

# ***Architecture Program Report***

Institution  
Montana State University  
School of Architecture

Date

# **NAAB**

National  
Architectural  
Accrediting  
Board, Inc.



## Architecture Program Report (APR)

2020 Conditions for Accreditation

2020 Procedures for Accreditation

<b>Institution</b>	Montana State University
<b>Name of Academic Unit</b>	School of Architecture
<b>Degree(s)</b> <i>(check all that apply)</i>  <b>Track(s)</b> <i>(Please include all tracks offered by the program under the respective degree, including total number of credits. Examples:</i>  <i>150 semester undergraduate credit hours</i>  <i>Undergraduate degree with architecture major + 60 graduate semester credit hours</i>  <i>Undergraduate degree with non-architecture major + 90 graduate semester credit hours)</i>	<input type="checkbox"/> <u>Bachelor of Architecture</u> Track: <input checked="" type="checkbox"/> <u>Master of Architecture</u> Track: Undergraduate degree in Environmental Design (126 credits) + 42 graduate semester credit hours. Track: <input type="checkbox"/> <u>Doctor of Architecture</u> Track: Track:
<b>Application for Accreditation</b>	<b>Continuing Accreditation</b>
<b>Year of Previous Visit</b>	2014
<b>Current Term of Accreditation</b> <i>(refer to most recent decision letter)</i>	Continuing Accreditation (Eight-Year Term)
<b>Program Administrator</b>	Christopher Livingston, Director, School of Architecture
<b>Chief Administrator</b> for the academic unit in which the program is located <i>(e.g., dean or department chair)</i>	Royce Smith, Dean, College of Arts and Architecture
<b>Chief Academic Officer of the Institution</b>	Robert L. Mokwa, Provost, Montana State University
<b>President of the Institution</b>	Waded Cruzado, President, Montana State University
<b>Individual submitting the APR</b>	Ralph Johnson / Steve Juroszek / Zuzanna Karczewska / Christopher Livingston / Michael Everts / Andrew Vernooy / Barry Newton / Rachael Ortego
<b>Name and email address of individual to whom questions should be directed</b>	Christopher Livingston clivingston@montana.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



## 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:**

The July 2014 VTR indicated the following:

#### **Conditions Not Met**

##### *B.6 Comprehensive Design*

**2014 Team Assessment:** *Students demonstrate abilities in the individual Student Performance Criteria related to comprehensive design; however, there is a lack of evidence demonstrating their ability to produce singular, comprehensive architectural projects that integrate all of these individual criteria across scales. In particular, the team noted a lack of integration of SPC A.4, B.2, B.4, and B.5.*

*While certain technical criteria are met, even with distinction, in work generated in support courses, these same criteria are not met or only partially met in the design studio intended to produce comprehensive design projects. The faculty members have indicated that they plan to reintroduce the graduate thesis in the next substantive change to the curriculum, which might offer the faculty a chance to address comprehensive design alongside this curricular change.*

#### **Actions taken since the previous visit:**

In response to the 2014 team assessment, the school undertook an internal assessment report resulting in the recommendation that an additional course, ARCH 535 Advanced Building Systems Integration be made a co-requisite of ARCH 558 Comprehensive Design Studio. Both courses were tasked with meeting SPC B.6. The assessment also recommended a new undergraduate course, ARCH 431, Sustainability in Architecture, be added to the undergraduate curriculum to comprehensively integrate previous student learning garnered from the breadth of courses offered in the undergraduate curriculum. The co-requisite ARCH 535 recommendation was implemented in the Fall of 2014 and ARCH 431 became a required course in the 2016-2017 academic year.

Throughout the 2014-15 academic year a comprehensive curriculum matrix was developed to help track when topics of building systems, technical documentation, accessibility, etc. are being introduced, developed, applied and reinforced within the undergraduate and graduate curriculum. The intent of this matrix is to address any deficiencies earlier in the curriculum so that students entering ARCH 535/ARCH 558 are better prepared.

In 2017-2018 an MSU internal annual assessment report of undergraduate technical courses (Building Construction, ECS, Structures) based on a review of portfolio work from 33 undergraduate seniors resulted in the following scores (a score of 6 or higher indicates a demonstration of understanding)

- Site Development: 90% of students scored at 6 or higher.
- Technical Systems in Design: 90% of students scored at 6 or higher
- Structural Systems in Design: 90% of students scored at 6 or higher
- Environmental Stewardship in Design: 84% of students scored at 6 or higher.
- Comprehending Constructability: 90% of students scored at 6 or higher

The school undertook another internal assessment of ARCH 535/ARCH 558 as part of our 2018-2019 MSU Assessment Report. Four faculty members reviewed six randomly selected student ARCH 558 projects. The aggregate data below identifies one area where the minimum threshold of 80% was not



met—Building design incorporates life-safety systems and integrated accessibility. Other areas such as well-integrated systems, constructability, sustainable design and design and graphic skills showed improvement.

2018-2019 ARCH 558 Comprehensive Design Project Review Scores				
Compilation for each Reviewer Scores of Random Selection				
Program Learning Outcome	Reviewer 1	Reviewer 2	Reviewer 3	Reviewer 4
	Totals	Totals	Totals	Totals
PLO 1 Demonstrates fundamental design and graphic skills	83%	100%	100%	100%
PLO 4 Creates building design with well-integrated systems and comprehends constructability	83%	83%	100%	100%
PLO 5 Building design incorporates life-safety systems and integrated accessibility	50%	67%	100%	83%
PLO 6 Applies principles of sustainable design	83%	83%	83%	100%

In the summer of 2020 a faculty committee was formed in response to external reviewer comments and faculty observations regarding the need to increase the structures content of ARCH 535 and further integrate the content and schedules of ARCH 535 and ARCH 558. This committee made two primary recommendations which were implemented in the Fall of 2020:

1. Hire a structures instructor to set rigorous teaching and learning objectives, work with students to evaluate and reach reasoned conclusions regarding structural systems and evaluate student learning outcomes. Emeritus Professor Jerry Stephens, formerly director of the civil engineering program at MSU and a tenured structures professor was hired.
2. Establish a common schedule requiring all students, regardless of the section in which they are enrolled, to complete a schematic design set of drawings by the 6<sup>th</sup> week of the semester. This was established to help the faculty in ARCH 535 have all students at a similar level of development permitting the ARCH 535 faculty to assign evaluative strategies for alternative building systems analysis and decision-making.

Following the Fall 2021 semester a Course Assessment Survey of ARCH 535 and 558 involved practitioners from our Advisory Council and faculty members from the University of Idaho. Four external reviewers from this group reviewed Arch 558 projects from 8 randomly selected students. In addition, three of our faculty also reviewed eight randomly selected ARCH 558 projects. In all, the work of sixteen ARCH 558 projects were reviewed. There were seven categories assessed for SC.5 Design Synthesis and six categories reviewed for SC.6 Building Integration. Following are the results of that assessment. The chart below identifies the percentage of those students demonstrating each criteria at the level of Ability.

Fall 2021 Course Assessment of ARCH 558 Comprehensive Design Studio	Internal Reviewers		External Reviewers	
	Percentage of individual reviewer scores at 1.0 or better demonstrating Ability	Percentage of the average of reviewer scores at 1.0 or better demonstrating Ability	Percentage of individual reviewer scores at 1.0 or better demonstrating Ability	Percentage of the average of reviewer scores at 1.0 or better demonstrating Ability
<b>SC.5 Design Synthesis</b>				
Overall Design Synthesis	88%	100%	91%	100%
Synthesis of User Requirements	88%	88%	88%	100%
Consideration of Regulatory Requirements	96%	100%	97%	100%
Synthesis of Site Considerations	88%	100%	100%	100%
Synthesis of Accessible Design	96%	100%	88%	100%
Addresses Climate Change and Sustainability	88%	88%	97%	100%
Considers Environmental Impact	96%	100%	100%	100%
<b>SC.6 Building Integration</b>				
Overall Building Integration	92%	100%	97%	100%
Building Envelope Systems/Assemblies Integration	88%	100%	100%	100%
Structural Systems Integration	92%	100%	94%	100%
Environmental Controls Systems Integration	92%	100%	91%	100%
Integration of Life Safety Systems	92%	100%	88%	100%
Measurable Outcomes of Building Performance	96%	100%	94%	100%



This data showed a strong increase in the Integration of Life Safety Systems from the prior survey. Overall, percentages were well above the School's assessment threshold of 80% but the data did indicate areas where continued improvement can occur in Fall 2022. Part of the assessment pointed to a need for clearer communication of systems integration in the project drawings.

### **Causes of Concern**

#### **a. Leadership and faculty stability**

1. *Interim Director: The team is very concerned that since the last visit there has been interim leadership and that this situation continues. The College of Arts and Architecture has a new dean in place and now movement should be made by the school, college and university to seek and name a permanent director of the school.*

#### **Actions taken since the previous visit:**

In August of 2016, following a national search, Andrew Vernooy was hired as Director of the School of Architecture. In August of 2018, Andrew Vernooy resigned as director to take an open faculty position as structures professor in the School of Architecture. Following an internal search Professor Ralph Johnson was appointed Director of the School of Architecture. Professor Johnson agreed to serve in the position of director until his retirement in September of 2022.

Dean Smith, in 2021, implemented a dual leadership model in which a director and “fellow”, selected from the faculty of each school, share the leadership of each school in the college. The School of Architecture remained an exception to this model under Professor Johnson’s leadership, however, in anticipation of Professor Johnson’s retirement, Dean Smith made one-year interim appointments of Professor Christopher Livingston as director and Associate Professor Zuzanna Karczewska as the “fellow” beginning in July of 2022. This permitted a transition period between July and September prior to Professor Johnson’s retirement.

In the fall of 2021 and spring of 2022, the faculty of the School of Architecture met with Dean Smith several times to express their aspirations for future leadership of the school. At a faculty meeting with Dean Smith on February 15, 2022, Dean Smith called for a vote on the type of leadership desired and 24 of the 25 faculty (tenured and non-tenure track) voted to support a tenure-track director’s search (1 abstention). Faculty further stated their dissatisfaction with the director/fellow model because it dilutes the number of tenure track faculty teaching when both the director and fellow teach only 2 of the 3 courses each tenure track faculty member normally teaches.

In the spring of 2022, the faculty prepared a position description for a director’s search to occur during the 2022-2023 academic year and forward this to Dean Smith on June 24, 2022. The faculty agreed that the position could be filled by a tenurable candidate, a non-tenurable candidate, or a practicing professional and the successful candidate would serve for a minimum of 5 years. On August 17, 2022, Dean Smith returned an edited version of the position description for faculty review and revision. No action has been taken to initiate a search.

2. *Faculty turnover: The school enjoys a cadre of 18 full-time faculty. The majority of the faculty has been here for many years and over time will be considering retiring. Three junior faculty are leaving at the end of this academic year to pursue other opportunities. The dean has authorized the hiring of three replacements, and two have already signed contracts. A third is in the negotiating process. The team encourages the administration of the college and the university to continue to support the influx of new junior faculty as senior faculty retire.*

#### **Actions taken since the previous visit:**

The administration of the college and the university have continued to support the influx of new junior faculty as senior faculty retire. One tenured faculty member and two non-tenure track faculty retired in 2019 and a second tenure track faculty member retired in 2021. During this period non-tenure track faculty were hired to sustain the level of 18 full-time faculty but it was not until 2022 that the COVID generated policy of permitting no tenure track searches was rescinded. In the spring of 2022, a tenure



track faculty search resulted in the successful hiring of two tenure track assistant professors James Park, PhD and Kyle Stover, PhD to replace the tenured full professors who retired in 2019 and 2021.

In the summer of 2022 one resignation and two senior faculty retired. It is anticipated that three (3) tenure track searches will be authorized by the university for the spring of 2023.

- 3. *Succession planning: While the school enjoys long tenure from a number of key faculty, there is a concern the school may not be prepared for any departures. Importantly, these faculty members provide instruction in many of the core subjects and studios. Any departures, especially unforeseen or short term, could detract from education quality until satisfactory replacements are made. The school is encouraged to create a succession plan complete with action steps and, if possible, identification of potential candidates.*

**Actions taken since the previous visit:**

Succession planning was addressed throughout the 2018-2019 academic year. An external evaluation and recommendations by the School of Architecture Advisory Council and an internal evaluation of future needs to support the existing and evolving curriculum by the faculty resulted in the following Succession Policy adopted in the fall of 2019:

- 1. Future School of Architecture faculty should represent both currency in architecture and its allied fields and strive to be innovators who challenge and advance the design professions.
- 2. Future searches should maintain the broad areas of expertise upon which architecture and the School of Architecture at Montana State University is founded:
 

Design of the Built Environment	History and Theory	Building Systems
Ecological Context	Socio-cultural Context	Communication
Technology	Community Engagement	
- 3. Succession must ensure that each new faculty member has expertise in at least two of the broad areas of expertise identified above. The School of Architecture succession strategy should seek to maintain this breadth of expertise while seeking to enrich the School of Architecture's diversity, currency, research and interdisciplinarity.

In the spring of 2022 two tenure track faculty searches were authorize by the university and the School of Architecture Succession Policy was implemented to write the position descriptions.

In response to the suggestion that the school hire non-tenure track faculty with the potential to be hired in future tenure track searches four such full-time non-tenure track faculty were hired during the period of 2019 to 2021. Of the four one left the school, one has requested and received a reduced teaching load and fall 2022 relief from teaching and although the remaining two were highly qualified only one applied for a tenure track position in the spring 2022 search.

**b. Opportunity for additional digital instruction**

*Students have access to 12 computer laboratories housing over 379 computers within the university, but no computer laboratories within the School of Architecture. There is an understanding that students are required to purchase and bring their own computers with the necessary software. Students are introduced to a minimal amount of instruction on these computer programs, but students have expressed a concern for additional computer education.*

**Actions taken since the previous visit:**

A 10-station computer lab in Cheever Hall, for the exclusive use of architecture students, was in operation beginning with the spring semester of 2020. Two additional rendering computers and software have been installed in Gains Hall for the exclusive use of architecture graduate students. An advanced computer applications course, ARCH 575, has been taught both in the fall and spring semesters beginning in 2019 and ARCH 363, Graphics III, taught in the fall semester of 3<sup>rd</sup> year has been revised to focus primarily on computer software applications. Additionally, a six-station computer lab has been created in Cheever Hall with hardware and software for use in augmented and virtual reality instruction and research to be shared among students in the Schools of Film & Photography and Architecture.



### **c. Safety in the shop**

*The team notes that the program has reduced the number of student workers who assist in the operation of the woodshop, an integral component to the production of student work, ranging from full-scale furniture and architectural products to smaller-scaled architectural models. This reduction in student workers has resulted in reduced hours of operation for the woodshop and a reduction in supervision when the shop is open. This particular cause of concern carries with it implications for student health, safety, and welfare, as a reduction in staff could increase the potential for serious accidents and injury. The team notes, however, that the shop maintains policies and procedures for safety, shop safety training for students, safety equipment such as ear plugs and safety goggles, and shop equipment with safety features, such as Saw Stop table saws. This cause of concern is one of staffing capacity, not of policies, procedures, or equipment.*

#### **Actions taken since the previous visit:**

An Equipment & Facilities Manager was hired in 2016 and in 2020 an assistant to the Equipment & Facilities Manager was hired. In collaboration with the Director of Fabrication Facilities, 3 staff oversee most of the craft lab usage thereby reducing the need for student labor. In the summer of 2022, the Director of the Fabrication Facilities retired. A reorganization of staffing and the hiring of an experienced non-tenure track furniture maker ensures that the level of staffing remains at the 2020 level.

### **d. Accessibility**

*Accessibility, although met, is an area the school should strengthen. As part of the building codes, projects must be able to demonstrate that they can accommodate the needs of individuals with physical, sensory, and cognitive disabilities. While the work of ARCH 340 - Building Construction II showed evidence of this ability, the work in other courses showed a marginal development of accessible design.*

#### **Actions taken since the previous visit:**

In 2016 the learning outcomes were revised for the 2<sup>nd</sup> and 3<sup>rd</sup> year studios. Students are now introduced to accessibility in the spring of the 2<sup>nd</sup> year in the ARCH 254 Design Studio and then evidence of the ability to apply the principles of accessible design to meet the needs of individuals with physical, sensory, and cognitive disabilities is required in the 3<sup>rd</sup> year for both design studios, ARCH 355 and ARCH 356 as well as in Building Construction II, Arch 340.

### **e. Sustainability**

*The school and the students are very aware of the principles of sustainability. Environmental Controls classes show a good understanding of these principles, and the student projects show knowledge of the complex and innovative systems in use. Some of the students are actively involved in the USGBC school chapter along with the engineering students. Although there was evidence that this criterion was met, the visiting team would have expected this knowledge to be shown consistently in all work after the subject was introduced to the students, starting with the basic principles of sustainability such as building orientation and solar controls. The relationship between the architectural and engineering students through the USGBC chapter lends itself to interdisciplinary projects. There was no evidence that this relationship has been fully taken advantage of.*

#### **Actions taken since the previous visit:**

In 2016 the learning outcomes were revised for the 2<sup>nd</sup> and 3<sup>rd</sup> year studios and a new course, ARCH 431, Sustainability in Architecture, was introduced. 2<sup>nd</sup> year studio developed learning outcomes associated with passive design strategies and 3<sup>rd</sup> year studio developed learning outcomes associated with the application of active sustainable practices. ARCH 331 and ARCH 332, Environmental Controls I and II, also 3<sup>rd</sup> year courses, cover both passive and active sustainable systems and software analysis programs for lighting and energy evaluations. ARCH 431, a 4<sup>th</sup> year course, was developed to synthesize previous learning with a focus on 2014 NAAB criteria B.2 Site Design, B.6 Environmental Systems, B.7 Building Envelope Systems and Assemblies and B.8 Building Materials and Assemblies.



## 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:

Following the release of the final draft of the *2020 Conditions for Accreditation* the School of Architecture undertook the following four (4) major initiatives to transition from the *2014 Conditions* to the *2020 Conditions*.

1. **In January of 2020** the faculty of the School of Architecture conducted a two-day retreat to discuss the implications of the *2020 Conditions for Accreditation*. The following conclusions were reached:
  - a. The school's current curriculum meets the Program and Student Criteria identified in the *2020 Conditions*.
  - b. The overarching focus of each academic cadre of students was deemed appropriate for meeting the *2020 Conditions*:
    - First Year
      - Natural and human generated systems
      - Oral graphic, modeling & written communication skills
    - Second Year
      - Small scale architectural design
      - Responsive to natural systems of topography, solar orientation
    - Third Year
      - Larger scale architectural design projects
      - Responsive to urban settings and systems
      - Integrating building systems including structures and HVAC
    - Fourth Year
      - Undergraduate capstone architectural design
      - Multiple buildings
      - Demonstrate and understanding of comprehensive design
    - Fifth Year Fall
      - Comprehensive design studio
      - Demonstrate the ability to fulfill NAAB SC.5 and SC.6
    - Fifth Year Spring & Fall
      - Focus on research
      - Undertake year-long graduate project
  - c. Additionally, the faculty developed the following School of Architecture Vision statement and identification of values that guide the school in achieving its vision and mission:

Mission Statement:  
We believe in broad engagement with the cultural and ecological context through architecture's agency in the world.

Values  
**Citizens:** our role and responsibility as citizens and recognize the need to approach our profession in a humanistic manner as stewards of our built and natural environment.





**Passion:** a steady and unrelenting passion and excitement for design, creativity, innovation, and engagement with the issues of the built and natural environments.

**Design:** the design process as an essential process in all aspects of a student's academic and professional life. Design becomes the fundamental means for actively, creatively, and critically engaging the issues of the world.

**Agility:** the ability to transform and innovate in response to the shifting conditions and opportunities in society.

**Experimentation:** an education that embraces experimentation and risk taking that leads to innovation and discovery in order to influence the role and impact of design on society and the future.

2. **During Summer 2020**, an AdHoc NAAB Curriculum Matrix Committee was created with faculty representing all the various course areas in our program. The charge was to transition courses from the 2014 NAAB Matrix, containing SPCs, to the 2020 NAAB Matrix with the new Program Criteria (PC) and Student Criteria (SC) conditions. This resulted in ARCH 535 and 558 being identified as demonstrating SC.5 Design Synthesis and SC.6 Building Integration.

In addition, although the NAAB Matrix requires that courses which achieve understanding be identified, the faculty chose to create a matrix for the school that articulates not only when understanding or ability is achieved but also when a topic is introduced or when parts of multifaceted PC or SC achieve understanding. The intention being to provide for a laddering of skills and knowledge as students' progress towards SC.5 and SC.6 in ARCH 535 and ARCH 558. The laddering pedagogy is indicated below:

PC.1 Career Paths

- Introduced in ARCH 121, Introduction to Design
- Understanding in ARCH 413, Professional Practice

PC.2 Design

- See 2a – 2f above - Partial introduction and understanding achieved in each academic year
- Components introduced in ARCH 253, Architectural Design I – ARCH 262, Architectural Graphics II
- Components understanding achieved in ARCH 151, Design Fundamentals I – ARCH 322, World History – ARCH 254, Architectural Design II – ARCH 355, Architectural Design III – ARCH 457, Architectural Design V

PC.3 Ecological Knowledge and Responsibility

- Components introduced in ARCH 253, Architectural Design I – ARCH 254, Architectural Design II – ARCH 355, Architectural Design III
- Components understanding achieved in ARCH 331, Environmental Controls I – ARCH 332, Environmental Controls II – ARCH 431, Sustainability in Architecture

PC.4 History and Theory

- Components introduced in ARCH 121, Introduction to Design – ARCH 254, Architectural Design II
- Components understanding achieved in ARCH 322, World Architecture I – ARCH 322 World Architecture II – ARCH 526, Advance Architectural Theory

PC.5 Research and Innovation

- Components introduced in ARCH 262, Architectural Graphics II – ARCH 322, World Architecture II – ARCH 355, Architectural Design III – ARCH 363, Architectural Graphics III
- Components understanding achieved in ARCH 452, Architectural Research Methods – ARCH 551, Advanced Architectural Studio



- PC.6 Leadership and Collaboration
    - Understanding achieved in US XXX University Leadership Seminar (Starting Fall 2024)
  - PC.7 Learning and Teaching Culture
    - Understand achieved in all courses
  - PC.8 Social Equity and Inclusive Environments
    - Components understanding achieved in ARCH 121, Introduction to Design – ARCH 322 World Architecture I – ARCH 323, World Architecture II – ARCH 355, Architectural Design III
  - SC.1 Health, Safety, and Welfare in the Built Environment
    - Components introduced in ARCH 253, Architectural Design I – ARCH 355, Architectural Design III
    - Components understanding achieved in ARCH 241, Building Construction I – ARCH 254, Architectural Design II – ARCH 356, Architectural Design IV – ARCH 457, Architectural Design V
  - SC.2 Professional Practice
    - Components introduced in ARCH 340, Building Construction II
    - Components understanding achieved in ARCH 413, Professional Practice
  - SC.3 Regulatory Context
    - Components introduced in ARCH 253, Architectural Design I – ARCH 253, Architectural Design II – ARCH 332, Environmental Controls II – ARCH 340, Building Controls II
    - Components understanding achieved in ARCH 241, Building Construction I – ARCH 356, Architectural Design IV – ARCH 457, Architectural Design V
  - SC.4 Technical Knowledge
    - Components introduced in ARCH 241, Building Construction I – ARCH 254, Architectural Design II – ARCH 343, Architectural Structures I – ARCH 363, Architectural Graphics III
    - Components understanding achieved in ARCH 331, Environmental Controls I – ARCH 332, Environmental Controls II – ARCH 340, Building Construction II – Architectural Structures II – ARCH 457, Architectural Design V
  - SC.5 Design Synthesis
    - Components introduced in ARCH 253, Architectural Design I – ARCH 254, Architectural Design II – ARCH 355, Architectural Design III
    - Components achieve understanding in ARCH 457, Architectural Design V
    - Components ability achieved in ARCH 535, Advanced Building Systems Integration – ARCH 558, Comprehensive Design Studio
  - SC.6 Building Integration
    - Components introduced in ARCH 253, Architectural Design I – ARCH 254, Architectural Design II – ARCH 355, Architectural Design III
    - Components achieve understanding in ARCH 457, Architectural Design V
    - Components ability achieved in ARCH 535, Advanced Building Systems Integration – ARCH 558, Comprehensive Design Studio
3. **During the summer of 2021** initial assessments were undertaken by faculty of all courses taught during the 2020-2021 academic year with the intention of determining if the course learning outcomes effectively reflected the course learning objectives. Following this analysis all faculty were asked to align their course syllabus learning objectives and learning outcomes with the school matrix adopted in the spring of 2021.

**Throughout the 2021 – 2022 academic year** an assessment sub-committee, which was established at the conclusion of the 2021 spring semester, developed an annual assessment policy and strategy for the school. As part of the assessment process the committee recommended a requirement that faculty update their course schedules to include all assignments, course lectures, handouts, and excerpts from required readings to make assessment



## NARRATIVE TEMPLATE

### 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:**

##### **Institutional Context:**

Montana State University-Bozeman is a comprehensive, multi-purpose public institution maintaining the land-grant mission in programs of instruction, research/creative activity, and public service/outreach. The University was established on February 16, 1893, as the Agricultural College of the State of Montana at Bozeman by an act of the State Legislature. The first term of instruction began on April 17 of that year. In 1913, the name of the institution was changed to the State College of Agriculture and Mechanic Arts. In 1920, that name was changed to Montana State College and remained the same until July 1, 1965, when the name Montana State University became effective.

On July 1, 1994, the Montana Board of Regents of Higher Education restructured the state's colleges and universities into two umbrella universities, Montana State University, and the University of Montana. MSU is the home campus for Montana State University, with the following affiliates:

- Montana State University Billings,
- Montana State University-Northern,
- Montana State University Great Falls College of Technology.

As a land-grant institution authorized by the Morrill Act of 1862, Montana State University-Bozeman derives its support from biennial state legislature appropriations, student fees, federal land-grant income, and from private and public grants. The University has created an atmosphere of outstanding research effort and outreach/engagement activities to complement its regular instructional programs.

Undergraduate instruction at Montana State University-Bozeman is administered through nine Colleges: Agriculture; Arts and Architecture; Business; Education & Health and Human Development; Engineering; Letters and Science; Nursing; Gallatin College and the Honors College. In addition to the nine Colleges the Graduate School administers graduate education within the colleges.

In the spring semester of 2022 15,608 students were enrolled (76% are full time student) of which 1,917 are graduate students. The university employs a resident academic faculty of 781 full-time faculty and 373 part-time faculty, a staff of 2,569 full-time employees and 741 part-time employees, and 895 part-time graduate teaching assistants.

Instruction leading to the bachelor's degree is offered in one hundred and nineteen fields and options. The master's degree is offered in fifty-five fields, and at the doctorate level in thirty-four fields. Programs particularly appropriate for students in applied research or teaching are available. The research programs of the University serve the dual functions of supporting the instructional program and of contributing to the solutions of important problems of the state and nation.

Specialized facilities include the Agricultural Experiment Station Research Centers, Center for American Indian and Rural Health Equity, Center for Biofilm Engineer, Center for Health & Safety Culture, Center for Mental Health Research & Recovery, Center for Science, Technology, Ethics & Society, Energy Research Institute, IDeA Network of Biomedical Research Excellence, Institute on Ecosystems, Ivan Doig Center for



the Study of the Lands and Peoples of the North American West, MilTech, Montana Cooperative Fishery Research Unit, Montana Water Center, Museum of the Rockies, NASA EPSCor, NSF EPSCOR, Office of Sustainability, Optical Technology Center, Spectrum Lab, Spatial Sciences Center, Technology Transfer Office, Thermal Biology Institute, Water Center, and the Western Transportation Institute.

On January 4, 2010, Dr. Waded Cruzado took office as Montana State University's 12<sup>th</sup> President. Since arriving at MSU, President Cruzado has overseen a massive strategic planning effort, record enrollments, increased emphasis on the land-grant mission of the university, greater campus communication, improvements to student facilities, an emphasis on student retention and establishment of the two-year Gallatin College program. President Cruzado has been responsible for the funding, both public and private, of numerous major building projects including the Native American Center's American Indian Hall, the College of Business Jabs Hall, the College of Engineering's Norm Asbjornson Hall, a complete adaptive reuse of Romney Hall for classrooms with a new fitness center under construction and funding for new Nursing and Computer Science buildings secured.

In 2017 Dr. Robert "Bob" Mokwa, Ph.D. Civil Engineering was selected as Provost for Montana State University and in May of 2016 Dr. Royce Smith, Ph.D. Art History, was selected as the new Dean of the College of Arts and Architecture.

Montana State University is a residential campus. With the exception of Nursing, which has six satellite campus settings, the vast majority of classes offered throughout the university are taught on campus. All the course work leading to the Bachelor of Science in Environmental Design and Master of Architecture degrees are taught on campus.

#### **Geographic Setting:**

The main campus is in the south-central quadrant of Bozeman, Montana, a growing micropolitan community with a population of approximately 50,000. Bozeman is located at the foot of the Bridger and Gallatin Range of the northern Rocky Mountains in the approximately 160 square mile Gallatin Valley. The valley is a rural grassland habitat dominated by agricultural production and bordered closely by mountain forest habitat which is primarily National and State Forest lands utilized for agriculture and recreation (summer fishing and hiking – winter hunting and skiing).

The campus includes over 60 major buildings on 1,170 acres of which 474 acres are part of the Bozeman Agricultural Research and Teaching Farm. The School of Architecture is located primarily in Cheever Hall on the western edge of the academic core of the university. Architecture is in the College of Arts and Architecture building group with the School of Art to the north and the Schools of Music and Film and Photography located to the south.

#### **Mission of the University and how it shapes or influence the program:**

Mission Statement of Montana State University – As the state's land-grant university, Montana State integrates education, creation of knowledge and art and service to communities.

Mission Statement of the School of Architecture – The School of Architecture empowers students to engage the complexities of social and ecological systems through creative, collaborative, and ethical design of the built environment. We instill personal agency, self-reflection, and environmental empathy to educate innovators who challenge and advance the design professions.

The land-grant mission of the University specifically influences the program in the following ways:

1. All students enrolled in Montana State University are eligible to enroll in first year courses of ARCH 121, Introduction to Design, ARCH 151, Design Fundamental I and ARCH 152, Design Fundamentals II. No prerequisites are required.
2. All students who achieve a minimum overall GPA of 2.7, a minimum Architecture GPA of 3.0 and an acceptable portfolio submission of work from the first-year design studio courses are accepted

into the Environmental Design Degree Program. This policy has led to the school reaching its physical limits for studio teaching with the fall enrollment of 2022. Unless additional studio space is provided by the university the policy of admitting all qualified students, aligning with the university and schools land grant mission, will not be possible for the 2023-2024 academic year.

3. The Environmental Design degree program emphasizes a broad education intended to prepare students for graduate studies in architecture and ultimately professional practice. All courses focus on both the art and technology of architecture, the architect's responsibility to the client, the community, and the environment. The school seeks to imbue graduates with a strong work ethic, fundamental communication and lifelong learning skills and the creativity necessary to become future leaders in the profession and adapt to the continuously changing nature of architectural practice.
4. All students experience design challenges in their sequence of studio courses related to the rural landscape and small communities of Montana (2<sup>nd</sup> year), as well as large metropolitan communities outside of Montana (3<sup>rd</sup> year). Each year field trip experiences emphasize these conditions:
  - a. 1<sup>st</sup> year students travel to local creeks to study the nature of these landscapes and how the introduction of built elements interacts with natural phenomena
  - b. 2<sup>nd</sup> year students in the fall semester travel to Tippet Rise to investigate how large scale sculpture can interact with a working ranch and how human scaled interventions can integrate, complement, or contrast with the landscape.
  - c. 2<sup>nd</sup> year students in the spring semester undertake a small-scale design project in a suburban district of Bozeman
  - d. 3<sup>rd</sup> year student travel to a major urban city (typically the cities of Seattle, Portland, LA, Phoenix, and Chicago) selected by their studio instructor and engage a design challenge specific to the urban conditions of the city. Each instructor takes students to a different city thus promoting a wide variety of experiences among the students.
5. In direct response to the land grant mission of the university the School of Architecture has operated the Community Design Center continuously since the late 1960's. The faculty and students working in the center have served the needs, at one time or another, of all 56 counties in the state of Montana successfully completing over 240 outreach and engagement activities in these communities. Approximately 1/3 of the 4<sup>th</sup> year students enroll in the course, ARCH 450, Community Design Center Studio, to address the specific needs of a Montana community that has requested the services of the Center. The faculty member and students conduct the appropriate research and bring the knowledge of the university to the community in service of their needs. Students work directly with community members under the supervision of the instructor.

