9020
- (8) Dell Precision 5820 Tower
- (1) Mac Pro

Immersive Environments Lab (IEL)
Jointly developed with Penn State's Information Technology Services (ITS), the second generation of the Immersive Environments Lab (IEL) (1,362 sq. ft.), our visualization and tele-collaborative facility, is centrally located on the second floor of the Stuckeman Family Building. As a visualization facility, it offers three six-by-eight-foot panoramic, passive stereoscopic Virtual Reality displays and is supported by multi-platform graphics workstations (IBM IntelliStation Pro and Mac Pro) and software to allow VR-like display of student designs. A detailed technology list follows below.

The lab gives students the capability to display multi-modal presentations and 3D interactive walk-throughs of their architectural designs as a full, three-screen stereo panorama. This visualization system is equipped with a sophisticated video-switching interface that allows students to select sources from Windows, Macs, or even their own laptops. Also used for instruction and critiques, the IEL serves as a photography lab.

Digital Fabrication: Over the past few years, our digital fabrication capabilities have grown. In light of the significant development and proliferation of digital fabrication technologies, we have also made needed infrastructural updates. Our Digifab tools are

listed below.

General Computing Facilities: As part of the general computer lab system at the University, the first floor of the Stuckeman Family Building houses two general computing classrooms with 60 workstations supported by Penn State's Information Technology Services (ITS). These labs are available to our students for instruction and practice, as well as to other students at the University. The facilities offered include the Windows Lab where students have access to Wacom Cintiq pen displays at every workstation.

Students have access to equipment such as digital cameras, video recorders, laptops, lighting tools, and tablets through Media Technology and Support Services at Penn State, and computer labs and facilities are provided to the entire Penn State community around the clock by ITS. The following is a list of general computing equipment in the Department of Architecture:

- **Architecture Studio Workstations**: 34 workstations
- **Printing Resources**: Multiple large-format plotters and small-format printers
- **Shared Stuckeman School Studio Workstations**: 8 workstations
- **Faculty/Staff systems**: – All faculty/staff systems are on a 4-year lifecycle

Digital Fabrication – Detailed list:

- Dimension Stratasys BST 3D Printer
  - 8"x8"x10" build volume
- MakerBot Replicator 2X 3D Printer
  - 9.7"x6"x6.1" build volume
- MakerBot Replicator Mini 3D Printer
  - 3.9"x3.9"x4.9" build volume
- Thermwood Model 45 CNC Router
  - 3 axis operation
  - 5'x10'x16" capacity
  - vacuum hold down
  - 7 position tool changer
- Techno LC3024 CNC Router
  - 3 axis operation
  - 30"x24"x5" capacity
- (2) Dell XPS Workstations for CNC Programing
  - RhinoCAM Software
- ABB IRB2400/16 Robotic Arm
  - S4c+ Controller
  - Dell Studio XPS Workstation for Robot Programming
  - Robot Studio Software
- (2) Universal Laser Systems X-660 Laser Cutters
  - 40 Watt Lasers
  - 18"x32" Sheet Capacity
- (2) Universal Laser Systems VLS660 Laser Cutters
  - 18"x32" Sheet Capacity
- (4) Dell Studio XPS Workstations for Laser Cutter Control
- Konica Minolta Vivid910 3D Digitizer
  - Dell Precision Workstation for Scanning
  - Geomagic Software with scanning plugin
  - Konica PET (Polygon Editing Tool) software
- Freeform Phantom Haptic Feedback Digital Clay Carver

    - Freeform Modeling Software
    - Dell XPS Workstation
    - Freeform Modeling Software
- (5) Dual Boot MacPro Lab Workstations
    - Geomagic Software
    - RhinoCAM Software

If the program's pedagogy does not require some or all of the above physical resources, the program must describe the effect (if any) that online, off-site, or hybrid formats have on digital and physical resources.

Program Response

5.7 Financial Resources

The program must demonstrate that it has the appropriate institutional support and financial resources to support student learning and achievement during the next term of accreditation.

Program Response

Departmental Budgets: Penn State uses a "historical funding model," which de-couples annual funding from enrollment and full-time equivalent (FTE) classes. The Department has had "flat" funding (with appropriate inflationary increases) for as long as history shows. In addition, the College receives "non-recurring funds" each year, which are distributed to support various initiatives. We routinely apply for support from these annual funds, and the College has been forthcoming in terms of providing it.

The Department's recurring budget is calculated from all tenure-line and multi-year non-tenure-line salaries (with associated merit salary increases for faculty and staff) and our operating budget. Non-recurring funds contribute to all other non-tenure-line salaries. In comparison to our 2014 budget, we have added two tenure-line faculty and five multi-year non-tenure-line faculty on recurring funds. The non-recurring budget is negotiated annually at budget meetings. The numbers presented under "non-recurring" are within the norms of the requests made by the Department in the past.

Below, please see a selected list of the cost-items from the 2020–2021 Department budget, submitted to the Dean's office for a total of $38,317:

- General office expenses and supplies
- Equipment
- Leases and rentals
- Memberships
- IT peripheral
- Fees
- External services
- Student aid
- Software

Special Expenses Specific to 2020–2021: $1,779,727

- Graduate stipends
- Faculty computers
- Term salaries (previously referred to as fixed-term)

- Faculty, staff, and student wage benefits
- Startup expenses
- Kossman reviews
- Marketing and public relations advertising

Typical Annual Expenses: $7,241.14

- Computers
- Graduate studio
- Miscellaneous
- Model shop
- Undergraduate studio

Annual Expenses Supported by Endowment Funding: $68,000

- Chair in Design Innovation
- Lectures and exhibitions
- Final reviews

Minimal Impact of Enrollment Size: Any program of our size has fluctuations in terms of enrollment. For a few years now, approximately 80 incoming first-year students accepted their admission offers, instead of the usual 60. This has created a bubble of an additional 60 students currently advancing through the program. However, we are well equipped to deal with these fluctuations as part of normal operations. In fact, the general operating costs related to the additional students are negligible and have been easily absorbed in the current budget given that much of what we already do, such as the lecture series, career fair, and reviews take place regardless of the number of students enrolled.

Significant Impact of Endowment Funds: Designated to support the School of Architecture and Landscape Architecture, the Stuckeman Endowment has made a material difference to the life of the Department, making possible a much-expanded lecture series, improved computing facilities, faculty start-up grants, collaborative work, and much more.

Forecasts – Five-Year Projections of Revenue and Costs

	2021/22	2022/23	2023/24	2024/25	2025/26
Fixed Budget	$2,566,320	$2,811,092	$2,867,313	$2,924,660	$2,983,153
Temporary Budget	$383,013	$390,673	$398,486	$406,445	$414,585
Total	$2,949,333	$3,201,765	$3,265,799	$3,331,105	$3,397,738

5.8 Information Resources

The program must demonstrate that all students, faculty, and staff have convenient and equitable access to architecture literature and information, as well as appropriate visual and digital resources that support professional education in architecture.

Program Response

Library Resources: One of the larger academic libraries in the country, the University Libraries provides information resources for the Department both through the Architecture and Landscape Architecture (ALA) Library and through a rich network of resources. Library staff members strive to develop and maintain collections, facilities, and services suited specifically to the needs of the Department. Library staff also maintain close communications

with the Department's faculty, staff, and students. While challenges associated with rapid change, uncertain economic conditions, and limited space will always pose problems, a continued close working relationship is seen as key to achieving effective solutions.

Institutional Context: Library support of the Department of Architecture is provided primarily by the Architecture and Landscape Architecture Library (ALA Library), but also by the Engineering Library, the Arts and Humanities Library, and, more generally, by the entire group of 38 University Libraries spread throughout the Commonwealth. Each of these libraries is administered and funded by the University Libraries. The ALA Library holds materials on the current theory and practice of architecture and landscape architecture, as well as the modern history of architecture, landscape, and urban design back to the mid-nineteenth century. Materials on earlier periods of architectural history are collected in the Arts and Humanities Library. The Arts and Architecture Librarian administers the architectural collections at both of these locations. The Engineering Library collections on architectural engineering, structures, building systems, construction, and computer-aided design and manufacturing are of particular value to the Department of Architecture. A popular document delivery system permits the rapid movement of library materials between all University Libraries facilities including those at Penn State's 23 campuses. Delivery to offices is provided for faculty members and graduate students. With one mouse click, fixed-media items held by the University Libraries may be obtained within three weekdays.

Penn State University Libraries is ranked highly by the Association of Research Libraries, which comprises the largest academic libraries in North America. The Penn State paper-and-ink collections total roughly 6 million volumes. Approximately 2 million e-books are available. Titles of electronic journals number about 280,000. More than 100,000 videos are available, and more than half of those via streaming.

Typical of major land-grant universities, Penn State supports a wide array of disciplines and programs. Since the University Libraries supports each of these, interdisciplinary approaches to design are usually easily managed. The rare treasures of a major research collection are often useful for teaching and research in architecture. For example, the Special Collections Library has several collections that are used by individuals or visited by classes. These include an excellent collection of pre-nineteenth-century treatises on architecture and art, two collections of architectural photography (by F.S. Lincoln and Edward Bye) and architectural records related to campus planning and the development of central Pennsylvania. Recently, archival materials in the Special Collections Library provided the focus for a Stuckeman School team pursuing a multi-year research project on the early history of double-skin glass façades. The Maps Library also holds many useful materials. Further, the Earth and Mineral Sciences Library has supporting collections focused on innovative materials and green design, whereas the News and Microfilms Library offers approximately 10,500 items related to architectural history.

Collections: The Libraries offers a broad and deep collection of materials useful for the study of architecture in both digital and fixed media. The NA category of the Library of Congress Classification system is used for architecture, but represents the discipline only by its narrowest, 19th-century definition. For example, the ALA Library houses roughly 19,000 titles of paper books and journals (or nearly 30,000 volumes) but only about half of those (10,870 titles) are classified in NA. Nonetheless, the NA group can be used to show the distribution of design collections throughout the University Libraries.

Titles Classified in NA	
ALA Library (fixed media)	10,870
System-wide digital media	3,300
Non-ALA Library (fixed media)	20,000
Total NA titles	34,170
"Titles" excludes articles within books and journals	

These numbers should not be misinterpreted as a total for the collection supporting the architecture programs. In fact, the Libraries is increasingly obtaining titles outside the NA classification in support of the architecture programs. However, the numbers show that the ALA Library serves as a "hot-spot" providing access to the most frequently used materials and that a larger portion of materials is available in other parts of the system.

The University Libraries licenses more than 800 databases and makes them available to Penn State users at any location. The Summon discovery layer software (LionSearch at https://libraries.psu.edu) provides a single searching environment for most of the licensed digital collections and for some open access collections. A few databases must be searched separately. To help students navigate this array of resources, the ALA Library staff produces multiple research guides and course guides including the following:

- Architecture (basic, undergraduate guide): http://guides.libraries.psu.edu/architecture
- Architecture: Central Pennsylvania: https://guides.libraries.psu.edu/CentreCountylocalarchitecture
- Architecture: University Park Campus: https://guides.libraries.psu.edu/UPcampusarchitecture
- Art and Architectural History: http://guides.libraries.psu.edu/ArtHistory
- Landscape Architecture: https://guides.libraries.psu.edu/landscapearchitecture
- Special Collections: Architecture and Landscape: https://guides.libraries.psu.edu/SC/Architecture

Collecting: The Department of Architecture's programs guide additions to the Libraries' collections. Priority is given to publications that exemplify quality in design, address design responses to social, technological, and cultural change, and/or demonstrate the cultural diversity of design. The collection focuses on the art, practice, and societal aspects of architecture (e.g., green design, community-based design, virtual space, and representation). The science and technology of architecture are also included, with recognition that these aspects of the discipline are collected much more intensely by Penn State's Engineering Library (only a 10-minute walk from the Stuckeman Family Building) in support of the College of Engineering's architectural engineering program. Requests from faculty or students for additions to the collections are solicited, always welcomed, and seldom turned down.

Video Collections: The ALA Library houses a specialized collection of roughly 150 DVDs on design subjects, which circulate either for classroom presentation or individual viewing. The University Libraries has licensed roughly 80,000 videos for streaming, including many excellent documentaries on architecture, planning, and sustainability produced by Bullfrog Films, Icarus Films, PBS, the BBC, and many others (http://guides.libraries.psu.edu/videoresources).

Visual Resources Collections: The University Libraries began providing digital images for architecture in 2002 and since that time has assembled a rich assortment of resources. Licensed images include subscription databases, such as *ARTstor*, which contain millions of images of art and architecture. These are supplemented by a multitude of locally mounted image databases that fill gaps and meet special local needs. Key examples are as follows:

- **Worldwide Building and Landscape Pictures**: A Penn State–only database of 28,082 images of major monuments in the history of architecture and landscape design. Most are licensed from professional photographers, although more than 5,000 are from Penn State faculty who have granted permission to also post them on our Flickr photostream for all educational users: http://www.flickr.com/photos/psulibscollections/.
- **Central Pennsylvania Architecture and Landscape Architecture**: Since January 2013, this public database has documented the architecture of our region with photographs and extensive cataloging. Currently populated with more than 1,100 images with a strong emphasis on mid-century Modernism, including the works of many former Department of Architecture faculty members, the database will grow to include all aspects of central Pennsylvania's built environment (accessible worldwide).

- **University Park Campus History Collection**: This collection comprises several hundred images of drawings and photographs documenting campus planning at Penn State (accessible worldwide).
- **Art History Department Visual Resources Collection**: This is a Penn State–only collection of more than 99,000 images of the history of art and architecture.

The University Libraries manages common software for these locally managed collections, which can be searched simultaneously.

Services: The University Libraries offers a full array of library and information services. Too numerous to list here, the services can be browsed on the Libraries home page: https://libraries.psu.edu/. A small selection of services of particular are as follows:

- **Partnership Services**: ALA Library staff members see their role as partners, working as closely as possible with the faculty and staff of the Stuckeman School, not only on research but also on development and outreach endeavors. The full-time staff, in particular, take a genuine interest in the Department of Architecture, attending our lectures and events, obtaining and displaying publications by and about our guest speakers, and following the School's listservs and Tweets. Further, they also create extensive library exhibits (real and virtual) to respond to the interests and activities of the School. For example, in light of a high level of interest in diversity in the design professions, library staff polled the faculty for examples of important women writers on design for an exhibit that was recognized with the University Libraries Diversity Award. Additionally, library staff sometimes speak to classes, help with design critiques, and serve as clients for design-build projects..

- **Digital Repository Services**: The University Libraries maintains a digital repository (ScholarSphere at https://scholarsphere.psu.edu) where Penn State users can place files for permanent storage and access. Recent uses within the Stuckeman School have included a soon-to-be completed collection of 60 posters documenting the work of Stuckeman School researchers.

- **Library as Place Services**: In keeping with a general trend in academic libraries and with the Stuckeman School's interest in encouraging collaboration, the ALA Library strives to maximize the value of its physical facilities for occupants of the Stuckeman Family Building as well as others in the "Arts Quadrant" of the University Park campus. In recent years, these efforts have included:
    - Developing a small Iconic Modern Chair Collection
    - Liberalizing the policies for use of the rooms in the ALA Library
    - Improving the furniture, equipment, and software available for group interactions
    - Making an assortment of scanners and additional hardware accessories (interactive pens for the computing labs, cables, rechargers, headphones, jump drives, book carts, etc.) available for loan at the service desk

  All physical improvements have been managed with a strong (and sometimes expensive) commitment to respecting the building's existing design concept and tone. This attractive library space is well known at Penn State and a popular commons.

- **Instruction Services**: At the request of a member of the faculty, the Arts and Architecture Librarian or another ALA Library staff member provides classroom instruction in library and Internet research resources and techniques. These presentations are tailored to the needs of specific course assignments. For more than a decade, first-year architecture students have participated in an initial library orientation related to a precedent assignment and a more extensive research skills session related to ARCH 311w — the writing-intensive course. Library staff often serve as readers of drafts developed by ARCH 311 students. Sessions for graduate students usually consist of an initial greeting event, a class session introducing students to library and Internet research early in their first semester, and follow-up one-on-one coaching sessions after students have decided on the direction of their research projects.

Further, the program must demonstrate that all students, faculty, and staff have access to architecture librarians and visual resource professionals who provide discipline-relevant information services that support teaching and research.

Program Response

Library Hours: Before the pandemic, the ALA Library was open 87.25 hours a week. However, at present, it is open 70 hours over six days a week (closed on Saturdays) during the fall and spring semesters (summer hours vary). Building traffic is presently being monitored in hopes of returning to longer hours. However, ALA Library staff frequently respond to email queries at surprising times of day and night. The popular Collaboration Commons in nearby Pattee/Paterno Library is currently open 102 hours a week. Service hours there are monitored rigorously and changed annually as traffic requires.

Staffing: The ALA Library enjoys a reputation for providing good service thanks primarily to the quality of its full-time staff who are credentialed, experienced, and recognized as leaders at the University Libraries:

- Stephanie Movahedi-Lankarani, Library Manager
  - BA Art History
  - 37 years' experience at the University Libraries
  - Recipient of the Margaret Knoll Spangler Oliver Libraries Award
- Laurin Davis, Information Specialist
  - BA Art History, MA Architectural History, PhD Art History (American architecture)
  - 3 years' experience at the University Libraries
  - Publication record: articles on American architecture
- Henry Pisciotta, Arts and Architecture Librarian (Associate Librarian)
  - BFA Theater, MA Library Science, MA Art History, coursework towards PhD Art History
  - 38 years' experience in architecture libraries, 22 at the University Libraries
  - Publication record: articles on architecture
- Robert Gordon Peterson, Information Generalist
  - 7 years' experience in academic libraries

Part-Time Staff: A part-time staff roughly equivalent to 2.5 full-time positions supplements the full-time staffing. An unusual feature of the staffing is that the Arts and Architecture Librarian has many duties in the University's main library (Pattee) and routinely spends only one or two days a week at the ALA Library (and also by appointment). However, other staff members have both the skills and authority to handle nearly all immediate needs.

6—Public Information

The NAAB expects accredited degree programs to provide information to the public about accreditation activities and the relationship between the program and the NAAB, admissions and advising, and career information, as well as accurate public information about accredited and non-accredited architecture programs. The NAAB expects programs to be transparent and accountable in the information provided to students, faculty, and the public. As a result, all NAAB-accredited programs are required to ensure that the following information is posted online and is easily available to the public.

6.1 Statement on NAAB-Accredited Degrees

All institutions offering a NAAB-accredited degree program or any candidacy program must include the exact language found in the NAAB Conditions for Accreditation, 2020 Edition, Appendix 2, in catalogs and promotional media, including the program's website.

Program Response

The B.Arch degree appears on Penn State's Faculty Senate website, as follows:

> The Department of Architecture is a member of the Association of Collegiate Schools of Architecture and the Bachelor of Architecture Degree is accredited by the National Architectural Accrediting Board. The major provides for the education of architects at the professional level.
>
> In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 8-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.
>
> Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree. (Excerpt from NAAB Conditions for Accreditation, 2009 Edition)
> https://bulletins.psu.edu/undergraduate/colleges/arts-architecture/architecture-barch/

NAAB Guide to Student Performance: All incoming students are informed of the NAAB Guide to Student Performance Criteria during a fall semester orientation session. A paper copy is distributed. Students are also informed that the NAAB site is listed on the architecture web site at https://arts.psu.edu/accreditation/accreditation-penn-state-architecture-programs/ and the NAAB web site at: http://www.naab.org/. The same information is shared with all faculty at the first faculty meeting of the academic year. In addition, during the candidacy period, all information regarding the candidacy status of the program was shared at all the above venues.

6.2 Access to NAAB Conditions and Procedures

The program must make the following documents available to all students, faculty, and the public, via the program's website:

a) Conditions for Accreditation, 2020 Edition
b) Conditions for Accreditation in effect at the time of the last visit (2009 or 2014, depending on the date of the last visit)
c) Procedures for Accreditation, 2020 Edition
d) Procedures for Accreditation in effect at the time of the last visit (2012 or 2015, depending on the date of the last visit)

Program Response
All Required Documentation Available as a Collection Online: All the required documents are available via the program's website here: https://arts.psu.edu/accreditation/accreditation-penn-state-architecture-programs/.

6.3 Access to Career Development Information

The program must demonstrate that students and graduates have access to career development and placement services that help them develop, evaluate, and implement career, education, and employment plans.

Program Response
University Resource;

- **University Careers Website**: The University's Nittany Lion Careers offers a dedicated website where firms can post employment opportunities accessible to students and alumni: https://sites.psu.edu/hpainternship/nittany-lion-career-network/.

School Resources:

- **School Career Advisor**: As described in As described in Section 1 – Context and Mission, all our students have access to a qualified Career Advisor at the School level. The Career Advisor organizes events and offers one-on-one counseling sessions.
- **Career Day**: As described in Section 5.4.4, Career Day is an annual event the event that connects students with firms for internships, and career placement opportunities.
- **Website**: Stuckeman School Career Services shares resources with prospective students, current students, and alumni through its website: https://sites.psu.edu/stuckemancareers/.

Department Resources:

- **Departmental Website**: The following resources are linked to Penn State's architecture program website (https://arts.psu.edu/accreditation/accreditation-penn-state-architecture-programs/):
    - American Institute of Architects (AIA) website
    - AIA: Center for Emerging Professionals
    - AIAS: "Studio Culture: Stories and Interpretations"
    - American Institute of Architecture Students (AIAS) website
    - Association of Collegiate Schools of Architecture (ACSA) website
    - Architect Registration Examination (ARE) Pass Rates
    - National Council of Architectural Registration Boards (NCARB) Architectural Experience Program (AXP) website
    - NCARB AXP Guidelines
    - NCARB "Becoming an Architect"

- **Mentoring**: As described in Section 1 – Context and Mission, the Architecture Alumni Group (AAG) provides the Alumni Mentoring Program, through which students connect with alumni who are excited to share their professional experience and discuss industry opportunities and trends. The Department offers a student peer Mentoring Program.

6.4 Public Access to Accreditation Reports and Related Documents

To promote transparency in the process of accreditation in architecture education, the program must make the following documents available to all students, faculty, and the public, via the program's website:

a) All Interim Progress Reports and narratives of Program Annual Reports submitted since the last team visit
b) All NAAB responses to any Plan to Correct and any NAAB responses to the Program Annual Reports since the last team visit
c) The most recent decision letter from the NAAB
d) The Architecture Program Report submitted for the last visit
e) The final edition of the most recent Visiting Team Report, including attachments and addenda
f) The program's optional response to the Visiting Team Report
g) Plan to Correct (if applicable)
h) NCARB ARE pass rates
i) Statements and/or policies on learning and teaching culture
j) Statements and/or policies on diversity, equity, and inclusion

Program Response

Accreditation Documents: The following documents pertaining to accreditation are available from the Department of Architecture as well as on our website:

- All Annual Reports, including the narrative
- All NAAB responses to the Annual Reports
- Final decision letter from the NAAB
- Most recent APR
- Final edition of the most recent Visiting Team Report, including attachments and addenda

NAAB Website and ARE Pass Rates: The NAAB website and ARE Pass Rates are both linked to the Architecture accreditation website. The pass rates currently relate to our accredited B.Arch program: https://arts.psu.edu/accreditation/accreditation-penn-state-architecture-programs/.