Typical of the work completed each semester are the projects scheduled for the fall semester of 2022:

- a. An investigation and design proposals for affordable housing options in the City of Bozeman North 7<sup>th</sup> Street tax increment financing district.
  - b. Development of a master plan for the Innovation Campus owned and operated by the University Foundation
  - c. Creation of a traditional neighborhood subdivision plan and housing unit design for the City of Sidney, Montana, Economic Development Corporation
  - d. Program development and schematic design proposal(s) for use in seeking funding for the Big Sky Public Library funded by the Big Sky Development Council.
6. The needs of Montana architects and engineers are served through the Integrated Design Lab (IDL) under the supervision of Prof. Jaya Mukhopadhyay. In the lab architecture and engineering undergraduates perform energy and lighting analysis for Montana architects and engineers who



wish to have the schematic designs of their building proposals analyzed for recommendations to lower the energy consumption.

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:**

Montana State University has established three areas of focus in its Strategic Plan. The School of Architecture integrates its teaching, scholarship, and service with the University' Strategic Plan as follows:

***INTENTIONAL FOCUS 1: Drive Transformational Learning Experiences Creating Outstanding Educational Outcomes for All Students***

*Montana State University students are challenged and changed by their active participation in high quality, innovative experiences at both the undergraduate and graduate level, becoming learned professionals and global citizens.*

***GOAL 1.1: Broaden access for underrepresented populations and increase academic success for all students through excellence in undergraduate education.***

*As the state's land-grant university, Montana State invites participation in exceptional higher education, widens participation of under-represented student populations and improves student success outcomes overall.*

School of Architecture Strategic Plan Initiatives:

The School of Architecture's policy of admitting all students admitted to the university into the school's first year curriculum and admitting all qualified students into the Environmental Design degree program maximizes the potential of every student to participate in exceptional higher education.

Relative to other STEM curriculums on campus the School of Architecture has been successful in attracting, retaining and graduating women. Approximately 50% of the school's undergraduate and graduate students are women.

Native American's are the largest under-represented population in Montana at approximately 6.5% of the state's population. The School of Architecture on average has two native American students in each cadre of students admitted into the Environmental Design degree program (4%). Two strategies are being initiated to increase this number:

1. Professor Michael Everts has been awarded a grant for *Participatory Design with Tribal Colleges*. This grant is intended to engage students attending tribal colleges in a manner that raises their awareness of how the built environment interacts with nature and human socio/cultural phenomena through architectural design.
2. In collaboration with the school's Advisory Council a recruiting effort is being made in Billings, Montana where the largest population of Native American students is enrolled in public schools. In this prototype effort members of the profession will offer presentations on the role of architects in society and how the profession can be a leader in direct engagement with issues such as housing, environmental stewardship, and the reduction of energy consumption. Students will be invited to visit offices to experience the work environment and view projects. In an effort to enhance the chances for success under-represented students who choose architecture as their major will be offered mentorship and work opportunities throughout their academic career by the offices participating in this program.



The issue of improved student outcomes is also being addressed in a collaborative effort with the Advisory Council. Beginning during the fall semester of 2022 all 2<sup>nd</sup> year students will be connected with a practicing professional in a mentorship program intended to last throughout the student's undergraduate career. It is intended to give the student someone who they can freely discuss their education, hopes, success and frustrations with who has been through the same experiences and succeeded. The mentor will be someone who the student can identify with and realize the value of their education through, thus improving the success of the school's students.

**GOAL 1.2: Expand high-quality graduate education**

*Montana State University will enroll and graduate more degree-seeking students at the graduate level and enhance the quality of graduate degree programs.*

School of Architecture Strategic Plan Initiatives:

An increased recruiting effort has led to larger undergraduate cadres of students in the 1<sup>st</sup> through 4<sup>th</sup> year of the Environmental Design degree program. This in-turn will lead to more successful applications to the M.Arch program beginning in the fall of 2023.

Additionally, a recruiting effort to attract more graduates of liberal arts colleges with architectural studies programs will begin in the fall of 2022. Undergraduates from liberal arts colleges entering the school's M.Arch program have proven to be highly successful and greatly enrich the socio/cultural make-up of the school's graduate program. This recruiting effort was planned to begin in 2019 but was put on hold during the COVID epidemic but will be fully underway in the fall of 2022 led by the school's graduate coordinator Prof. Michael Everts.

A partial measure of the M.Arch program's success is illustrated in outcomes of the ARCH 535 / ARCH 558 Comprehensive Design project where students have been selected as winners of the AIA Competition on the Environment in 2017, 2018, 2019, and 2020.

The school has enhanced the M.Arch program since the 2018 by:

1. A structure's faculty member was added to the team-teaching of ARCH 535, Advanced Architectural Systems Integration
2. An Advanced Architectural Theory course, ARCH 526, was added to the graduate curriculum
3. ARCH 551, Advanced Architectural Studio and ARCH 457, Architectural Design V have been designated Collaborative Professional Practice research studios in which faculty collaborate with an architectural office on a design project for which the office seeks to advance its research efforts. As examples the following nationally prominent collaborating offices have undertaken studio design projects with MSU students and faculty:
  - a. LMN Architects, Seattle – Performing Arts Center
  - b. Morphosis Architects, Los Angeles – Affordable Housing for the Homeless
  - c. Lake Flato Architects, San Antonio – Adaptive Reuse of an Abandoned Power Plant
  - d. Morphosis Architects, Los Angeles – Urban Design Proposal for West Hollywood
4. ARCH 551, Advanced Architectural Studio, serves as the research studio for the schools Visiting Scholar program which was fully funded by the School of Architecture Advisory Council in 2020. The first scholar taught and conducted research with graduate students in the spring of 2022. The scholars and research agenda for 2022 and 2023 are identified below:

- a. 2022 Scholar Tyler Swingle – Research topic was increasing the wood resources in Montana and expanded use of cross laminated timber. Prof. Swingle also taught a graduate elective focused on non-traditional uses of the software program Rhino.
- b. 2023 Scholar Frank Barkow – Research topic will be Increasing the use of ceramics in contemporary buildings. His graduate elective will experiment with ceramics in collaboration with the School of Art ceramics department.

**GOAL 1.3: Implement evidence-based high quality, high impact teaching and learning practices for every student**

*Montana State University improves the curricular and co-curricular experience with demonstrated educational practices integrated with discovery and engagement that enhance learning and develop engaged global citizens and informed professionals.*

School of Architecture Strategic Plan Initiatives:

The School of Architecture utilizes a studio-based education pedagogy in which the principles of Bloom’s taxonomy are employed in small studios where the ratio varies from an average of 1 faculty member to 10 students at the graduate level to a high average of 1:13 in the 2<sup>nd</sup> year of the undergraduate program. Non-studio courses also utilize Bloom’s taxonomy in building knowledge and comprehension, but it is in the studio that application, analysis, synthesis, and evaluation are most fully realized.

Engagement occurs primarily in the studio as described previously the section above titled **Mission of the University and how it shapes or influence the program.**

Co-curricular experiences offered by the school include the visiting lecture and exhibits series. The lectures are available by video on-line live to the general public and advertised to all architects in Montana and MSU alumni as well as archived on the school website. The 2021 – 2022 academic year schedule is typical of the experiences available for our students and the community.

Fall 2021 Lectures and Topics:

- Brian Court, Miller Hull Architects – *An Architecture of Restoration and Representation*
- Walter Grondzik, Ball State University – *Intentional Design*
- Annie Combs and Zoe Malliaros, Siris Combs Architecture – *The Lakota Nation and the Legacy of American Colonization*
- Bob Harris, Lake Flato Architects – *Nature, Place, Craft, and Restraint: The Practice, Approach, and Work of Lake Flato Architects*
- Byoung Cho, BCHO Architects – *Current Works and Philosophy*
- Bobby Johnston and Ruthe Mandi, CO Adaptive Architecture – *Urban Material Mines: How the Past Informs the Future*
- Maya Bird-Murphy, Chicago Mobile Makers – *Chicago Mobile Makers – Inviting Youth to have a Seat at the Design Table*
- Patricia Ramallo, National Council of Architectural Registration Boards – *Deigning your Future: Creating Value in your Career*
- Matt Muir, Jackson Contractor Group, Inc. – *Bridging the Gap between Architects and Construction*

Fall 2022 Exhibits:

- Miller Hull Architects Current Work and Projects
- Watercolors of Historic Montana Gas Stations
- Annie Combs and Zoe Malliaros Photos from the Lakota Nation
- Bobby Johnston and Ruth Mandi Architects Current Work and Projects



- MSU Architectural Photography Exhibition
- Spring 2022 Lectures and Topics
  - Arne Emerson, Morphosis Architecture – *Morphosis Architects – Current Projects, Built and on the Boards*
  - Wade Kavanaugh, Artist – *Imagine a Bird*
  - Laura Dornberger, Locati Architects, Laurie Moffet-Fehlberg, Dahlin Group Architects, Lynn McBride, Mithun Architects, and Susan Bjerke, Bjerke Architects – *MSU Advisory Council Panel Discussion on Women in Architecture*
  - Dan Rockhill, University of Kansas – *Design and Construction, Hand and Mind, the work of Studio 804*
  - Zean Macfarlane, Architect – *Why the Software is Irrelevant – Architectural Graphics in Practice*
  - Brook Muller, Dean of the College of Arts + Architecture University of North Carolina – *Blue Architecture: Water, Design and the Environmental Futures*
  - Michael Benedikt, University of Texas – *Magic*
  - Katia McCain, Steinberg Hart Architects – *Residential Design: Social or Not?*
- Spring 2022 Exhibits
  - Morphosis Architects Current Work and Projects
  - Wade Kavanaugh Projects in Wood
  - Studio 804 Current and Past Work
  - Drawings by Zean Macfarlane, Bringing Architecture to Life
  - John Muire’s Moccasin Exhibit and Film by Lucia Ricciardelli

## **INTENTIONAL FOCUS 2:**

*Improve Lives and Society through Research, Creativity, and Scholarship*

*Montana State University faculty, staff, and students are known nationally and internationally for discovering, applying, testing and sharing knowledge and creative works that expand understanding and positively impact lives and society.*

School of Architecture Strategic Plan Initiatives:

### *GOAL 2.1: Enhance the significance and impact of scholarship*

*Montana State University research and creative activity demonstrates impact on the state’s and the world’s pressing challenges through application of our discoveries in communities, industry and organizations, as well as through academic indicators of the expansion of knowledge.*

Response:

The tenure track faculty of the School of Architecture are actively engaged in scholarly activities as exemplified by their achievements in 2021:

Associate Professor Susan Cowan

- *Community is a Practice*, Attention Journal Princeton University
- *The Limits of Middle-Class Activism: Neighborhood Organizing in St. Louis*, book chapter in *Left in the Midwest: Building Progressive Social Movement in 1960’s and ‘70s*, University of Missouri Press
- *Investigation Neighborhood Character in Bozeman’s Northeast Neighborhood*, funded by the City of Bozeman

Professor Michael Everts

- *Public Architecture for Cultural Sharing: Creating Story Pole Installations for a Fort Peck Indian Reservation Buffalo Trail System* funded by the National Endowment for the Arts
- *The Baha Tata’ga Omaskaska Buffalo Trail Prayer Path* funded by the National Endowment of the Arts

- *Participatory Design with Tribal Colleges* funded by a College of Arts and Architecture faculty grant
- Professor Ralph Johnson
- *Bozeman Housing First Village Construction Phase Adaption of Prototypes* funded by the Bozeman Human Resource Development Council (HRDC)
  - *Published Rural Teacher Housing Design and Cost Analysis* funded by a grant from Montana State University
- Professor Steve Juroszek
- *Publication of Perception to Execution* published in the 2021 Design Communication Conference Proceedings
  - *"Grundtvig's Church, Copenhagen", "Maggie's Center - Aarhus, Denmark" and "Piazza del Duomo"* drawings received International Exhibition Awards at the Design Communication Association Juried Drawing Exhibition
- Associate Professor Zuzanna Karczewska
- *Fleeting Stories of Place* published by the University of Huddersfield in EAEA15: Envisioning Architectural Narratives
  - *Felting Stories of Place* published in the proceedings of the 8<sup>th</sup> International Conference on Architecture and the Built Environment
  - *The Shape of the Invisible* published in the proceedings of the 36<sup>th</sup> National Conference on Beginning Design Students
- Professor Christopher Livingston
- *Itinerant Drawings 2008-2019* exhibited in the Helen E. Copeland Gallery, Bozeman
- Associate Professor Jaya Mukhopadhyay
- *Computation Fluid Dynamics Modeling of Tiny House Ventilation for the Evaluation of Indoor Air Quality* published in the conference proceedings for the National Center of Applied Technology Annual Conference
  - *Indoor Occupant Counting and CO2 Monitoring Based on RF Backscattering* research report funded by Cornell University
  - *Indoor Air Quality in Residential and Commercial Buildings Workshop* funded by the National Center for Applied Technology
- Professor Maire O'Neil (On sabbatical in 2021 – Scholarly work indicated from 2020)
- *"Corner Post Construction: North American adaptation of an ethnic building tradition"* published in the Vernacular Architecture Forum
  - *"Light on the Land: Construction revolution in farm buildings of the Northern Rockies 1890 – 1910"* published in *Buildings & Landscapes*
- Professor Andrew Vernooy
- *Undergraduate Research in Architecture: A Guide for Students* published by Routledge
- Associate Professor Bradford Watson
- *Emergent Capacity* published in the conference proceedings of the Association of Collegiate Schools of Architecture National Conference
  - *Ordering Systems: The Code of Context* published in the conference proceeding of the Association of Collegiate Schools of Architecture National Conference

## GOAL 2.2: Expand interdisciplinary scholarship

*Montana State University's interdisciplinary expertise as the University of the Yellowstone™ carries unique possibilities for inference, translation and impact. Our research and creative activity throughout the university increasingly spans traditional disciplinary boundaries to solve the world's pressing challenges.*

### School of Architecture Strategic Plan Initiatives:

Interdisciplinary scholarly activities are currently being undertaken by the following tenure track faculty of the School of Architecture:

- Associate Professor Susan Cowan, history instructor, works directly with the Gallatin Valley Land Trust, a non-profit organization dedicated to the preservation of open lands, agriculture, and trail systems. In working with the Trust, Prof. Cowan utilizes her expertise to gather and analyze social data in relation to the Trust's aspirations for being responsive to community aspirations.
- Professor Michael Everts, design studio instructor, works directly with Elizabeth Bird, Ph.D. of the College of Education, Health, and Human Development in collaboration with tribal members of Ft. Peck to design and construct "Story Poles" and a trail system commemorating the relationship between the Native American Community and buffalo.
- Professor Ralph Johnson, design studio instructor, collaborates with Associate Professor Sara Mast, Department of Art, on direct application of paint to eliminate the need for dry wall over the OSB component of structurally insulated panels. Additionally, Prof. Johnson works with Associate Professor Jayne Downey, Director of the Center for Research on Rural Education, to determine the housing needs for rural teachers throughout Montana.
- Associate Professor Zuzanna Karczewska, design studio and graphics instructor, works in textile art utilizing local wools in combination with local dyes drawn from local plants to imbue textile artifacts with a sense of place reflecting local conditions.
- Associate Professor Jaya Mukhopadhyay, building systems instructor, is engaged in interdisciplinary research with the department of Mechanical Engineering Associate Professor Kevin Amende to promote energy reduction systems in buildings.

*GOAL 2.3: Strengthen institutional reputation in scholarship*

*Montana State University's success in scholarship results in increased state, national and international prominence.*

School of Architecture Strategic Plan Initiatives:

See the response to Goal 2.1 above. Additionally, the following faculty have received national/international recognition for their accomplishments:

- Professor Michael Everts has received over \$100,000 in National Endowment for the Arts funding to support his scholarly activities on the Ft. Peck Reservation
- Professor Ralph Johnson has served on over a dozen international School of Architecture Accreditation visiting teams.
- Professor Steve Juroszek has won over a dozen international awards for his drawing submissions to Design Communication Association and been recognized nationally for his contributions to education with the publication of Residential Building Codes Illustrated, John Wiley & Sons, Design Drawing, John Wiley & Sons, Building Codes Illustrated for Healthcare Facilities, John Wiley & Sons, Building Codes Illustrated for Elementary and Secondary Schools, John Wiley & Sons.
- Teaching Professor Chere LeClair is a Fellow in the American Institute of Architects, receiving the award for her national leadership role in the AIA and her mentorship of students.
- Professor Christopher Livingston has received over a dozen international awards for his sketches including *Itinerant Drawing 2008-2019* exhibited at the 14<sup>th</sup> Curitiba International Biennial of Contemporary Art.
- Associate Professor Jaya Mukhopadhyay is a board member of the American Society of Heating, Refrigeration and Air-Conditioning Engineers
- Professor Marie O'Neill is the recipient of the Catherine W. Bishir Prize for writing by the Vernacular Architecture Forum and recipient of the John DeHass Memorial

Award for Historic Preservation by the Montana Historical Society. Prof. O'Neill is a member of the Montana Board of Architects & Landscape Architects and a committee member of the Berkeley Undergraduate Prize for Architectural Design Excellence.

- Professor Henry Sorenson has received over 25 international awards for his drawings from the Design Communication Association and the American Society of Architectural Illustrators. Additionally, he has received 10 photography awards from the American Institute of Architects.
- Professor Andrew Vernooy is a Fellow in the American Institute of Architects, receiving the award for his contributions to education. He is author of the book Undergraduate Research in Architecture: A Guide for Students published by Routledge

*GOAL 2.4: Elevate expectations for scholarship*

*Montana State University faculty, staff and students hold themselves to the highest standards of research and creative outcomes.*

School of Architecture Strategic Plan Initiatives:

See the response to Goal 2.1 and Goal 2.3 above.

***INTENTIONAL FOCUS 3: Expand Mutually Beneficial and Responsive Engagement for the Advancement of Montana***

*Montana State University students, faculty and staff work together and with partners across the state and around the world to enhance the well-being of individuals, organizations and communities.*

*GOAL 3.1: Increase mutually beneficial collaborations with Tribal nations and partners*

*Montana State University works cooperatively with Tribal governments, colleges, community groups and Indigenous students to develop and achieve beneficial outcomes.*

School of Architecture Strategic Plan Initiatives:

1. Professor Michael Everts has three current scholarly activities in collaboration with Tribal governments, colleges and community groups:
  - a. Public Architecture for Cultural Sharing: Creating Story Pole Installations for a Fort Peck Indian Reservation Buffalo Trail System
  - b. The Baha Tata'ga Omaskaska Buffalo Trail Prayer Path
  - c. Participatory Design With Tribal Colleges
2. Teaching Assistant Professor Bill Clinton taught 2 design/build classes in 2021 with Native American and non-Native American students to build exterior and interior furniture for the American Indian Center on the MSU campus.
3. The Community Design Center in the School of Architecture has a long history of working with Tribal governments including:
  - a. Rocky Boy Reservation, Chippewa-Cree Tribal Nation Community Plan
  - b. Ktunaxa Nation Perma-Culture Community Design
  - c. Blackfeet Nation, Browning Vision Project

*GOAL 3.2: Grow mutually beneficial partnerships across Montana*

*Montana State University and its partners attain collaboratively defined outcomes that improve the lives and livelihoods of Montanans.*

School of Architecture Strategic Plan Initiatives:

Faculty teaching in the Community Design Center and others teaching both undergraduate and graduate courses have engaged with over 240 community partners to



improve the lives and livelihoods of Montanans. These engagements are recorded in booklets in the School of Architecture Archive. Recent examples include:

1. 2021:
  - a. *Lo-Fab: A Study in Easily Fabricated Building Systems*, Prof. Sarah Mohland instructor
  - b. *Art in the Airport: Schematic Design Proposals for an Art Gallery in Bozeman International Airport*, Prof. Ralph Johnson instructor
  - c. *Housing for the MSU Agricultural Research Center, Kalispell, MT*, Prof. Ralph Johnson instructor
  - d. *Missoula Downtown Urban Design Studies, Missoula, MT*, Prof. Ralph Johnson instructor
  - e. *Missoula Design Guidelines Applications for Net-Zero Design, Missoula MT*, Prof. Ralph Johnson, instructor
  - f. *Design with Nature in the Anthropocene, V2, The Greater Yellowstone Ecosystem* Prof. Chere LeClair instructor
  - g. *Ensuring Affordable Housing: Building Community, Bozeman, MT*, Prof. Chere LeClair, instructor
  - h. *Ronan Fire Station, Ronan, MT*, Prof. Brian Brush instructor
  - i. *Hemp: Its potential uses in architecture*, Prof. Christopher Livingston, instructor
2. 2020:
  - a. *Cohousing: A Contemporary Approach to Traditional Neighborhood Design, Livingston MT*, Prof. Brian Brush instructor
  - b. *Intergenerational Community Center, Bozeman MT*, Prof. Brian Brush instructor
  - c. *Quiet Refuge: Danforth Meditation Sanctuary, Bozeman MT*, Prof. Maire O'Neil instructor
  - d. *Trail Usage in Bozeman, MT*, Prof. Suzanne Cowan, instructor
  - e. *Visual Communications Building, Bozeman, MT*, Prof. Ralph Johnson, instructor
  - f. *Sternella Hotel Studies, Gardiner, MT*, Prof. Ralph Johnson, instructor
  - g. *Rocky Mountain Laboratories Interpretive Center, Hamilton, MT*, Prof. Brian Brush instructor
  - h. *The Matador Ranch Tiny Homes, Hays MT*, Prof. Sarah Mohland instructor
  - i. *Design with Nature in the Anthropocene: The Greater Yellowstone Ecosystem*, Prof. Chere LeClair, instructor

**GOAL 3.3: Foster a culture of collaboration, continuous improvement, and individual growth**

*Montana State University and its students, faculty and staff engage in a reciprocal relationship that values each member and improves the university environment.*

School of Architecture Strategic Plan Initiatives:

By virtue of teaching studios in small groups there is a direct reciprocal relationship between students and faculty members. In addition to the teaching and learning environment the school employees the following strategies to ensures clear communication and responsiveness to the concerns, needs and desires of students, faculty and staff:

1. The school conducts an annual *MSU SoA Learning Environment and Studio Culture Survey* each spring semester. The purpose is to maximize statistical data from students in the school regarding their perceptions of the teaching and learning environment of the school. Most recently the 2022 survey was completed by 71% of the students enrolled in classes (a typical response rate). In the following fall

semester, the results of the survey are shared with faculty and students at a Teaching Culture Forum led by the director and the faculty responsible for the annual survey. The outcomes, insights and recommendations of the Learning and Teaching Culture Forum and Learning Environment and Studio Culture Survey are intended to guide the students, faculty, and administration of the school in maintaining an environment that is responsive and current. It is intended that the results of the survey and forum will create a teaching and learning environment responsive to both changing circumstances and the long-held values of the schools' students and faculty.

2. The director has a student advisory council with representatives from each design studio. Open Q&A occurs in meetings scheduled after classes every three weeks throughout the semester.
3. Faculty are assigned approximately 20 students as professional advisees for group meetings once every semester. The purpose of the meetings is to help advisees better understand the relationship between their academic experiences and the profession.
4. The School of Architecture American Institute of Architects Student Chapter leadership meets with the director a minimum of twice each semester to discuss issues associated with student life and generally 3 times per semester AIAS invites faculty to a forum for discussions about the school, their teaching and research.

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:**

Field trips, led by studio faculty are a required component of each academic cadre of students:

First Year students take two field trips:

One to a local nature park intended to introduce students to the landscape characteristics of Gallatin Valley.

One to the Blackfoot Pathway: Sculpture in the Wild Sculpture Park where they experience the work of internationally known sculptures in a pine forest setting.

Second Year students spend the day at the Tippet Rise Art Center which is located on a 12,000-acre working ranch. Students interact with the landscape and large-scale contemporary outdoor sculptures which variously integrate, complement or contrast with the landscape in creating a sense of place.

Third Year students travel to a major city in the United States for a one-week immersion in the urban characteristics of the city (typically Seattle, Tacoma, LA, Denver, Phoenix, Chicago) guided by their design studio instructor. Students conduct site analysis for their studio assignment, visit significant urban architectural projects, urban neighborhoods, architecture offices and take advantage of cultural opportunities such as urban parks, museums, and theaters. Each studio visits a different city based on the expertise of the instructor

Fourth Year students must choose one of three options for fall semester (in general student choices lead to 1/3<sup>rd</sup> of the students participating in each of the options):

1. Study abroad through a university exchange program or study abroad in an MSU faculty led studio. Popular exchanges frequently chosen by MSU students are in Australia, England, Denmark, Ireland, and Norway. School of Architecture faculty led



study abroad programs have occurred in Rome, Australia, England, France, Italy, New Zealand, Mexico and Peru.

2. Students may choose to participate in a 6-month professional internship. Students are encouraged to work in communities other than Bozeman, MT. With 60% of the school's students from out of state many return home to work in offices and the School of Architecture's Advisory Council works diligently to support internships.
3. Students can choose to work in the School of Architecture Community Design Center. Here students work with non-profits, government agencies and community leaders throughout the state of planning and schematic design projects intended to serve the local community.

Fifth Year students select from the research offerings of faculty in the spring semester. Field trips (typically one week long) are a requirement for the course in support of the faculty member's research agenda. Locations vary dramatically from the backcountry of the Yellowstone ecosystem to major urban centers.

The school sponsors two professional societies, the American Institute of Architects Students (AIAS) Chapter and Tau Sigma Delta. Throughout each semester AIAS works closely with the school Advisory Council to schedule, "speed" interview practice session, panel discussions regarding aspects of professional practice culture, and pizza seminars on topics selected by the students. The school, AIAS and the Advisory Council sponsor "Celebration" each fall semester. This is a dinner party at which member of the Advisory Council sponsor tables for students. Typically, 6 to 8 students share dinner with 2 members of an office in a casual atmosphere offering the opportunity for students to learn about a specific office and practitioners to learn about student interests and concerns. Beginning in the fall of 2022 the Advisory Council will initiate a mentorship program in which ever second year student will have the opportunity to engage an Advisory Council member to act as a mentor throughout the student's undergraduate career at MSU.

All faculty (both non-tenure track and tenure track) and staff receive a \$2,000 professional development stipend each academic year to encourage and fund participation in national conferences and travel in support of scholarly activities.

Individually faculty and students are eligible to apply to the school director for travel funding and support for material expenditures related to scholarly activities. Funding to support these requests totals approximately \$60,000 annually through Montana State University Foundation Endowments to the School of Architecture.

The school's visiting lecture series introduces students and faculty to 15+/- visiting scholars and 10+/- exhibitions each academic year intended to bring attention to a diversity of ideas, philosophies and socio-cultural – economic backgrounds.

### **Summary Statement of 1 – Context and Mission**

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

#### **Program Response:**

The School of Architecture offers a 5½ year program of study leading to a Master of Architecture degree.

Montana State University is a land-grant institution, and the School of Architecture embraces the land grant mission by seeking to integrate education, the creation of knowledge and service to communities. Students learn how to design the spaces and structure where people live, work and play. Faculty are charged with instilling the fundamental principles of design and inspiring a spirit of exploration and creative experimentation in shaping the built environment thus empowering students to critically engage with the complexities of society and the natural environment.



The faculty of the School of Architecture are actively engaged in scholarly activity through the publication of books, articles, and papers ranging from the pragmatics of building code applications and the design of enhanced HVAC and energy systems to the theories of architectural research and community planning. These efforts include scholarship focused on enhancing the socio-cultural conditions of Native American communities in Montana, identifying open space and trail systems in response to community aspirations, housing for the homeless and affordable housing for rural teachers.

With over 240 community projects completed in the past 40 years the Community Design Center exemplifies the school and faculty's commitment to service by connecting cutting edge design and contemporary knowledge with people who need it. Through the Community Design Center faculty and students serve non-profit organizations and government agencies by providing the visions, planning and conceptual design skill necessary to create great communities.





## 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.

How the program addresses shared values of the discipline and the profession is distributed amongst design studios, support courses, the Lecture Series, interactions with our Advisory Council, student organizations such as AIAS, and various topic-specific events. The School has developed a matrix to show where the program addresses these shared values. In addition to shared values, the matrix shows the distribution of the curricular framework, program criteria, student criteria, and the MSU mission. Below is an excerpt of the Shared Values section of the matrix.

Montana State University School of Architecture Professional Studies Curricular Matrix for Course Content Performance Criteria Based Learning Outcomes 12.2.2020 (updated 12-21-20) (Updated 8-7-21)	First Year		Second Year				Third Year				Fourth Year		Graduate Year				
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall				
ARCH 121A Introduction to Design																	
ARCH 151RA Design Fundamentals I																	
ARCH 152A Design Fundamentals II																	
ARCH 253 Architectural Design I																	
ARCH 254 Architectural Design II																	
ARCH 355 Architectural Design III																	
ARCH 356 Architectural Design IV																	
ARCH 457 Architectural Design V																	
ARCH 558 Advanced Architectural Theory																	
ARCH 551 Advanced Building Systems Integration																	
ARCH 560 Comprehensive Design Studio																	
ARCH 561 Advanced Architectural Studio																	
ARCH 562 Professional Paper																	
ARCH 563 Masters Studio Project																	

In response to each question that asks how the program addresses a value, the related courses from the matrix identified with the shared value demonstrate how the program addresses the values now and what the long-term planning is to continue to address the shared value.

Although the matrix overlaps several shared values in a specific course, the response to each shared value question is not exhaustive of how each course demonstrates that shared value. Instead, the answers detail the most prevalent approaches within selected courses that address how the program addresses the specific shared values of the profession and the discipline.

**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:

*Courses and events that address SV.1: Arch 151 RA Design Fundamentals I, Arch 152IA Design Fundamentals II, Arch 253 Design I, Arch 254 Design II, Arch 355 Design III, Arch 356 Design IV, Arch 457 Design V, Arch 558 Comprehensive Design, Arch 551 Advanced Design, Arch 560 Masters Studio Project*

Although the undergraduate and graduate programs are integrally connected, the vision and mission of the undergraduate curriculum focus on conceptualization, use and content, building technologies, professional responsibilities, and developing a critical position regarding the environment and architecture. Subsequently, the graduate program expands on the studio's value of integrated design solutions. Every student makes a significant design studio commitment each semester, including a



Comprehensive Design Studio, an Advanced Architectural Design Studio, and a Master's Studio Project—an individual research/design studio project.

***program definition of better, safer, more equitable, resilient, and sustainable***

**Better.** Better environments are characterized by improvement. At the start of every design project in every studio, students engage in research—context, previous efforts, social forces, economic forces, and state of the natural environment and identify opportunities for resilient and sustainable architectural interventions. The initial research helps set a benchmark and reference for improvement.

**Safer.** Similarly, the concept of safety is evolving—in two ways. For example, mechanical and electrical equipment is advancing because of new technologies, becoming more efficient and safer. This advancement impacts the architectural response. Mechanical equipment rooms in various occupancies now require 1 hr enclosures, whereas previously, two-hour separations were required. However, new threats are also evolving that impact an architectural response. Life safety includes strategies to mitigate threats of violence. The School approaches life safety as a dynamic concept that must meet basic requirements and monitors and anticipates social and environmental changes.

**More Equitable.** More equitable environments start with an inclusive design process with diverse people, viewpoints, and consideration of various environmental forces. The School continues to develop a series of external critiques, an expanded lecture series, course development that includes diverse perspectives, and an external assessment process.

**Resilient and Sustainable.** Design thinking and integrated solutions are both approaches to resiliency and sustainability. The curriculum of the School's design program is structured to steadily increase the sophistication and complexity of design thinking and integrated solutions. In the first year (Design Fundamentals), students are introduced to what is at stake—the environment and community—and the idea that architecture is a systemic part of it. The second year leverages abstract thinking developed in the first year to explore how concepts manifest into built space. The third year introduces the parts of a building and the impact their arrangement has on the environment and community. Forth year increases the complexity of the program and emphasizes a coordinated solution. The graduate curriculum expands the coordination to be comprehensive, in addition to evaluating the impact and performance of the design (social and environmental).

***curriculum overview***

With open enrollment in the first year of the Environmental Design program, students can explore the opportunities and expectations of environmental design education. Students acquire the fundamental math, science, writing, and design skills that are the foundation of their future learning and develop their knowledge of contemporary practices and philosophies in architecture. Particular emphasis is placed on conceptualization and systems thinking in the first year of the curriculum. Systems thinking is a curricular focus in the first year and foundational to conceiving designs as integrated solutions.

During the second year of our undergraduate program, students complete their university core requirements to ensure a broad perspective from which to engage their environmental design education. Within the second-year Environmental Design curriculum, students acquire a historical understanding of architecture in its cultural and technical imperatives and an ability to utilize architectural graphics to communicate design concepts. The design studio introduces fundamental strategies of precedent analysis, the organization of human activities, and sustainability principles while applying the knowledge acquired in building construction and graphics courses. The second year of the curriculum places particular emphasis on use and context.

The third-year curriculum emphasizes building tectonics. Throughout the third year in the program, students develop an understanding of structural systems, environmental control systems, building assemblies, and the ability to utilize advanced graphic communication strategies. The third-year design studios tackle complex urban issues and projects—developing students' understanding of ways to integrate these systems into their design solutions.

Built upon the foundations of the initial three years, the fourth year of the program consists of courses in professional practice, research methods, sustainability, and electives, as well as an option studio and a senior capstone studio. For their option studio, every student chooses between the Foreign Study Program, the Architectural Residency Program, the Community Design Center, a Design/Build Studio, or an approved off-campus program of study. After completing their option studio, every student completes a capstone design studio in which students synthesize program development, site development, structural systems, environmental control systems, principles of sustainability, and graphic communication. With the satisfactory completion of the fourth year of study, students receive a Bachelor of Arts in Environmental Design.

The graduate program, as mentioned, is studio intensive. Comprehensive Design, Advanced Theory, Advanced Building Systems, and a self-directed faculty-advised Master's Project are integrated or connected to the studio environment. This direct connection to the studio allows for holistic research, integrated design thinking, and comprehensive solutions.

### **2.1.1 first-year – more experts**

An evolution of the first-year curriculum is the invitation of in-person guests that are videotaped and available for all sections to integrate into the course content. Following is a list of guests who spoke with first-year students during the 2021/22 academic year:

- Hayes Novich is an artist known across the state and internationally. The distinction of having the most views on Reddit for an art installation. Novich spoke with students and offered insight into how he solves problems with design thinking.
- Landscape architect Peter Ker Walker is one of the last living modernist landscape architects. The level of expertise and breadth of Walker's experience is notably inspiring. Walker partnered with landscape architect Dan Kiley and worked on commissions including the Oakland Art Museum, the I.M. Pei plaza at the Arc de Triomphe in Paris, the Detroit Institute of Arts Museum, and Fountain Place in Dallas.
- Adam DeFanti, educated at Rhode Island School of Design (RISD) and known as CMO for national and international corporations, specializes in marketing and compelling messaging. He initiates the students' portfolio project, gives a presentation on portfolio design, and then works with the students on composition and how to display their work effectively.

### **2.1.2 first-year – new field trip experiences for better environments**

In Fall 2021, the School initiated an all-first-year field trip to Blackfoot Pathways: Sculpture in the Wild in Lincoln, MT (approximately 2.5 hrs north of Bozeman). The sculpture park's mission is to "provide an environment for the creation of significant artworks, both permanent and temporary, inspired by the environmental and industrial heritage of the Blackfoot Valley while fostering an awareness and appreciation of the arts through community participation and education." The expectation is that students will experience the fundamentals of resiliency. The fundamentals include a place-based approach to design, equity (the park is open to the public, an inclusive social benefit), and precautionary (all artwork is required to integrate with environmental conditions, valuing low maintenance). The work at the sculpture park is conceptually exemplary of the final assignment that students have in their first year—to design a social space (10 people) that engages people with a phenomenon of the natural environment in a way that brings awareness to issues of environmental stewardship.

### **2.1.3 second-year – new collaborations for better environments**

The second-year curriculum continues the architectural examination of place initiated in the first-year design studio courses, focusing on unpacking the concept and the nature of the place. Places are interpreted as natural, cultural, social, and political systems. A series of designs are created that are inherently embedded within each place. Towards this end, beginning in Fall 2019, several sections of Arch 253 began working with Tippet Rise. In Fall 2021 and 2022, all students in all sections of Arch 253 were involved in the exchange/work with Tippet Rise.

Tippet Rise is a unique and complex place located within the extraordinary landscape and ecosystem of southcentral Montana. It hosts world-class classical music performances and is home to large-scale outdoor sculptures and structures built by artists and architects such as Ensemble Studio, Alexander Calder, and Patrick Dougherty. Tippet Rise is also a 12 000-acre working ranch raising cattle and sheep. It employs solar and geothermal energy and other sustainable strategies to improve and care for the land and ranch animals and support the native plants and wildlife. They aim to be the land's stewards and caretakers and bring resiliency to it by intertwining art, nature, and agriculture. Students get an in-depth look into the ranch's art, music, ecosystem, and workings. They then spend the term developing multiple design projects in direct engagement with Tippet Rise and periodic discussions and critiques with the art center's team. Design challenges that the students are presented with that semester focus on understanding place as a part of multiple larger systems and developing design solutions that support this understanding. The aspiration for this relationship is to deepen and expand students' understanding of environmental stewardship and their environmental empathy at an early point of their education.

#### **2.1.4 second-year graphics – interrogating design**

Arch 262, the architectural graphics course, uses studio projects in most specific graphics assignments. This strategy allows students to explore a multiplicity of different media, techniques, and points of view within the design process. The course continues to develop hand/analog communication and (re)presentation techniques but also introduces several digital/analog drawing, modeling, and fabrication methods. In 2018, the graphics course re-ordered its curriculum. Rather than divide the semester into two separate courses—the first half focusing on digital and the second half focusing on analog—the digital/analog topics are woven together throughout the entire semester. The aspiration is to instill the mindset that flowing smoothly and efficiently from one realm to another is an ideal creative and design process. The digital and hand techniques provide different and similar methodologies for asking and answering design questions, exploring multiple scenarios, and communicating design thinking. As such, some weeks are spent exploring hand techniques, and other weeks exploring digital techniques.

#### **2.1.5 accessibility and life safety in second-year**

In addition to Arch 262 Graphics, Arch 241, Building Construction supports the studio projects. The students spend most of the semester working on group assignments to synthesize design thinking and principles to reach an ultimate design goal. For example, students look at energy requirements, construction methods, and thermal envelope components and synthesize this data into a wall assembly for a specific problem.

Each of the students' team projects has sustainability components, dovetailing with the concept of design thinking and integrated design solutions; the sustainability aspect is one part of a holistic design. The sustainability part of the assignment is explicitly stated in several team assignments. Additionally, the course textbook, which is required to be read by all students, discusses sustainability throughout, with chapter 10 devoted explicitly to sustainability. The lectures buttress and reaffirm sustainable thinking and strategies.

Arch 241 Building Construction also exposes students to universal design, specifically in assignment one, "Life Safety and Accessibility on Campus," which focuses on accessibility on campus and how to make the campus more inclusive. Lectures and assignments support this approach, as well. For Life Safety, the students look at existing buildings on campus and consider how to bring the structures up to code. In assignment two, the students' research regulations, including the International Building Code, zoning, design standards, flood plain covenants, and ecological/migration/conservation restrictions. They are challenged to synthesize the various data into a design solution and see the importance of the health, safety, and welfare of the public as a vital role of an architect. Additionally, the students are taught about accessibility, governmental constraints, ADA, and universal design, with the ultimate intent of designing for a safer built environment. Within the team projects, they must comply with the fire ratings required per the Type of Construction (IBC) and include a fire-rated stair with an area of rescue in their final team assembly.



### **2.1.6 peer to peer learning**

The projects in 3rd year are modest but more prominent in scale to allow each student to explore various issues related to theory, program, site, accessibility, life safety, environmental stewardship, and building enclosure technology. The projects are based on the idea that they are between 40 and 60,000 square feet and three to five stories high, the size allowing for a complexity of issues related to a traditional architect's responsibility.

Usually, there are five sections of the 3rd-year studio. The coordination of the sections is set up for students to share the individual studio design approaches from the five instructors with their peers. One of the ways is through a series of all-section lectures for common studio expectations such as life safety, environmental design considerations, environmental system principles, and sustainability. The expectation is that students will participate in a diversity of peer-to-peer learning environments by meeting and working with their peers in other sections.

### **2.1.7 design process diversity**

Third-year design studios emphasize the design thinking process for exploring integrated solutions. All students must use an iterative cycle of physical modeling, sketching, rendering, drawing, computer modeling, and diagramming with equal emphasis. Students may begin analog or digital, all analog processes are turned into digital during the process, and all digital processes are turned into analog; the final project is presented as a strategic compilation of analog and digital products. In addition to the main architectural design problem, readings, speakers, and directed assignments further the discourse.

### **2.1.8 ecs and structures leverage studio work**

Teaching how architects develop integrated design solutions is approached from a few different directions. Foremost is the integration of the Environmental Controls courses, the Structures courses, the third-year Graphics courses, and the Building Construction courses. For the final assignment in ECS, students use a space from their studio project to design an appropriate HVAC and lighting system. They apply various strategies and assess performance, selecting the best alternative. Similarly, in Structures, students take the basics of their studio project from the 2/3rds point and apply design studies.

### **2.1.9 digital tools for design thinking**

In Arch 363, the Architectural Graphics course, new digital tools are introduced, intended to be utilized with the 3rd year studio project. Computer scripting with Grasshopper and Building Information software is introduced as a tool to explore new design possibilities and manage the complexity of integrated design solutions. Following are three examples of how the graphics course integrates with the studio. At the beginning of the semester, grasshopper is taught/used as a base for gathering and interpreting GIS shapefiles that include urban form information such as building footprints, heights, uses, and city infrastructure (roads, utilities, sidewalks). Using complex GIS data helps students understand the context of their studio project as part of a system of components created and managed by various entities. A bit later in the semester, assignments are focused on building components. One such assignment is the scripted stair. The scripting components for the stair are many aspects related to code, such as rise/run dimensions in which students refer to the building code and use the dimension range allowed by the building code to establish the script component domains. Students then understand a stair as a set of dimensional parameters with a specific range of mutability related to life safety.

### **2.1.10 building construction integrates studio design**

The Building Construction courses also integrate assignments with the students' studio projects. Specifically, in the spring semester of the third-year studio, the first three weeks are dedicated to a small building design project, approximately 2,000 sf in size and two stories in height (requiring a stair and elevator). The theme is up to the individual section instructor of the design studio. The studio project is then used in Building Construction as the basis for development and construction documents for the rest of the semester. Students work in teams and select studio projects other than their own to develop in Building Construction. Similar to the shared section assignments and common required lecture series talks, this strategy leverages collaboration and coordination for peer-to-peer learning.

### **2.1.11 third-year required texts - expanded**

Another development in the third year to enhance the ability to design integrated solutions is adding and integrating three all-section texts. Previously, the Building Illustrated Codes book was the only standard text. It was supplemented by individual studio faculty depending on the specifics of their design challenge. In 2020, we instituted a more consistent and coordinated effort across the 3<sup>rd</sup>-year class. The additional texts address two main issues; first, expand on the IBC and IIC code books to get a deeper understanding of the fire safety standards referenced through those code books. The second educational goal is to familiarize students with the design processes of consideration—how architects conceptualize materials, building components, and systems. The NFPA Life Safety Code book contains many reference standards and, in its digital format, is a navigable tome of helpful diagrams and information. The other two books, "Everything Architects Need To Know Every Day" and "26 Principles Everyone Should Know," overview books help students conceptualize the pieces they are designing with and how they puzzle together as components of a building.

Required texts added to 3<sup>rd</sup> year:

- *Life Safety Code Handbook, 2018 14th Edition, Harrington and Big, (NFPA)*
- *Architecture Reference + Specification Book, Everything Architects Need To Know Every Day, McMorrough, (Massachusetts: Rockport Publishers, 2013)*
- *The Language Of Architecture, 26 Principles Everyone Should Know, Simitch and Warke, (Massachusetts: Rockport Publishers, 2014)*

### **2.1.12 third-year field trip - nationwide**

During the fall semester, all third-year students enrolled in a design studio participate in a one-week field trip to an urban center in the United States. For many years, the student field trip was a coordinated effort to Seattle. Students toured Seattle, visiting significant architectural projects, spending time on their project site, analyzing it, and participating in architectural firm tours—Mithun, Olson Kundig, NBBJ, Miller Hull, and ZGF, among others. At each of these firms, the School's alums work. Alums are an impactful connection for the students from two aspects: first, students could see that the values taught within the School transferred to the profession, and secondly, since many of our students were practicing in the Northwest after graduation, they could better see what their trajectory might be.

In 2018, the School evolved the third-year field trip to respond to graduation trends of our students and to broaden the diversity of professional and disciplinary perspectives. Each design studio section now visits a different urban location. The cities students visit still include Seattle but now expand to Phoenix, Washington DC, Detroit, Austin, Portland, and Chicago. Other cities will be added in subsequent years. The selection of cities is guided by the knowledge, connections, and aspirations of the individual section's faculty. Our graduates have expanded where they find employment after graduation, so the preview of their trajectory is still relevant. In addition, because our graduates work in these areas, students see how a broader diversity of values is transferred and shared with the profession. Also, because we have developed more opportunities for the sections of the 3<sup>rd</sup>-year studio to work together and know each other better, an environment of cross-experience sharing is enhanced. More students have second-hand knowledge of a greater diversity of professional experiences.

### **2.1.13 capstone undergraduate design – managing complexity**

The fourth-year design studio in the spring semester is Arch 457, the senior capstone course. The architectural design challenge is integrating building, landscape, and urban context using multi-story projects of medium scale and complexity with a particular focus on mixed-use. Integrated topics include programming structural and mechanical integration, ecologically-sound design, building envelope systems, and building codes. The specific project description states: that the studio will focus on urban design and building typologies. Although the cities of the project site vary, the spring 2022 semester project is demonstrative of the Arch 457 approach. In this semester, the setting was Los Angeles, and the scope was 100,000+ SF, with the project focusing on mixed uses drawn from the community's social, cultural, and infrastructure systems. The research and design conducted throughout the semester focused on a specific neighborhood in the urban core of Los Angeles. Site development included onsite parking (that could be converted to housing in the future) and a mix of retail, housing, offices, a school,



daycare, and other appropriate uses derived from the context. The studio included a multi-day field trip to Los Angeles.

#### **2.1.14 comprehensive graduate design – integrated solutions**

The Arch 558 Comprehensive Design Studio, in conjunction with Arch 535 Advanced Building Systems Integration, is intended to provide students with a rich, project-based opportunity to comprehensively investigate a specific building design. Comprehensive in this studio is thus defined as integrating to a high level of completeness the knowledge and skills gathered over the undergraduate education with new analysis tools and information gathering skills. The two courses, Arch 558 and Arch 535 are structured to provide students the opportunity to develop an initial schematic design proposal during the first six weeks of the semester through well-reasoned conceptual study, program development, and site investigation. Then, over the remainder of the semester, examine and test this design proposal through iteration, integrating and incorporating the project's various components into a cohesive, highly developed, and articulated project solution.

This studio is rigorous, challenging the student's abilities in all areas of design, including theory, critical thinking, research, overall design capabilities, knowledge and application of building systems and technologies, and various analysis tools. Additionally, verbal and graphic presentation and technical documentation skills are emphasized. Each student's complete or comprehensive abilities are challenged throughout the semester with the goal of highly reasoned, thoroughly conceived creative projects. In general terms, the primary project being completed is commercial/educational/institutional and of modest scale to allow each student the opportunity to explore a variety of issues related to theoretical issues, program, site, accessibility, life safety, environmental stewardship, structural and mechanical systems as well as building enclosure technology.

#### **2.1.15 expanded lecture series – double the speakers**

The School has always had a rich lecture series, sponsored by students' program fees and supplemented by Advisory Council donations. Typically, new faculty (TT and NTT) serve on the lecture committee to invite new lecturers, leveraging their connections to the profession. Before 2019, the lecture series hosted approximately four to five lecturers each semester. All lectures are open and available to all students, faculty, and community members. The location, reputation, and connections to the profession that the School has have contributed to the vast diversity and high quality of lecturers that accept invitations. The lecturers range from high-profile international architects to local architects.

However, because the semesters were limited to four or five per semester, too often, it was a matter of triage, having one high-profile architect and a mix of local and regional speakers. Additionally, it was noted in the Student Learning Culture Survey, done each spring, that student valuation of the lectures aligned with the content of whatever design studio they were taking or had recently taken. Based on this information, the School, in Fall 2019, expanded the number of lectures per semester to between eight and nine (COVID reduced the number in Spring 21). This expansion allowed the committee to have roughly half be international/national architects (or related discipline) and half local/regional architects (or related discipline). The variety of topics covered by an expanded lecture series now gives more opportunity to align with the wide range of design studio topics and projects.

#### **2.1.16 mandatory health, safety, and welfare guest lectures**

Although each studio every year has the option to require attendance to specific lectures, the only standardized year for lecture requirements is in Arch 355 and Arch 356, where all sections have the exact requirement for selected lecture attendance. Second-year and graduate-level courses have occasionally required either all or specific lectures. The curriculum committee is currently developing coordination of a set of common lectures for all years. Over the last couple of years, the required attendance for third-year students has been for the following lecturers:

Fall 2021

-Specifically required lectures were identified individually by studio section

Spring 2022



- Arne Emerson Monday, January 24<sup>th</sup>
- Dan Rockhill, Monday, March 21<sup>st</sup>
- Brook Muller, Monday, March 28<sup>th</sup>
- Katia McClain, Monday, April 11<sup>th</sup>

#### Fall 2022

- Brad Lancaster Monday, August 29<sup>th</sup>
- Tyler Survant Monday, September 26<sup>th</sup>
- Veronica Schriebeis Smith Monday, November 7<sup>th</sup>

There is a mandatory assignment associated with each of the lectures. Students must identify how the lecturer's work addresses regulatory context, life safety, health, and welfare. Their assignments are submitted by students into the University's digital grading environment (Brightspace/D2L) and labeled for assessment at the end of the semester.

**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:**

*Courses and events that address SV.2: Arch 253 Design I, Arch 331 ECS I, Arch 355 Design III, Arch 332 ECS II, Arch 340 Building Construction II, Arch 356 Design IV, Arch 341 Sustainability, Arch 413 Professional Practice, Arch 535 Building Systems Integration, Arch 558 Comprehensive Design, Lecture Series*

#### **2.2.1 fundamental design – new collaborations**

The Arch 151RA and Arch 152IA courses have evolved to integrate community entities and guests with active environmental stewardship roles. In Fall 2020, Arch 151RA instructors initiated a relationship with Mountain Time Arts in Bozeman. Mountain Time Arts bring together artists, scholars, and local organizations to produce public art projects that enhance the community's relationship to history, culture, and the environment of the Rocky Mountain West. The commitment to social and environmental justice are shared values of MTA and the School. Integrating MTA into the curriculum extended the collaborative process. It deepened the engagement by including various stakeholders in the design thinking process, allowing students to understand the trajectories of trans-formative change and a resilient community. MTA's network of water experts, artists, and policymakers included: Jim Madden MTA Co-Founder; Holly Hill, Watershed Coordinator for the Gallatin Watershed Council; Jill Mackin, a member of the Ojibwe tribe; and Kate Belton, an MTA Team member.

The collaboration with community entities expands on the School's shared equity, resilience, and sustainability values. It is a strategy of the first-year curriculum that continues by having at least one of the instructors (4 section instructors that coordinate the same set of assignments) take responsibility for establishing direct connections with community entities. The intention is for students to be exposed to diverse views, be introduced to current trends in environmental health, and be inspired to excel in the course content.

#### **2.2.2 introduction to design – impact of our responsibility**

In addition to the Arch 151RA and Arch 151IA Design Fundamentals sequence, all students take Arch 1211A (University CORE for Inquiry Arts) Introduction to Design. The course explores 20th and 21st-century architects and significant architectural precedents and movements. It explores design's formation, evolution, and interaction of cultural values and investigates ecological, economic, ethical, social, and political influences shaping design's historical changes, solutions, and emerging aesthetics. Similarly, the course examines how different groups of people experience design. The course explains what an architect does and how one becomes an architect. The class covers design thinking, systems thinking,





ordering systems, abstract relationships, and professional communication skills. One of the specific focuses of the course is on the creative process and what underlies design concepts (material, technology, socio-cultural fabric, program). Another focus is the concept of embodied energy and how it relates to sustainability issues. There is a strong emphasis on passive heating/cooling strategies, resiliency, ecological impacts (caused by growth in the Greater Yellowstone Ecosystem), and the issues of equity, inclusivity, and diversity (EDI) in the profession and in the communities architects serve.

### **2.2.3 new sustainability course**

In 2014-15 the School initiated a new course—Arch 431 Sustainability in Architecture—as a required course for all 4<sup>th</sup> yr students. The course presents architectural and site strategies for reducing the energy footprint of structures and spaces, emphasizing the profession's ethical responsibility and techniques that maximize the potential of active and passive design strategies to sustain our natural resources. The course consists of eight parts, each intended to contribute to the learning objectives for the course:

- Part 1 Introduction and Practice of Integrity
- Part 2 Theory
- Part 3 Site Design
- Part 4 Stormwater
- Part 5 Renewables
- Part 6 Building Envelope / Thermal Impacts
- Part 7 Net Zero and Carbon Neutrality
- Part 8 Integration of Sustainable Systems

**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:**

*Courses and events that address SV.3: Arch 121IA Intro to Design, Arch 322IA World Architecture I, Arch 254 Design II, Arch 323IA World Architecture II, Arch 413 Professional Practice, Arch 452 Research Methods, Arch 457 Design V, Lecture Series, Learning Culture Survey*

### **2.3.1 first-year – expanded non-major access**

The first two semesters of studies ask students to explore a place's nature, context, and qualities. They unpack it as a system of interlocking relationships, local on the one hand and extending through the Earth and the Solar System on the other. The study includes creative analysis, drawing, making, writing, and eventually design drawn from and responds to a unique understanding of the site.

The design thinking approach to creating integrated design solutions is initiated in our curriculum in the first-year design studios Arch 151RA and Arch 152IA. They are foundational courses for building imagination, creativity, and the ability to influence positive change. They introduce design thinking as a non-disciplinary approach for discovering the structures that underlie complex environments, situations, and organizations to raise straightforward questions and manifest new critical relationships. Arch 151 focuses on natural environment research as a form of engagement and stewardship. The course was eligible and therefore designated a University *Research Arts CORE* class in 2010 because the class "explore(s) the production and consumption of meaning and value through forms of expression that communicate, in both logical and emotional terms, the arts." The CORE program at MSU is designed to enhance students' intellectual experience in all realms of academia and to provide students with broad exposure to and knowledge of multiple and varied methods of scholarship.

### **2.3.2 fundamental design CORE designation**



For many years, Arch 151 was a pre-requisite for Arch 152. However, the sequencing of it prohibited non-majors from taking Arch 152. This motivated faculty to re-develop the content of Arch 152IA to be non-sequential with 151. The evolved Arch 152 IA focuses on investigating, interpreting, and manifesting critical relationships embedded in different aspects of our physical and virtual world that are defined by various systems of projections. Students critically map these systems to identify opportunities for intervention that can extend beyond the physical environment, emphasizing social equity. These revisions also allowed Arch 152 to meet the requirements for CORE 2.0 in Inquiry Arts—where students demonstrate ethical, creative, and innovative approaches to asking and answering questions, defining problems and identifying solutions, and creating knowledge or art. Arch 152 was designated a CORE IA course in 2017. The classification of Arch 151RA and 152IA as University Core classes has brought a wider range of students (other majors) into the class, which has broadened class discussion.

### **2.3.3 new history perspective**

Arch 323IA World Architecture II, the History class, includes lectures on slum clearance, affordable housing, racial segregation, public housing, female patrons, female designers, colonialism, and modernism in developing countries. The emphasis is on how laws and designs have unequally impacted different groups. The relevant course learning outcomes require a student to: "Analyze how a built environment has reinforced or alleviated inequity or exclusion." This outcome is assessed in "Research Paper 3: Inequality in the Built Environment," which asks students to read at least two secondary sources about how the design of the built environment has been shaped by gender, class, race, or other identities in ways that impact equity and inclusion.

### **2.3.4 professional practice course delivery**

In the spring semester of the fourth year, students are required to take Arch 413 Professional Practice. Although it is only a 3-credit course, it covers many topics in the profession. Following is a listing of the weekly topics that are covered in each course: Value of an Architect; Ethics and career opportunities within, adjacent, and outside the profession; Regulatory context and licensure; Social framework and impact; Value innovation; Natural capitalism and the environment; Practice and clients; Project financing and fees; Compensation and project delivery; Project development and delivery; Scheduling and codes; Value propositions; Contracts; Construction administration and project closeout; Cost estimating and life-cycle cost analysis.

The Arch 413 Professional Practice course has always integrated guest speakers from inside and outside the profession, drawing on local architects, leveraging the passion, excitement, and expertise of the School's Advisory council members, and inviting diverse role models. However, the course's main content has usually been delivered by the same professor for the previous 18 years. Although the course consistently receives high student evaluations, and its pedagogy has been published as a model for teaching about practice, the profession is evolving. Specifically, the inclusion of a wider diversity of people in the profession and recognizing that there are varied pathways to becoming an architect, but also that an architectural education offers a wide variety of career opportunities—an architectural degree is not only for an architect.

Over the past three years, the School has begun to change who delivers the course content, the idea being that the medium is an integral part of the message. Also, because much of the course content has been refined in lectures and assignments, the reuse of updated material has opened up room in the course to expand on subjects like value innovation, the diversity of career opportunities and pathways, and more in-depth study of professional and societal inclusion.

In Spring 2019, the course content was divided into four sections, each taught by a different person: a young female architect, Jennifer Dunn; a retired VP of a large multi-national program management firm; a local self-employed architect; and the School's regular Professional Practice professor. The variety of viewpoints aligned with specific topics in the course. For example, Ms. Dunn delivered content related to practice, clients, ethics, and social framework. The retired VP delivered content on career opportunities, the value of an architect, and project development and delivery. What emerged for the students was a rich diversity of how architecture could be practiced. However, the advantage was also the disadvantage.



The variety of approaches could also be confusing to students. During the next two years, the School modified the approach to implementing a wider variety of two instructors teaching the course—a practicing architect and an internal TT professor. In Spring 2021, the School was able to hire Sarah Mohland, a principal with MASS Design Group, to fill the practicing architect instructor role in an adjunct capacity. MASS Design Group received the 2022 AIA Architecture Firm of the Year award. Ms. Mohland led MASS's office in Kigali, Rwanda, for nine years. Ms. Mohland will participate in the same manner for the Spring 2023 Arch 413 Professional Practice class.

### **2.3.5 aias community projects**

Until the onset of the pandemic, the MSU AIAS chapter regularly had a Freedom by Design committee. This group worked with the local community to provide accessibility upgrades for community members, typically installing ramps for residential users with mobility issues.

**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:**

*Courses and events that address SV.4: Arch 151 RA Design I, Arch 152IA Design II, Arch 355 Design III, Arch 356 Design IV, Arch 457 Design V, Arch 535 Building Systems Integration, Arch 558 Comprehensive Design, Arch 551 Advanced Design, Arch 575 Professional Paper, Arch 560 masters Studio Project, Lecture Series.*

### **2.4.1 new visiting scholar program**

In Spring 2022, the School initiated a new "Visiting Scholars" position, endowed by donations from the School's Advisory Council. The role is to integrate emerging, visionary, and interdisciplinary approaches into the architectural course curricula. Applicants who engage with diverse pedagogies and perspectives and who have undertaken a wide range of creative endeavors are sought for the position. The Visiting Scholar contributes provocative perspectives and energy to the School. Candidates outline how their teaching and research activities will contribute to or challenge thinking about architecture as the School looks to the future. Semester accomplishments and findings are submitted for peer review following the appointment. Specific responsibilities include:

- Teach a design studio and graduate elective
- Participate in faculty meetings
- Serve on studio reviews
- Present a school-wide lecture
- Be in residence in Bozeman for the semester
- Be engaged and active with students, faculty, and staff daily.

The first visiting scholar was Tyler Swingle. Professor Swingle taught two courses as part of his residency: a design studio, "Time for Timber," and a graduate elective, "Danger of Defaults."

ARCH 551-002 Time for Timber, Tyler Swingle (Visiting Scholar).

In dialogue with the wood industry and existing material research, this studio decoupled wood as a tool from the expected production and construction methods of contemporary architecture. Through physical and digital models, students investigated the inherent material properties of wood. Rather than conforming to the established standards in wood usage and construction, students developed formal and performative designs that emphasized the unique material characteristics of wood.

The studio's site was in the wooded landscape along U.S. Hwy 2, which separates Glacier National Park and Flathead National Forest. Although the landscapes on each side of the highway are similar, this area is divided into two distinct territories with opposing uses and programs. Glacier National Park is a complex



mixture of preserved natural environments and architecture that facilitates visitor access to the landscape. Flathead National Forest, in turn, manages the land where extraction and production of many natural resources are encouraged alongside peripheral conservation and protection efforts. Students design an architectural program between these seemingly different territories to deconstruct the differences between extraction and conservation, actively promoting a form of "productive preservation." The studio interrogated how wood, decoupled from industry standards, can fulfill the programmatic requirements of both the National Parks and National Forests and provide a spatial experience that mediates between the natural and built environment.

ARCH 565-001 Adv. Computer Applications – Danger of Defaults, Tyler Swingle (Visiting Scholar). Digital software is integral within architectural practice today. Theoretical concepts and organizational structures underpin the specific and unique functions of the software that is currently in use. Therefore, architectural software is not passive but somewhat biased towards images of architecture based on the underlying concepts and organizations. These embedded biases commonly present themselves as defaults within the software. Understanding not only the software techniques but also the inner workings and desired outcomes (biases) of software is imperative for using them critically and consciously. The focus of this course is to develop a fundamental understanding of the proliferative BIM software REVIT and its parametric counterpart DYNAMO through a series of uncanny and unfamiliar exercises. Aided with reading assignments that lay the foundation for digital thinking within architecture, students evaluate BIM's function, logic, and design environment with "hands-on" exercises. The progressive design exercises ask students to test, misuse and hopefully break the software's limits and boundaries throughout the semester.

The scholarly research from his Visiting Scholar work has been accepted to present at the Seventeenth International Conference on Design Principles & Practices, March 2023, at Polytechnic Institute of Lisbon.

In addition, to the published research, he received a grant to fabricate and install a performative wood structure on campus near the architecture building that demonstrates the original research he is doing on variable cross-laminated timber.

Solicitation for a Visiting Scholar for the subsequent Spring semester happens during the end of the previous Visiting Scholar's term. For Fall 2023, the School has selected Architect Frank Barkow as the Visiting Scholar.

Mr. Barkow is founder and partner at Barkow Leibinger. He is a design and construction leader in the practice and heads up the research group at BL. His pragmatic approach embraces design in a discursive way, allowing the firm's work to respond to advancing knowledge and technology. Since 2016 he has been a professor at the Princeton University School of Architecture and has previously taught for Cornell and the Harvard GSD.

#### **2.4.2 *masters project – new knowledge***

Arch 575/577 and 560/561 is a two-semester independent research project. Arch 575/577, the first semester, focuses on research and writing to establish an intellectual framework for architectural space, process, or thought. Arch 560/561, the second semester, is used to realize a design project demonstrating critical architectural thinking at a level appropriate to the Master of Architecture first professional degree.