Statements and/or Policies on Learning and Teaching Culture:

- Penn State's Core Values are posted on the homepage: https://www.psu.edu/this-is-penn-state/mission-and-values/

Statements and/or Policies on Diversity, Equity, and Inclusion:

- The University's Nondiscrimination/Affirmative Action Statement and ADA Statement are posted on the Penn State Educational Equity website:
    - http://equity.psu.edu/diversity-statement
    - http://equity.psu.edu/communications-marketing/statements

- Penn State Policy AD85 Title IX Sexual Harassment policy is available on Penn State's Administrative Policies Website: https://policy.psu.edu/policies/AD85

6.5 Admissions and Advising

The program must publicly document all policies and procedures that govern the evaluation of applicants for admission to the accredited program. These procedures must include first-time, first-year students as well as transfers from within and outside the institution. This documentation must include the following:

a) Application forms and instructions
b) Admissions requirements; admissions-decisions procedures, including policies and processes for evaluation of transcripts and portfolios (when required); and decisions regarding remediation and advanced standing
c) Forms and a description of the process for evaluating the content of a non-accredited degrees
d) Requirements and forms for applying for financial aid and scholarships
e) Explanation of how student diversity goals affect admission procedures

Program Response

Penn State will evaluate, for possible transfer credit, coursework that students have completed at other colleges and universities. The Undergraduate Admissions Office will determine which credits transfer to the University and the academic unit will determine how those credits will be used to fulfill degree requirements in the program of study.

Students who wish to be considered for advanced standing admission to The Pennsylvania State University in the Bachelor of Architecture program are required to submit an application for admission to the Undergraduate Admissions Office by December 31 and a portfolio of creative work to the Department of Architecture. Portfolios are accepted between January 1 and February 15. A Department of Architecture faculty committee is responsible for reviewing the portfolios and making recommendations to the Department Head concerning admission to the program and the appropriate studio level if admission is recommended. The Department Head will select students for admission based on the committee's recommendations, the availability of space within the program, and the determination of the Undergraduate Admissions Office that students have met the institution's academic standards for advanced standing admission.

Students who are offered advanced standing admission to the program will have coursework, which may be used to satisfy the University's General Education requirements, evaluated by the College of Arts and Architecture. The Department of Architecture will evaluate transcripts and descriptions of those courses which may be relevant to the major to determine how students will be able to use that coursework to fulfill degree requirements. The determinations of both the College and Department will be entered on the University's degree audit system and students will be sent copies of their degree audits.

Student progress is evaluated each and every semester by the faculty who are teaching the courses in which the students are enrolled. University policy indicates that students must earn a grade of C or better in every course that has been designated as a C-required course in the major. The Department of Architecture has determined that all courses which are required for the major will be "C-required" courses. Students who do not earn a C or better will be required to repeat the coursework if they wish to continue in the program. Students who do not earn a C or better in design studio coursework must repeat that work and

remediate weaknesses before advancing to the next studio level. This process involves at least a full year delay in advancement through the studio sequence.

The University's standards for graduation indicate that students must have at least a 2.00 cumulative grade point average and must have earned a C or better in all courses designated as C-required courses in the major. The students' academic records are therefore reviewed every semester to help them meet requirements for the major and remain in good standing in the program.

https://arts.psu.edu/how-to-apply/#arch-undergrad

6.6 Student Financial Information

6.6.1 The program must demonstrate that students have access to current resources and advice for making decisions about financial aid.

Program Response
Office of Student Aid: Penn State's Office of Student Aid is the primary resource for students seeking information and advice in regard to financial aid: http://studentaid.psu.edu/.

Sokolov-Miller Family Financial and Life Skills Center: Enrolled students can attend webinars offered by this endowed center and schedule an appointment to receive valuable advice and guidance pertinent to managing their financial affairs: https://financialliteracy.psu.edu/.

6.6.2 The program must demonstrate that students have access to an initial estimate for all tuition, fees, books, general supplies, and specialized materials that may be required during the full course of study for completing the NAAB-accredited degree program.

Program Response
Student Expenses Estimates: Students can access http://www.bursar.psu.edu/ for an initial estimate for all tuition, fees, and books.

7—APPENDIX

7.1 JEDI Document – 2020

Document on justice, equity, diversity, inclusion. Department of Architecture. Fall 2020

Events of the past year have inspired re-thinking equity in our daily lives, but also in our professional environments. In order to get a better sense of the experiences of our students of color, the Department Head reached out to a group of alumni of color and spoke with them, in order to hear directly about their experiences as students in our department. Meeting notes were collected, collated into common topics and shared with the Architecture faculty in our Fall retreat, August 21, 2020. We spent significant time discussing equity, the conversations with alumni, and have participated in ongoing meetings with the Penn State Architecture Alumni Group's Diversity Inclusion and Equity Task Force. This resulted in the following document on "justice, equity, diversity, inclusion." The document outlines topics brought up by our alumni, and in each case records how we approach the topic as a department and our ongoing efforts towards positive change. In that sense, it is a self-reflective document that lays out who we are and how we will address positive change in relation to the topics of justice, equity, diversity, and inclusion.

Culture and philosophy of the Department

Our department philosophy has evolved to become student centric. We want to help every student achieve success and ensure that all students have agency and guidance, so they can accomplish their best work and discern their own paths.

The gate-keeping philosophy that was once prevalent in some schools—even the faculty's own education decades ago—is not our current culture. There is no quota, or "boot camp" philosophy. We advocate for every student admitted to our program. Each student receives our attention in helping them succeed.

We recognize the successful embodiment of this culture and philosophy will require participation and reflection from all members of the administration, faculty, and staff. This effort is ongoing and incomplete. Currently, for example, a disproportionate number of students of color (Black, Latinx, Asian American, and others) leave the program or struggle to succeed academically. We commit to the efforts in this document towards positive change.

Ongoing efforts

- Serve as advocates for every engaged student
- Work collectively to uphold our department philosophy
- Work as educators, not as gate-keepers
- Evaluate why students of color leave the program in disproportionate numbers
- Investigate and understand areas of bias in the program

Diversity in backgrounds:

Our students come to us with diverse backgrounds. We celebrate the added dimension that each student brings to our program and we want to retain it. Diversity in the student body contributes positively to the educational experiences of all students (per Penn State, definition of diversity includes differences in race and ethnicity, gender and sexual orientation, religious affiliation, age and life experience, nationality and language, physical capabilities, and is inclusive of first-generation college/graduate students,) and improves the diversity of the environment for all students, faculty and staff.

Ongoing efforts

- Increase the diversity of our student body so that it reflects the society it serves
- Provide additional education about how to teach with inclusivity, particularly of groups that experience social marginalization elsewhere
- Recognize and value diversity in all its forms

Studio culture

The studio culture statement that we developed collectively with our students is a great document. We follow its principles and educate our students about its importance for everyone.

Ongoing efforts

- Read the studio culture statement with students
- Refer to the studio culture statement regularly
- Mentor students on time management
- Mentor students against "all-nighters"
- Mentor students to develop healthy learning and life habits
- Craft curricula to foster an inclusive environment.

Criticism

Reviews and critiques are foundational to our education, both in helping students achieve better results, and, most importantly, educating them to value an iterative process, self-reflection, and critical practice. Constructive criticism can be enlightening and empowering. However, its reverse can be humiliating and destructive. Constructive criticism helps students recognize gaps and weaknesses in their work, skills, and knowledge, presents these as opportunities for growth, and helps each student address those limitations and even transform them into strengths. In order for this to happen, students must know that they can be open and vulnerable to their faculty with their weaknesses. This knowledge requires each student to bestow trust on the faculty, and it also requires each faculty to earn that trust through constructive criticism.

Ongoing efforts

- Provide constructive criticism that supports student growth and improves work quality
- Provide a positive, trusting environment that helps students learn from feedback

Grading

Our students are among the highest achieving in the country. They are used to succeeding in their coursework. Many on scholarship need to maintain certain minimum grades. Assessing student performance is a part of faculty responsibilities. We must communicate to students that although grades for creative work necessarily include subjective aspects, evaluation is not arbitrary. To help them better understand how they can succeed in our program and prepare them for a demanding, competitive profession, we should present more transparent grading systems that communicate assessment criteria to our students openly and clearly. In addition, students of diverse backgrounds come to us with different levels of design and academic preparation. We must recognize how their varied opportunities affect their performance, especially in the beginning semesters of architectural education. We also must recognize that students from diverse backgrounds can enrich the design studio through their unique perspectives. In our beginning years especially, we must assess progress by considering each student individually using clear assessment criteria, and not in comparison with their peers.

Ongoing efforts

- Develop grading rubrics that communicate grading criteria
- Grade individual progress instead of comparative grading among students
- Focus on helping students identify areas for growth, understand their importance for future success, and develop strategies for progress
- Develop a tutoring program, utilizing our loyal alumni to assist students who need remedial help over the summers, at no cost to students

Finances:

When calculating educational costs, many students do not foresee the burden of studio expenses. Finances also affect the ability of some of our students to socialize with their peers, strongly felt on trips and during the semester abroad. We need to develop sensitivity to these issues. In addition to donors and endowments assisting with finances (already going on with the alumni fund-raising in 2020), we should develop internal systems to assist our students of limited means with materials, supplies, and starter kits.

Ongoing efforts

- Consider dividing the first-year supply kits into "hard" and "soft", where "hard" stays with the first-year desks, and soft goes with students
- Develop a recycling center in studio for material redistribution
- Work with the development office in assigning SA-designated endowment funds and gifts to address the financial barriers of study abroad
- Continue and enhance study abroad opportunities in locations beyond western Europe
- Develop financial assistance for field trips
- Improve recruiting, orientation, and parent programming to inform incoming students about "soft" costs

Access to Opportunities:

Professional experiences in practice, research, and creative expression are essential as students discern their place in our discipline. We are committed to curating opportunities for all our students. Such opportunities are a crucial foundation for their future success, both in school and as alumni.

Ongoing efforts

- Curate professional, research, and other opportunities
- Help students meet future possible employers and outside mentors
- Help students gain outside recognition by applying for grants, competitions, and awards

NOMAS:

NOMAS serves two powerful and essential roles. First, it offers essential forms of direct support to students from all under-represented groups. Second, it gives the students collective visibility and a voice in the departmental culture.

Ongoing efforts

- Support NOMAS and Introduce it to all first-year students, along with all other student organizations
- Encourage all under-represented students to participate in NOMAS and other student organizations
- Provide additional funding towards NOMAS annual conference and competition

- Incorporate NOMAS competition into an elective course offered by the NOMAS advisor
- Fund and support annual NOMAS sponsored lecture

Faculty:
When students see themselves in the profession they are preparing to join, this helps increase their motivation and confidence. We must work together to increase the diversity of our faculty and staff, so it may reflect the diversity of our society. We also need to better understand the experiences of our colleagues and students with diverse backgrounds.

Ongoing efforts
- Be on a constant look-out for more diverse new faculty, whether for formal TT searches or visiting faculty
- Commit to individual and collective education about racism and bias

Curriculum
The history of architecture and current global practice both point to the diverse resources for and origins of our discipline. In order to prepare our students to practice in a diverse world with global inclinations, we need to educate them about many parallel origins, diverse precedents and contemporary practices.

Ongoing efforts
- Introduce non-Western content into our courses and discourse
- Actively add non-Western precedents to our studios and courses
- Introduce diverse architects and their work in our courses and studios
- Take every opportunity to invite diverse colleagues as guest reviewers and lecturers
- Develop more diversity in our curriculum by teaching courses in non-Western and African architecture
- Select studio sites in diverse environments and explore models for responsible community engagement
- Engage considerations about race, class, gender diversity, sexual orientation, and social issues in studio site selection and in supporting history/theory courses
- Develop studio programs that represent a diverse set of problem considerations
- Introduce non-competitive, cohort-building collaborative projects in studios
- Organize group projects to ensure students work in diverse groups

7.2 Stuckeman School Software – 2021–2022

Stuckeman School Software – 2021-22

Autodesk Education	Autodesk	Suite
AutoCAD for Mac	Autodesk	Application
AutoCAD Civil 3D	Autodesk	Application
Sweets for AutoCAD	Dodge Data & Analytics	Plugin:AutoCAD
AutoCAD Architecture	Autodesk	Application
Sweets for AutoCAD	Dodge Data & Analytics	Plugin:AutoCAD
Autodesk Desktop Connector	Autodesk	Utlility
Dynamo Studio	Autodesk	Application
3ds Max	Autodesk	Application
V-Ray Next for 3Ds Max	Chaos Group	Plugin:3ds Max
FormIt Pro for Students	Autodesk	Application
Fusion 360	Autodesk	Application
Slicer for Fusion	Autodesk	Plugin:Fusion
Fusion 360 (Mac)	Autodesk	Application
Infraworks 360	Autodesk	Application
Inventor	Autodesk	Application
Maya (Mac)	Autodesk	Application
Maya	Autodesk	Application
Mudbox	Autodesk	Application
Mudbox (Mac)	Autodesk	Application
Navisworks Manage	Autodesk	Application
Sketchbook Pro (Mac)	Autodesk	Application
Recap Pro	Autodesk	Application
Revit	Autodesk	Application
FormIt for Revit	Autodesk	Plugin:Revit
Insights 360	Autodesk	Plugin:Revit
Lumion LiveSync for Revit	Act-3D B.V.	Plugin:Revit
Twinmotion Direct Link for Revit	Epic Games	Plugin:Revit
Sweets for Revit	Dodge Data & Analytics	Plugin:Revit
Tally for Revit	KT Innovations	Plugin:Revit
V-Ray Next for Revit	Chaos Group	Plugin:Revit

Robot Structural Analysis Professional	Autodesk	Application
Adobe CreativeCloud	**Adobe**	**Suite**
Adobe CreativeCloud	Adobe	Suite
Acrobat Pro - CreativeCloud	Adobe	Application
Audition	Adobe	Application
Acrobat Pro	Adobe	Application
After Effects	Adobe	Application
Bridge	Adobe	Application
Dimension	Adobe	Application
Dreamweaver	Adobe	Application
Illustrator	Adobe	Application
InCopy	Adobe	Application
InDesign	Adobe	Application
Media Encoder	Adobe	Application
Photoshop	Adobe	Application
Premiere Pro	Adobe	Application
Esri ArcGIS	**Esri**	**Suite**
ArcGIS Desktop Advanced	Esri	Application
ArcGIS Pro	Esri	Application
CityEngine	Esri	Application
ArcGIS Earth	Esri	Application
Rhinocerous		
Rhincerous (Mac)	McNeel	Application
Rhincerous (PC)	McNeel	Application
Firefly	Firefly Experiments	Plugin:Rhino
Panda	panda_architect@outlook.com	Plugin:Rhino
Paneling Tools	McNeel	Plugin:Rhino
RhinoTerrain	RhinoTerrain	Plugin:Rhino
RhinoNest	TDM Solutions	Plugin:Rhino
V-Ray Next for Rhino	Chaos Group	Plugin:Rhino
Lands Design	Lands Design	Plugin:Rhino
Lumion LiveSync for Rhino	Act-3D B.V.	Plugin:Rhino
Twinmotiion Direct Link for Rhino	Epic Games	Plugin:Rhino
Section Tools	McNeel	Plugin:Rhino

UNA Toolbox	City Form Lab at the GSD	Plugin:Rhino
Grasshopper for Mac	McNeel	Plugin:Rhino
Grasshopper	Grasshopper 3D	Plugin:Rhino
Bumblebee	Neoarchaic	Plugin:Grasshopper
Cheetah	TUDelft	Plugin:Grasshopper
DeCodingSpaces Toolbox	Computational Planning Group	Plugin:Grasshopper
DIVA	Solemma LLC	Plugin:Grasshopper
Elk		Plugin:Grasshopper
GhExcel	McNeel	Plugin:Grasshopper
Ghowl		Plugin:Grasshopper
GhPython	McNeel	Plugin:Grasshopper
Goat	McNeel	Plugin:Grasshopper
Groundhog	Philip Belesky @ RMIT University	Plugin:Grasshopper
HAL Plugin for Grasshopper	HAL Robotics	Plugin:Grasshopper
Heron		Plugin:Grasshopper
Honeybee	Grasshopper 3D	Plugin:Grasshopper
Hoopsnake	Yannis Chatzikonstantinou	Plugin:Grasshopper
Human UI	NBBJ Digital Practice	Plugin:Grasshopper
Karamba 3D	Karamba3D	Plugin:Grasshopper
Kangaroo	McNeel	Plugin:Grasshopper
Ladybug	Grasshopper 3D	Plugin:Grasshopper
Leafcutter	Flux.io	Plugin:Grasshopper
Lunchbox	Proving Ground	Plugin:Grasshopper
Meerkat	Nathan Lowe	Plugin:Grasshopper
MetaHopper	McNeel	Plugin:Grasshopper
Octopus	McNeel	Plugin:Grasshopper
Quelea	Quelea Fisher	Plugin:Grasshopper
Shortest Walk	McNeel	Plugin:Grasshopper
TT Toolbox	Thornton Tomasetti	Plugin:Grasshopper
UMI	Sustainable Design Lab at the MIT	Plugin:Grasshopper
Voronax	McNeel	Plugin:Grasshopper
Weaverbird	McNeel	Plugin:Grasshopper

SketchUp		
Sketchup Pro (Mac)	Trimble	Application
Sketchup Pro (PC)	Trimble	Application
2D Tools	SketchUcation	Plugin:SketchUp
Artisan Organic Modeling	Artisan	Plugin:SketchUp
Bezier Spline	SketchUcation	Plugin:SketchUp
BooTools 2	mind.sight.studios	Plugin:SketchUp
Contour Maker	SketchUcation	Plugin:SketchUp
CLF-component-stringer	Chris Fullmer	Plugin:SketchUp
CLF-shape-bender	Chris Fullmer	Plugin:SketchUp
CLF-scale-and-rotate-multiple	Chris Fullmer	Plugin:SketchUp
CLF Color by Slope	Chris Fullmer	Plugin:SketchUp
CLF Color by Z	Chris Fullmer	Plugin:SketchUp
DropGC	Smustard	Plugin:SketchUp
Euclid	Big Ladder Software	Plugin:SketchUp
Fredoscale	SketchUcation	Plugin:SketchUp
Joint Push Pull Interactive	SketchUcation	Plugin:SketchUp
Laubwerk Player Plugin	Laubwerk	Plugin:SketchUp
Laubwerk Plants	Laubwerk	Library
LibFredo	SketchUcation	Plugin:SketchUp
LumenRT Exporter	e-on Software	Plugin:SketchUp
Lumion LiveSync for SketchUp	Act-3D B.V.	Plugin:SketchUp
Twinmotion Direct Link for SketchUp	Epic Games	Plugin:SketchUp
RoundCorner	SketchUcation	Plugin:SketchUp
Tools On Surface	SketchUcation	Plugin:SketchUp
Toposhaper for SketchUp	SketchUcation	Plugin:SketchUp
MultiWallTool	SketchUcation	Plugin:SketchUp
Path Copy	Smustard	Plugin:SketchUp
PlaceMaker	mind.sight.studios	Plugin:SketchUp
Set Arc/Curve Segments	SketchUcation	Plugin:SketchUp
Shapes	SketchUp Team	Plugin:SketchUp
Soap Skin Bubble	Fredo	Plugin:SketchUp
Simplify Contours Tool	SketchUp Team	Plugin:SketchUp
Skatter for SketchUp	Skatter	Plugin:SketchUp

Toposhaper for SketchUp	Josef	Plugin:SketchUp
TT Cleanup	ThomThom	Plugin:SketchUp
TT Lib	ThomThom	Plugin:SketchUp
s4u Make Face	Suforyou	Plugin:SketchUp
SketchOSM	mind.sight.studios	Plugin:SketchUp
V-Ray Next for SketchUp	Chaos Group	Plugin:SketchUp
VisuHole	SketchUcation	Plugin:SketchUp
Weld	Smustard	Plugin:SketchUp
Windowizer	Smustard	Plugin:SketchUp
Dassault		
Solidworks	Dassault Systems	Application
Apple Suites		
Apple iLife Suite	Apple Computer	Suite
Photos	Apple Computer	Application
iMovie	Apple Computer	Application
GarageBand	Apple Computer	Application
Apple iWork Suite	Apple Computer	Suite
Keynote	Apple Computer	Application
Numbers	Apple Computer	Application
Pages	Apple Computer	Application
Others		
7-Zip	7-Zip	Utility
Abaqus (Finite Elements Analysis)	InFlow	Application
Arduino IDE	Arduino	Application
Blender	Blender	Application
Blender (Mac)	Blender	Application
Camtasia Studio	TechSmith	Application
Climate Consultant (Mac)	UCLA Energy Design Tools	Application
CONTAM	NIST	Application
Cura	Utimaker	Application
EnergyPlus (Mac)	US Department of Energy	Application
EnergyPlus (PC)	US Department of Energy	Application
EpsonScan	Epson	Utility
eQuest 3.65	US Department of Energy	Application

FileMaker Advanced (PC/Mac)	FileMaker	Application
Finite Element Analysis (FEA)	ANSYS	Application
Firefox	Mozilla	Application
form•Z Pro (Mac)	AutoDesSys	Application
form•Z Pro (PC)	AutoDesSys	Application
FreeForm Modeling	Sensable Technologies	Application
Geomagic Studio	3D Systems	Application
Geomagic Design X	3D Systems	Application
Gephi	Gephi	Application
GBRL controller	Zapmaker	Utility
Google Earth Pro	Google	Application
Google Earth Pro (Mac)	Google	Application
HEED (Mac)	UCLA Energy Design Tools	Application
HyGCHP	Seventhwave	Application
Jupyter Notebook	Jupyter Project	Application
Lumion Educational PRO	Act-3D B.V.	Application
Machina	C3	Application
MATLAB	The MathWorks, Inc.	Application
MLE+ Co Simulation		Application
NetLogo	Uri Wilensky at CCL	Application
NVivo for Windows	QSR International	Application
NVivo for Mac	QSR International	Application
OpenStudio (Mac)	Alliance for Sustainble Energy	Application
Python	Python	Application
QGIS	QGIS Project	Application
QGIS for Mac	QGIS Project	Application
RhinoCAM-MILL - EDU Pro	MEC Soft	Application
R	R-Project	Application
RobotStudio	ABB	Application
RStudio	RStudio	
Steam	Valve Corporation	Application
Sublime Text	Sublime HQ Pty Ltd	Utility
System Advisor Model (SAM)	NREL	Application
Therm	US Department of Energy	Application