What is research in architecture? Architectural research adds to the knowledge of the field and explores new ways of applying existing knowledge. The professional paper and project present an opportunity for the student to contribute uniquely to the study of architecture. These include: Proposing a new solution to a problem; Developing and yielding a new insight to a relevant issue; or introducing a new process to improve design, allowing for innovation in how architects work to address contemporary problems and contexts.

#### **2.4.3 *third-year - innovation studio***

In Spring 2019, a task force of several faculty (a sub-committee of the curriculum committee) was established to develop curricular strategies for introducing students to architectural design research—oriented to new knowledge and innovation—to occur earlier in the program. Several proposals were developed. The selected proposal identified the first-semester third-year design studio as the best opportunity for students to understand that innovation and new knowledge are one of the main motivations for design thinking and the creation of integrated design solutions. The third-year design studio, as described earlier, is where the spectrum of diverse building design forces, components, and complexities are introduced—ECS, Structures, new Digital Making and Graphics tools, and Building Construction. In addition, the Fall semester of the third year is when the field trip to urban centers across the United States occurs, and a key component is alumni firm tours. In these experiences, students become aware of how new knowledge and innovation occur in the profession.

**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:**

*Courses and events that address SV.5: Arch 151 RA Design I, Arch 241 Building Construction I, Arch 413 Professional Practice, Arch 452 Research Methods.*

In the fall semester of the 4<sup>th</sup> year, students have several options for studio credit: Arch 450 Community Design Center; Study Abroad; Arch 458 Design/Build community project studio collaboration with 100-Fold; and Arch 498 Internship/Residency. Each of these educational student experiences addresses issues of leadership, collaboration, and community engagement as an "empathetic enterprise with other disciplines, the served communities, and the clients." However, each does it uniquely that is intended to align with the students increasing autonomy and choice for how they see themselves using an architectural education.

#### **2.5.1 option studio – internship/residency**

The Internship/Residency Studio has been an option studio for students since the early 1970s. It is a paid internship for 12–16 weeks under the direct supervision of a registered architect. It allows students to explore the world of architectural practice through professional and reflective activities that address broader educational goals and objectives beyond the academy. Utilizing the skills and knowledge developed in portfolio and interview workshops, the students seek out intern positions at firms throughout the United States and, in many cases, abroad.

Students on internship are engaged in academic and practice activities that involve work in a professional setting, documenting the activities performed, and reflecting on the overall experience. The Internship/Residency Studio experience includes a series of written and graphic exercises that help focus the efforts of the intern and the academic content associated with the internship experience. Internships offer a variety of experiences varying from designing the facade of a high-rise in China to designing a snow fence for a mountain residence in a small mining town in Colorado.

#### **2.5.2 option studio - community design center**

The Community Design Center (CDC) was established by the School of Architecture in 1976. The CDC emphasizes the community's responsibility through the built environment's health, safety, and welfare. The CDC demands high integrity and regard for safety, which is exercised and expected at the professional level. Students in the CDC need to understand the level of responsibility expected in interacting and collaborating with clients. This responsibility is a unique, memorable, and fundamental experience/understanding of the CDC for students. Projects through the CDC usually extend over several semesters, the implication being that the experience is available to more students than those participating in one of the semesters.



The Community Design Center is a cooperative professional practice experience under the direct supervision of the professor. Students interview clients, determine the scope of work to be performed and develop time budgets for the Center's services, the schedule, and the products to be produced. Each student has project components for which they are primarily responsible. Students manage their responsibilities while working with other students to determine appropriate design proposals and meet production schedules. All design proposals are reviewed and critiqued by all the members of the Center in a cooperative fashion. All work produced by the Center aspires to be of the highest quality and critical nature and exceed the client's expectations.

Several recent projects exemplify the type of collaboration and community engagement the School does:

Butte-Silver Bow Public Library (2017/18), Butte is approximately 90 miles west of Bozeman. The CDC collaborated with the Library and associated community entities to develop several design options of varying scope (remodel to new). Within each of the scenarios were subcategories offering creative solutions at different budgets. Conceptual solutions for the design of the Butte-Silver Bow Public Library aimed to honor and celebrate the historical significance of the building in the context of uptown Butte. Libraries serve as the anchor for community life while strengthening the identity of the place. The Butte Library has a vision of reinvigorating its identity into a more modern image to serve its patrons better. Modern building considerations, such as active and passive energy conservation, aim to improve the occupants' experience while dramatically lowering operation costs. Those funds would be allocated to new programs, library resources, and community functions. In conclusion, the Library is a beacon for the community, and their foresight to invest in the Library's modernization will activate Butte's historic uptown district.

Design with Nature in the Anthropocene: The Greater Yellowstone Ecosystem (2020). Yellowstone park is approximately 1 hr to the south of Bozeman.

The main thrust of the course looked at the explosive growth of the Gallatin Valley and Greater Yellowstone. Through research and field visits, the students developed "proposals to engage design thinking as a mechanism to tackle the challenges that emerged." The emerging research expanded on the concept of community from a perspective of sustainability and nature for the greater good. The project was done in collaboration with MSU faculty, Future West, and Mountain Journal.

N. 7th/Midtown Neighborhood Design, Bozeman (2022).

Recent changes to the Unified Development Code and easements allowed for N. 7th, in Bozeman, MT, in what is now called "Midtown," are impacting how the City addresses walkability and affordable housing issues. Midtown offers a unique opportunity to look to the future and serve as an example of correcting sprawl through ethical and responsible revitalization. The role of the CDC was to have students look at ways to promote and guide growth while limiting sprawl. Student research was a frame around a diverse array of stakeholders who collaborated with students throughout the project: City Manager Jeff Mihelich, Sustainability Manager Natalie Myer, City Commissioner Jennifer Magic, Economic Development Dept. (David Fine and Jesse DiTommaso), Engineer Danielle Scharf, Planner Chris Naumann, and Architect and Urban Designer Rob Pertzborn. The researched issues are a crucial part of the Bozeman Growth Policy.

City of Shelby, MT – Future Housing Development Study (current). Shelby is approximately 4 hrs to the north of Bozeman.

The City of Shelby employed the CDC to contribute to a future housing development plan for the City of Shelby. The plan will reference and respond to the available housing properties, utility infrastructure, employment demands, current out-flow and in-flow of the workforce, and any other essential criteria to create a housing plan and spur investment in private sector new home builds. The project is to plan for housing, including affordable housing, for the community of Shelby and to provide adequate housing for everyone. The CDC is doing the project in collaboration with: the City of Shelby, Montana, Gary McDermott – Mayor, Lorette Carter - Community Development Director, and Jade Goroski - Chief Finance Officer.



Bozeman Yellowstone International Airport Art and Cultural Gallery (Fall 2021)

In November 2020, a new "B" concourse was opened at the airport. Four gates were added to the west of the existing 2nd-floor arrival and departure spaces, as well as a new restaurant and lounge space:

A significant portion of the addition's north side was left unfinished in anticipation of future gates and retail spaces. The design challenge is to identify potential exhibitors representing the University and Gallatin County and create a minimum of four gallery design proposals that illustrate differing concepts, scale, and use strategies.

Northwestern Agricultural Research Center (NWARC) Housing Design Proposals

The Montana State University NWARC is a part of the Montana Agricultural Experiment Station, whose mission is to conduct and promote studies, scientific investigations, and experiments relating to agriculture, natural resources, and rural life. NWARC operates seven research centers in Moccasin, Sidney, Havre, Kalispell, Huntley, Corvallis, and Conrad, Montana.

Each Center has suffered from a lack of housing for employees, researchers, and students. The challenge is creating a program(s) and alternative design concepts based on a net-zero prototype(s) net-zero design for Kalispell, Montana.

### **2.5.3 option studio – study abroad**

The Study Abroad program, historically, is a strength of the program. Previous to 2017, the majority of Study Abroad programs were faculty-led foreign programs to South America, Australia, Europe, India, and countries in Africa. However, there has been a trend recently of students opting for enrollment in a foreign university for a semester or year and transferring that credit to the School's program. Excepting that no students traveled because of COVID restrictions in Fall 2020 and 2021, the Study Abroad program is currently a mix of students studying for a year at a foreign university and our Rome Studio program. Foreign universities that students are studying at include:

DIS Copenhagen, Kingston University in London, Queen's Collee in Belfast, Plymouth University in England, Thammasat University in Bangkok, the University of Dundee in Scotland, the University of Limerick in Ireland, the University of Newcastle in Australia, the University of Oulu in Finland, the University of Sheffield in England, the University of Western Australia, the University of Seoul, the University of Technology in Australia and Western Sydney University in Australia.

The Rome Studio is structured to give students seven weeks living in the heart of Rome, work in a studio class designing a project for a site in the City, and study architectural history in the area. In addition to this immersion in the City, students have the opportunity to explore the culture and landscape of other parts of the country—including Florence, Sienna, Venice, Verona, Pisa, Como, Turin, Milan, Tivoli, Naples, Pompeii, and the Cinque Terre region.

### **2.5.4 aias leadership and community opportunities**

Architecture students, in all years, have the opportunity to participate in the School's AIAS organization. There is a significant focus on leadership development and the profession's emerging trends at the organization's regional and national scales. One significant way that the AIAS chapter addresses leadership is within the association with AIAS West Quad and the national structure. The AIAS executive committee and other chapter members attend regular calls and conferences. At the national level, the annual conferences are Grassroots, emphasizing leadership development, and FORUM covering a broad range of emerging issues/topics in the field. The speakers at these events are often from other disciplines, and many focus on the themes of equity, diversity, and inclusion (EDI).

In 2019, the MSU AIAS chapter won the bid to host the West Quad conference. There were over 70 students in attendance from Spokane Community College, University of Hawaii Manoa, University of Nevada, Washington State University, and Montana State University. An MSU faculty member was one of the guest lecturers and shared their New Urban Agenda work at the national level of the AIA and the themes of EDI in the profession and the communities architects serve.





The MSU AIAS students host numerous workshops on various topics each semester, open to the entire student body. These vary significantly from interviewing skills, graphic layout for portfolios, software tutorials, and salary negotiation skills, to name but a few.

**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:**

*Courses and events that address SV.6: Arch 355 Design III, Arch 340 Building Construction II, Arch 356 Design IV, Arch 431 Sustainability, Arch 413 Professional Practice, Arch 452 Research Methods, Arch 457 Design V, Arch 526 Architectural Theory, Arch 535 Building Systems Integration, Arch 558 Comprehensive Design, Arch 551 Advanced Design, Arch 575 Professional Paper, Arch 560 Masters Studio Project, Lecture Series*

#### **2.6.1 graduate electives – learning to learn**

Each semester, the graduate advisor curates a list of graduate electives corresponding to students' interests. This list is available from the School to help students discover topics outside of but influential to architectural thought. Following are summer and fall 2022 graduate electives; they are typical of the range of graduate electives that the schools' architecture students take.

AS 403D-801 Monsoon Asian Civilization

Cultural traditions of over a dozen countries in South Asia, Southeast Asia, and East Asia under the monsoon rain shadow, including architecture, art, government, philosophy, society, and family and gender dynamics.

CHTH 430-801 Mental Health and Social Issues in Aging

Psychosocial and biological approaches to aging and mental health will seek to understand the impact of society and societal issues concerning mental health needs in older adults.

HSTR 484 World Environmental History

The intersection of the natural world with significant themes in world history. Topics may include diseases, agriculture, pollution, and environmentalism in a global context.

SOCI 437 Communities and Crime

How crime and violence are concentrated in specific neighborhoods and communities. The course overviews relevant theoretical models, the spatial concentration of crime, and informal and formal efforts to combat crime at the neighborhood level.

NASX 551-801 Native American: Art, Agency, Activism

Native North American history, culture, and agency from time immemorial to the present. This vast topic is manageable by focusing on the historical moments and individuals catalyzing change and creating sparks in this panorama of culture. Framed from an Indigenous perspective, the aesthetic, cultural, and symbolic meanings of traditional and contemporary Native American art, artists, and activists illuminate the agency of Native culture in North America.

GPHY 502-001 Water and Society

Relationships between people and the environment from a social science perspective. It explores the social causes and consequences of environmental change and examines the different approaches to decision-making about environmental issues.

GPHY 504-001 GIS Research Fundamentals

Geographic Information Science Fundamentals in the context of developing a research program. Spatial data principles, data models, conversion and sampling strategies, analysis methods, and cartography.

Lab exercises use GIS software.

LS 452-803 Your Brain on Art and Music





The neurological effects as well as the emotional effects that art and music have on human beings. In addition, it will also discuss the alleged healing properties of art and music (i.e., music therapy, art therapy).

#### NASX 550-801 Native Americans: Dispelling the Myths

This course is designed around a series of commonly held assumptions or "myths." When unexamined, these assumptions undermine our ability to communicate across cultures and ultimately form the basis for some of the worst forms of racism and stereotyping. We wrestle with these preconceptions while learning the essential elements of American Indian—which is to say, American history.

### **2.6.2 advisory council – lifelong learning mentors**

The Advisory Council (AC) provides a partnership between the architecture profession and the School. Members are alumni and friends of the SoA who possess an excitement and passion for the School and are associated with well-regarded firms and related industries across the country. The council meets in Bozeman twice a year to foster engagement with the MSU and Bozeman communities while assisting with fundraising and the creation of endowment funds. Additionally, monthly meetings take place online. The Advisory Council establishes a network of individuals, organizations, institutions, and businesses capable of expanding opportunities in instruction, research, and outreach programs for the School of Architecture. The AC also acts as a catalyst in bringing together individuals, organizations, institutions, and businesses seeking greater understanding, college collaboration, and involvement in higher education. Finally, it provides financial support for the betterment of the School of Architecture.

Over the years, the AC has provided communication between the profession and academia on curriculum, design, innovation, and architectural trends. The council participates in fundraising activities, lectures, competitions, design studios, and foreign travel. With the help of the MSU Alumni Foundation, the AC established the Endowment for Excellence. This endowment will sustain the School into the future. In addition, alumni of the council have also been leaders in fundraising for the Visiting Professorship Endowment. The Visiting Professor Endowment allows the School to invite a visiting scholar to teach in the School every year.

Each Advisory Council member sits on one of three working committees designed to support the School of Architecture across various areas. These committees are:

Knowledge Committee - Provide communication and liaison between the profession and the School of Architecture. Responsibility includes:

- Assist the lecture and exhibits committees of the School in identifying, contacting, and bringing lectures and exhibits to the School of Architecture
- Develop an "E-mentoring program"
- Support the studio by participating and identifying professionals to sit on studio reviews in the School of Architecture.

Advocacy Committee - Engage the alumni of the School of Architecture in support of the School.

Responsibility includes:

- Promoting, among firms, the School of Architecture Internship Program for fourth-year undergraduate students and graduate students and supporting students in their pursuit of internships
- Promoting and managing Advisory Council membership and annual giving
- Identifying and leading fundraising campaigns in support of the School of Architecture.

Student Recruitment Committee - Support the School of Architecture and the profession's aspiration to increase the social, cultural, and economic diversity of students seeking an architectural education.

Responsibility includes:

- Support the School of Architecture's recruitment strategies through contact and engagement with high schools, community, and tribal colleges, and students
- Identify strategies to support recruitment visits to the School of Architecture for students whose social, cultural, and economic circumstances otherwise prevent travel to Bozeman, Montana.



- Identify strategies and seek funding within the profession and allied professions to support scholarships and mentorship to increase students' social, cultural, and economic diversity and their success in the School of Architecture.

The AC is essential in defining the evolving shared values of the profession and the School.





As a professional program, the School of Architecture believes that ensuring students understand the paths to becoming licensed as an architect in the US, and the range of available career opportunities that an education in architecture provides, is central to the mission of the school. This is reflected in the School of Architecture Mission Statement, located on the School of Architecture website, that reads, “The School of Architecture empowers students to engage the complexities of social and ecological systems through creative, collaborative, and ethical design of the built environment. We instill personal agency, self-reflection, and environmental empathy *to educate innovators who challenge and advance the design professions.*” This mission to educate innovators in architecture and other fields is first introduced and then taught at a level of understanding at several points during the 5-1/2 year program.

Elements of PC.1 Career Paths are **introduced** in the first year of the program through ARCH 121 IA – Introduction to Design where the course ‘*explain(s) what an architect does and how one becomes an architect.*’ Additionally, the course covers ‘*design thinking, systems thinking, ordering systems, abstract relationships, and professional communication skills*’, all necessary knowledge for our dynamic, changing profession as well as valuable skills and knowledge that can be utilized in other career opportunities. In this course, students are introduced to career paths in architecture and allied fields through discussions, readings, and lectures, and is evaluated through quizzes, research papers, and presentations throughout the semester.

The course is structured to have large lectures on Monday’s and Friday’s, with small seminar style discussions on Wednesday’s. Topics such as “What is an Architect?” or “What is an Interior Designer?” are discussed along with printed materials on allied professions. Students research the basic context and framework of design as it relates to architecture and its allied fields through research papers on 20<sup>th</sup> century architects and designers and discuss their views through short presentations. Students discuss questions such as ‘What is the role of the architect in society today?’, ‘What can Architects learn about our designs and design processes by listening to other design disciplines?’, and ‘How can design be collaborative, inclusive, and empathetic with other disciplines?’ These are investigated through a series of media; video including TED talks, short articles, and longer readings, which are then evaluated through discussion groups, quizzes, and paper presentations. With respect to education, experience, and the process towards licensure, students read the AXP Guidelines and then have a presentation by the NCARB educational coordinator for the School of Architecture on the AXP process. This is followed by a quiz on the topic. Throughout the semester students are asked to consider what it is to be an architect and the skills and knowledge one must acquire within the profession or the value of this information in other career opportunities.

Career paths in architecture or other disciplines is also introduced in the fourth-year option studios where students choose between the Architectural Residency Program, the Community Design Center (CDC), Foreign Study Programs, or a Design/Build Program. All of these options introduce students to career paths in the profession, whether it be through working directly for an architectural firm and interacting with design professionals and consultants, or working with various state and local constituencies on projects within the CDC, studying architecture abroad, investigating how different countries look at design, or working with contractors, officials, and other design professionals on design/build projects in the Bozeman community and beyond. All of these options expose students not only to the career path of architecture, but also to a variety of other career opportunities which take advantage of the knowledge and skill set that an architectural education provides.

In addition to these courses that introduce PC.1 Career Paths, other courses and opportunities in the program investigate this content at the level of **understanding**. In ARCH 413 – Professional Practice, students are asked to complete two assignments, the first related to challenges facing the profession and second, to the architect’s skillset and the range of career opportunities that a graduate could pursue, including the path to licensure and becoming a licensed architect. The first assignment asks students to analyze and then synthesize contemporary forces influencing changes in the profession and the built environment. Students are asked to read a series of articles and then produce a topical paper, investigating the challenges in the profession today and the value of architecture. The second



assignment asks students to read a series of articles related to the skills required to be an architect, professional conduct and ethical behavior, as well as careers that can be pursued with an architecture degree. These articles are then analyzed, and a written paper is produced that describes the relationship between the skills utilized in the practice of architecture, or a related field, and ethics and professional conduct that is required. These assignments stress the importance of architectural education and how this knowledge and skill set is applicable to a variety of other disciplines.

The final area of understanding within PC.1 Career Paths is through the School of Architecture Lecture series that takes place throughout the academic year. The lecture series provides a venue for architects and design professionals in all areas of design, to discuss not only their work but to also expand the notion of what design is and what it can address, from areas of sustainability and climate change to developments in technology and the construction fields to issues of equity, diversity, and inclusion in the profession. Through the lecture series students are exposed to a variety of career paths that an education in architecture provides including working as an architect, working in development, working with climate, looking at diverse topics that inform design, such as data or biomimicry, as well as issues related to craft, material culture, and value in design.

All of the courses in the School of Architecture are assessed on a three-year cycle. ARCH 121 IA – Introduction to Design and ARCH 413 – Professional Practice, the primary courses that constitute PC.1 Career Paths, are not assessed during the same year within this cycle, allowing two opportunities every three years to assess how this program criteria is being met. This ensures that course adjustments can be made more frequently to better monitor how the program is addressing this program criteria. In conjunction with these courses, the lecture series is also informally assessed every year by the lecture and exhibits committee to determine its relevance to the curriculum and the student body. Ensuring that the lecture series is current and inclusive of diverse voices supports this program criteria through field experts in a range of areas within the world of design.

**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:**

*Curricular matrix-* (ARCH 262)-level of introduction, (ARCH 151/152, ARCH 253, ARCH 254, ARCH 355, ARCH 457)-level of understanding, , (ARCH 356, ARCH 558, ARCH 551, ARCH 560)-level of reinforcing

The School of Architecture curriculum is studio-based where information from the various companion courses during each year/semester are synthesized and evaluated through the design studio. Primarily in the second and third year of the program, but also in the graduate years, informational content from the companion courses is integrated into the studio sequence to produce a more meaningful relationship between the courses. In this way, the faculty believe the curriculum instills in students the role of the design process in shaping the built environment through the integration of multiple factors, in different settings and scales, from buildings to cities.

Various concepts related to tools and the acquisition of skills are **introduced** into the design studio with ARCH 262 – Architectural Graphics II. In a series of exercises, students learn modeling and fabrication techniques that increase the student's ability to work with various software applications, create models utilizing various tools including the laser cutters, 3-D printers and CNC milling machines, that enhance their skillset and output in design studios. ARCH 262, through a series of iterative drawings also allows students to work with the ARCH 254 – Architectural Design II second year studio to explore concepts of light and shadow, movement and time, as well as multiple views through hybrid drawings of their studio projects, used as a design tool opposed to merely a documentation tool.



While this course is at a level of introduction for PC.2 Design, other courses in the program, primarily the design studio sequence from first to fourth year, investigate this content at the level of **understanding**. ARCH 151/152 – Design Fundamentals I & II respectively, introduce the students to a systems way of thinking about design. As the ARCH 152 syllabus describes, *“In recent decades a new understanding has become prominent – the systemic one. The systems approach focusses on connectedness, relationships, and context rather than the individual elements. The essential qualities of a system emerge from the patterns and relationships among its parts and not from the parts themselves.”* These courses explore, through various assignments, the mapping of virtual and physical ordering systems and the forces that influence them. This analysis is used to inform design thinking and design projects later in the semester. ARCH 253 – Architectural Design I and 254 – Architectural Design II continue this investigation of virtual and physical ordering systems, ARCH 253 investigating these systems in a rural context with systems including weather patterns, wind, geologic time, the influence of indigenous peoples, and western settlement patterns to influence design proposals. ARCH 254 investigates site characteristics in an urban context including developmental patterns, historical fabric, soil, topography, ecology, climate, and building orientation, influencing the development of a project design. During both semesters, students are also asked to incorporate rudimentary code and accessibility issues, as well as a basic knowledge of construction techniques and materials coming from their building construction companion course.

ARCH 355 – Architectural Design III continues these investigations through the development of a large-scale commercial/institutional/cultural project located in an urban location of the studio instructor’s choosing. These projects further investigations of systems thinking by looking at diverse communities, historical fabric of cities, and understanding how the built environment responds to these and myriad other systems including climatic, economic, social, and cultural factors. Students also integrate increasingly greater levels of code analysis, accessibility issues, as well as structural systems, environmental systems, and computer skills that are integrated from companion courses. ARCH 457 – Architectural Design V, a capstone studio in the undergraduate program, brings the investigations begun in ARCH 151/152, studio projects in ARCH 253 and 254 and the investigations from ARCH 355 (also reinforced in ARCH 356 – Architectural Design IV) to a conclusion by using formal, organizational, and environmental principles to inform the design process. In this studio students are asked to clearly articulate the design process, identifying the studio problem, establishing the criteria for evaluating alternatives and analyzing solutions as well as predicting the effectiveness of decisions in the design process. The projects completed in this studio are the culmination of the undergraduate studios and will form the basis for the studios in the graduate program of the curriculum.

While this studio sequence develops a level of understanding for PC.2 Design, other courses in the program, ARCH 356 – Architectural Design IV and the design studio sequence in the graduate program, investigate this content at the level of **reinforcing**. In the context of reinforcing, these additional studio courses reinforce the role of design in shaping the built environment and the design processes involved. In ARCH 356, students, working on a moderately sized project within the suburban social, cultural and infrastructure systems are asked to consider, model, and compare multiple values, influences, and requirements to shape the design process and then evaluate their decisions based on a synthesis of user requirements, regulatory requirements and contexts. Students are also tasked with integrating life safety principles, current technologies, systems, and construction techniques as well as performance-based systems that address energy, resource efficiency, and issues of sustainability.

In the graduate program, ARCH 558 – Comprehensive Design Studio asks students to take what they have learned in the undergraduate program and apply this knowledge and skill in the design of a comprehensive architectural project. Students are asked to create a project that demonstrates broad integration of building systems, tectonics, theory and regulations as well as broad synthesis and considerations of users, context, ecology, and universal design. Finally, the projects must address issues of climate change and sustainability. ARCH 551 – Advanced Architectural Studio is designed to explore specific critical positions with regard to contemporary architectural issues, emphasizing the research and analysis of theoretical positions along with the development of contemporary methods, models, and techniques for analysis. In this studio, students are asked to produce explicit documentation of the



design process that demonstrates interpretation of the thematic objective of the studio and how it is achieved in their design. Finally, ARCH 560 – Masters Studio Project is a self-directed project that builds upon prior research investigations with an emphasis placed on analysis, synthesis, evaluation and development of a design solution from conceptual design through schematic/design development.

Overall, the design studio sequence at the School of Architecture should be seen as a series of courses that introduce, build understanding, and then reinforce one another, expanding and emphasizing the importance of design in shaping the built environment. This is done through a process that integrates multiple factors (systems perspectives in the first two years and later expanding into social/cultural/regulatory/technical issues in the later years) while exploring different settings and scales of development, from buildings to cities. Additionally, companion courses throughout the curriculum are integrated, to the greatest extent possible, into the studio sequence to produce a more meaningful relationship between the courses, demonstrating an increased synthesis of information within the curriculum.

All of the courses in the School of Architecture are assessed on a three-year cycle. The eleven courses that constitute PC.2 Design, whether at the level of introduction, understanding or reinforcing are not all assessed during the same year within this cycle, allowing an opportunity every year to partially assess how this program criteria are being met. This ensures that course adjustments affecting PC.2 can be made more frequently to better monitor how the program is addressing this program criteria.

**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:**

*Curricular matrix- (ARCH 253, ARCH 254, ARCH 355)-level of introduction, (ARCH 331, ARCH 332, ARCH 431)-level of understanding, (ARCH 535, ARCH 558)-level of reinforcing*

The School of Architecture curriculum is studio-based where information from the various companion courses during each year/semester are synthesized and evaluated through the design studio. Primarily in the second and third year of the program, but also in the graduate years, informational content from the companion courses is integrated into the studio to produce a more meaningful relationship between the courses. In this way, the faculty believe the program instills in students the role of the design process in shaping the built environment through the integration of multiple factors in different settings and scales.

With respect to ecological knowledge and responsibility, a holistic understanding of the dynamic between the built and natural environments is **introduced** during the second-and third-year studios of the curriculum. In ARCH 253 – Architectural Design I, students investigate, through site analysis of a rural landscape, sun angles, wind, precipitation, and weather patterns along with other systems to influence their design proposals. ARCH 254 – Architectural Design II moves these investigations to an urban context as students investigate climatic design and other systems including soil, topography, construction techniques, materials, and building orientation, to influence the development of their design proposals. ARCH 355 – Architectural Design III introduces students, through the development of a large-scale commercial/institutional/cultural project located in an urban location of the studio instructor’s choosing, to more robust investigations related to the dynamic between the built and natural environment. Through material introduced in ARCH 331 – ECS I, students engage in site analysis, vertical transportation systems, water retention strategies, and apply passive and active strategies to these design projects.

While these studio courses are at a level of introduction for PC.3 Ecological Knowledge and Responsibility, other courses in the program, ARCH 331 – Environmental Control Systems I, ARCH 332 –



Environmental Control Systems II, and ARCH 431 – Sustainability in Architecture investigate this content at the level of **understanding**. ARCH 331/332 – Environmental Control Systems I & II respectively, introduce students to a variety of systems, strategies, and responses to climate at a regional, community and small building scale. ARCH 331 – Environmental Control Systems I discuss basic principles of building physics, requirements for indoor environmental quality, site analysis, passive and active strategies to reduce energy consumption and improve human comfort, harnessing water on site and vertical transportation systems. ARCH 332 – Environmental Control Systems II discuss basic concepts of daylighting, electric light, acoustics, electric and fire systems, as well as PV systems. All of this material is evaluated by tests, quizzes, assignments and projects over the two semesters. Together these two courses provide a holistic understanding of the built and natural environment and investigate ecological, advanced building performance, adaptation, and resilience principles. As companion courses to the third-years studio sequence, ARCH 331/332 utilize design studio projects to investigate these various systems. A small project designed in ARCH 356 – Architectural Design IV will be used as a base model for passive daylighting studies, artificial light studies, acoustical studies, and energy analysis models. This provides a level of integration that instills in students the role of the design process to shape the built environment through multiple factors.

ARCH 431 – Sustainability in Architecture borrows and enhances many of the areas discussed in the ARCH 331/332 sequence, specifically investigating sustainable techniques and approaches related to site selection, landscaping, storm water, envelope, energy efficiency, mechanical approaches, passive solar, photovoltaics and the assessment of carbon footprint. The course also asks students to understand the fundamental principles of sustainable design strategies to make informed choices for achieving optimal use of sustainable materials, to maximize energy efficiency and reduce the carbon footprint of projects. While these courses develop a level of understanding for PC.3 Ecological Knowledge and Responsibility, two courses in the graduate program, ARCH 558 – Comprehensive Design Studio and ARCH 535 – Advanced Building Systems Integration, investigate this content at the level of **reinforcing**. ARCH 558 – Comprehensive Design Studio asks students to take what they have learned in the undergraduate program and apply this knowledge and skill in the design of a comprehensive architectural project. Students are asked to create a project that demonstrates broad integration of building systems, tectonics, theory and regulations as well as broad synthesis and considerations of users, context, ecology, and universal design. Finally, the projects must address issues of climate change and sustainability. As a companion course to ARCH 558, ARCH 535 – Advanced Building Systems Integration provides a detailed examination of a variety of strategies including active and passive systems, daylighting and energy savings, electric lighting, water conservation as well as the selection of materials for building envelope design and structural systems. The assignments from this course are integrated into the ARCH 558 design project.

All of the courses in the School of Architecture are assessed on a three-year cycle. The eight courses that constitute PC.3 Ecological Knowledge and Responsibility, whether at the level of introduction, understanding or reinforcing are not all assessed during the same year within this cycle, allowing an opportunity every year to partially assess how this program criteria is being met. This ensures that course adjustments affecting PC.3 can be made more frequently to better monitor how the program is addressing this program criteria.

**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:**

*Curricular matrix- (ARCH 121, ARCH 254)-level of introduction, (ARCH 322, ARCH 323, ARCH 526)-level of understanding, (ARCH 356, ARCH 457, ARCH 575, ARCH 560)-level of reinforcing*





The School of Architecture curriculum includes courses that provide students with the knowledge and understanding of the histories and theories of architecture and urbanism—courses that begin in a student's initial semester of their freshman undergraduate year and stretch to their final semester in the graduate program. By spacing out the introduction, understanding and reinforcement of these topics within each year of our curriculum, it provides students with the opportunity to explore the knowledge and application of these histories and theories at each level of their education and build a stronger foundation of understanding for use in our graduate program. In the graduate program, students take this foundation and apply their knowledge to the development of their professional research paper in ARCH 575 which provides the theoretical and historical basis for students' ARCH 560 – Masters Studio Project—a student-directed studio project—in the final semester of our M.Arch program.

In this strategy, the curriculum introduces students to modern and contemporary architectural history and theory in ARCH 1211A – Introduction to Design. Students read a number of articles and portions of books listed in the syllabus, such as *Analyzing Architecture* by Simon Unwin, as well as additional readings on Elements and Principles of Design and Biophilic design. Students prepare discussion papers and participate in discussions that introduce them to the topics of social, political, physical influences affecting historical changes in the design of the built environment; the role of the architect in society today and how it has evolved; how different groups of people experience different built environments; and how diverse cultural and social contexts shape the built environment. Students undertake a paper focusing upon a significant architect or designer in history. At the conclusion of this course students will be able to recognize key precedents including the names of architects, buildings, and/or historical movements

The introduction of knowledge in ARCH 1211A is then elevated to a level of understanding during the second year of the program in ARCH 322IA – World Architecture I and ARCH 323IA – World Architecture II, focusing upon the span of histories from pre-industrial history to the present. These courses take a contextual approach, examining the social, cultural, and physical conditions that influenced built environments. ARCH 322IA examines architecture from before 1400 to the 1920's and includes studies in European and Islamic countries, Indigenous and Colonial architecture in the Americas and Colonial architecture in Asia and Africa. ARCH 323IA continues to examine the social, cultural, and physical conditions that influenced the built environments in Europe, North America, South America Asia, and Africa. While ARCH 323IA covers many architectural monuments, it also focuses on the larger built environments of cities and landscapes.

Both ARCH 322IA and 323IA are MSU CORE Investigation in the Arts (IA) courses. This requires that students develop familiarity with the methods used to discover and create the factual and theoretical knowledge of various disciplines. Each course examines particular issues in the discipline while exploring its methodological and theoretical foundations. Students undertake research, develop literature reviews, undertake assignments exploring primary/secondary resources and write research papers on architectural and urban topics. At the conclusion of this sequence, students are able to describe historic architecture using appropriate vocabulary and explain how a built environment is reflected in the architectural and social ideas of its time.

With this core understanding of the histories of architecture, students reinforce their knowledge of these topics in their subsequent third- and fourth-year design studios—ARCH 356 – Architectural Design IV and ARCH 457 – Architectural Design V. In these studios, students are assigned a range of historical and theoretical readings that provide the framework for discussions within each design studio. Students interpret and discuss the theory readings and explain the relevance of those readings to their design studio projects. In addition, students identify and research historical precedents and illustrate how those precedents inform their design decisions and respond to current social and cultural forces.

During the first semester of our graduate program, students are required to take ARCH 526 – Advanced Architectural Theory. ARCH 526 provides a seminar learning environment in which students further their understanding of history and theory through a wide-ranging, diverse set of readings and discussions. The class sizes of ARCH 526 are smaller—allowing for greater student-to-faculty and student-to-student discussions and explorations. In this setting, students develop the ability to read a variety of theoretical



texts, critically reflect upon them and present those reflections in the form of scholarly writing and presentation materials. Students analyze how architecture fits within larger philosophical, historical, social, and economic discourses. ARCH 526 provides an enhanced understanding of histories and theories that prepares students for their work in ARCH 575 – Professional Paper for Master’s Project during the second semester of our M.Arch graduate program.

In ARCH 575, graduate students, working with two faculty advisors, establish a theoretical position based upon research and understanding of past historical and theories of architecture and urbanism. Students establish a clear approach toward exploring their theoretical position by developing a proposal for a student-directed project, process, environment, or other research mechanism. In the final semester of our M.Arch program, students, with their two faculty advisors, undertake ARCH 560 Master Studio Project in which students undertake their proposed project and translate the historical and theoretical research from ARCH 575 into a final student-directed research/design project and presentation.

All of the courses in the School of Architecture are assessed on a three-year cycle. However, ARCH 322IA - World Architecture I, ARCH 323IA – World Architecture II and ARCH 526 – Advanced Architectural Theory, which demonstrate a level of Understanding for PC.4 History and Theory, are not assessed during the same year within this cycle. This allows opportunities every year in the three-year review cycle to assess how this program criteria is being met and ensures that course adjustments affecting PC.4 can be made more frequently to better monitor how the program is addressing this program criteria.

**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:**

*Curricular matrix- (ARCH 262, ARCH 323, ARCH 355, ARCH 363)-level of introduction, (ARCH 452, ARCH 551)-level of understanding, (ARCH 575, ARCH 560)-level of reinforcing*

The School of Architecture faculty believe that research and innovation are vital to our program. This is reflected in the School of Architecture Mission Statement, located on the School of Architecture website, that reads, “The School of Architecture empowers students to engage the complexities of social and ecological systems through creative, collaborative, and ethical design of the built environment. We instill personal agency, self-reflection, and environmental empathy *to educate innovators who challenge and advance the design professions.*” This is also reflected in the school’s values in the areas of Passion, Design, Agility, and Experimentation. As the value Experimentation describes “*an education that embraces experimentation and risk taking that leads to innovation and discovery in order to influence the role and impact of design on society and the future*” which implicates both research and innovation. This mission to prepare students to engage and participate in architectural research as well as test and evaluate innovation is first introduced, and then taught at a level of understanding and reinforcing at several points during the 5-1/2 year program.

In our curriculum, ARCH 262 – Architectural Graphics II, ARCH 323 – World Architecture II, ARCH 355 – Architectural Design III, and ARCH 363 – Architectural Graphics III all investigate research and innovation, through varied applications, at the level of **introduction**. In ARCH 262 – Architectural Graphics II, students are introduced to the design methods of exploring design issues and solutions through various types of drawings. Students are also introduced to digital fabrication tools; laser cutters, 3-D printing and CNC milling, as additional methods for undertaking the design process. Finally, students are introduced to qualitative explorations of light and shadow through digital and hand drawing techniques. ARCH 323 – World Architecture II, prepares students to engage and participate in architectural research to test and evaluate innovations in the field. In ARCH 355 – Architectural Design III, students research the influences that social, political, economic, and cultural forces can have on the built environment. Finally, in ARCH 363 – Architectural Graphics III, students are introduced to Building



Information Modeling software and how this can be used to create technical plans, sections, details, and models.

Two courses in the curriculum, ARCH 452 – Architectural Research Methods, and ARCH 551 – Advanced Architectural Studio further investigate research and innovation at the level of **understanding**. ARCH 452 – Architectural Research Methods asks students to conduct literature reviews of existing secondary resources on a topic and apply logical reasoning to interpret and evaluate research. In ARCH 551 – Advanced Architectural Studio, students are asked to research and analyze issues topical to the studio and undertake conceptual and exploratory studies of an architectural idea.

While these courses develop a level of understanding for PC.5 Research and Innovation, two courses in the graduate program investigate this content at the level of **reinforcing**. In the context of reinforcing, these additional courses reinforce the role of research and innovation in crafting a critical position regarding an architectural idea and then through research and innovation, shaping the built environment with a design project. In ARCH 575 – Professional Paper, students develop a topic of research for a two-semester independent project, instructed by a two-person faculty committee. Students gather, assess, and comparatively evaluate relevant information in order to support conclusions related to a specific project that will be developed the following semester in the ARCH 560 studio. In ARCH 560 – Masters Studio Project, students continue their research from ARCH 575 into the realization of a design project. In this studio, students are asked to explicitly document their design process and how this research figures into an innovative design solution.

All of the courses in the School of Architecture are assessed on a three-year cycle. The eight courses that constitute PC.5 Research and Innovation, whether at the level of introduction, understanding or reinforcing are not all assessed during the same year within this cycle, allowing an opportunity every year to partially assess how this program criteria is being met. This ensures that course adjustments affecting PC.5 can be made more frequently to better monitor how the program is addressing this program criteria.

**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:**

*Curricular matrix- (ARCH 340, ARCH 452)-level of introduction, (USxxx- Architectural Leadership: university seminar)-level of understanding*

The school of architecture believes that successful collaboration is a vital aspect of the profession and to the development of students. Many of the design studios throughout the curriculum have collaborative team assignments in areas such as site analysis and data gathering related to weather, site and historical context or the construction of physical and digital site models. Where students address collaboration at the level of **introduction**, to apply collaboration skills to solve complex problems, is in ARCH 340-Building Construction. In this course, the students work in teams of two over the course of the semester to develop an abbreviated set of construction documents. Each student team is required to set up a collaborative platform in the file hosting service, Dropbox, where a master model created in Revit will be located and accessed by the team. Having to work with the master model, decide how to draw and design in a collaborative manner, and produce a series of drawings over the course of the semester challenges the students to apply effective collaboration skills to solve complex problems.

In ARCH 452 – Architectural Research Methods students also work in teams on a research project investigating affordable housing in Bozeman. In this project, students, working in teams, collaborate with community partners developing affordable housing solutions. Initially, the students create a literature review on an affordable housing topic which is then followed by case study background research. The



students will then conduct interviews with community leaders and citizens, create surveys, and present their research back to the public through public presentations.

USxxx – Architectural Leadership: University Seminar is a course that was specifically created to address the needs of leadership in the architectural profession. It was intended to join other leadership courses on campus including HLD 121US and UC 202 that build on or contribute to students’ understandings of leadership within their particular discipline or field of study. This course was proposed as an ARCH 291 – Architectural Leadership, a designation placed by the university on pilot courses that, after being listed for an academic year, would be elevated to a CORE designation. CORE courses are required by all undergraduate students on campus and are intended to integrate with a student’s major area of study to deepen the experience of undergraduate education. ARCH 291 – Architectural Leadership was listed as a course in the fall of 2022 and because it did not yet have a CORE designation, very few students signed up for the course and it was canceled by the university. It is the goal of the School of Architecture to offer this course as a required CORE course offering for all architecture students and a general CORE class for the rest of campus. While this process continues, we are working to further enhance the content of ARCH 452 – Architectural Research Methods to a level of **understanding** for spring of 2023 to address this shortcoming.

All of the courses in the School of Architecture are assessed on a three-year cycle. ARCH 340 – Building Construction II and ARCH 452 – Architectural Research Methods, the two courses that constitute PC.6 Leadership and Collaboration in our curriculum (until the Architectural Leadership course comes online) are not assessed during the same year within this cycle, allowing two opportunities every three years to assess how this program criteria is being met. This ensures that course adjustments affecting PC.6 can be made more frequently to better monitor how the program is addressing this program criteria.

**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:**

*Curricular matrix- (Studio Culture Survey, All Course Syllabi)-level of understanding*

The faculty at the School of Architecture believe that a positive and respectful environment that encourages optimism, respect, sharing, engagement, and innovation amongst everyone in the school including students, faculty, administration, and staff is critical to our mission. This is also reflected in our five community values; Citizens, Passion, Design, Agility, and Experimentation located on our website. The aspirations for the program are that students should be able to work together in a collaborative, professional manner, be able to listen to other points of view and discuss that point of view, engage in critique and provide constructive feedback and direction, demonstrate empathy towards others, and work within a professional code of conduct and ethics.

The curriculum at the School of Architecture is studio-based with students taking a studio course every semester. The studio student-to-faculty ratios (roughly 12:1) are kept small to promote more interaction and community within each cohort. Studios are organized with student desks surrounding a central table for group discussions that further promote a sense of community. The School of Architecture has 24/7 access for students, providing a shared space for working and collaborating. Access after hours is controlled by student ID cards, providing a secure, safe space for our students to work.

The students in each studio work in teams on various projects during the semester including site analysis, site models, and various research topics. Our curriculum provides for local, regional and national field trips in the undergraduate program, including a week-long field trip to an urban center in the US during the third year as well as another week-long field trip within the US during the fifth year. All of these travel



opportunities place students together in unfamiliar situations, encouraging the students to find commonality and inspiration in these new settings.

At the level of **understanding**, PC.7 Learning and Teaching Culture is reflected in the course syllabi that are prepared for each class in the curriculum. Course syllabi produced by the faculty contain a list of general course requirements with information related to fostering and ensuring a positive and respectful classroom/studio environment. The faculty are aware that providing a studio-based educational model requires students to not only care about themselves but also their classmates, the studio spaces, as well as the School of Architecture building itself. The Center for Faculty Excellence on campus provides, on their website, common language for a variety of areas including the Student Code of Conduct, what constitutes Academic Misconduct, MSU student resources related to Academics, Health and Engagement, as well as information related to the Office of Disability Services and Academic Accommodations, suggested language for student well-being and classroom values, and behavioral guidelines to make the classroom an inclusive learning environment. At the beginning of each semester these general course requirements (Student Well-being, Diversity and Inclusion, Security and Safety, Studio Cleanliness, Plagiarism, Behavioral Expectations, Academic Honesty and Expectations, Students with Disabilities) are discussed with the students to remind students that the studio is a unique learning environment that requires their attention and participation to ensure its continued success. These policies are also included on the School of Architecture website.

These policies are updated on an annual basis as new concerns develop in the School of Architecture or the university, through the Center for Faculty Excellence, updates their website.

In addition to course syllabi, the Climate Survey, also referred to as the School of Architecture Learning Environment and Studio Culture Survey, conducted every year, provides a snapshot of the overall student experience. The survey is divided into several areas including a student profile section and then areas related to Design Skills, asking questions related to the design studio experience and the skills taught in studio; Pedagogy, asking questions related to the levels of collaboration, whether innovative design is promoted, the quality of studio assignments as well as the assessment and critique process; the Academic Environment, asking questions related to whether the program creates a climate of inclusiveness, equity and fairness; and Perspectives, asking questions related to whether the program provides latitude for a student's personal development and if they feel they are getting a quality education. This survey provides a way for students to express their opinions about the School of Architecture and continue the process of ensuring a positive and respectful environment within the school. The survey is tabulated by the learning committee and the findings are presented at the fall semester start-up meeting and discussed by the faculty. Items of concern from previous years, such as the integration of companion courses into the studio sequence or the perceived value of companion courses by studio faculty, are seen as ways in which to strengthen the program and have resulted, over the past few years, in greater integration of the design studios with companion courses in both the second and third years of the curriculum.

**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:**

*Curricular matrix- (ARCH 121) level of introduction, (ARCH 322, ARCH 323, ARCH 355)-level of understanding*

The School of Architecture, located in Bozeman, Montana, lacks the diverse cultural and social context of large metropolitan areas. With this reality, the faculty at the School of Architecture are committed to the principles of social equity and inclusion, and through several courses in our program, further students' understanding of diverse cultural and social contexts. It is through these courses that students are able





to understand historical moments and design projects that equitably support and include people of different backgrounds, resources, and abilities.

With respect to social equity and inclusion, ARCH 121 IA – Introduction to Design, investigates diverse cultural and social contexts at the level of **introduction**. In ARCH 121 IA – Introduction to Design, students are asked to describe how diverse cultural and social contexts shape the built environment and how different groups of people experience it. This is accomplished through a series of lectures on the topic followed by readings, discussions, and a graded paper assignment on the relationship between human behavior and possible design solutions within the built environment.

Three courses in the curriculum, ARCH 322/323 – World Architecture I & II respectively, and ARCH 355 – Architectural Design III further investigate diverse cultural and social contexts at the level of **understanding**. ARCH 322 – World Architecture I, asks students to investigate how diverse values, politics, and cultures have shaped the built environment and ARCH 323 – World Architecture II asks students to analyze how a built environment has reinforced or alleviated inequity or exclusion. Graded written responses evaluate the themes presented in each course. ARCH 355 – Architectural Design III continues these investigations through the development of a large-scale commercial/institutional/cultural project located in an urban location of the studio instructor’s choosing. These projects ask students to understand the built environment’s ability to influence and affect community design while also exercising design empathy in order to shape a more equitable built environment. These design studios have a travel component that allows students to travel to various urban centers in the US and the studios have identified issues of social equity and inclusion as a key focus area. Recently, studios have traveled to Chicago, with community improvement projects located in the Woodlawn neighborhood; Phoenix, where students have looked at urban housing issues; and Austin, where students have looked at issues of homelessness. These studios propose design projects that attempt to equitably support and include people of different backgrounds, resources, and abilities.

All of the courses in the School of Architecture are assessed on a three-year cycle. The four courses that constitute PC.8 Social Equity and Inclusion, whether at the level of introduction or understanding are not all assessed during the same year within this cycle, allowing two opportunities every three years to assess how this program criteria is being met. This ensures that course adjustments affecting PC.8 can be made more frequently to better monitor how the program is addressing this program criteria.

### 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.

**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:

*Curricular matrix- (ARCH 253, ARCH 355)-level of introduction, (ARCH 241, ARCH 254, ARCH 356, ARCH 457)-level of understanding, (ARCH 558)-level of reinforcing*

The School of Architecture faculty believes that the best and most effective way of introducing and learning the issues of Health, Safety and Welfare is in iterative way, by gradually integrating them into a series of classes, where the understanding of those issues and the level of their integration into the design projects increases from class to class

We also believe that the best way to both learn and demonstrate the understanding of the impact that built environment has on health, safety, and welfare is by gradually and eventually fully integrating those issues into design studios and design projects rather than to cover them in specific dedicated classes.



That way they become engraved in students minds as inherent / integral part of a design process rather than a cumbersome nuisance.

Therefore, learning SC1 Health, Safety and Welfare in the Built Environment is distributed throughout our curriculum and covered in a sequence of classes that cover it from introduction to understanding level.

Elements of SC.1 Health, Safety, and Welfare in the Built Environment are **introduced** in Arch 253 Architectural Design I (Fall of second year studio) with a learning objective “*Introduce the basic principles of life-safety systems with an emphasis on egress*” and in Arch 355 Architectural Design III with LO “*Incorporate building zoning, code issues, sustainable design principles, life safety codes, and accessibility standards to a degree appropriate to a 300-level studio*”.

SC.1 is covered and demonstrated at the level of **understanding** in the following classes. **Arch 241 Building Construction I** – LO: *Describe how issues of Health, Safety and Welfare influence decisions related to materials and assemblies*, **Arch 254 Architectural Design II** – LO: *Demonstrate understanding of the basic principles of life-safety systems with an emphasis on egress*, **Arch 356 Architectural Design IV** – LO: *Students will describe the intent and reasoning of life safety principles and apply them to design-integrated occupant protection systems*, and **Arch 457 Architectural Design V** – LO: *Students will demonstrate an understanding of health, safety, and welfare in the built environment*. The students demonstrate their understanding of all issues related to Health, Safety, and Welfare in the Built Environment again in Arch 558 Comprehensive Design Studio where they are reinforced and fully integrated into the design project.

In **Arch 254 Architectural Design II** students develop a small, 3000 to 4000 building in urban or rural context. In Spring 2022 building programs included a Prosthetic Clinic, Keogh Buffalo Kill Site & Stillwater Interpretive Center, and a small addition to Cheever Hall on MSU campus. As a part of project development students, at different points of the semester, the students develop code analysis and a series of building diagrams that focus on life safety systems with an emphasis on egress. Their learning / understanding is demonstrated and assessed through a complete egress diagram drawing which is a part of the final semester presentation requirements. Arch 241 Building Construction I is a companion course to Arch 254, and the students take the two classes simultaneously.

The SC.1 related material is covered in required readings and lectures; the students are tested through quizzes. They apply their new skills and demonstrate understanding of the material through the assigned projects. In assignment 1, which is a team assignment, they document egress and accessibility in an existing building on MSU campus. As the final submission for that assignment the students are required to submit a plan identifying occupant loads and egress paths, documents identifying ADA deficiencies in analyzed buildings and compliant solutions, document daylighting, and Sustainable Systems that benefit HSW.

Arch 356 Architectural Design III continues to increase the breadth and depth of students learning in the area of Health, Safety, and Welfare challenging students with more complex building programs and urban context. The HSW issues that students engage are more diverse. In Spring 2022 the Arch 356 projects included, A Small Batch Craft Manufacturing Facility, Artist Residency Center, “Local” Branch Library.

In Arch 356 code analysis is integrated into the design process. The students are expected to describe the intent and reasoning of life safety principles and apply them to design-integrated occupant protection systems. They demonstrate their understanding of those principles by developing detailed egress diagrams, and accessible site routes in the final presentation.

Arch 457 Architectural Design IV further increases breadth, depth and focus on issues related to SC.1. The primary project that is completed is commercial/educational/institutional in nature and of modest scale to allow each student the opportunity to explore a variety of issues related to theory, program, site, accessibility and life safety, environmental stewardship, as well as building enclosure technology.



Project types in Spring 2022 included a Hybrid program in North East Bozeman, and A Mining Museum in Butte

The students in all of the above classes are required to attend a number of lectures in the SoA's otherwise non-mandatory lecture series. These required lectures are ones that specifically engage issues of HSW and the students complete a short assignment related to the information presented in each lecture. Students who have a time conflict with attending in person are able to access the recording of each lecture.

The students demonstrate their understanding of all issues related to Regulatory Context again in **Arch 558 Comprehensive Design Studio** and its companion **Arch 535 Advanced Building Systems Integration** where they are reinforced and fully integrated into the design project.

All of the courses in the School of Architecture were assessed in the Spring and Summer of 2020. After that we developed a rotating assessment system where all the courses are assessed on a three-year cycle. The materials and the work developed in Spring 2022 in Arch 254, Arch 356 and Arch 457 are being assessed this semester , Arch 241 will be assessed after Spring 2023

In conjunction with these courses, the lecture series is also informally assessed every year by the lecture and exhibits committee to determine its relevance to the curriculum and the student body. Ensuring that the lecture series is current and inclusive of diverse voices supports this program criteria through field experts in a range of areas within the world of design.

**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 matrix- (ARCH 340)-level of introduction, (ARCH 413, lecture series)-level of understanding*

The issues of professional practice, including ethics, regulatory requirements, fundamental business processes, current and future project delivery methods, and the forces effecting change in the building industry and architecture profession are introduced and covered in Arch 340 Building Construction II, Arch 413 Professional Practice, and the lecture series.

In this way students are introduced to some of the issues in their third year Building Construction II class (Arch 340) where some of the learning outcomes call for them to “*understand basic contract structures between owner/architect/contractor*”, “*understand the role of specifications to architectural practice and the design and construction process*”. Students introductory learning is demonstrated in their written responses to readings on specifications and AIA contracts and in product data information on building materials within their current studio design project that they submit as one of the course requirements.

Arch 413 Professional Practice discusses and analyzes the current and future state of practice through readings, case studies, guest speakers, assignments, quizzes, and exams. The aspiration of this course is to approach architectural practice as a design problem, which takes it beyond understanding of the business practices and brings to students an awareness of current and future project delivery methods, the implementation of research and technology, and ways of providing value to the public. The class is divided into four main segments: Profession, Practice, Project, and Contracts Life-Cycle Costs and Cost Estimating,

The major assignment of the semester, “Value Innovation Proposal”, is a team project in which students create a design and services proposal. In multiple steps each group iterates, re-reiterates, and further develops a strategic approach to a customer value proposition that is informed by research, design thinking, and team’s collaboration. The students consider broad approaches to experience and service delivery that are win-win for the client, natural environment, and architecture. Their value innovation





includes a strategy to offer and benefit economically from a service, product, or delivery platform. In the course of the assignment the students are asked to consider challenges, aspirations, and impacts of their proposals, possible scales of impact, impact design methodology, develop multiple scenarios and evaluative framework for the feasibility and potential for impact for each of the scenarios.

Over the past few years, we have expanded the number of guest lecture from four or five a semester to 10 plus. This has enabled us to offer a range of topics as well as developing themes that are pertinent to the school. Recently we have focused on sustainable and ecological practices and design build lectures given by both practitioners and academics. We also offer lectures that look at theoretical commentaries and graphic practices. In the past two or three years we have also tried to make sure that there was a better representation of gender equality. We have also required some lectures that were particularly pertinent to various studio levels and student learning objectives. The series is also important for local AIA members and their learning units as well as for members further afield who see the lectures through remote feeds or as recordings on the SoA website. <https://arch.montana.edu/events-and-news/lecture-table-archives/index.html>

All of the courses in the School of Architecture were assessed in the Spring and Summer of 2020. After that we developed a rotating assessment system where all the courses are assessed on a three-year cycle. The materials and the work developed in Spring 2022 in Arch 340 is being assessed this semester, Arch 413 will be assessed after Spring 2023.

In conjunction with these courses, the lecture series is also informally assessed every year by the lecture and exhibits committee to determine its relevance to the curriculum and the student body. Ensuring that the lecture series is current and inclusive of diverse voices supports this program criteria through field experts in a range of areas within the world of design.

**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 matrix- (ARCH 253, ARCH 254, ARCH 332, ARCH 340)-level of introduction, (ARCH 241, ARCH 356, ARCH 457)-level of understanding, (ARCH 558, ARCH 535)-level of reinforcing*

Similar to SC.1 the SoA faculty believes that the best way for the students to learn the issues of SC.3 Regulatory Context is in an incremental and iterative way. Therefore, student criteria SC.3 is distributed through the curriculum, and it is covered at various levels – from introduction to understanding – in a series of courses. Students’ learning and knowledge is reinforced and expanded in each class at different times in their education.

The courses that **introduce** SC.3 Regulatory Context are our second-year design studios Arch 253 Architectural Design I and Arch 254 Architectural Design II, followed by the technical courses that students take in their third year of studies - Arch 332 Environmental Controls II, and Arch 340 Building Construction II

The primary courses that cover and demonstrate **understanding** level of SC.3 are **Arch 241 Building Construction I**, **Arch 356 Architectural Design IV** – learning outcomes “*Students will describe the intent and reasoning of life safety principles and apply them to design-integrated occupant protection systems*” and “*Students will utilize performance-based regulatory systems that address energy, resource efficiency, and sustainability*”, and **Arch 457 Architectural Design V** – learning outcome “*Students will demonstrate an understanding of the current laws and regulations that apply to buildings and sites. Students will use an evaluative process to comply with those laws and regulations in their projects*”.



The students take **Arch 241 Building Construction I** at the same time as the second-year design studio (Arch 254). The learning outcome related to SC.3 calls for students to be able to *Identify regulations that inform design decisions and demonstrate an ability to utilize those regulations to develop building assemblies*. The students complete a series of assignments that are focused and designed specifically to address the issues of regulatory context. They look closely at ADA regulations, International Building Code, International Energy Conservation Code, and zoning regulations, and make considered design decisions in close relationship with this regulatory context. In Assignment 1, which is a team assignment, they document egress and accessibility in an existing building on MSU campus. As the final submission for the assignment the students are required to submit a plan identifying occupant loads and egress paths, documents identifying ADA deficiencies in analyzed buildings and compliant solutions, document daylighting, and Sustainable Systems. Other assignments in that class ask students to complete a code and zoning analysis for a specific site and produce an annotated plan including setbacks, maximum heights, parking requirements, and use compliance. Followed by code analysis including (but not limited to) types of construction with maximum allowable area, Area Modification based on Sprinkler, Area Modification based on Frontage, Applicable Energy Code Requirements, Occupant Load and Plumbing Count. The students analyze regulatory context and how its requirements change based on multiple different sets of “client requirements set by their assignments.

In **Arch 356 Architectural Design IV**, a third-year design studio class, which follows Arch 241 Building Construction I and parallels Arch 340 Building Construction II. Our students are challenged to understand the requirements of International Building Code and International Energy Conservation Code within the context of their own design projects and make design decisions bearing in mind multiple considerations, regulatory context being one of them. The learning outcomes of the class include (LO3) *Students will describe the intent and reasoning of life safety principles and apply them to design-integrated occupant protection systems* and (LO4) *Students will utilize performance-based regulatory systems that address energy, resource efficiency, and sustainability*. Students demonstrate their understanding of regulatory context issues by integrating them into their design projects and including that information – zoning and code analysis and identification, life safety diagram, annotated site plan with ADA route from parking to building identified – in the semester’s final presentations. The building designed in Arch 356 need to respond to requirements from LEED, LBC, COTE, or other regulatory system.

There are two projects that students typically develop in Arch 356. The first will be a two to three (2 to 3) week small design project created in collaboration with ARCH 332, ECS II, ARCH 340 Building Const. II, and ARCH 344, Structures II for design development. The second design project scope will be 20,000 to 30,000 SF, and projects will focus on building within the suburban social, cultural and infrastructure systems. In Spring 22 projects included a Branch Library, Live/Work Facility, and an Artist Residency Center.

**Arch 457 Architectural Design V** is a capstone design studio, which our students take in the Spring semester of their fourth year of study. This is the final studio of our undergraduate program and this is the class which brings the learning and understanding of the Regulatory Context (SC.3) to conclusion before those issues are reintroduced and reinforced in Arch 558 Comprehensive Studio and Arch 535 Advanced Building Systems Integration. The projects that the students take on in Arch 457 increase in complexity but not necessarily in scale. The primary project in the class is commercial/educational/institutional in nature and of modest scale to allow each student the opportunity to explore a variety of issues related to theory, program, site, accessibility and life safety, environmental stewardship, as well as building enclosure technology. One of the learning outcomes asks the students *demonstrate and understanding of the current laws and regulations that apply to buildings and sites*. The students use an evaluative process to comply with those laws and regulations in their projects. As a part of their final semester submissions the students are required to include evidence of an analysis and assessment criteria (written and graphic) of all site selections and conditions including existing buildings that impact the project, and evidence of a review of the relevant building codes and standards including national, state, and local. The Arch 457 projects in Spring 2022 included Butte Mining Heritage Museum, A Hybrid Building in North-East Bozeman



The students demonstrate their understanding of all issues related to Regulatory Context again in **Arch 558 Comprehensive Design Studio** and its companion **Arch 535 Advanced Building Systems Integration** where they are reinforced and fully integrated into the design project.

All of the courses in the School of Architecture were assessed in the Spring and Summer of 2020. After that we developed a rotating assessment system where all the courses are assessed on a three-year cycle. The materials and the work developed in Spring 2022 in Arch 356 and Arch 457 are being assessed this semester, Arch 241 will be assessed after Spring 2023. In conjunction with these courses, the lecture series is also informally assessed every year by the lecture and exhibits committee to determine its relevance to the curriculum and the student body. Ensuring that the lecture series is current and inclusive of diverse voices supports this program criteria through field experts in a range of areas within the world of design.

**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:**

*Curricular matrix- (ARCH 241, ARCH 254, ARCH 363)-level of introduction, (ARCH 331, ARCH 343, ARCH 332, ARCH 340, ARCH 344, )-level of understanding, (ARCH 356, ARCH 558, ARCH 535)-level of reinforcing*

In order for students to not only learn the information covered by SC.4 Technical Knowledge but also to develop an understanding of how it is integrated into a design problem we introduce it simultaneously in technical courses as well as in a second-year design studio. The Sc.4 Technical knowledge issues are then covered at more complex level and demonstrated and assessed at the understanding level in another series of technical and design courses during third and fourth year of study.

SC.4 is introduced at the same time in Arch 254 Architectural Design II and in its companion course – Arch 241 Building Construction I. One of Arch 254 learning outcomes ask students to *demonstrate understanding of the basic principles of structural behavior in withstanding gravity and lateral forces*, their knowledge is assessed based on wireframe structural axon documentation for their studio design project that they create as a part of their final requirements for the class. During the same semester Arch 241, in one of its learning outcomes, requires students to be able to *define structural requirements, material selection and building technologies to create building assemblies that meet or exceed regulatory requirements and are ecologically responsible*. This material is introduced with assigned readings and lectures and students' learning assessed and evaluated with quizzes. Over the semester the students also complete a series of assignments in which they develop several construction assemblies, both individually and in teams, culminating in a final team project that evidences their ability to evaluate them for their performance.

SC.4 Technical Knowledge is introduced again in third year in Arch 363 Architectural Graphics III by exposing students to the way in which BIM digital models can be used to create technical plans, sections, details, and models.

This Student Criteria is fully covered and assessed at understanding level in a set of technical courses taken by students in their third year of study and culminating in a fourth-year design studio. In first semester of third year our students take **Arch 331 Environmental Controls I** and **Arch 343 Architectural Structures I**.

**Arch 331 Environmental Controls I focus on (LO1) understanding requirements for indoor environmental quality** as well as (LO2) *understanding of basic principles of building physics* such as heat



flow mechanisms, heat gain and loss, understanding, selection, and application of different passive and active strategies into design decisions.

**Arch 344 Architectural Structures II** which is taught in Spring semester of third year focuses on students understanding and conceptually analyzing more complex structural systems—wood, steel and concrete systems; specialized systems—masonry, lateral load and long-span systems; advanced structural systems—high rise, membranes, tension systems, and envelopes. The learning outcomes for the class ask students to be “able to explain the theory of structural mechanics as applied to the design process”, “able to compare different types of design precedents with regard to tectonic clarity, system logic and innovation”, “generate computations and diagrams that demonstrate knowledge of structural mechanics, including loads, stresses, force paths, moments, and material properties”.