Twinmotion (Mac)	Unreal Engine	Application
Twinmotion (PC)	Unreal Engine	Application
Unity 3D PRO EDU (Mac)	Unity Technologies	Application
Unity 3D PRO EDU	Unity Technologies	Application
VectorWorks Designer (Mac)	Nemetschek	Application
VectorWorks Designer (PC)	Nemetschek	Application
Visio	Microsoft	Application
Visual Studio	Microsoft	Application
WINDOW	US Department of Energy	Application
Radiance	DEFuller and AMcneil	Plugin:Window
WUFI Passive Free	PHIUS	Application
WUFI Plus Free	PHIUS	Application
WUFI Pro (ORNL)	PHIUS	Application
Zotero	Zotero	Application
Mach 3		

Cloud Subscriptions		
Conceptboard	Conceptboard	Cloud

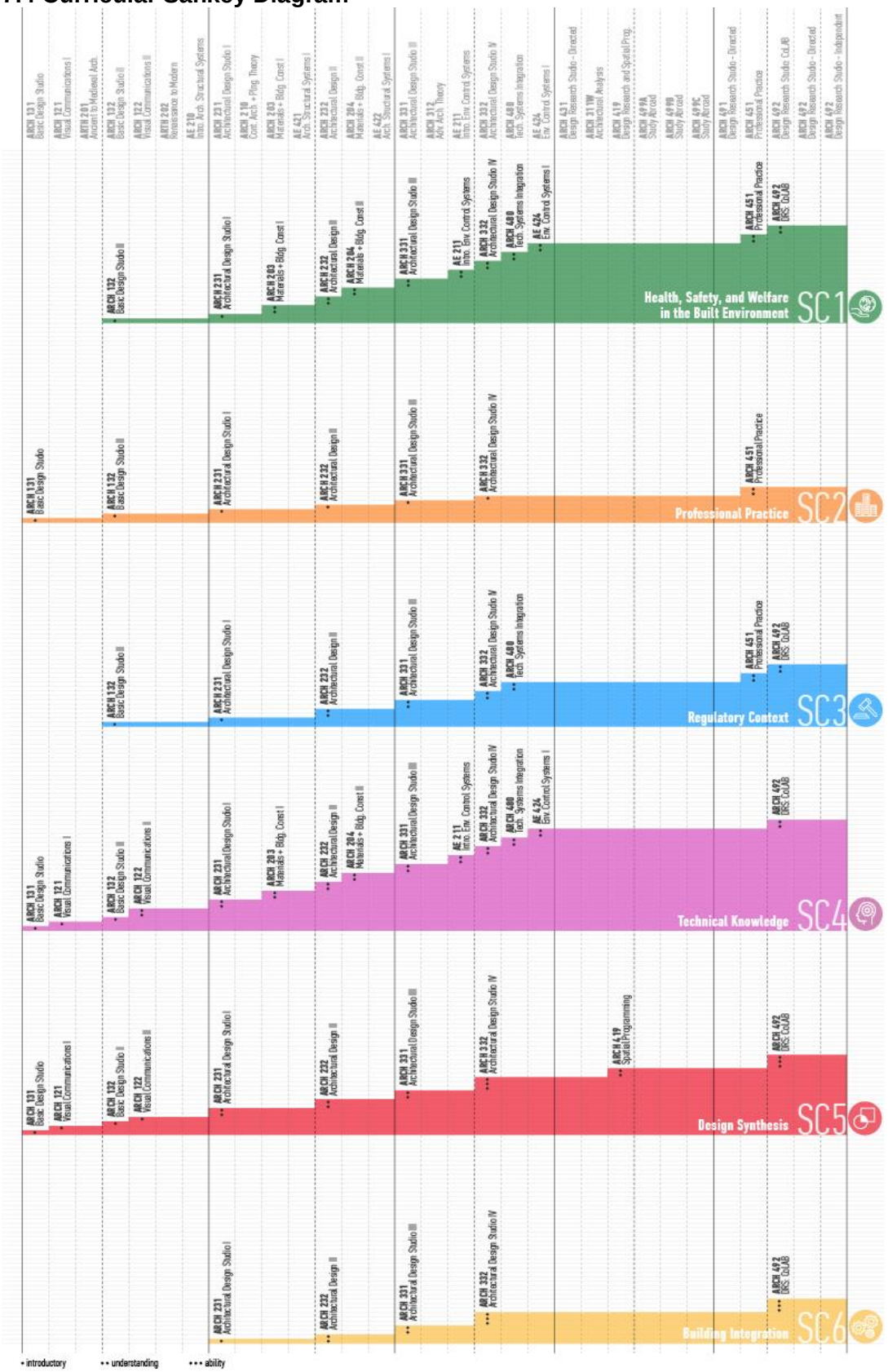
7.3 DRS Matrix (and electives)

Name	Semester	Instructor(s)	Research Cluster
DRS			
Open-Source Housing Systems	Fall 2019	Gürsoy / Ribot	Design Computing
Sustainability Through Density: Rethinking High-rise Buildings	Fall 2019	Willis	Sustainability
CoLab Studio	Spring 2020	Iulo / Goldberg / Weinreb	Culture, Society, Space
World Studio	Spring 2020	Duarte	Design Computing
Coal Culture: Architecture After Mining	Fall 2020	Avilés	Culture, Society, Space
High-Performance Building (HPB) Design Studio	Fall 2020	Azari	Sustainability
Concrete Light	Fall 2020	Nazarian / Duarte	Material Matters
Fake Attention	Fall 2020	Jefferson	Design Computing
De-zone Design	Fall 2020	Lindberg	Culture, Society, Space
Half Commodity Half Something Else	Fall 2020	Mediero	Culture, Society, Space
Common Table: Architecture(s) for a Community Food System	Fall 2020	Muñoz / Garoffolo	Culture, Society, Space
Developing Novel Architectural Methods, Procedures, and Tooling	Fall 2020	Shaffer	Material Matters
Vertical Urbanism in the Age of Covid 19	Fall 2020	Willis / Marriott	Sustainability
High-Performance Building (HPB) Design Studio	Spring 2021	Azari	Sustainability
Lightweight Tension Structures	Spring 2021	Davis	Material Matters
World Studio	Spring 2021	Duarte	Design Computing
Open-Source Housing Systems 2.0	Spring 2021	Gürsoy	Design Computing
CoLab Studio	Spring 2021	Iulo / Goldberg / Weinreb	Culture, Society, Space
Can Architects be Activists for Change?	Spring 2021	Staub	Culture, Society, Space
2150 cc of Paris Air	Fall 2021	Abbas	Culture, Society, Space
Design for Net-Zero Embodied Carbon	Fall 2021	Azari	Sustainability
Extreme Habitats: Additive Construction of Concrete Structures	Fall 2021	Nazarian / Duarte	Material Matters
Myco-Dwelling	Fall 2021	Gürsoy	Material Matters
The Intimate Monument	Fall 2021	Muñoz	Culture, Society, Space
Experiments in Building: Crafting Architecture / Tooling Architecture / Machining Architecture	Fall 2021	Shaffer	Material Matters
Vertical Urbanism in the Age of Covid 19	Fall 2021	Willis / Marriott	Sustainability
CoLab Studio: Integrative Design of Healthcare	Spring 2022	Azari / Goldberg / Ling	Culture, Society, Space

Lightweight Tension Structures	Spring 2022	Davis	Material Matters
World Studio	Spring 2022	Duarte	Design Computing
Urban Habitats Competition: Timber in the City 4_The Future of Equitable Urban Living	Spring 2022	Staub	Culture, Society, Space
ELECTIVES			
Atmospheres – Æffect Pavillion	Fall 2019	Abbas	Culture, Society, Space
Eleven Senses	Fall 2019	Ruescas	Culture, Society, Space
Introduction to Shape Grammars	Fall 2019	Duarte	Design Computing
Inquiry into Design and Computation	Fall 2019	Davis	Design Computing
Additive Manufacturing of Concrete Structures	Fall 2019	Nazarian / Duarte	Material Matters
Architectural Metals 01: Fabricating Hardware and Ornament	Fall 2019	Shaffer / White	Material Matters
Computer Programming for Artists and Designers	Fall 2019	Rahimian	Design Computing
Mobile Makerspace	Fall 2019	Celma	Culture, Society, Space
Hacking: Materials and Production Methods	Spring 2020	Gürsoy	Material Matters
Building & Time	Spring 2020	Kalsbeek	Culture, Society, Space
Design Thinking & Making	Spring 2020	Abbas	Material Matters
Drawing on Precedent	Spring 2020	Cooper	Culture, Society, Space
The Spaces of Coal: Energy, Environment, and Climate Change	Fall 2020	Avilés	Sustainability
Form Follows Fabrication: A Working Introduction to Materials and Methods of Industrial Design	Fall 2020	Shaffer	Material Matters
Introduction to Sustainable Architecture and Technical Systems	Fall 2020	Celma	Sustainability
Integrative Energy and Environmental Design	Fall 2020	Iulo	Sustainability
Drawing on Precedent	Spring 2021	Cooper	Culture, Society, Space
Inquiry into Design Computing: Space/Body/Machine	Spring 2021	Davis	Design Computing
Building & Time	Spring 2021	Kalsbeek	Culture, Society, Space
Computer Programming for Artists and Designers	Spring 2021	Ligler	Design Computing
Reading. The. Milieu.	Spring 2021	Lindberg	Culture, Society, Space
Digital Design Media – Virtual Reality	Spring 2021	Mainzer	Design Computing
Open Design & Manufacturing	Spring 2021	Osseo-Asare	Material Matters

Introduction to Sustainable Architecture and Technical Systems	Fall 2021	Celma	Sustainability
Architectural Origami Structures	Fall 2021	Davis	Material Matters
Advanced Digital Fabrication	Fall 2021	Gürsoy	Design Computing
Integrative Energy and Environmental Design	Fall 2021	Iulo	Sustainability
Introduction to Shape Grammars	Fall 2021	Ligler	Design Computing
Form Follows Fabrication: A Working Introduction to Materials and Methods of Industrial Design	Fall 2021	Shaffer	Material Matters
Digital Culture	Spring 2022	Abbas	Culture, Society, Space
Drawing on Precedent	Spring 2022	Clancy	Culture, Society, Space
Design Methods of the Masters: Leonardo, Michelangelo, Raphael	Spring 2022	Cooper	Culture, Society, Space
Inquiry into Design and Computation	Spring 2022	Davis	Design Computing
Building & Time	Spring 2022	Kalsbeek	Culture, Society, Space
Computer Programming for Artists and Designers	Spring 2022	Ligler	Design Computing
Digital Design Media – Virtual Reality	Spring 2022	Mainzer	Design Computing
Innovations in Glass	Spring 2022	Nazarian	Material Matters

7.4 Curricular Sankey Diagram



7.5 Department of Architecture Strategic Plan

2018 Department of Architecture Strategic Plan
25.June.2018

Contents

1. Vision Statement

The Department of Architecture at Penn State has a very successful undergraduate BARCH program with significant international reputation and a long history. Our aim is to elevate the success of the undergraduate program and to focus on and boost graduate education. We have already come together and established four faculty research clusters, a new professional MARCH program, and a PhD. The faculty research clusters will serve as the foundation of our graduate research offerings. In order to ensure our continued success, and our ability to offer multiple programs, we will find curricular alignments among our programs and with Landscape Architecture and Architectural Engineering, among other disciplines.

During the next five years, we will align the upper years of our undergraduate program with the final year of our professional MARCH program, the first year of our post-professional MARCH program, and the course-work in our PhD program. This alignment will ensure our ability to offer these programs by efficiently allocating faculty resources. In addition, it will provide a streamlined path for excelling current students to continue from one program to the next. For example, our BARCH, to our IUG MARCH to our PhD in 8 years; or, our Pro MARCH to our PhD in 6 years; or, our post-pro to our PhD in 4 years.

As a part of this initiative, we need to harness the resources, the energy, and the infrastructure of Stuckeman endowments and the Hamer Center. In that light, the alignment of our foci and aims with the SCDC endowment, the CDR endowment, Hamer Center, and the Stuckeman Professorships is imperative. It is instrumental that the infrastructure of SCDC, CDR, and HC be motivated by our research and our research clusters. These resources and the mandate they bring to the table are unique and should be utilized to support our research endeavors.

A thriving dissemination record will also support a thriving graduate education. The world must be aware of what we are doing. We are already well on our way, and need to maintain the productivity and the dissemination record.

Lastly, we need to utilize everything at our disposal to have as many multi-legged, multi-functional departmental/school activities as possible. Everything must count as many things. We must strive to make each event have curricular components for the students, dissemination components for the faculty, promotional components for the School, and outreach components for the University.

Our facilities must also help energize and accommodate our work. We need to transform our facilities to better serve our educational, research, dissemination, and public events aims.

Architecture Program Mission
The mission of the architecture program is to serve as a leading national and international studio-centered program in the art and science of architecture that is responsive to the most important social, environmental, technological, and cultural challenges of the twenty-first century, and to achieve excellence in teaching, research, design, outreach, advising, and service to society. In support of this mission, our aim is to:

- Educate undergraduate and graduate students in the discipline of architecture and to prepare them for a life of creative engagement and personal fulfillment in the practice of architecture and related fields.
- Encourage the production of exemplary works of architectural design, theory, critical analysis, and research in a studio-centered learning environment.
- Increase the cultural, religious, ethnic, and gender diversity in the student body, the faculty and in the curricular subject matter.
- Provide an educational environment that encourages the cross-fertilization of knowledge from all of the arts and sciences, where students and teachers are motivated to participate in the most urgent contemporary social, cultural, and environmental issues.
- Educate in the areas of ethical behavior, critical thinking, life-long learning, and service to society.
- Develop a teaching/learning environment that encourages collaboration and teamwork, as well as individual research and creative activity.

- Serve the regional area, the Commonwealth of Pennsylvania, the nation, and the international community by increasing public awareness of architecture.

2. Outcome Goals and Actions (highlighting College-related elements)

Priority 1 Produce substantive design scholarship through research and creative accomplishment

Create adequate physical and temporal space for faculty scholarship by:

Developing indoor and outdoor facilities for large-scale faculty research

Obtaining increased graduate student research & teaching assistantships

Gain flexibility and autonomy in teaching commitments

Increase external funding of faculty research and creative activities by:

Submitting eight collaborative grant proposals for large external grants (over $100,000)

Providing graduate student assistance for grant proposal preparation

Analyze, assess and reformat professional curriculum and schedule to promote outcomes-based education in search of increased instructional efficiency, intensified research focus for faculty and limit service obligations.

Explore weighting of teaching, research and service options to allow faculty to pursue appropriate interests.

Priority 2 Build on our excellent, student-centered program

Provide a supportive educational environment for students

Address the Financial Challenges of Our Students to Sustain our Excellent Educational Programs

Develop the international reach of the program

Expand the Internationalism of our Students to Compete in a Global Environment

Diversify options for architectural education

Develop new online educational content that interfaces with our new/ innovative pedagogical strategies

Increase the audience for Design in relation to the Built Environment

Priority 3 Strengthen graduate education

Improve the Financial Sustainability of our Graduate Programs

Advance Graduate Student Services, Experiences, and Culture

Presence & Visibility

Enhance visibility, ranking, and reputation through targeted marketing

Promote accomplishments and strengths*

Enhance our position within architecture program rankings

Enhance our position for specialization areas within architecture rankings

Facilities

Analyze, assess and reformat Stuckeman Family Building space assignments to promote flexible, open and shared equitable use of the facility to promote increased instructional flexibility/efficiency, intensified research focus for faculty, community interaction and curricular nimbleness.

The Role of Design

Our century has been named the century of design. Universities such as Stanford and MIT have dedicated Schools to the exploration of design. Corporations such as Apple and Microsoft to Porsche and Tesla to Google and NetFlix have invested heavily in design. Even governmental agencies such as the DOE and NSF have recognized the importance of design within their funding parameters, despite its intangible qualities. The world has recognized that conceptual problem solving is a valuable quality, unique to design. At Penn State, there have been significant collaborative conversations among colleges and departments on design. Departments of Architecture, Landscape Architecture, Graphic Design are obviously invested in design. Additionally, within the College of Arts and Architecture School of Visual Arts, Art History, Theatre and Music have faculty with expertise in design thinking, theory and application. The College of Engineering, with Engineering Design, Mechanical and Nuclear Engineering, Industrial Engineering, and Architectural Engineering along with a number of Institutes (Sustainability Institute, PSIEE) and Centers (Center for Engineering Design and Entrepreneurship) along with IST describe not only an amazing level of expertise, but also infrastructure already existing at the University. Probably less visible, but just as important, faculty in Philosophy, German, and Comparative Literature have been involved with us in conversations on design.

The Stuckeman School has a "Collaborative Design Research" endowment which should serve as a hub and a platform for pushing design forward as a research agenda. This will bring to fruition the full recommendation of the Core Council Report, "through the formation of a research center on design". This will most importantly shed light and provide focus on design.

We need to collectively harness the potentials of the "Collaborative Design Research" endowment and turn it into a recognized Pennsylvania State University "Institute" with a design agenda. Already in architecture, multiple Faculty research clusters are invested in theoretical and applied design, which feeds faculty and students at the graduate level in all three tracks of our graduate degree programs.

3. Resource and Revenue Implications and Strategies

Priority 1: Produce substantive design scholarship through research and creative accomplishment

Resource Summary:

- Facilities:
  - Building Laboratory for large scale research and creative accomplishment projects
  - Building Yard improvements
  - Workshop improvements to include metal work and casting technologies and digital fabrication equipment
  - Studio computing support
- Faculty & Staff Assignments
  - 4 seminar courses (1 per year per cluster),
  - 8 course releases (1 per large grant proposal per cluster)
  - 4 RA assignments (1 per cluster)

Priority 2: Build on our Excellent, student-centered program

- Departmental Budget:
  - Increase teaching budget and faculty numbers in order to bring into alignment our core teaching responsibilities and our faculty resources
  - Explore utilizing graduate students in teaching
- Facilities:
  - Introduce more flexibility in studio space through more flexible furnishings
- Development:
  - Address the financial challenges of our students through added scholarships

Priority 3: Strengthen Graduate Education

- Departmental Budget:
  - Increase the permanent number of GIA's and corresponding stipend funding to address the growth in the graduate program
  - Increase teaching budget and faculty numbers in order to bring into alignment our core teaching responsibilities and our faculty resources

4a. University-Level Directives / Diversity planning

The Stuckeman School's Strategic Plan for 2008-2013 explicitly emphasized the need for increased efforts to develop action plans for enhancing diversity among faculty and staff. The School's strategic plan also stressed the need for recruiting and matriculating a more diverse student body. The department has made consistent progress in this regard.

- **Faculty and staff diversity**
  The Architecture Department continues to specifically pursue an increased presence of qualified women and minorities on the faculty. Since 2008, four women and two minorities have joined the faculty in various positions. Two female associate professors were granted tenure during the 2011-12 academic year, while one was promoted to the rank of full Professor. The department recognizes that more needs to be done in this context and is committed to building a community that exemplifies the ideals of diversity, healthy faculty-staff-student interaction, active learning, and innovation that fosters a climate of respect for the free exchange of knowledge and ideas. The College of Arts and Architecture is also committed to maintaining a hospitable and inclusive climate for all.
- **Student diversity**
  Within the existing Bachelor of Architecture program, the Department's Fall 2012 enrollment in the undergraduate program included 27 minority students, which represents 12.05 % of the 224 total students. The three-year average reflects an 11.25% minority student enrollment. The number of women enrolled in the program in Fall 2012 was 80, or 35.71% of the total undergraduate student enrollment. The three-year average for women in the program is 42% of the total architecture student population.
- **Representation and governance**
  Faculty, staff and students are consistently involved in the development and implementation of department policies and procedures, including curriculum and program development. Faculty, students and staff participate in a variety of standing committees that cover most departmental issues. In addition, each class elects a student representative to meet monthly with the department head to discuss issues and grievances, as well as to plan for new program opportunities. The student representatives, as well as an officer of the AIAS and a graduate student representative, keep the overall student body informed and engaged. This forum gives students direct and regular access to administration without filtering through the faculty.

•

4b. University-Level Directives / Core Council follow-up

The Core Council Report recommended:

> "The College should also consider developing an **interdisciplinary graduate degree in design** (including digital), involving collaboration with faculty in Architecture, Landscape Architecture, and design faculty in other departments and colleges. "The Core Council also believes that the College could **strengthen its research ties** with design faculty in other units of the University, **perhaps through the formation of a research center on design**. There is tremendous potential for Penn State and its students in the area of digital and other areas of design such as product design. This program, or some segment of it, needs to reach across disciplinary lines to faculty in Engineering, Communications, Education, Information Sciences and Technology, Liberal Arts, and other areas also doing work in digital design. Although the Core Council is reluctant to recommend investments in new centers at this time of tight finances, this could be one that would be valuable in positioning Penn State as a leader in the field."

The Department of Architecture has already taken steps towards addressing these recommendations:

- **Interdisciplinary graduate degree in design**
  - The faculty of the Department prepared and put forward a PhD program that was approved by the Graduate School and will have its first cohort in Fall 2014. This year, based on the Core Council recommendation, we have moved further in making the PhD a cross-departmental degree with the Department of Landscape Architecture, and are currently in the process of aligning the two curricula.
  - In addition, we have also designed and received approval for the professional track of the Master of Architecture degree and admitted our first cohort in Fall 2013.
- **Strengthen research ties & formation of research center on design**
  - There have been significant collaborative conversations among colleges and departments on design.
    - Within SALA: Departments of Architecture, Landscape Architecture, Graphic Design are obviously invested in design.
    - Within the College: School of Visual Arts, Art History, Theatre and Music have faculty with expertise in design thinking, theory and application.
    - Within the University: The College of Engineering, with Engineering Design, Mechanical and Nuclear Engineering, Industrial Engineering, and Architectural Engineering along with a number of Institutes (Sustainability Institute, PSIEE) and Centers (Center for Engineering Design and Entrepreneurship) along with IST describe not only an amazing level of expertise, but also infrastructure already existing at the University. Perhaps less visible, but just as important, faculty in Philosophy, German, and Comparative Literature have been involved with us in conversations on design.
  - The Stuckeman School has a "Collaborative Design Research" endowment which should serve as a hub and a platform for pushing design forward as a research agenda. This will bring to fruition the full recommendation of the Core Council Report, "through the formation of a research center on design". This will most importantly shed light and provide focus on design.
  - We need to collectively harness the potentials of the "Collaborative Design Research" endowment and turn it into a recognized Pennsylvania State University "Institute" with a design agenda. Already in architecture, multiple Faculty research clusters are invested in theoretical and applied design, which feeds faculty and students at the graduate level in all three tracks of our graduate degree programs.