Our Program’s aspiration is that in Spring semester of third year the knowledge that the students have been accumulating up until then is further built upon, comes together, and is synthesized in **Arch 340 Building Construction III** which is taught in concert with **Arch 332 Environmental Controls II**, and **Arch 356 Architectural Design IV**. These three courses focus on multifaceted, comprehensive, and integrated development of one building project – first designed in Arch 356 and developed in Arch 340 and Arch 332.

**Arch 340 Building Construction II** focuses on comprehensive integration of the various building assemblies and systems within a small studio-type project which is issued and developed by the students in the first part of Arch 356 Architectural Design IV. During the semester they develop building’s structure (including the selection of appropriate structural systems, system configuration and delineation/modeling, as well as creating digital 3-D, exploded details of the resultant structure/enclosure interface), enclosure (including building material research, foundation/wall/roof systems and assemblies), and environmental systems for their Arch 356 design project.

In the process the students engage in research into building materials and the development of construction data for specifications and they develop detailed models illustrating the assembly of materials and building systems

The emphasis is placed on integration and innovation in design and technical areas and the learning outcomes for this class include “*understanding emerging systems of construction, including Building Information Modeling and Integrated Project Delivery*”; “*understanding established and emerging technologies and assemblies of building construction*”; and “*ability to assess issues of technologies and assemblies of building construction against design and performance objectives*”. At the end of the semester students produce an abbreviated set of construction documents which, along with their written responses to a series of readings on building information modeling and integrated project delivery is the basis for assessment and evaluation.

The design project developed in Arch 356 (design studio) and used in Arch 340 (building construction) is also utilized in **Arch 332 Environmental Controls II** where the students develop it for daylighting, electric lighting, acoustics, electric and fire systems, and PV systems. In assignment 3 the students create a base-case simulation model using COVE Tool to evaluate the daylighting conditions in their Arch 356 / Arch 340 design project. They then propose and test a strategy for improving daylighting conditions in their building. In other assignments, where they engage the electric lighting, acoustics, an PV systems, the students develop a reflected ceiling plan presenting the layout of the luminaire systems required for general lighting, select and design interventions with the purpose of enhancing the acoustics of specific space, and using their COVE / Insight 360model design a stand-alone PV system for their design project.

Arch 457 Architectural Design V is where students learning of the issues related to SC.4 Technical Knowledge is brought together, reinforced, integrated with a design project, and demonstrated. The learning objective of this class is to “*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*”. The learning outcomes call for students to “*demonstrate an understanding of the technologies and assemblies of building construction*” and to “*assess technologies and assemblies of building construction against design*”



and performance objectives". To demonstrate their understanding students, create large-scale wall sections, plans, and elevation drawings that articulate the building systems (enclosure, structure, HVAC, and finishes) found in their design proposal, and models (digital or physical) illustrating and identifying the assembly of materials. Assessment and evaluation is based on the submitted materials. The Arch 457 projects in Spring 2022 included Butte Mining Heritage Museum, Hybrid building in North east Bozeman and a Housing project in Los Angeles.

The students demonstrate their understanding of all issues related to Regulatory Context again in **Arch 558 Comprehensive Design Studio** and its companion **Arch 535 Advanced Building Systems Integration** where they are reinforced and fully integrated into the design project.

All of the courses in the School of Architecture were assessed in the Spring and Summer of 2020. After that we developed a rotating assessment system where all the courses are assessed on a three-year cycle. The materials and the work developed in Spring 2022 in Arch 340 and Arch 457 are being assessed this semester, Arch 331 will be assessed after Fall 2022, Arch 332 after Spring 2023, Arch 344 after Spring 2024

In conjunction with these courses, the lecture series is also informally assessed every year by the lecture and exhibits committee to determine its relevance to the curriculum and the student body. Ensuring that the lecture series is current and inclusive of diverse voices supports this program criteria through field experts in a range of areas within the world of design.

**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:**

*Curricular matrix- (ARCH 253, ARCH 254, ARCH 355, ARCH 356, )-level of introduction, (ARCH 457)-level of understanding, (ARCH 558, ARCH 535)-level of ability*

**The School of Architecture MISSION** - to empower students to engage the complexities of social and ecological systems through creative, collaborative, and ethical design of the built environment – to a large degree parallels this Student Criteria. We believe that by developing the ability to design in this way students will gain personal agency, undertake self-reflection, and display empathy toward the environment and its users.

The issues that are covered by SC.5 are at the core of what we value, and we expose students and require them to engage with those issues throughout the curriculum. In our second year design studios (Arch 253 and Arch 254) where SC.5 Design Synthesis is introduced the learning outcomes call for students to understand complexities of the physical and virtual forces that create a particular place – including its history, and how these forces influence the meaning and use of the site, and a design project (LO1), to effectively use basic formal, organizational and environmental principles and understand the capacity of each to inform two- and three-dimensional design (LO2), utilize diagramming to inform the fundamental relationships between program elements, building, landscape, and context (LO3). The students are introduced to more, varied issues related to SC.5 in Arch 355 and Arch 356, which are our third-year design studios. The students consider, model, and compare multiple values, influences, and requirements to shape a process of design and then evaluate design decisions based on a synthesis of user requirements, regulatory requirements and context (LO1).

The next level (understanding) of complexity and integration of SC.5 Design Synthesis is covered in our program's fourth year studio – Arch 457 Architectural Design V where students demonstrate the integration of 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 (LO6).

The scope, depth, and complexity of the SC.5 related issues and requirements that the students are faced with in different design studio classes throughout our the curriculum prepare them for the Comprehensive Design Studio (Arch 558) and Advanced Building Systems Integration (Arch 535). Arch 558 and Arch 535 work in concert with each other and cover and demonstrate Student Criteria 5 Design Synthesis at **ability level**.

The work undertaken in ARCH 535 and ARCH 558 covers SC.5 Design Synthesis, and at the same time supports the School of Architecture's vision and mission through the design and testing of a building that addresses a societal need or opportunity and has a positive effect upon the existing and social and ecological conditions. The design process undertaken in ARCH 535 and ARCH 558 requires a commitment toward and demonstration of a sustainable, if not regenerative, building and ecological solution. The design process requires a commitment toward and demonstration of an empathetic and universal design solution. Students undertake aspects of the design process in teams and participate with a range of practitioners to gain insight and feedback on their proposals. By developing this design process and testing it with a final building design proposal, students become prepared to use their education and profession to contribute toward the advancement of the communities in which they choose to practice.

Students in ARCH 535 and ARCH 558 utilize the tectonic components of architectural design—the building envelope systems and assemblies, structural systems, environmental controls systems, and life safety systems—as integral and generative elements of the spatial and experiential design explorations. It is expected that these architectural components are to be integrated, throughout the process and final solution, in creative and innovative ways to address society's needs.

These integrated components are explored within a framework of the user requirements (Users), regulatory requirements (Wellness: Health, Safety, Welfare), site conditions (Context), ecological concerns (Sustaining) and accessible design (Universal Design)

Learning outcomes of Arch 558 / Arch 535 include the following:

- Students will create an architectural project that demonstrates broad integration of building systems, tectonics, theory and regulations
- Students will create an architectural project that demonstrate broad synthesis and consideration of users, context, ecology and universal design.
- Students will translate and synthesize diverse cultural and social contexts and create built environments that support and include people with diverse backgrounds, resources and abilities.
- Students will create architectural projects that address issues of climate change and sustainability.

To demonstrate student ability in SC5 Design Synthesis within the context of the School's vision and mission, there is a series of graded segments throughout the semester with specific deliverables. In ARCH 535, these segments take the form of a series of distinct assignments on various building systems—i.e. structural systems, passive systems, active systems, daylighting systems, etc.—that are used by students to analyze appropriate precedents, proposed strategies and technical aspects of each system area. Students show how these systems might be integrated into their design studio project with an emphasis on building and site sections. At the same time, the ARCH 558 studio segments require students to integrate and synthesis the various technical, social, contextual and theoretical issues within their studio design solutions through multiple iterations.

The SC.5 issues covered and demonstrated in Arch 558 include

**User Requirements:** Quantitative program information, Qualitative program information





**Regulatory requirements at Neighborhood Scale:** Zoning, Massing, Access, Parking;

**Regulatory requirements at Building Scale:** Occupancy, Location, Life safety, construction types, structural systems, accessibility

**Site Conditions related to Social Systems:** Context, Demographics, Access

**Site Conditions related to Ecological Systems:** Water, Heat, Light, Air, Ecology, Topography, Climate Zone, Vegetation, Water, Soils, Wildlife habitat

**Ecological concerns related to Ecological systems:** Climate Zone, Vegetation, Water, Soils, Wildlife habitat, Material selection

**Ecological concerns related to Sustainable Systems:** Analysis of Passive systems available for consideration in climate zone and on site power generation on site

**Accessible design at the scale of site:** Access to site, accessible route

**Accessible design at the scale of building:** Circulation, egress, doors, communication devices

**Accessible design at the scale of rooms:** Toilet rooms

Project types recently used in Arch 558 Comprehensive Studio and Arch 535 Advanced Building Systems Integration were Branch Library for Bozeman Public Library to be located in West Bozeman, Special Collections Library for Bozeman Public Library located in Bozeman, Maintenance and repair facility + interpretive center in Yellowstone National Park, and Contemporary Art Museum to be located in Bozeman.

All of the courses in the School of Architecture were assessed in the Spring and Summer of 2020. After that we developed a rotating assessment system where all the courses are assessed on a three-year cycle. Arch 558 and Arch 535 were assessed in Fall 2021, will be assessed again in Fall 2022, and then again in Fall 2025.

Arch 558 was assessed by the School of Architecture faculty, practitioner, and external visiting reviewers who filled the assessment worksheet during and directly after participating in the final reviews of the student work.

We also requested and received an external assessment of Arch 558 from four faculty members who teach comprehensive studio classes at the University of Idaho and four members of our Advisory Council. This review was done based on all class materials, student work and recorded presentations that the students gave at their final reviews.

**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:**

*Curricular matrix- (ARCH 253, ARCH 254, ARCH 355, ARCH 356, )-level of introduction, (ARCH 457)-level of understanding, (ARCH 558, ARCH 535)-level of ability*

**The School of Architecture MISSION** - to empower students to engage the complexities of social and ecological systems through creative, collaborative, and ethical design of the built environment – to a large degree parallels this Student Criteria 6 Building Integration. We believe that by developing the ability to design in this way students will gain personal agency, undertake self-reflection, and display empathy toward the environment and its users.



The issues that are covered by SC.6 are at the core of what we value as a school, and we expose, introduce and require students to engage with those issues throughout the curriculum. Our second year design studios Arch 253 Architectural Design I and Arch 254 Architectural Design II introduce SC.6 Building Integration at the most basic level. The learning outcomes for Arch 253 include (LO1) Introduce various materials and evaluate the qualitative consequences of their uses in a design project (LO2), Introduce the basic principles of structural behavior in withstanding gravity and lateral forces(LO3), and (LO8) Effectively use basic formal, organizational and environmental principles and understand the capacity of each to inform two- and three-dimensional design. In Arch 254 the students are expected to (LO7) develop a comprehensive site design, site plan, and site section, (LO7) develop and utilize a range of analysis techniques to inform and guide design decisions and building form, (LO7) develop programming techniques, strategies, and develop a program for a medium-sized project, (LO7) design spaces exploring light and acoustical qualities in architecture, (LO7) integrate basic code requirements, including life-safety and accessibility standards, in order to create eloquent expressions within architectural necessities, and (LO7) develop theoretical alternatives and knowledge of structure and environmental systems.

Arch 355 Architectural Design III and Arch 356 Architectural Design IV, third year studio classes, also cover SC.6 at the level of introduction. In Arch 355 learning outcomes include: “Understand the reasoning, intent, and application of life safety principles as an occupant protection system integral to building design”, and “Students will demonstrate the integration of 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”. In Arch 356 (LO5) students access and integrate current technologies, systems and construction techniques in the design of a building. They demonstrate their learning by creating detailed building and wall sections that illustrate how structure, enclosure and life safety systems integrate to help define an architectural space.

Arch 457 Architectural Design V, fourth year design studio, learning outcome asks students to (LO7) demonstrate the integration of 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. Arch 457 covers SC.6 at the level of understanding.

The scope, depth, and complexity of the SC.6 related issues and requirements that the students are faced with in different design studio classes throughout our the curriculum prepare them for the Comprehensive Design Studio (Arch 558) and Advanced Building Systems Integration (Arch 535). Arch 558 and Arch 535 work in concert with each other and cover and demonstrate Student Criteria 5 Design Synthesis at **ability level**

The work undertaken in ARCH 535 and ARCH 558 supports the School of Architecture’s vision and mission through the design and testing of a building that addresses a societal need or opportunity and has a positive effect upon the existing and social and ecological conditions. The design process undertaken in ARCH 535 and ARCH 558 will require a commitment toward and demonstration of a sustainable, if not regenerative, building and ecological solution. The design process will require a commitment toward and demonstration of an empathetic and universal design solution. Students will undertake aspects of the design process in teams and will participate with a range of practitioners to gain insight and feedback on their proposals. By developing this design process and testing it with a final building design proposal, students will be prepared to use their education and profession to contribute toward the advancement of the communities in which they choose to practice.

Students in ARCH 535 and ARCH 558 will utilize the tectonic components of architectural design—the building envelope systems and assemblies, structural systems, environmental controls systems, and life safety systems—as integral and generative elements of the spatial and experiential design explorations. It





is expected that these architectural components are to be integrated, throughout the process and final solution, in creative and innovative ways to address society's needs.

These integrated components will be explored within a framework of the user requirements (Users), regulatory requirements (Wellness: Health, Safety, Welfare), site conditions (Context), ecological concerns (Sustaining) and accessible design (Universal Design)

Learning outcomes of Arch 558 / Arch 535 include the following:

- Students will create an architectural project that demonstrates broad integration of building systems, tectonics, theory and regulations
- Students will create an architectural project that demonstrate broad synthesis and consideration of users, context, ecology and universal design.
- Students will create architectural projects that address issues of climate change and sustainability.

To demonstrate student ability in SC6 Building Integration, within the context of the School's vision and mission, there will be a series of graded segments throughout the semester with specific deliverables.

In ARCH 535, these segments take the form of a series of distinct assignments on various building systems—i.e. structural systems, passive systems, active systems, daylighting systems, etc.—that are used by students to analyze appropriate precedents, proposed strategies and technical aspects of each system area. Students show how these systems might be integrated into their design studio project with an emphasis on building and site sections. At the same time, the ARCH 558 studio segments require students to integrate and synthesis the various technical, social, contextual and theoretical issues within their studio design solutions through multiple iterations.

The SC.6 issues covered and demonstrated in Arch 558 include

**Building envelope systems and assemblies:** selection of building materials (structural, wall systems, floor and ceiling systems, glazing systems); development of building envelope assembly and integration with structural, and environmental control systems (passive and active) to generate formal and spatial design solution; connection with regulatory requirements (fire-rating, insulation values)

**Structural Systems:** selection of structural system and development of structural grid and lateral bracing strategy and location; integration of structural system with building envelope and ECS to generate formal and spatial design solution; connection with regulatory requirements (fire-rating, insulation values)

**Environmental Control systems:** selection and integration of passive and active systems for heating/cooling, lighting, water and acoustics - includes locations and areas for vertical and horizontal distribution of these elements as well as primary mechanical spaces; integration with building assemblies and structural system to generate formal and spatial design solution.

**Life Safety Systems:** accessible route and access to and from building; egress: Exit access, Exit, Exit Discharge; corridors/path, widths, door swings, fire-rating of assemblies; accessibility requirements with life safety systems (adequate clearances, auditory and light signals, etc.)

Project types recently used in Arch 558 Comprehensive Studio and Arch 535 Advanced Building Systems Integration were Branch Library for Bozeman Public Library to be located in West Bozeman, Special Collections Library for Bozeman Public Library located in Bozeman, Maintenance and repair facility + interpretive center in Yellowstone National Park, and Contemporary Art Museum to be located in Bozeman.

All of the courses in the School of Architecture were assessed in the Spring and Summer of 2020. After that we developed a rotating assessment system where all the courses are assessed on a three-year



cycle. Arch 558 and Arch 535 were assessed in Fall 2021, will be assessed again in Fall 2022, and then again in Fall 2025.

Arch 558 was assessed by the School of Architecture faculty, practitioner, and external visiting reviewers who filled the assessment worksheet during and directly after participating in the final reviews of the student work.

We also requested and received an external assessment of Arch 558 from four faculty members who teach comprehensive studio classes at the University of Idaho and four members of our Advisory Council. This review was done based on all class materials, student work and recorded presentations that the students gave at their final reviews.



## 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:

The following information is taken directly from the Montana State University website

<https://www.montana.edu/accreditation/>

Montana State University is accredited by the [Northwest Commission on Colleges and Universities \(NWCCU\)](#).

The most recent letter (2017) from NWCCU to the President of MSU, reaffirming MSU's regional accreditation, can be found at [https://www.montana.edu/accreditation/documents/msu-bozeman-fall\\_2017\\_year\\_seven\\_action\\_letter\\_remediated.pdf](https://www.montana.edu/accreditation/documents/msu-bozeman-fall_2017_year_seven_action_letter_remediated.pdf)

### 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:

Montana State University School of Architecture offers **Master of Architecture Degree**.

Our professional curriculum which combines a four-year Bachelor of Arts in Environmental Design undergraduate program with a three-semester graduate program, leads to Master of Architecture degree. The Master of Architecture degree is a first-professional degree.

The B.A.ED program requires 126 credits to complete and the Master of Architecture program requires 42 credits to complete for combined 168 credits.

There are two ways to enter our the M.Arch program. 1) Students enter first year of our Bachelor of Arts in Environmental Design program, complete four years of the program and are admitted into the Master of Architecture program, 2) Students who have completed a pre-professional program from another institution can apply and be admitted into our M.Arch program. In 4.3 Evaluation of Preparatory Education below we describe the process we use to determine their placement within our graduate program and how we determine what Program Criteria and Student Criteria they still need to complete within our program.



All of the NAAB Conditions for Accreditation are met by the following courses that every student in the program takes and the criteria (PC or SC) that the course addresses; bold face indicates that the course meets this criteria at the level required by NAAB

## **BACHELOR OF ARTS IN ENVIRONMENTAL DESIGN PROGRAM**

### YEAR 1

#### **ARCH 121 Introduction to Design**

Introduction to the design and creative process through global architecture and allied professions. Exploration of the history of design. Emphasis on 20th and 21st century architecture. Individual projects where students apply and explore creative process are required.

*NAAB criteria addressed:* PC.1, PC.4, **PC.8**

#### **ARCH 151 - Design Fundamentals I**

Study of the creative design process with emphasis on two-dimensional design, basic three dimensional design concepts and introduction to the essential tools for graphic communication. Development of students' self-critical skills.

*NAAB criteria addressed:* **PC.2**

#### **ARCH 152IA - Design Fundamentals II**

A study of the design process and methods employed by design disciplines as an introduction to architectonic principles, architectural graphic skills and further understanding of the creative process. Development of student's ability to make critical and analytical judgments.

*NAAB criteria addressed:* **PC.2**

### YEAR 2

#### **ARCH 253 - Architectural Design I**

Small-scale design projects requiring integration of spatial, visual concepts, emphasizing relationship of architecture to its context with principles of order, constituents of form, light, structural awareness, nature of materials, architectural coherency. Includes inclusive orthographic graphics design drawing conventions.

*NAAB criteria addressed:* **PC.2**, PC.3, SC.1, SC.3, SC.5, SC.6

#### **ARCH 261 - Architectural Graphics I**

Fundamental techniques in architectural graphics. (F, Sp) Course utilizes observation and design drawing studios supplemented by design drawing lecture/demonstrations sessions. Topics include freehand observation drawing and constructed multi-view, paraline, perspective and shade/shadow drawing leading towards the formal graphic presentation of architectural intentions.

#### **ARCH 322IA - World Architecture I**

A survey of world architectural history from primitive developments to the Gothic

*NAAB criteria addressed:* **PC.4**, **PC.8**

#### **ARCH 241 - Building Construction I**

Introduction to the materials of construction and an overview of building construction systems. Emphasis upon an understanding of materials and systems as a means to effective and creative design utilization.

*NAAB criteria addressed:* **SC.1**, **SC.3**, SC.4

#### **ARCH 262 - Arch Graphics II**

Course emphasizes observation drawing studio supplemented by design drawing lecture/demonstration sessions. Topics include freehand, perspective, and shade and shadow drawing techniques. Two and three-dimensional digital applications introduced.

*NAAB criteria addressed:* PC.2, PC.5

## **ARCH 254 - Architectural Design II**

Small-scale design projects requiring integration of spatial, visual concepts, emphasizing relationship of architecture to its context with principles of order, constituents of form, light, structural awareness, nature of materials, architectural coherency. Includes inclusive orthographic graphics design drawing conventions

*NAAB criteria addressed: PC.2, PC.3, PC.4, SC.1, SC.3, SC.4, SC.5, SC.6*

## **ARCH 323IA - World Architecture II**

A survey of world architectural history from the Renaissance to Industrial Revolution

*NAAB criteria addressed: PC.4, PC.5, PC.8*

YEAR 3

## **ARCH 331 - Environmental Controls I**

Analysis of climate, passive design strategies, and heat flow fundamentals. Analysis and design of basic heating, ventilating, and air-conditioning systems. Analysis and design of water supply, sanitation and vertical transportation systems.

*NAAB criteria addressed: PC.3, SC.4*

## **ARCH 363 - Architectural Graphics III**

Advanced principles of computer-aided design and hand applications in architectural practice, including three-dimensional computer-aided design, hand and digital delineation, and presentations. (F) Topics provide foundation for graphic applications in ARCH 354 design studio.

*NAAB criteria addressed: PC.5, SC.6*

## **ARCH 343 - Architectural Structures I**

Introduction to structural design/analysis of horizontal and vertical members as applied to architectural works; basic statics, moment and shear of rigid bodies and architectural forms; strength concepts using stress and strain assessment; application of analytical and intuitive structural concepts in a design context.

*NAAB criteria addressed: SC.4*

## **ARCH 355 - Architectural Design III**

Further exploration of ecologically-sound design with emphasis on the integration of structures, building envelope service systems, and building materials, including design for life safety and accessibility. Building scale and program complexity increases, utilizing long-span structural systems.

*NAAB criteria addressed: PC.2, PC.3, PC.5, PC.8, SC.1, SC.5, SC.6*

## **ARCH 332 - Environmental Controls II**

Analysis and design of architectural lighting systems, acoustics, electrical systems, fire protection, and signal systems.

*NAAB criteria addressed: PC.3, SC.3, SC.4*

## **ARCH 340 - Building Construction II**

Building systems investigated include: structural environmental and enclosure, life safety and sustainability.

*NAAB criteria addressed: PC.6, SC.2, SC.3, SC.4*

## **ARCH 344 - Architectural Structures II**

Understanding of design for structural elements in wood, steel, masonry, and concrete. Lateral considerations and calculations including wind, soil and seismic loads. Understanding of structural systems; building systems; diaphragms; connections; structural engineer-architect communications

*NAAB criteria addressed: SC.4*

## **ARCH 356 - Architectural Design IV**



Advanced architectural design projects integrating site analysis, programming, building systems, and contemporary design theory. Emphasis placed on the inclusive synthesis of conceptual processes, analysis preliminary design investigation, and design development.

*NAAB criteria addressed:* PC.2, PC.4, **SC.1, SC.3**, SC.4, SC.5, SC.6

#### YEAR 4

##### **ARCH 431 - Sustainability in Architecture**

Architectural and site strategies for reducing the energy footprint of structures and spaces with an emphasis on the profession's ethical responsibility and techniques that maximize the potential of active and passive design strategies to sustain our natural resources.

*NAAB criteria addressed:* **PC.3**, SC.4

##### **ARCH 413 - Professional Practice**

Architecture as a process by which social, economic, and environmental ideas are realized. Topics include: marketing, business planning, project management, legal issues, delivery methods, technology, regulation, ethics, accessibility, interdisciplinary relations, community relations, client relations, and trends of practice.

*NAAB criteria addressed:* **PC.1, SC.2**

##### **ARCH 457 - Architectural Design V**

Senior capstone course. Architectural design integrating building, landscape, and urban context using multi-story projects of medium scale and complexity with particular focus on mixed-use. Integrated topics include programming structural and mechanical integration, ecologically-sound design, building envelope systems and building codes.

*NAAB criteria addressed:* **PC.2**, PC.4, **SC.1, SC.3, SC.4**, SC.5, SC.6

##### **ARCH 452 - Research Methods in Architecture**

Students are introduced to systematic architectural inquiry, its purpose in architectural design, the different approaches to conducting architectural research, and the major components of architectural research.

*NAAB criteria addressed:* **PC.5**, PC.6

### **MASTER OF ARCHITECTURE PROGRAM**

#### SEMESTER 1

##### **Arch 526 - Advanced Architectural Theory**

This course focuses on the critique and discussion of current architectural projects built and ideology proposed in writings, drawings and model including historic traditions and the simultaneous global, social, and technical context, in order to examine current architectural issues.

*NAAB criteria addressed:* **PC.4**

##### **Arch 535 - Adv Bldg Sys Integration**

Classroom instruction leading to a demonstrated understanding and integration of environmental, structural, building envelope, building service, building materials and assembly systems in a comprehensive studio design project. Taken concurrently with ARCH 558

*NAAB criteria addressed:* PC.3, SC.3, SC.4, **SC.5, SC.6**

##### **Arch 558 - Comprehensive Design Studio**

Comprehensive architectural studio which integrated design thinking and investigative skills with site design, accessibility and life safety, sustainability and environmental, and structural systems in the design and presentation of a programmatically complex building.

*NAAB criteria addressed:* PC.2, PC.3, SC.1, SC.3, SC.4, **SC.5, SC.6**

#### SEMESTER 2



### **Arch 551 - Advanced Arch Studio**

Design projects which explore specific critical positions with regard to contemporary architectural issues. Research and analysis of theoretical positions are emphasized along with the development of contemporary methods and techniques for analysis.

*NAAB criteria addressed: PC.1, PC.5*

### **Arch 575 - Professional Paper**

Research or professional paper/project dealing with a topic in the field. Topic must be mutually agreed upon by the student and their major advisor and graduate committee.

*NAAB criteria addressed: PC.4, PC.5*

### **Arch 577 - Reader Critique for Professional Paper**

Research for professional paper/project dealing with a topic in the field. Professional paper will be evaluated by a committee chair via ARCH 575 and critiqued by a faculty reader via ARCH 577

## SEMESTER 3

### **Arch 560 - Masters Studio Project**

Architectural design project that builds upon prior research investigations with an emphasis placed on analysis, synthesis, evaluation and development of a design solution from conceptual design through schematic/design development.

*NAAB criteria addressed: PC.2, PC.4, PC.5*

### **Arch 561 - Design Critique for Master's Studio Project**

ARCH 561 is a 2-unit credit taken simultaneously with ARCH 560 as part of the independent professional project. 560/561 are courses that compose a two-semester independent research project. ARCH 575/577, the first semester, focuses on research and writing to establish an intellectual framework for architectural space, process, or thought. ARCH 560/561, the second semester, is used to realize a design project that demonstrates critical architectural thinking at a level appropriate to the Master of Architecture first professional degree. Students will take 2 units of 561 with their Critic while taking 4 units of 560 with their advisor

**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:**

The **Northwest Commission on Colleges and Universities** accreditor does not specify a required number of credits.

The **Montana State University Core 2.0 Curriculum** integrates education in communication, thinking and problem solving, and local and global citizenship with knowledge and experiences in the natural, social and mathematical sciences, the arts, and the humanities.



At Montana State University Students must complete a set of Foundation Core Courses in Written Communication(W), Quantitative Reasoning(Q), Diversity(D), Contemporary Issues in Science(CS) and University Seminar(US) along with Inquiry or Research core courses in Arts(IA or RA), Social Sciences(IS or RS), Natural Sciences(IN or RN) and Humanities(IH or RH).

Information on the university Core 2.0 requirements and categories can be seen at <http://catalog.montana.edu/core-general-curricular-requirements/>

The current University Core 2.0 requirements for all students at MSU-Bozeman are as follows:

University Seminar (US)	3 credits
Written Communication (W)	3 credits
Quantitative Reasoning* (Q)	3 credits
Diversity (D)	3 credits
Contemporary Issues in Science (CS)	3 credits
Arts (IA or RA)	3 credits
Humanities (IH or RH)	3 credits
Natural Sciences (IN or RN)	3 credits
Social Sciences (IS or RS)	3 credits
	3 credits
Minimum number of Core 2.0 required	3 credits

\*Some Quantitative Reasoning courses are 3 credits. The School of Architecture requires M151Q PreCalculus or M171Q Calculus which are 4 credits. In the above chart we have shown the minimum number of credits required in the core—many students at the University take more credits to complete Core 2.0.

At the **School of Architecture** students are required to complete 45 non-architecture credits taken at either the undergraduate or graduate level prior to the completion of the Master of Architecture degree program including the Core Curriculum credits. Students take University Core classes in first, second and fourth year of their study. They are required to take 6 credits of non-architectural electives in their senior (fourth) year. As they continue to the graduate program they take 6 credits of non-architectural electives in second semester, and 5 credits in third semester of the M.Arch program.

**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:**

Students in our program take a series of non- architectural elective courses during their pre-professional program. They take graduate electives, which could be selected from courses offered outside of School of Architecture during the M.Arch program.

In 4<sup>th</sup> year of BA in Environmental Design students have a number of design studio options from which they choose

**Required Fourth Year Design Studio Options:**





Fourth year students are required to take one design studio—ARCH 457 Architectural Design V in Bozeman. In the fourth year of the program students must select a Fourth Year Design Studio Option which is selected from the choices below:

ARCH 414 Architectural Study Abroad--taken with ARCH 428 Foreign Study History as a co-requisite, 12 credits total

ARCH 450 Community Design Center, 5 credits

ARCH 458 Architectural Design VI, 5 credits

ARCH 498 Architectural Practice Internship, 6 credits

ARCH 414, ARCH 428 and ARCH 450 are offered both Summer and Fall semesters in the Senior year to provide diverse options.

### **Elective Courses:**

Students in BA of Environmental Design program are required to complete 9 credits of non-architectural elective coursework in their senior year.

Students in M.Arch program are required to complete a minimum of 14 credits of graduate elective coursework. 6 of these credits to be from outside of the department if those courses are shown to have a clear connection to architecture and are at 400 or 500 level.