-

4c. University-Level Directives / Sustainability

The Architecture Department is fully committed to environmental sustainability. The Department (in conjunction with the U.S. Green Building Council, Architectural Engineering, Landscape Architecture, et al.) helps teach a University course to train and qualify students as LEED-accredited professionals. The Stuckeman Family Building was the first building at Penn State to receive a LEED Gold rating. The Department is also fortunate to have leaders of the green architecture movement on its faculty. Many Architecture faculty conduct research on issues related to the environment, and environmental concern is incorporated in the curriculum.

To facilitate and broaden the Department's efforts in sustainable architecture, several faculty members in the Stuckeman School established the Committee for Environmentally Conscious Architecture (CECA) in 2008. Its primary objective is to define and continually enhance sustainable content in the undergraduate curricula. CECA is focused on the study of sustainable pedagogy models in various institutions and acts as a point of contact with other groups and centers inside and outside the University. Similarly, Students for Environmentally Enlightened Design (SEED) is a multidisciplinary student organization recognized by the Penn State Office of Student Affairs. Supported by the Department and CECA faculty, SEED promotes student-supported initiatives and work in environmentally conscious design. Completed in 2012, SEED's major project has been to design a shipping container library for refugee camps in Africa. SEED is working with the African Book Project, which has sent hundreds of thousands of books to Africa throughout the last decade.

The foundation for sustainable thinking is laid in first year studio (ARCH 131) with projects that require the reuse of salvaged materials. In ARCH 203 and 204, students are introduced to life cycle costing, embodied energy, recycled content in materials with readings and lectures on passive design strategies including solar, ventilation, evaporative cooling and wall design strategies for maximum thermal performance. Primary evidence is found in the third-year design studio (ARCH 332) and ARCH 480, Technical Systems Integration, where students gain knowledge of passive and active techniques for sustainable architecture.

Sustainability has long played an important role in the discipline and in the educational mission of the program. Its central role is reflected in its inclusion as one of the primary department goals in the 2009 Strategic Plan:

- **Educate our students to become environmentally conscious designers, architects and citizens.**
  - ***Implementation Strategy: Introduce concepts of sustainability throughout the curriculum***.

    Penn State's University Strategic Plan recognizes the urgency of a sustainable agenda. In response to this and the new NAAB accreditation criteria for sustainability and carbon-neutral design, the department considers environmentally conscious design a major curricular priority. Students must develop an inclusive understanding of natural systems, ecological literacy, environmental responsibility, energy-efficient design, and manifold interpretations of sustainability. The architectural education will introduce relevant concepts and impart the understanding that problems of sustainability are complex, interrelated, multi-dimensional, multi-scale, and can only be solved through interdisciplinary knowledge from the natural sciences, humanities, social sciences, and the arts. Our strategic goal is to define required teaching contents concerning aesthetic, ethical and technical sustainability and develop appropriate courses, structures and mechanisms to ensure the implementation of this content.

ADDENDUM Full Version of Department Goals and Actions

FORMAT EXPLANATION

READING THE PLAN ***<- this defines the priority or topic***

Make a complex document legible **<- goals define the desired action or end state**
Use hierarchical heading formatting **<- Strategies provide specific paths**
→ Format using Styles in Word <- Action steps
· Five heading styles are used <- More detail

Within the listings, the use of asterisks * indicates active items carried over from the 2009-2014 plan

Priority 1 Produce substantive design scholarship through research and creative accomplishment

KEY ACCOMPLISHMENTS 2009-2014

- *Developed clear course release policies to allow faculty to buy out of courses for purposes of research/creative achievement.*
- *Realigned faculty service based upon interest and enthusiasm for specific areas.*
- *Reduced the assigned service load to an average of 10 hours a week.*
- *Developed methods to assure teaching buy-outs if funds are available.*
- *Developed flexible course-delivery formats so faculty can travel to pursue research.*

Mobilize research clusters and centers as drivers of collaborative scholarship

Strategically define the roles of research clusters

→ Each cluster will develop a document indicating:
- scholarly focus of the cluster
- spatial, temporal, and financial resources necessary for high achievement in the cluster

→ Each cluster will develop curriculum and course content for the post professional degrees.

Focus SCDC facilities on increasing research output:

→ Provide regular SCDC leadership.
→ Refocus SCDC financial resources on increasing research capabilities.
→ Provide use of center tools within coursework assignments to gain student fluency in tools.
→ Create computing support outside SCDC facilities for those who currently use SCDC for coursework.

Develop the collaborative design research (CDR) center to support increased collaborations across internal and external boundaries

→ Provide visioning leadership for CDR

Create adequate physical and temporal space for faculty scholarship

Architecture faculty, administration, and staff will support initiatives of the SSALA facilities committee:

- → Building Lab: Create/plan/find 5,000 sf interior space for large-scale faculty research.
- → Building Yard: Build shelter and infrastructure to support outdoor large-scale faculty research.

Each research cluster will provide at least one seminar per year directly linked to faculty research.

- → Cluster membership will determine faculty selection mechanism
- → Seminar will count as a normal teaching obligation for the faculty member(s).

Increase faculty efficiency.

- → Create formal minimum support structure for significant scholarly production (e.g., course release, research assistant policies, etc.)
- → Create mechanisms for sustained concentration on research and creative activity, such as "day of research" for faculty—no meetings, no email, no presence.
- → Concentrate service activities to one morning or one day per week, such as “service Fridays” or "day of meetings" by reducing studio hours.

Increase external funding of faculty research and creative activities

Each research cluster will identify 3 large potential funding sources that align with the cluster's focus.

Each cluster will submit a minimum of 2 grant proposals for external funding.

- → One course release will be offered per cluster for search, writing, & coordination of major, externally funded grants.
- → Single semester RA assignment will be offered per cluster for search, writing, & coordination of major, externally funded grants.
- → Each proposal will include support for at least 4 quarter-time, semester-long graduate assistantships.

Each cluster will create research relationships with a minimum of one external organization (e.g., building industry firm, non-profit organization, etc.)

- → The collaborative design research center should be asked to support these activities.

Increase the efficacy of faculty service

Quantify service equitably

Consolidate service assignments

Assign administrative staff to support service

- → Analyze, assess and reformat professional curriculum and schedule to promote outcomes-based education in search of increased instructional efficiency, intensified research focus for faculty and limit service obligations.
- → Explore weighting of teaching, research and service options to allow faculty to pursue appropriate interests

Priority 2 Build on our excellent, student-centered program

KEY ACCOMPLISHMENTS 2009-2014

- *Developed the BIM / integrated practice studio into a standing offering for Arch, LArch and AE students.*
- *Explored the feasibility and desirability of an accredited 5+ M.Arch program.*
- *Revised the architecture minor to remove barriers for LArch students wishing to pursue it.*
- *Collaborated with LArch to develop a LArch minor for Arch students.*
- *Developed comprehensive design studios*

- *Implemented the "short-burst workshop model" developed by the CC making use of practitioner-instructors (up-and-coming architects or accomplished, partner-level architects nearing retirement age).*
- *Developed a program to invite innovative designers to design reviews.*
- *Expanded the career fair and explore options for teaming up with LArch or AE.*
- *Reviewed, updated and implemented a revised studio culture policy.*
- *Increased opportunities for and effectiveness of mentoring (peer and professor).*
- *Created a series of activities to facilitate the social interaction between students and the faculty.*
- *Worked in conjunction with the SALA Governance Plan to encourage and define the role of student participation in department governance.*
- *Introduced basic, controlled training in skills/technologies early in the curriculum so that students can apply these tools and skills to more advanced or explorative study in the 4th and 5th years.*
- *Ensured that the Pantheon Institute effectively meets the standards of SALA course and program requirements.*

Continue to develop and refine the curriculum

Accommodate diverse curricular content

- → Explore possibilities for non-traditional summer courses, either for majors or non-majors*
- → Develop a standing urban studio in a major urban center.
- → Support "Freedom by Design". Offer credits for participation to encourage more student involvement.
- → Explore a modular course delivery model for courses outside the traditional 3 or 6-credit model, either during the year or the summer*

Streamline and enhance degree options and pathways

- → Develop clear pathways from Undergrad to Masters to phd and from other programs outside PSU system (could be other architecture programs or degree programs)
- → Develop more diverse types of diploma programs [two-year?, one-year?], professional certificates [CURRICULUM]
- → Develop minors or areas of focus within existing programs:
  - future undergrad sustainability minor
  - future grad urban design minor?
- → Develop curriculum AND seek endowment support regular Philly [or Pittsburgh?] Studios in certain year of curriculum [CURRICULUM]

Align teaching with faculty research clusters

- → Incorporate more research-led curriculum into teaching so current faculty research is better integrated
- → Cluster / Teaching focus: Design computing:
  - Assess all digital and analog technologies within SALA: what they are, where they are (in the building and the curriculum), who is learning them, and who is teaching them.
- → Center focus: SCDC:
  - Expand the significance of the Stuckeman Center for Design Computing by examining ways to tie the SCDC, and the IEL into the undergraduate and graduate studio curriculum.
- → Center focus: Hamer Center:
  - Expand the significance of the Hamer Center by initiating connections between the Hamer Center, Architecture studios, and LArch studios.

- Encourage a Hamer Center leadership structure that gives equal weight to Arch and Larch.

→ Cluster / Teaching focus: Sustainability

- Evaluate the status of sustainability in the undergraduate and graduate curriculum*
- Determine how to enable students to develop a knowledge and design ability for interpretations and implications of sustainability*
- Explore the possibility of collaborative studios to address the interdisciplinarity of sustainability*
- Explore the possibility of a minor in sustainable architecture*
- Explore the possibility of an e-learning certificate in sustainable architecture*
- Explore how environmentally conscious design can be emphasized in studios, seminars, and lecture courses*
- Explore how studios and existing courses can be coordinated to better address environmentally conscious design*
- Develop courses in energy conscious design (traditional and/or online)*
- Identify possibilities of overlap in environmentally conscious architecture with LArch and AE and develop common courses)*

Provide a supportive educational environment for students

Address Financial Challenges

→ Create an endowment to support student groups and other events [DEPT HEAD w/ COLLEGE DEVELOPMENT]

→ Explore alternative funding mechanisms for students to pay for their education [DEPT HEAD w/ COLLEGE DEVELOPMENT] (see required internships below)

→ Decrease the enrollment duration required to receive a B.Arch degree. Summer studio credits Arch 499F allow potential for students to graduate after 4 ½ years (+ summer studio)

→ Raise money for need-based scholarships*

→ Provide breadth of advising guidance (including concurrent majors, minors, concentrations, electives, and research)*

Attract desirable students and retain them

→ Increase Schreyer Honors student support to support existing student cohort and to attract additional scholars (financial-tuition and support to attend conferences, foreign travel abroad, service-learning opportunities) [DEPT HEAD w/ COLLEGE DEVELOPMENT]

→ Develop ideas & strategies for recruitment, to include data collection and issue identification in collaboration with SALA and College staff.

→ Develop ideas & strategies for retention, to include data collection and issue identification in collaboration with SALA and College staff.

Enhance Student Services

→ Increase participation in student organizations [SCHOOL ADVISER, STUDIO COORDINATORS?]

Develop the international reach of the program

Expand and promote the global focus of our educational programs [internationalization]

→ Continue to add more International exchange opportunities [FOREIGN STUDY ABROAD]

→ Explore a second language requirement [CURRICULUM]

- → Carry out International marketing to further diversify our student cohort [MARKETING]
- → Expand Penn State Architecture's semester study abroad program to include a non-western destination in a developing urban environment (China, India, South Korea, London) as an alternative to Rome*
- → Create an endowment for traveling studios
- → Create an endowment for traveling scholarships
- → Explore the International accreditation of our educational degrees/ programs.

Increase students' exposure to diverse cultural conditions.

- → Review and support faculty (through release time, financial incentives) to develop more non-western educational course offerings [CURRICULUM]
- → Continue recruitment, yield enhancement, and fund-raising for need-based scholarships to maintain gains in the enrollment of under-represented groups (particularly African-American students) in the Architecture student body*
- → Use the summer camp for high-school students as a recruiting tool for underrepresented minorities; continue and increase need-based scholarships for the program*
- → Aggressively recruit underrepresented minority students through outreach*
- → Analyze retention trends and graduation rates of underrepresented minority students in the program and develop a plan to increase retention/graduation if analysis shows this to be an area of concern*
- → Mirror the minority population percentages within the Commonwealth of PA*
- → Support students' NOMAS to create a welcoming environment and contribute to the retention of minority students*
- → Develop summer programs to both European and non-European destinations to ensure that students have the opportunity for exposure to a variety of western and non-western, developed and underdeveloped cultures*
- → Take advantage of faculty time and interests in conjunction with study abroad by offering additional study credits in the summer (prior to the beginning of a student's semester abroad) *
- → Develop a summer program in Rome for Penn State architecture students.*

Diversify options for architectural education

Build Internship and Job Placement Infrastructure

- → Establish goal of 100% participation of all students in B.Arch program in 3-month minimum professional internship;
- → Widen opportunities for fall/spring semester internship placement;
- → Explore internship as curricular requirement.
- → Build alumni base of participating design firms;
- → Increase number of firms participating in career fair.
- → Increase students with NCARB registration by 3rd year enrollment. (Note: the same infrastructure can serve for job placement at the completion of studies)

Develop new online educational content that interfaces with our new/ innovative pedagogical strategies

- → Develop a strong online research-education interface for research clusters
- → Develop web-based general education courses.
- → Develop an online continuing education program
  - for the professional community, local community; an "extension school"
  - Explore the feasibility of developing web-based continuing education courses, possibly with LArch or AE*
- → Enhance our Digital Library (A "library" here could be viewed VERY BROADLY to include the literal library, a new proposed "digital" scholarly

archive to support the phd, resources for students and/ or community)
→ Develop an online collaboration infrastructure enabling contributions from practitioner expertise distant from the University Park campus (note: the five collaboration pods installed this year are the first step in building this communication resource)

Increase the audience for Design in relation to the Built Environment
→ Develop new, design-focused Gen Ed courses and minors to increase the audience for design disciplines and excellence in the built environment. Topics to include: sustainability, visualization, global urbanization, interior architecture, history/ theory, communication-media, etc.

Better align Teaching with Service Learning, Entrepreneurship, and Public Scholarship
→ Formalize a structure, scheduling, & funding
→ Develop Interdisciplinary Teaching Collaborations around Public Issues in the Built Environment
→ Provide seminars, studios, etc. directed at outreach and engagement: Provide support for course preparation; and, develop courses that ask students to enhance the traditional "consultant" role of the architect by innovating future services, technological systems, and building design types that will be needed in the future
→ Develop/ support a PA Design Community Website in conjunction with the Hamer Center?

Priority 3 Strengthen graduate education

KEY ACCOMPLISHMENTS 2009-2018
- *Conducted SALA benchmark study on graduate recruitment (2012).*
- *Expanded graduate recruitment pool through mailing lists and direct school contacts (2012)*
- *Secured twelve temporary GIAs.*
- *Joint foundation course development examined for PostPro, 1st Pro, and PhD programs within Architecture.*

Attract and retain high quality graduate students

Improve the quality of the graduate applicant pool.
→ Benchmark ways used by other colleges within the University to recruit outstanding graduate applicants*
→ Recruit domestic candidates for the M.Arch and PhD programs in order to provide a more diverse student body*

Increase competitive graduate assistantships and fellowships offerings.
→ Negotiate with the College for more assistantships for the growing Architecture graduate programs*
→ Develop a strong incentive system for faculty obtaining assistantship funding*

Enhance the Excellence and the Competitiveness of Graduate Students and Programs

Track the quality of our students and the quality and recognition of their work by collecting, analyzing and distributing data (G.R.E., scores, diversity data, conference presentations, grants, more).

Develop pro-active recruitment strategies to enhance high quality applicants in collaboration with cluster group members.

Develop student exchange agreements in coordination with the Graduate School to broaden the cultural and ethnic diversity of our student cohort.

Increase the Visibility of our Graduate Programs

Redesign the department graduate website

→ Provide greater in-depth cluster-related information & link this information to past graduate student work and to faculty research projects

→ Recognize the work and career achievements of our graduate alumni on the website.

→ Monitor, assess, and market the skills, experiences, and knowledge from our graduate programs that can be transferred to the professional workplace, non-profit sectors, and beyond. Transfer this information to the website.

Improve the Financial Sustainability of our Graduate Programs

Increase the number of permanent G.I.A's. to address the inequity of distribution of G.I.A's within the College and the growth of our graduate programs.

Increase the number of students financially supported through faculty funded research.

Increase the number of fee-paying graduate students.

Build a Strong Intellectual and Cultural Community

Promote the involvement of graduate students in interdisciplinary initiatives through the School centers, other University centers, and beyond.

Enhance opportunities for grad students to co-author reports, publications and single-author articles with faculty guidance.

Provide greater support and faculty guidance to graduate students in their efforts to prepare and give presentations at professional conferences.

Provide greater support and faculty guidance to graduate students in their efforts to carry out applied research (including but not limited to service learning design opportunities, design build opportunities, material innovations, and technical design assistance to communities).

Advance Graduate Student Services, Experiences, and Culture

Develop a strong culture of collaboration and teamwork by improving our physical instructional and research spaces.

Develop bridging activities beyond the shared required cluster courses that create a strong graduate culture/ community and deeper involvement from individuals outside the school and to promote interdisciplinary knowledge (including but not limited to cross-cluster guest lecturers and cross-cluster master classes, and theme-related department or school research initiatives).

Provide teaching assistant support and training (including but not limited to Schreyer Learning Institute training, data processing, qualitative and other types of software and training).

Assist with the development of meaningful internships for graduate students in coordination with the faculty.

Presence & Visibility

KEY ACCOMPLISHMENTS 2009-2018

- *Established a Communications Director*
- *Established a design professionals advisory committee modeled on the College of Engineering IPCS.*
- *Developed new ways keep in touch with alumni (networking) including alumni-student events.*
- *Developed a publication series or journal to showcase events and series in the department or in SALA.*

Enhance visibility, ranking, and reputation through targeted marketing

Promote accomplishments and strengths*

- → Our student learning successes: Students who have received Fulbrights, other grants/ awards/ fellowships, Students who have gone on to prestigious grad schools
- → Our teaching-pedagogical innovations: Service Learning, Community Design, Collaborative IPD/BIM Studio
- → The exceptional educational experiences we offer: Rome, Future Philly-Pittsburgh Studio, Japan traveling studio, future Korea/ Japan traveling studio, First year "making and construction", phd and research/ design experiences in conjunction with the Hamer Center.
- → The exceptional interdisciplinary educational programs we offer: Seminars, studios, our strong interdisciplinary research clusters, degree offerings (BArch, Pro-MArch, Post-Pro-MArch, PhD)
- → Target our communications marketing by focusing on our existing building and facilities changes we are making to the building that will enhance our learning-teaching abilities
- → Our diverse learning settings: Rome Facilities, Hamer Center, SCDC Center, Philly Facilities, Pittsburgh, ADD MORE

Enhance our position within architecture program rankings

- → Develop targeted strategies for rankings such as Design Intelligence

Enhance our position for specialization areas within architecture rankings

- → Targeted marketing related to the courses/ teaching/degrees, etc. (teaching in design computing, history/ theory, sustainability, design thinking, ADD MORE).
- → Could also be tied to research clusters

PennState

Department of Architecture
The Pennsylvania State University
121 Stuckeman Family Building
University Park, PA 16802

814-865-8137
Fax: 814-863-8137
stuckeman.psu.edu/arch

Strategic plan reflection and impact assessment
We identified three priorities in the Department of Architecture Strategic Plan and those are the points of impact and success for us. We have concentrated on achieving the goals, and all faculty, administration and research centers have worked together to accomplish the goals as stated in the strategic plan. The impact of the strategic plan may be documented in the outcomes in each of the three priorities. Highlights listed below.

- **Priority 1: Produce substantive design scholarship through research and creative accomplishment**
  - Faculty published over 30 books (15 books in 5 years-30 books in 10 years)
  - Two Rome Prize winners
  - One MoMA Ps-1 finalist
  - MoMA exhibition
  - *ARCHITECT* Next Progressive
  - Faculty selected to the Architectural League's *"Emerging Voices"*
  - Host for two international architecture journals
  - Multiple awards on "NASA 3D printed Habitat on Mars" international competition
  - Two Graham Foundation Fellowships
  - Juried participation at the Seoul Biennale by several faculty
  - Juried participation at the Oslo Triennale by faculty
  - Host for several symposia, with resulting books (two published, one at publisher)
  - Significant number of faculty sole-authored and faculty-student joint authored journal articles (125 in 2020)
  - Significant progress in faculty research and creative practice: 32 current research projects and 22 faculty product innovations, 62 faculty awards and recognitions.
  - In 2020 there were 22 "sponsored programs" research grant proposals submitted from architecture, with 18 architecture faculty PIs.
  - PI on PSU Strategic Planning RFP

- **Priority 2: Build on our excellent, student-centered programs**
  - Successful accreditations of both of our professional programs
  - continuously ranked among top 20 architecture programs by DI
  - Growing UG applicant #'s (From 600 to 1400 in the past ten years)
  - Increasing AI (Admissions Index (university's quality index for applicants))

- **Priority 3: Strengthen Graduate Education**. We have gone from an essentially professional BARCH program to a very diverse program with three thriving graduate degrees: MARCH, MS, and PhD, along with our excellent BARCH program.
  - We established the four research clusters that have impacted our ability to focus our research and production energies at both student and faculty levels.
  - We have a robust PhD program with 30 current students.
  - Of the seven PhD students of our first cohort, 6 secured faculty positions and the remaining is scheduled to defend her work this Fall.
  - Our PhD selectivity is about 12%
  - We have been able to gradually grow our MARCH program to a stable 29 students, well on our way to our projection of 30, while maintaining selectivity.
  - We established multiple recruitment programs for MARCH, almost doubling our pool.
  - Our graduate students are recipients of annual awards from the graduate school exhibit (competitive campus-wide) and nationally.
  - Our MS and PhD students are co-authors and co-presenters on many papers annually, and winners of national dissertation awards.

7.6 Faculty Resumes

Faculty Resumes can be found in the Virtual Site Visit Evidence Package at this link.