### **Architectural Electives**

Following is a list of the current architectural electives listed in the architecture program:

ARCH 231CS Issues in Sustainability, 3 credits

ARCH 292 Independent Study, 1-3 credits

ARCH 294 Seminar, 1-2 credits

ARCH 424 Contemporary Architectural History and Theory, 3 credits

ARCH 428 Foreign Study History, 3 credits

ARCH 451 Design for the Community, 3 credits

ARCH 471 Directed Research/Creative Activity, 1-6 credits

ARCH 472 Directed Research/Creative Activity Instructions, 1-2 credits

ARCH 490R Undergraduate Research/Creative Activity, 1-6 credits

ARCH 492 Independent Study, 1-3 credits

ARCH 494 Seminar, 1-2 credits

ARCH 521 Architectural Theory, 3 credits

ARCH 522 Historical Issues in Architecture and Urban Design, 3 credits

ARCH 523 Issues in City Planning, 3 credits

ARCH 524 Design Competition, 3 credits

ARCH 525 Special Design Topic, 3 credits

ARCH 528 Advanced Studies in Interior Design, 3 credits

ARCH 543 Advanced Applied Design and Construction, 3 credits

ARCH 564 Advanced Architectural Graphics, 3 credits

ARCH 565 Advanced Computer Applications II, 3 credits

ARCH 566 Photography for Architects, 3 credits

ARCH 589 Graduate Consultation, 1-3 credits

ARCH 592 Independent Study, 1-4 credits

ARCH 594 Seminar, 1 credit

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:**

The School of Architecture offers the following degree program in addition to our accredited Master of Architecture:

Undergraduate:  
Bachelor of Arts in Environmental Design

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:**  
NA

**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:**

<b>Bachelor of Arts in Environmental Design (pre-professional program)</b>			
Fall		Spring	
<b>Course</b>	<b>Cr.</b>	<b>Course</b>	<b>Cr.</b>
ARCH 121IA - Introduction to Design	3	PHSX 205 - College Physics I	4
ARCH 151RA – Design Fundamentals I	4	ARCH 152IA – Design Fundamentals II	4
M 151Q – Precalculus	4	University Core	6 - 9
University Core	3		
	14		14 - 17
<b>Year 1: 28 to 31 credits required / 11 cr. architectural / 13 to 16 general studies</b>			



ARCH 253 – Architectural Design I	5	ARCH 254 – Architectural Design II	5
ARCH 261 - Architectural Graphics I	3	ARCH 262 - Arch Graphics II	3
ARCH 322IA – World Architecture I	3	ARCH 323IA - World Architecture II	3
University Core	3 - 6	ARCH 241 – Building Construction I	3
	14 - 17		14
<b>Year 2: 28 to 31 credits required / 25 cr. architectural / 3 to 6 general studies</b>			
ARCH 331 – Environmental Controls I	4	ARCH 332 – Environmental Controls II	4
ARCH 363 - Architectural Graphics III	3	ARCH 340 - Building Construction II	4
ARCH 343 – Architectural Structures I	4	ARCH 344 – Architectural Structures II	4
ARCH 355 - Architectural Design III	5	ARCH 356 - Architectural Design IV	5
	16		17
<b>Year 3: 33 credits required / 33 cr. architectural</b>			
Non-Architectural Electives	3	ARCH 413 – Professional Practice	3
University Core	3	ARCH 457 - Architectural Design V	5
ARCH 431 – Sustainability in Architecture	3	ARCH 452 – Research Methods in Architecture	3
<b>One of the Following</b> ARCH 414 – Architectural Study Abroad & Arch 428 – Foreign Study History	12	Non-Architecture Electives	6
ARCH 450 - Community Design Center	5		
ARCH 458 – Architectural Design VI	5		
ARCH 498 - Architecture Residency Design Studio	6		
	14 - 21		17
<b>Year 4: 31 - 38 credits required / 22 – 29 cr. architectural / 9 cr. non- architectural</b>			
<b>Total Program Credits: 126</b>			
<b>Master of Architecture</b>			
Fall		Spring	
<b>Course</b>	<b>Cr.</b>	<b>Course</b>	<b>Cr.</b>
Arch 526 – Advanced Architectural Theory	3	Arch 551 – Advanced Architectural Studio	6
Arch 535 – Advanced Building Systems Integration	3	Graduate Electives	6
Arch 558 – Comprehensive Design Studio	6	Arch 575 – Professional Paper	3
Graduate Electives	3	Arch 577 – Reader Critique for Professional Paper	1
<b>Semester 1: 15 credits required</b>		<b>Semester 2: 16 credits required</b>	



Graduate Electives	5		
Arch 560 – Master Studio Project	4		
Arch 561 – Design Critique for Master Studio Project	2		
<b>Semester 3: 11 credits required</b>			
<b>Total Program Credits: 42</b>			
<b>Total Program Credits (BA of Environmental Design &amp; M.Arch): 168</b>			

**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:**  
NA

### 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:**

The vast majority of students in our Master of Architecture program complete the Bachelor of Environmental Design program at Montana State University—typically 85-90% of our M.Arch students fall into this category. For this large contingent of students, we are able to verify that they have met the necessary program and student criteria as those PCs and SCs are met in our undergraduate courses. Since so many of our M.Arch students move through our undergraduate program, we describe below the basic admission requirements for entering freshman and undergraduate transfer student as well as the admission process to our Master of Architecture program. Some students transfer to MSU from another program and enroll in our undergraduate program. Once they have completed our B.A. in Environmental Design degree, they apply for our Master of Architecture.

The remaining 10-15% of our M.Arch students have completed a pre-professional program from another institution and apply for our graduate program. We also describe below the process we use to determine



their placement within our graduate program and how we determine what program and student criteria they still need to complete within our program.

### ***Admission into the Bachelor of Arts in Environmental Design Program***

As mentioned previously, prospective students must send an application to the University Admissions Office which is reviewed for admission to the University. <http://www.montana.edu/admissions/apply.shtml> Once students are accepted into the University, they must declare Environmental Design as their major at which time they can enroll in the first-year design sequence. Students enrolled in the first-year design sequences are categorized as Environmental Design Foundations majors by the University. Admission to the Environmental Design Program (second, third and fourth year) is limited and requires that all first-year students submit a portfolio for review by the Second Year Admissions Committee. Total enrollment is limited by the teaching and funding capacities of the school. Applicants to the second year of the program must be in good scholastic standing, have satisfactorily completed the Pre-Environmental Design program and have a design portfolio that indicates creative potential. Second Year admission requirements and process for the Environmental Design program can be found at <https://arch.montana.edu/programs/undergraduate/applicationprocess.html>

A student must have an overall undergraduate GPA average of a 2.70 and an undergraduate Design Studio GPA of 3.0 or better in order to be considered for acceptance into the 2<sup>nd</sup> year of the undergraduate program. If a student receives two consecutive grades of “C-“ or lower in any undergraduate design studio course they will be required to repeat the last course in which a “C-“ or lower was received.

### ***Transfer Students entering into the Bachelor of Arts in Environmental Design Program***

Students who are transferring into the Bachelor of Arts in Environmental Design program at Montana State University will have all of their previous university coursework evaluated by the MSU Admissions Office. The Admissions office will apply appropriate courses to the MSU Core Curriculum general education requirements. In the case of a transfer student who has previously taken Architecture courses at another school, the School of Architecture will evaluate each course to determine its applicability to the MSU pre-professional Environmental Design program. Evaluation of coursework is done by faculty and administrative evaluation. The Undergraduate Program Coordinator, Director or designated faculty members in each area of Architecture (structures, history, structures, building construction, environmental controls and graphics) will evaluate a course by reviewing course descriptions, syllabi and coursework from the previous course taken. The designated faculty member or administrator will complete a waiver form indicating their acceptance or denial of the previous credit as an acceptable substitution for the given MSU Architecture course requirements and applicable student performance criteria for that course. This process is applicable to all non-studio Architecture courses. In the case where an architecture course is approved for application to the undergraduate degree requirements a course substitution will be processed by the department academic advisor on the student’s official degree plan via DegreeWorks.

Transfer students who have taken previous Architecture studio courses will be asked to submit a portfolio of their studio work. The portfolio will be evaluated by the School of Architecture Second Year Admissions Committee. This committee consists of 5 faculty members. The committee is asked to make a recommendation on the studio year (1 , 2 , 3 or 4 ) level placement based upon the portfolio’s demonstration of ability in the following areas:

Conceptual Development, Technical Development, Visual Communication and Overall Quality of Design. Their decision will be reviewed by the Graduate Coordinator and the student will be appropriately placed in the decided studio year.

### ***Admission into the Master of Architecture Professional Program – Internal Applicants Completing the MSU Bachelor of Arts in Environmental Design***

Students’ apply for admission into the Master of Architecture program during the fall of their final undergraduate year Students applying for the Master of Architecture degree must submit an application to



the Graduate School which includes a 10MB digital portfolio. The Graduate School Application must include academic transcripts and three letters of recommendation. Transcripts, letters and the portfolio submission are reviewed by the School of Architecture Graduate Admissions Committee. Five faculty review the applicant's portfolio and assign a portfolio score which is averaged to determine a portfolio score. The school determines an admission score for each applicant. The admission score is based on overall GOA, portfolio scores, studio GPA and letter scores. The specific admission score weight distribution is as follows; 40% overall undergraduate GPA, 40% portfolio scores, 10% letters of recommendation, and 10% architecture studio GPA. A minimum admission score has been established and applicants must receive a minimum admission score in order to be accepted to the M. Arch program. This provides a graduate admission score that is used to determine which students will be accepted into the graduate program. Specific information regarding the Admissions Criteria can be found at <https://arch.montana.edu/programs/graduate/applicationinfo.html> This process occurs for both applicants from our own pre-professional program and for applicants from other pre-professional programs.

- University graduate application information can be found at <https://www.montana.edu/gradschool/admissions/apply.html>
- School of Architecture graduate application information and requirements can be found on our website at <https://arch.montana.edu/programs/graduate/applicationinfo.html>

### ***School of Architecture Graduate Admission Scoring Process for Internal and External Applicants***

Admission to the Master of Architecture program is based on a student's undergraduate GPA (40%), portfolio review (40%), 3 letters of recommendation (10%) and an undergraduate Architecture Studio GPA of a 3.0 or higher (10%). A student must have a minimum studio average grade of "B" (3.0) to be eligible to apply to the M.ARCH program. The minimum Architecture studio grade is determined by computing the GPA for all required undergraduate studios (ARCH 151RA, ARCH 152, ARCH 253, ARCH 254, ARCH 355, ARCH 356). The fourth year studio option course— ARCH 414, ARCH 450, ARCH 458 or ARCH 498—is not used in computing the studio averages as these studio are varied in credit and content. Any student not receiving an average GPA of "B" or better in their Architecture studio courses will not be permitted to apply until they improve their studio GPA by retaking studio courses.

A student's acceptance into the M.ARCH program is determined by an overall admissions score. A student must receive a minimum score of at least a 7.62 to be considered for full admission. As mentioned previously the Graduate Admissions Review is performed by a committee of five faculty members.

#### *Admissions Score Breakdown*

#### **Cumulative GPA (40%)- Min 3.0/Max 4.0**

GPA based on a 4.0 system (4.0 = a letter grade of A)

**Portfolio (40%)- Min 6.5/Max 12** -Final Score is determined by averaging 5 reviewers portfolio scores. 12 points = Outstanding

9 points = Excellent

6.5 points = Good (Required Minimum)

3 points = Poor

0 points = Unacceptable

#### **Architecture Studio GPA (10%)- Min 3/Max 4**



This score is the actual numeric value of the Architecture Studio GPA calculation which is manually calculated based on grades received in undergraduate design studios.

**Letters of Reference (10%)- Min 0/Max 3**

Letter of Reference score is determined by averaging the overall recommendation criteria from each of the three letters of recommendation.

**Highly Recommend= 3 points**

**Recommend= 2 points**

**Recommend with reservations= 1 point Do Not recommend= 0 points**

**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 process for evaluating transfer students' preparatory education for admission into the BAED program is outlined on our website on the People\_Prospective Students\_Transfer\_Second Degree Students webpage under the "Transfer Students with, or without, prior architecture studies" headings located at:

[https://arch.montana.edu/people/prospective-students-transfer-second-degree.html#transfer\\_with](https://arch.montana.edu/people/prospective-students-transfer-second-degree.html#transfer_with)

Transfer students with prior architecture courses completed are required to submit a transcript and portfolio, if applicable, of their prior design studio work to the MSU School of Architecture for review. The departmental advisor and/or the undergraduate coordinator or director of the school will undertake a review to determine if prior courses taken will satisfy the NAAB Program Criteria (PC) or Student Criteria (SC) that we have assigned to each MSU course. Transfer students submit syllabi and/or schedule and assignments from the courses they have taken so that a substantive evaluation of their prior architecture courses can be undertaken.

Faculty review any transfer portfolios and provide a recommendation on the placement of the transfer student into the appropriate level of design studio at MSU.

In addition, for non-architecture courses, the School of Architecture relies upon the MSU Office of Admissions and the University's transfer equivalency website to evaluate general education and non-general education course equivalencies for the transfer students.

For transfer students, without any prior architecture courses, the evaluation process focuses upon general and non-general education courses. These students typically take our first-year design studio sequence either in the academic year or in our compressed summer semester offering.

At the end of this evaluation process, a detailed program of study is prepared for each student so that they know exactly what courses they will need to take at MSU to complete their degree and how long it will take for them to receive their B.A. in Environmental Design or M.Arch.

Our website also directs transfer student to complete the [General Transfer Student Application](#) with the MSU Admissions Office and provides them with general information from the Office of Admissions at their website [Office of Admissions General Information](#)



**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:**

### ***Admission into the Master of Architecture Professional Program – External Applicants Completing a Pre-professional Degree Program at Another Institution***

With applicants from other non-professional programs, the admissions process begins with the same set of requirements listed above: an application to the Graduate School, a portfolio of work submitted to the School of Architecture Graduate Admissions Committee and three letters of recommendation. These materials are used in the manner described above to determine an applicant's admission or denial into our program.

External applicants are required to submit a transcript from their undergraduate program. Similar to the process utilized for transfer students into our undergraduate program, evaluation of coursework is done by the appropriate faculty and administrators. The Graduate Program Coordinator, Director of the School, or designated faculty members in each area of Architecture (structures, history, structures, building construction, environmental controls and graphics) will evaluate a course by reviewing course descriptions, syllabi and coursework from the previous course taken. Courses that are not seen as equivalent and would not have satisfied the program and student criteria of our pre-professional program would be identified and students would be required to take the necessary undergraduate courses as part of a provisional acceptance into our graduate program.

In addition, faculty on the Graduate Admissions Committee are asked to assess the work in the portfolio in order to recommend design studio placement as well as other non-studio course work that must be taken to make up for deficiencies that are identified in the applicant's portfolio. The Graduate Admissions Committee consists of 5 faculty members. The committee will recommend if certain areas are found to be lacking in demonstrating ability in the following areas: Conceptual Development, Technical Development, Visual Communication and Overall Quality of Design. Their decision will be reviewed by the Director and the student will be appropriately placed in the recommended studio year or undergraduate course. Because our undergraduate program has 7 semesters of design studio the vast majority of external applicants to our program are placed in either ARCH 355 Architectural Design III, ARCH 356 or ARCH 457 Architectural Design V and must complete those undergraduate studios prior to being able to enroll in our comprehensive graduate design studio, ARCH 558. In addition, students taking these design studios are often required to take the non-studio courses in that particular year as a result of the portfolio review and the recommendation of the Graduate Admissions Committee. A unique program of study is developed for each of these applicants so that they are aware of which courses in our pre-professional program they are required to take and in what semester they are to be taken. For applicants from other programs this review process and development of a program of study is done on a case-by-case basis.

Students who are required to take undergraduate courses in order to satisfy the program and student criteria requirements of our matrix are provisionally accepted into our graduate program. Once accepted into the graduate program—whether provisional admission or full admission—students must maintain a cumulative GPA of 3.0 and must receive a grade of B or better in each design studio in order to proceed to the next studio in the sequence. Additional information on provisional admission status can be found at: [https://www.montana.edu/gradschool/policy/admissions.html#admissions\\_provision](https://www.montana.edu/gradschool/policy/admissions.html#admissions_provision)

### ***Graduate Program—Remediation***

Applicants holding a bachelor's degree or advanced degrees from other universities may be advised to pursue a second bachelor's status instead of non-degree graduate status to complete deficiency work.





Second bachelor's students will comply with all MSU undergraduate policies and procedures. A student in this status will complete required undergraduate Architecture prerequisite courses. Once the prerequisite courses have been completed the student may apply for admission to the M. Arch program.

Students denied admission to the School of Architecture may attend MSU in non-degree status to gain sufficient foundation work to enter the graduate program. Upon receipt of grades "B" or better for a minimum of 9 four hundred or five hundred level credits, the student may be reconsidered for admission to the program. A maximum of 6 credits of course work earned in this situation may be counted toward graduation.



## 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:**

The School of Architecture is led by the Director who is appointed by the Dean of the College of Arts and Architecture.

#### **School of Architecture Director – Professor Christopher Livingston**

Supporting staff:

- Assistant to the Director (Fellow) – Associate Professor Zuzanna Karczewska
- Staff:
  - Business Office Manager and Graduate Advisor– Rachael Ortego
  - Craft Shop and Facilities Manager – Sean Clearwater
  - Publications Manager – Jeff Schultz
- University Shared Services Staff:
  - Academic Advisor for Undergraduates – Allie Frazier
  - Finance – Katelyn Argall
  - Human Services – Katarzyna Maison
  - IT Manager – Joshua McRae
- Undergraduate Coordinator – Professor Steve Juroszek
- Graduate Coordinator – Professor Michael Everts
- Curriculum Committee:
  - Undergraduate Coordinator – Professor Steve Juroszek
  - Graduate Coordinator – Professor Michael Everts
  - Faculty Representative – Associate Professor Zuzanna Karczewska
  - Academic Advisor for Graduate Students – Rachael Ortego
  - Academic Advisor for Undergraduates – Allie Frazier

#### **College of Arts and Architecture Dean – Royce Smith, Ph.D.**

The College of Arts and Architecture (CAA) consists of 4 schools led by the Dean who is appointed by the University Provost.

- The School of Architecture
- The School of Art
- The School of Music
- The School of Film and Photography

Dean of the College of Arts and Architecture supporting staff:

- Associate Dean – Professor Jim Zimpel
- Assistant Dean – JoDee Palin
- Assistant to the Dean – Noelle Child
- University Shared Services Staff:
  - Academic Advisor for Undergraduates – Allie Frazier
  - Finance – Katelyn Argall
  - Human Services – Katarzyna Maison
  - IT Manager – Joshua McRae

The Dean of the College of Arts and Architecture reports to the Executive Vice President for Academic Affairs and Provost who is appointed by the President of Montana State University.



### **Executive Vice President for Academic Affairs and Provost – Robert L. Mokwa, Ph.D.**

There are 9 colleges led by the Provost:

- College of Agriculture
- College of Arts & Architecture
- College of Business
- College of Education, Health & Human Development
- College of Engineering
- College of Letters & Science
- College of Nursing
- Gallatin College
- Honors College

### **President of Montana State University – Waded Cruzado, Ph.D.**

The President of Montana State University is appointed by the Board of Regents. The Board of Regents governs the Montana University System which consists of sixteen universities and colleges. These are organized into 3 divisions, the Community Colleges, the University of Montana and Montana State University. The Montana State University system consist of:

- Montana State University Bozeman
- Gallatin College at Montana State University Bozeman
- Montana State University Billings
- City College at Montana State University Billings
- Northern
- Montana State University Great Falls

### **The Board of Regents**

The governance and administration of the Montana University System is vested with the Board of Regents which has full power, responsibility, and authority to supervise, coordinate, manage and control the Montana University System. The board has seven members appointed by the governor to seven year overlapping terms. One member of the board is a student member who serves a one-year term.

**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:**

The School of Architecture is led by the Director who is charged with maximizing available resources toward achieving excellence in professional education. The Director is responsible for carrying out educational policies established by a consensus of the faculty. As the legally responsible university official, the Director establishes and administers internal fiscal policy. The Director meets twice a month with the Dean and other school department directors to share communication from upper administration and discuss college wide policies and procedures.

The Director meets twice monthly in a one-on-one session with the Dean to discuss issues, policies, procedures, and budgets unique to the School of Architecture. The Dean relays issues of concern to the Provost for action. The provost meets twice each semester with the 33+/- department heads/directors from across campus to introduce or review University policies and procedures, resources, and initiatives.

The faculty, both individually and collectively, are the primary source for developing academic policy, curriculum structure, and course content within the program. The faculty typically meets formally every two weeks to discuss current issues and concerns. Other forums for the on-going discussion of program



direction and philosophy include annual fall and spring retreats, various committee meetings, and informal discussions. The Curriculum Committee is the organizational unit responsible for formally ensuring that academic policy, curriculum structure, and course content is in conformance with the desires of the faculty, NAAB, the University Undergraduate and Graduate Curriculum Committees and University Policy as identified by the Provost and Legal Counsel. The Assessment Committee, consisting of the coordinators of each studio year reports to the Curriculum Committee. Additionally, faculty serve on the following committees:

- School of Architecture
  - Computers and Equipment Resources
  - Exhibits and Visiting Lecturers
  - Faculty Search
  - Graduate Admissions
  - Learning Culture
  - Library Liaison
  - Retention, Tenure and Promotion
  - Scholarship and Awards
  - Second Year Admissions
- College Committees
  - Curriculum & Program
  - Retention, Tenure and Promotion
- University Committees
  - Graduate Curriculum Committee
  - Retention, Tenure and Promotion
  - Undergraduate Curriculum Committee
  - University Senate

Student representatives are invited to serve on all committees except those dealing with confidential student issues. A member of AIAS regularly attends all faculty meetings and there is a Director's Student Advisory Council consisting of student representatives for each studio that meets twice a month to maintain effective communication between the administration and students, make proposals related to student interests and concerns as well as review initiatives proposed by faculty and staff. Due to a lack of staffing the Council did not meet during the 2021-2022 academic year. Full staffing of the directors office has permitted the activation of the Council for the 2022-2023 academic year.

The Faculty Senate, to which the School of Architecture has a representative, is composed of representatives from each academic department, the Library, the Agricultural Research Centers, and the Agricultural Extension Service. Faculty Senate is the chief governance body of the faculty at Montana State University-Bozeman. Under the governance authority of the Montana University System, the Faculty Senate frames policies, procedures, and standards of the Faculty Handbook, oversees the curricula, evaluates new academic programs, and serves to enhance communication between MSU faculty, administration, and students.

The ASMSU Senate is the elected student government responsible for representing the voice and interests of the MSU-Bozeman student body. Students within each department/school in the University elects a student representative. Senate members may act in the form of a resolution or a bill, which would be presented to the entire Senate to be voted upon. Senate leadership consisting of a Senate President and Senate Vice President are elected by and from the Senate and meet regularly with the President and Provost.

The ASMSU Senate allocates the student activity fees to ASMSU programs through annual budgeting each spring semester.



## 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:

Montana State University adopted, in 2019, three areas of focus in its multiyear Strategic Plan. The School of Architecture integrates its teaching, scholarship, and service with the University' Strategic Plan. Assessment occurs on an annual basis through the annual review of faculty achievements (both non-tenure track and tenure track) by the director and an annual review of the curriculum by the undergraduate and graduate coordinators as well as a faculty review during the school fall and spring retreats.

In the fall 2021 and spring 2022 retreats the focus was on the assessment of courses based on the 5-10-2022 Montana State University School of Architecture Professional Studies Curricular Matrix for Course Content Performance Criteria Based Learning Outcomes Matrix prepared for the NAAB. The University Assessment Committee permits professional programs such as the School of Architecture to utilize their accreditation assessment process to meet the requirements of the Northwest Commission on Colleges and Universities Accreditation of Montana State University.

**5.2.2** Key performance indicators used by the unit and the institution

### Program Response:

The School of Architecture has adopted the University multi-year strategic plan to guide the teaching, scholarship and service activities of the faculty, staff, and student activities of the school. There are 3 areas of focus with multiple goals for each "Intentional Focus". Initiatives undertaken by the school to meet the goals of Strategic Plan follow each goal:

### ***INTENTIONAL FOCUS 1: Drive Transformational Learning Experiences Creating Outstanding Educational Outcomes for All Students***

*Montana State University students are challenged and changed by their active participation in high quality, innovative experiences at both the undergraduate and graduate level, becoming learned professionals and global citizens.*

#### ***GOAL 1.1: Broaden access for underrepresented populations and increase academic success for all students through excellence in undergraduate education.***

*As the state's land-grant university, Montana State invites participation in exceptional higher education, widens participation of under-represented student populations and improves student success outcomes overall.*

School of Architecture Strategic Plan Initiatives:

The School of Architecture's policy of admitting all students admitted to the university into the school's first year curriculum and admitting all qualified students into the second year Environmental Design degree program maximizes the potential of every student to participate in exceptional higher education.

Relative to other STEM curriculums on campus the School of Architecture has been successful in attracting, retaining, and graduating women. Approximately 50% of the school's undergraduate and graduate students are women.

Native American's are the largest under-represented population in Montana at approximately 6.5% of the state's population. The School of Architecture on average has

two native American students in each cadre of students admitted into the Environmental Design degree program (2%). Two strategies are being initiated to increase this number:

- Professor Michael Everts has been awarded a grant for *Participatory Design with Tribal Colleges*. This grant is intended to engage students attending tribal colleges in a manner that raises their awareness of how the built environment interacts with nature and human socio/cultural phenomena through architectural design.
- In collaboration with the school's Advisory Council a recruiting effort is being made in Billings, Montana where the largest population of Native American students is enrolled in public schools. In this prototype effort members of the profession will offer presentations on the role of architects in society and how the profession can be a leader in direct engagement with issues such as housing, environmental stewardship, and the reduction of energy consumption. Students will be invited to visit offices to experience the work environment and view projects. To enhance the chances for success under-represented students who choose architecture as their major will be offered mentorship and work opportunities throughout their academic career by the offices participating in this program.

The issue of improved student outcomes is also being addressed in a collaborative effort with the Advisory Council. Beginning during the fall semester of 2022 all 2<sup>nd</sup> year students will be connected with a practicing professional in a mentorship program intended to last throughout the student's undergraduate career. It is intended to give the student someone who they can freely discuss their education, hopes, success and frustrations with who has been through the same experiences and succeeded. The mentor will be someone who the student can identify with and realize the value of their education through, thus improving the success of the school's students.

**GOAL 1.2: Expand high-quality graduate education**

*Montana State University will enroll and graduate more degree-seeking students at the graduate level and enhance the quality of graduate degree programs.*

School of Architecture Strategic Plan Initiatives:

An increased recruiting effort has led to larger undergraduate cadres of students in the 1<sup>st</sup> through 4<sup>th</sup> year of the Environmental Design degree program. This in-turn will lead to more successful applications to the M.Arch program beginning in the fall of 2023.

Additionally, a recruiting effort to attract more graduates of liberal arts colleges with architectural studies programs will begin in the fall of 2022. Undergraduates from liberal arts colleges entering the school's M.Arch program have proven to be highly successful and greatly enrich the socio/cultural make-up of the school's graduate program. This recruiting effort was planned to begin in 2019 but was put on hold during the COVID epidemic but will be fully underway in the fall of 2022 led by the school's graduate coordinator Prof. Michael Everts.

A partial measure of the M.Arch program's success is illustrated in outcomes of the ARCH 535 / ARCH 558 Comprehensive Design project where students have been selected as winners of the AIA Competition on the Environment in 2017, 2018, 2019, and 2020.

The school has enhanced the M.Arch program since the 2018 by:

1. A structure's faculty member was added to the team-teaching of ARCH 535, Advanced Architectural Systems Integration
2. An Advanced Architectural Theory course, ARCH 526, was added to the graduate curriculum

3. ARCH 551, Advanced Architectural Studio and ARCH 457, Architectural Design Vhave been designated Collaborative Professional Practice research studios in which faculty collaborate with an architectural office on a design project for which the office seeks to advance its research efforts. As examples the following nationally prominent collaborating offices have undertaken studio design projects with MSU students and faculty:
  - a. LMN Architects, Seattle, Spring 2018 – Performing Arts Center
  - b. Morphosis Architects, Los Angeles, Spring 2019– Affordable Housing for the Homeless
  - c. Lake Flato Architects, San Antonio, Spring 2021 – Adaptive Reuse of an Abandoned Power Plant
  - d. Morphosis Architects, Los Angeles, Spring 2022 – Urban Design Proposal for West Hollywood
4. ARCH 551, Advanced Architectural Studio, serves as the research studio for the schools Visiting Scholar program which was fully funded by the School of Architecture Advisory Council in 2020. The first scholar taught and conducted research with graduate students in the spring of 2022. The scholars and research agenda for 2022 and 2023 are identified below:
  - a. 2022 Scholar Tyler Swingle – Research topic was increasing the wood resources in Montana and expanded use of cross laminated timber. Prof. Swingle also taught a graduate elective focused on non-traditional uses of the software program Rhino.
  - b. 2023 Scholar Frank Barkow – Research topic will be Increasing the use of ceramics in contemporary buildings. His graduate elective will experiment with ceramics in collaboration with the School of Art ceramics department.

***GOAL 1.3: Implement evidence-based high quality, high impact teaching and learning practices for every student***

*Montana State University improves the curricular and co-curricular experience with demonstrated educational practices integrated with discovery and engagement that enhance learning and develop engaged global citizens and informed professionals.*

School of Architecture Strategic Plan Initiatives:

The School of Architecture utilizes a studio-based education pedagogy in which the principles of Bloom’s taxonomy are employed in small studios where the ratio varies from an average of 1 faculty member to 10 students at the graduate level to a high average of 1:13 in the 2<sup>nd</sup> year of the undergraduate program. Non-studio courses also utilize Bloom’s taxonomy in building knowledge and comprehension, but it is in the studio that application, analysis, synthesis, and evaluation are most fully realized.

Engagement occurs primarily in the studio as described previously **Part – 1, Institutional Context, Mission of the University and how it shapes or influence the program.**

Co-curricular experiences offered by the school include the visiting lecture and exhibits series. The lectures are available by video on-line live to the public and advertised to all architects in Montana and MSU alumni as well as archived on the school website. The 2021 – 2022 academic year schedule is typical of the experiences available for our students and the community.

Fall 2021 Lectures and Topics:

- Brian Court, Miller Hull Architects – *An Architecture of Restoration and Representation*
- Walter Grondzik, Ball State University – *Intentional Design*

- Annie Combs and Zoe Malliaros, Siris Combs Architecture – *The Lakota Nation and the Legacy of American Colonization*
- Bob Harris, Lake Flato Architects – *Nature, Place, Craft, and Restraint: The Practice, Approach, and Work of Lake Flato Architects*
- Byoung Cho, BCHO Architects – *Current Works and Philosophy*
- Bobby Johnston and Ruthe Mandi, CO Adaptive Architecture – *Urban Material Mines: How the Past Informs the Future*
- Maya Bird-Murphy, Chicago Mobile Makers – *Chicago Mobile Makers – Inviting Youth to have a Seat at the Design Table*
- Patricia Ramallo, National Council of Architectural Registration Boards – *Deigning your Future: Creating Value in your Career*
- Matt Muir, Jackson Contractor Group, Inc. – *Bridging the Gap between Architects and Construction*

#### Fall 2022 Exhibits:

- Miller Hull Architects Current Work and Projects
- Watercolors of Historic Montana Gas Stations
- Annie Combs and Zoe Malliaros Photos from the Lakota Nation
- Bobby Johnston and Ruth Mandi Architects Current Work and Projects
- MSU Architectural Photography Exhibition

#### Spring 2022 Lectures and Topics

- Arne Emerson, Morphosis Architecture – *Morphosis Architects – Current Projects, Built and on the Boards*
- Wade Kavanaugh, Artist – *Imagine a Bird*
- Laura Dornberger, Locati Architects, Laurie Moffet-Fehlberg, Dahlin Group Architects, Lynn McBride, Mithun Architects, and Susan Bjerke, Bjerke Architects – *MSU Advisory Council Panel Discussion on Women in Architecture*
- Dan Rockhill, University of Kansas – *Design and Construction, Hand and Mind, the work of Studio 804*
- Zean Macfarlane, Architect – *Why the Software is Irrelevant – Architectural Graphics in Practice*
- Brook Muller, Dean of the College of Arts + Architecture University of North Carolina – *Blue Architecture: Water, Design and the Environmental Futures*
- Michael Benedikt, University of Texas – *Magic*
- Katia McCain, Steinberg Hart Architects – *Residential Design: Social or Not?*

#### Spring 2022 Exhibits

- Morphosis Architects Current Work and Projects
- Wade Kavanaugh Projects in Wood
- Studio 804 Current and Past Work
- Drawings by Zean Macfarlane, Bringing Architecture to Life
- John Muire's Moccasin Exhibit and Film by Lucia Ricciardelli

### **INTENTIONAL FOCUS 2:**

*Improve Lives and Society through Research, Creativity, and Scholarship*  
 Montana State University faculty, staff, and students are known nationally and internationally for discovering, applying, testing, and sharing knowledge and creative works that expand understanding and positively impact lives and society.

School of Architecture Strategic Plan Initiatives:

### **GOAL 2.1: Enhance the significance and impact of scholarship**

*Montana State University research and creative activity demonstrates impact on the state's and the world's pressing challenges through application of our discoveries in communities, industry and organizations, as well as through academic indicators of the expansion of knowledge.*





Response:

The tenure track faculty of the School of Architecture are actively engaged in scholarly activities as exemplified by their achievements in 2021:

Associate Professor Susan Cowan

- *Community is a Practice*, Attention Journal Princeton University
- *The Limits of Middle-Class Activism: Neighborhood Organizing in St. Louis*, book chapter in Left in the Midwest: Building Progressive Social Movement in 1960's and '70s, University of Missouri Press
- *Investigation Neighborhood Character in Bozeman's Northeast Neighborhood*, funded by the City of Bozeman

Professor Michael Everts

- *Public Architecture for Cultural Sharing: Creating Story Pole Installations for a Fort Peck Indian Reservation Buffalo Trail System* funded by the National Endowment for the Arts
- *The Baha Tata'ga Omaskaska Buffalo Trail Prayer Path* funded by the National Endowment of the Arts
- *Participatory Design with Tribal Colleges* funded by a College of Arts and Architecture faculty grant

Professor Ralph Johnson

- *Bozeman Housing First Village Construction Phase Adaption of Prototypes* funded by the Bozeman Human Resource Development Council (HRDC)
- *Published Rural Teacher Housing Design and Cost Analysis* funded by a grant from Montana State University

Professor Steve Juroszek

- *Publication of Perception to Execution* published in the 2021 Design Communication Conference Proceedings
- "Grundtvig's Church, Copenhagen", "Maggie's Center - Aarhus, Denmark" and "Piazza del Duomo" drawings received International Exhibition Awards at the Design Communication Association Juried Drawing Exhibition

Associate Professor Zuzanna Karczewska

- *Fleeting Stories of Place* published by the University of Huddersfield in EAEA15: Envisioning Architectural Narratives
- *Felting Stories of Place* published in the proceedings of the 8<sup>th</sup> International Conference on Architecture and the Built Environment
- *The Shape of the Invisible* published in the proceedings of the 36<sup>th</sup> National Conference on Beginning Design Students

Professor Christopher Livingston

- *Itinerant Drawings 2008-2019* exhibited in the Helen E. Copeland Gallery, Bozeman

Associate Professor Jaya Mukhopadhyay

- *Computation Fluid Dynamics Modeling of Tiny House Ventilation for the Evaluation of Indoor Air Quality* published in the conference proceedings for the National Center of Applied Technology Annual Conference
- *Indoor Occupant Counting and CO2 Monitoring Based on RF Backscattering* research report funded by Cornell University
- *Indoor Air Quality in Residential and Commercial Buildings Workshop* funded by the National Center for Applied Technology

Professor Maire O'Neil (On sabbatical in 2021 – Scholarly work indicated from 2020)

- "Corner Post Construction: North American adaptation of an ethnic building tradition" published in the Vernacular Architecture Forum
- "Light on the Land: Construction revolution in farm buildings of the Northern Rockies 1890 – 1910" published in Buildings & Landscapes

Professor Andrew Vernooy

- *Undergraduate Research in Architecture: A Guide for Students* published by Routledge

Associate Professor Bradford Watson

- *Emergent Capacity* published in the conference proceedings of the Association of Collegiate Schools of Architecture National Conference
- *Ordering Systems: The Code of Context* published in the conference proceeding of the Association of Collegiate Schools of Architecture National Conference

**GOAL 2.2: Expand interdisciplinary scholarship**

*Montana State University's interdisciplinary expertise as the University of the Yellowstone™ carries unique possibilities for inference, translation and impact. Our research and creative activity throughout the university increasingly spans traditional disciplinary boundaries to solve the world's pressing challenges.*

School of Architecture Strategic Plan Initiatives:

Interdisciplinary scholarly activities are currently being undertaken by the following tenure track faculty of the School of Architecture:

- Associate Professor Susan Cowan, history instructor, works directly with the Gallatin Valley Land Trust, a non-profit organization dedicated to the preservation of open lands, agriculture, and trail systems. In working with the Trust, Prof. Cowan utilizes her expertise to gather and analyze social data in relation to the Trust's aspirations for being responsive to community aspirations.
- Professor Michael Everts, design studio instructor, works directly with Elizabeth Bird, Ph.D. of the College of Education, Health, and Human Development in collaboration with tribal members of Ft. Peck to design and construct "Story Poles" and a trail system commemorating the relationship between the Native American Community and buffalo.
- Professor Ralph Johnson, design studio instructor, collaborates with Associate Professor Sara Mast, Department of Art, on direct application of paint to eliminate the need for dry wall over the OSB component of structurally insulated panels. Additionally, Prof. Johnson works with Associate Profess Jayne Downey, Director of the Center for Research on Rural Education, to determine the housing needs for rural teachers throughout Montana.
- Associate Professor Zuzanna Karczewska, design studio and graphics instructor, works in textile art utilizing local wools in combination with local dyes drawn from local plants to imbue textile artifacts with a sense of place reflecting local conditions.
- Associate Professor Jaya Mukhopadhyay, building systems instructor, is engaged in interdisciplinary research with the department of Mechanical Engineering Associate Professor Kevin Amende to promote energy reduction systems in buildings.

**GOAL 2.3: Strengthen institutional reputation in scholarship**

*Montana State University's success in scholarship results in increased state, national and international prominence.*

School of Architecture Strategic Plan Initiatives:

See the response to Goal 2.1 above. Additionally, the following faculty have received national/international recognition for their accomplishments:

- Professor Michael Everts has received over \$100,000 in National Endowment for the Arts funding to support his scholarly activities on the Ft. Peck Reservation
- Professor Ralph Johnson has served on over a dozen international School of Architecture Accreditation visiting teams.
- Professor Steve Juroszek has won over a dozen international awards for his drawing submissions to Design Communication Association and been recognized nationally for his contributions to education with the publication of Residential Building Codes Illustrated, John Wiley & Sons, Design Drawing, John Wiley & Sons, Building Codes Illustrated for Healthcare Facilities, John Wiley & Sons, Building Codes Illustrated for Elementary and Secondary Schools, John Wiley & Sons.
- Teaching Professor Chere LeClair is a Fellow in the American Institute of Architects, receiving the award for her national leadership role in the AIA and her mentorship of students.
- Professor Christopher Livingston has received over a dozen international awards for his sketches including *Itinerant Drawing 2008-2019* exhibited at the 14<sup>th</sup> Curitiba International Biennial of Contemporary Art.
- Associate Professor Jaya Mukhopadhyay is a board member of the American Society of Heating, Refrigeration and Air-Conditioning Engineers
- Professor Marie O'Neill is the recipient of the Catherine W. Bishir Prize for writing by the Vernacular Architecture Forum and recipient of the John DeHass Memorial Award for Historic Preservation by the Montana Historical Society. Prof. O'Neill is a member of the Montana Board of Architects & Landscape Architects and a committee member of the Berkeley Undergraduate Prize for Architectural Design Excellence.
- Professor Henry Sorenson has received over 25 international awards for his drawings from the Design Communication Association and the American Society of Architectural Illustrators. Additionally, he has received 10 photography awards from the American Institute of Architects.
- Professor Andrew Vernooy is a Fellow in the American Institute of Architects, receiving the award for his contributions to education. He is author of the book Undergraduate Research in Architecture: A Guide for Students published by Routledge.

**GOAL 2.4: Elevate expectations for scholarship**

*Montana State University faculty, staff and students hold themselves to the highest standards of research and creative outcomes.*

School of Architecture Strategic Plan Initiatives:

See the response to Goal 2.1 and Goal 2.3 above.

**INTENTIONAL FOCUS 3: Expand Mutually Beneficial and Responsive Engagement for the Advancement of Montana**

*Montana State University students, faculty and staff work together and with partners across the state and around the world to enhance the well-being of individuals, organizations and communities.*

**GOAL 3.1: Increase mutually beneficial collaborations with Tribal nations and partners**

*Montana State University works cooperatively with Tribal governments, colleges, community groups and Indigenous students to develop and achieve beneficial outcomes.*

School of Architecture Strategic Plan Initiatives:

1. Professor Michael Everts has three current scholarly activities in collaboration with Tribal governments, colleges and community groups:

- a. Public Architecture for Cultural Sharing: Creating Story Pole Installations for a Fort Peck Indian Reservation Buffalo Trail System
  - b. The Baha Tata'ga Omaskaska Buffalo Trail Prayer Path
  - c. Participatory Design With Tribal Colleges
2. Teaching Assistant Professor Bill Clinton taught 2 design/build classes in 2021 with Native American and non-Native American students to build exterior and interior furniture for the American Indian Center on the MSU campus.
3. The Community Design Center in the School of Architecture has a long history of working with Tribal governments including:
  - a. Rocky Boy Reservation, Chippewa-Cree Tribal Nation Community Plan
  - b. Ktunaxa Nation Perma-Culture Community Design
  - c. Blackfeet Nation, Browning Vision Project

**GOAL 3.2: Grow mutually beneficial partnerships across Montana**

*Montana State University and its partners attain collaboratively defined outcomes that improve the lives and livelihoods of Montanans.*

School of Architecture Strategic Plan Initiatives:

Faculty teaching in the Community Design Center and others teaching both undergraduate and graduate courses have engaged with over 240 community partners to improve the lives and livelihoods of Montanans. These engagements are recorded in booklets in the School of Architecture Archive. Recent examples include:

1. 2021:
  - a. *Lo-Fab: A Study in Easily Fabricated Building Systems*, Prof. Sarah Mohland instructor
  - b. *Art in the Airport: Schematic Design Proposals for an Art Gallery in Bozeman International Airport*, Prof. Ralph Johnson instructor
  - c. *Housing for the MSU Agricultural Research Center, Kalispell, MT*, Prof. Ralph Johnson instructor
  - d. *Missoula Downtown Urban Design Studies, Missoula, MT*, Prof. Ralph Johnson instructor
  - e. *Missoula Design Guidelines Applications for Net-Zero Design, Missoula MT*, Prof. Ralph Johnson, instructor
  - f. *Design with Nature in the Anthropocene, V2, The Greater Yellowstone Ecosystem* Prof. Chere LeClair instructor
  - g. *Ensuring Affordable Housing: Building Community, Bozeman, MT*, Prof. Chere LeClair, instructor
  - h. *Ronan Fire Station, Ronan, MT*, Prof. Brian Brush instructor
  - i. *Hemp: Its potential uses in architecture*, Prof. Christopher Livingston, instructor
2. 2020:
  - a. *Cohousing: A Contemporary Approach to Traditional Neighborhood Design, Livingston MT*, Prof. Brian Brush instructor
  - b. *Intergenerational Community Center, Bozeman MT*, Prof. Brian Brush instructor
  - c. *Quiet Refuge: Danforth Meditation Sanctuary, Bozeman MT*, Prof. Maire O'Neil instructor
  - d. *Trail Usage in Bozeman, MT*, Prof. Suzanne Cowan, instructor
  - e. *Visual Communications Building, Bozeman, MT*, Prof. Ralph Johnson, instructor
  - f. *Sternella Hotel Studies, Gardiner, MT*, Prof. Ralph Johnson, instructor
  - g. *Rocky Mountain Laboratories Interpretive Center, Hamilton, MT*, Prof. Brian Brush instructor
  - h. *The Matador Ranch Tiny Homes, Hays MT*, Prof. Sarah Mohland instructor

- i. *Design with Nature in the Anthropocene: The Greater Yellowstone Ecosystem*, Prof. Chere LeClair, instructor

**GOAL 3.3: Foster a culture of collaboration, continuous improvement, and individual growth**

*Montana State University and its students, faculty and staff engage in a reciprocal relationship that values each member and improves the university environment.*

School of Architecture Strategic Plan Initiatives:

By virtue of teaching studios in small groups there is a direct reciprocal relationship between students and faculty members. In addition to the teaching and learning environment the school employs the following strategies to ensure clear communication and responsiveness to the concerns, needs and desires of students, faculty and staff:

1. The school conducts an annual *MSU SoA Learning Environment and Studio Culture Survey* each spring semester. The purpose is to maximize statistical data from students in the school regarding their perceptions of the teaching and learning environment of the school. Most recently the 2022 survey was completed by 71% of the students enrolled in classes (a typical response rate). In the following fall semester, the results of the survey are shared with faculty and students at a Teaching Culture Forum led by the director and the faculty responsible for the annual survey. The outcomes, insights and recommendations of the Learning and Teaching Culture Forum and Learning Environment and Studio Culture Survey are intended to guide the students, faculty, and administration of the school in maintaining an environment that is responsive and current. It is intended that the results of the survey and forum will create a teaching and learning environment responsive to both changing circumstances and the long-held values of the schools' students and faculty.
2. The director has a student advisory council with representatives from each design studio. Open Q&A occurs in meetings scheduled after classes every three weeks throughout the semester.
3. Faculty are assigned approximately 20 students as professional advisees for group meetings once every semester. The purpose of the meetings is to help advisees better understand the relationship between their academic experiences and the profession.
4. The School of Architecture American Institute of Architects Student Chapter leadership meets with the director a minimum of twice each semester to discuss issues associated with student life and generally 3 times per semester AIAS invites faculty to a forum for discussions about the school, their teaching and research.

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

**Program Response:**

In general, as indicated above, the School of Architecture has been successful in meeting the University/School Strategic Plan adopted in 2019. The goals which need increased effort to better obtain quantifiable success are:

**GOAL 1.1: Broaden access for underrepresented populations and increase academic success for all students through excellence in undergraduate education.**

The school has achieved an approximately 50/50 gender balance however beyond this the student population of the school reflects neither the demographics of the state of Montana nor the nation:

	2021 Montana Population	School	Nation
○ White	88.7%	85.4%	57.80%
○ American Indian	6.0%	1.5%	.07%
○ Hispanic	4.3%	5.7%	18.70%
○ Multiracial	3.0%	Not Reported	4.10%
○ Black	0.6%	1.5%	12.10%
○ Asian	1.0%	2.4%	5.90%

The school seeks to increase the racial diversity of its student population to be more representative of the urban environments in which many of our students will be employed, the clients with whom they will be working and the goals of the AIA to increase diversity in the profession. For our location in the Northern Rockies doubling the percentage of American Indian, Hispanic and Multiracial students would be a major achievement.

**GOAL 1.2: Expand high-quality graduate education**

The school seeks to increase the number of graduate students enrolled in the M.Arch degree program both to meet the university’s goal and as a means of increasing the racial and socio-cultural characteristics of its graduate students. Following the COVID epidemic the school’s graduate population decreased from a 5 year average of approximately 40 students in each M.Arch class to a low of 21 entering in the fall of 2022. Beginning in the fall of 2023 approximately 50 students will be accepted in to the 2023 M.Arch class and the school has set the goal of bringing in 10 additional students from other institutions by increased promotion and advertising.

**GOAL 2.2: Expand interdisciplinary scholarship**

The school completed the hiring of two new tenure track faculty in the summer of 2022. Both faculty have extensive interdisciplinary scholarship:

- Associate Professor James Park’s Ph.D. research in computer aided design and spatial configurations will place him in an excellent position to be involved with the department of computer science.
- Associate Professor Tyler Stover’s Ph.D. research in history and socio-cultural business strategies will place him in an excellent position to be involved in scholarship with members of the College of Letters and Science.

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

**Program Response:**

The strengths of the program reside in:

1. The quality and diversity of both the tenure track and non-tenure track faculty.
2. The student program fee structure which enables the school to fund excellence in teaching and scholarship far beyond the state/university/college authorized budget.
3. The support of the School of Architecture Advisory Council not only financially but through direct engagement with student internships, mentorship, project reviews, recruitment, and retention.

The challenges for the program:

1. In keeping with the land-grant mission, the university and college have required that the school admit all qualified students into the 2<sup>nd</sup> year of the Environmental Design degree program. Studio space to accommodate workstations for every student has been maximized with admittance of the fall 2022 second year cadre of students. Either additional space must be provided by the university or a cap on the number of students admitted into the second year must be established prior to the spring application period for admittance into the second year.
2. Maintaining a highly qualified diverse non-tenure track faculty. The vast majority of potential non-tenure track faculty available locally are graduates of Montana State University. Additionally, the



non-tenure track salaries for a full-time architectural faculty start at \$60,000 for the academic year. To hire qualified non-tenure track faculty graduates of other architectural programs will require national advertising and a minimum annual salary of \$70,000.

3. Increasing the diversity of the school's student body. The school has undertaken a strategy to increase diversity in collaboration with the school's advisory council. Council members have agreed to recruit Native American students within their communities which include Billings, MT (4.6% of the population is American Indian) and the major reservation communities of Box Elder, Browning, Crow Agency, Pablo, and Poplar. Further diversity will be sought through the advisory council members recruiting at high schools in their urban communities such as Seattle, Portland, LA, and Denver.
4. Increasing diversity among tenure track faculty. Among tenure track faculty 4 are women and 6 are men. One faculty member is Asian and the remaining 9 are white. The school has 3 open tenure track positions and hopes to conduct a search for these positions during the 2022-2023 academic year. Seeking greater gender balance, ethnic/socio-cultural, and academic background diversity will be a goal of the search however a recently completed search for 2 positions illustrates the difficulty in achieving this goal. There were 37 applicants of whom 7 were women. Three of the applicants had qualifications duplicating those of an existing faculty member, 3 were not qualified and 1 was offered a position but declined based on the salary's relationship to the cost of living. The school was successful in hiring a highly qualified individual of Asian descent.
5. Staffing support for administration of the school has declined significantly over the past six years. In 2016 the administrative staff consisted of:
  - School of Architecture Business Office Manager
  - School of Architecture Secretary – Retired and not replaced in 2018
  - School of Architecture Receptionist – Deceased and not replaced in 2021
  - School of Architecture Undergraduate and Graduate Student Advisor – Became the Business Office Manager in 2022 and the undergraduate student advisor role was filled through the university's shared services program. The graduate student advisor portion of the position was not filled and is being covered through overtime by the business office manager.
  - Craft Shop Manager – Retired in the summer of 2022 – The craft shop assistant manager was promoted to fill this position
  - Craft Shop Assistant Manager – Currently vacant
6. Given the 2020 NAAB requirements for on-going, in-depth assessment procedures the management of the system and maintenance of records required to coordinate the annual assessment process, distribute the results, record proposed changes, record, and distribute the 3-year reanalysis of proposed changes and the results of these changes, etc. is far beyond the capability of a faculty committee. At a minimum a .5 FTE administrative assistant is needed to fill this role. A 1.0 FTE administrative assistant could fill the role of assessment manager and graduate student academic advisor currently being covered by the overtime duties of the business office manager.
7. The current director and assistant director (fellow) have agreed to serve in these positions for one year. The faculty has requested that the dean and provost approve a search for a full-time director during the 2022-2023 academic year.

#### Opportunities for the program:

1. The School of Architecture Succession Policy identifies diversity, currency, new areas of research and scholarship, and increased interdisciplinary scholarly activity as the goals for the hiring of new tenure-track faculty. A significant opportunity exists for achieving these goals with the potential to hire 3 new tenure track faculty for the 2023-2024 academic year.
2. The school has the opportunity to expand its graduate program to include a design-build sequence of courses. There has been a long and successful history of design-build work accomplished by faculty and students ranging in scale from furniture to small residences, however all this work has been accomplished through project specific grants. There is strong student and faculty interest in consistently offering a design-build sequence but no institutional



funding source that would permit this to occur. Through recent fund raising approximately one half the funds needed to begin the design-build curriculum have been raised. Raising the additional capital needed to initiate this program has become a priority of the school's advisory council.

### 5.2.5 Ongoing outside input from others, including practitioners.

#### **Program Response:**

The School of Architecture Advisory Council provides most of the outside input in analysis and support of the school. The advisory council has approximately 50 active members, all graduates of MSU, and most are licensed architects. Their roles in practice range from recent graduates to founding partners and principals of major international firms. Specific input comes in multiple forms:

- Advisory council members sit on final reviews for 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and graduate level studios and are asked to evaluate and report on the student work relative to the school's NAAB matric learning objectives.
- The advisory council meets twice each academic year on campus. During these meetings the council is challenged to address specific pedagogic topics such as:
  - Fall 2018 - Review and make recommendations for a school succession plan
  - Spring 2019 - Augmented and virtual reality in professional practice. Its role and value in teaching
  - Fall 2019 - The future of practice – specialization, interdisciplinary roles and small to large office needs
  - Spring and Fall 2020 – No on-campus meetings due to COVID
  - Spring 2021 – Formation of the following sub-committees to increase engagement with the school:

**Knowledge Committee** – Engage the alumni of the School of Architecture in support of the School. Areas of responsibility will include but not be limited to:

- Promoting, among firms, the School of Architecture Internship Program for 4<sup>th</sup> and 5<sup>th</sup> year students and supporting students in their pursuit of internships
- Promoting and managing Advisory Council membership and annual giving
- Identifying and leading fund-raising campaigns in support of the School of Architecture

**Advocacy Committee** – Provide communication and liaison between the profession and the School of Architecture. Areas of responsibility will include but not be limited to:

- Assist the lecture and exhibits committees of the School in identifying, contacting and bringing lectures and exhibits to the School of Architecture
- Develop an “E-mentoring program
- Studio support by participating and identifying professionals to sit on studio reviews in School of Architecture

**Student Recruitment Committee** – Support the School of Architecture and the profession's aspiration to increase the social, cultural and economic diversity of students seeking an architectural education. Areas of responsibility will include but not be limited to:

- Support the School of Architecture's recruitment strategies through contact and engagement with high schools, community and tribal colleges and students



- Identify strategies to support recruitment visits to the School of Architecture for students who's social, cultural, and economic circumstances would otherwise prevent travel to Bozeman, MT
  - Identify strategies and seek funding within the profession and allied professions in support of scholarships and mentorship to increase the social, cultural, and economic diversity of students and their success in the School of Architecture
- Fall 2021 – Increase in student numbers and graduates – pros and cons
  - Spring 2022 – Academic responsibilities and profession practice expectations of the residency program (internships)
  - Fall 2022 – E Mentorship role in education success
- In addition to the advisory council members, local architects are invited to mid-term and final reviews for 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, and graduate level studios and are asked to evaluate and report on the student work relative to the school's NAAB matric learning objectives.
  - Faculty from other schools of architecture are invited to participate in final reviews for the NAAB required Comprehensive Design Studio, ARCH 535/558.

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:

Four types of assessment regularly occur within the School of Architecture:

1. Faculty self-assess the courses they teach as part of the faculty member's annual review submittal to the director. Faculty are asked to identify the success of the course and how it could be improved relative to the NAAB learning outcomes assigned the course, other criteria assigned either by the coordinator of multi-section courses or in agreement with the director. Studio instructors are required to submit examples of their highest and lowest passing work. In addition to the assessment relative to the NAAB learning outcomes faculty are required to respond to the student evaluations recorded in their IDEA student evaluations. Faculty are evaluated by the director and given a written evaluation of their strengths, weaknesses and areas requiring improvement where appropriate for each course they teach.
2. At the conclusion of each semester faculty from each studio sit on the reviews of other studio courses from the same year and studio courses preceding and following the studio year they are teaching. In addition, the director sits in on a sampling of reviews from every studio year and a cursory review of all work. Studio coordinators then meet with the faculty teaching both studio and other courses taught as co-requisites for the same year to evaluate the successes in terms of student outcomes and coordination, as well as integration with non-studio courses. Proposed minor changes are scheduled for implementation in the following semester or in the next academic year.
3. External reviewers sit on the final reviews of all studio courses. They are asked to make observations and recommendations relative to the students' success in meeting the learning objectives for the course to both the instructor and the director.
4. Since 2018 the university has required an annual assessment of courses on a 3-year cycle. The assessment is carried out by a School of Architecture Assessment Committee and the results are shared with the faculty teaching the course and the director. The results are turned in to the University Committee on Assessment for evaluation and response regarding analysis, achievement, recommendations, and follow-up.

Other than in the case of #1 above revisions to courses in response to these evaluations are made in a collaborative manner between either the director and individual faculty or coordinators and faculty teaching in a specific year. If an issue cannot be resolved in this manner, is too broad to be realized by adjustments or requires a significant revision to a course or a proposal for a new course to meet



pedagogic needs the issue is brought to the attention of the director or initiated by the director and forwarded to the School of Architecture Curriculum Committee. Their recommendation is brought to the faculty for discussion followed by a formal report and vote by the faculty at a faculty meeting or retreat.

### 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:

Based on a cause for concern, since the 2017 University Accreditation, by the Northwest Commission on Colleges and Universities through the 2019-2020 academic year the school was required to engage in an internal assessment of courses on a three-year cycle by the University Assessment Committee. Beginning with 2020-2021 professional programs such as architecture were permitted to utilize their professional accreditation standards (NAAB) for assessment. In adopting to the 2020 Conditions for Accreditation the school has integrated the previous university expectations with the NAAB assessment expectations. The school will continue to evaluate student outcomes from 1/3 of the courses taught by the faculty of architecture on a 3-year cycle while simultaneously evaluating the course syllabus, schedule, assignments, required readings, lectures, handouts, etc. for a demonstration of “understanding” as required by the NAAB 2020 Conditions. ARCH 535 and ARCH 558, constituting the Comprehensive Design Studio, will continue to be evaluated through the demonstrated work of the students utilizing external reviewers from the school’s advisory council and faculty from other schools of architecture in addition to faculty from the school not teaching the courses.

The MSU Annual Assessment Report was conducted by the School of Architecture Assessment Committee, which met at the start of fall term to assess the previous year’s courses. The assessment had five components which we will continue to utilize:

1. **What was done.** This refers to the courses evaluated in any given year in the three-year cycle.
2. **What data were collected.** As an example, data collected might have come from our undergraduate design studios. Students created portfolios of their work in ARCH 151RA Design Fundamentals I and ARCH 152 Design Fundamentals II which were evaluated by five faculty members who did not teach in the first year of our design studio courses.
3. **What was learned.** How successful was the course in meeting the NAAB requirements? What was not successfully demonstrated and what was very successfully achieved.
4. **How we responded.** What recommendations did the school assessment committee make?
5. **Reassessment and Continued Response.** How had the courses that were reviewed 3 years ago responded to the assessment and were the revisions effective in improving the student achievement in meeting the course learning objectives.

The School of Architecture will continue to utilize an Assessment Committee to annually review courses in a manner which integrates the MSU assessment system with the NAAB assessment requirements on a three-year cycle.

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

#### Program Response:

Course assessment occurs regularly as described in 5.2.5 and 5.3 above relative to the NAAB program and student criteria. Broader discussions relative to the shared values of the discipline and profession and the MSU mission occur at the annual fall and spring retreat and annual on-campus meetings of the School of Architecture Advisory Council. Two such topics arose in the 2021-2022 academic:

1. A need was identified by the advisory council for architecture school graduates to have a stronger basic understanding of leadership principles, responsibilities, skills, and actions. The advisory

council sees the importance of leadership residing not only within firms, but vitally necessary as more interdisciplinary teams are formed to meet the challenges of architecture and there is a greater demand from the public for leadership in environmental issues. The curriculum committee was assigned this topic. After reviewing courses titled “Leadership” across campus it was clear that no other course meets the teaching and learning objects desired. The committee then identified a solution that permitted a required course, tentatively identified as USxxx, Leadership in the Professions, to be offered in the second year of the architecture curriculum. It will satisfy a university requirement for a university studies core course open to all student on campus. The course will be implemented in the fall of 2023.

2. The faculty teaching ARCH 526, Advance Architectural Theory, have identified a lack of knowledge regarding the theories and manifestos at the core of modernism and those which have emerged since the 1980s. This places our students in the untenable position of basing their work primarily on formal considerations with little knowledge of where it fits in architecture’s history of social, cultural, environmental, or economic engagement. The topic was raised at the spring 2022 retreat and has been assigned to the curriculum committee for proposals to modify our existing curriculum either through integrating theory into an existing course(s) or elimination of a course and substituting a theory course in its place.

**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:**

Curricular agendas and initiatives are set in the following ways:

1. Individual faculty may propose curricular discussions at any of the regularly scheduled twice monthly faculty meetings or faculty retreats which occur at the beginning and end of each semester.
2. Coordinators for each curricular year may suggest proposals either at faculty meetings or directly to the curriculum committee or director.
3. The undergraduate or graduate coordinator may suggest proposals either at faculty meetings or to the curriculum committee or director.
4. The undergraduate or graduate student advisors may suggest proposals at faculty meetings or to the curriculum committee or director.
5. The School of Architecture Assessment Committee may suggest proposal at faculty meetings or to the curriculum committee or director.
6. The director may suggest proposals at a faculty meeting or to the curriculum committee, undergraduate or graduate coordinators or academic year coordinators.
7. Students may suggest proposals at faculty meetings or to the curriculum committee or director.
8. All curricular agenda and initiatives are process in the following manner regardless of the source from which the proposal arose:
  - a. Proposals are introduced at a faculty meeting and if there is interest among the faculty the proposal is forwarded to the curriculum committee for consideration.
  - b. The curriculum committee reviews the proposal and discusses the implications of the proposal with the undergraduate and or graduate coordinator, faculty directly affected by the proposal, the undergraduate and or graduate academic student advisor, and the director.
  - c. Following the curriculum committee review the committee prepares a written report with recommendations and presents the report at a regularly scheduled faculty meeting.
  - d. During the faculty meeting faculty discuss the report and vote to implement, modify, or deny implementation of the proposal as presented by the curriculum committee.
  - e. It is the director’s responsibility to ensure that the action voted on by the faculty is implemented.



9. Minor curricular revisions which are intended to improve course delivery and success in achieving the course's assigned teaching and learning objectives may be undertaken with approval of the director by individual faculty and academic year coordinators.

The School of Architecture Curriculum Committee consists of the following members:

Undergraduate Coordinator	Professor Steve Juroszek
Graduate Coordinator	Professor Michael Everts
Faculty member at large	Associate Professor Zuzanna Karczewska
Undergraduate Academic Student Advisor	Allie Frazier
Graduate Academic Student Advisor	Rachael Ortego

The Curriculum Committee reports to the director and is the organizational unit responsible for formally ensuring that academic policy, curriculum structure, and course content is in conformance with the desires of the faculty, NAAB, the University Undergraduate and Graduate Curriculum Committees and University Policy as identified by the Provost and Legal Counsel. The School of Architecture Assessment Committee is a subcommittee of the Curriculum Committee.

#### 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:**

For Fall 2022 the School of Architecture has the following administrative leadership:

- Director, Professor Christopher Livingston who teaches 2 courses (.66 FTE) and has the administrative responsibilities of the director (.75 FTE)
- Assistant Director, "Fellow", Associate Professor Zuzanna Karczewska who teaches 2 courses (.66 FTE) and has administrative responsibilities in support of the director (.5 FTE)

For Fall 2022 the School of Architecture has the following 15 full-time faculty:

- Associate Professor Suzanna Cowan
- Professor Michael Everts
- Professor Steve Juroszek
- Teaching Professor Chere LeClair
- Professor Jaya Mukhopadhyay
- Teaching Professor Barry Newton
- Professor Maire O'Neill
- Assistant Professor James Park
- Teaching Assistant Professor Brian Rasch
- Teaching Assistant Professor Bill Shiner
- Assistant Professor Kyle Stover
- Teaching Assistant Professor Ellie Usick
- Professor Andrew Vernoooy
- Assistant Teaching Professor Eric Watson
- Assistant Teaching Professor Jordan Zignego

Three full-time tenure track positions are currently open:

- Professor Ralph Johnson – Retired summer 2022
- Professor Henry Sorenson – Retired summer 2022
- Associate Professor Bradford Watson – Resigned to accept another position summer 2022

For Fall 2022 the School of Architecture has the following 8 part-time instructional faculty:

- Instructor Alexis Dolese – One class (.2 FTE)



- Instructor Duke Elliott – One class (.2 FTE)
- Instructor Sherill Halbe – Two classes (.4 FTE)
- Instructor Dalton Jensen – One class (.27 FTE)
- Instructor Christopher Schwalbe – One class (.2 FTE)
- Instructor Nicolas Smith – One class (.2 FTE)
- Instructor Jerry Stevens – One class (.2 FTE)
- Instructor Daniel Short – One class (.2 FTE)

For Fall 2022 the School of Architecture has the following administrative staff:

- Business Office Manager – Graduate Academic Student Advisor – Assessment Administrator Rachael Ortego (2.0 FTE)
- Undergraduate Academic Advisory Allie Frazier (1.0 FTE) employed by the Advising Commons shared services
- Main Office Receptionist: Work-study students equating to .75 FTE
- Craft Shop Manager Sean Clearwater (.75 FTE)
- Craft Shop and Laser Room Assistants: Work-study student equating to 1.0 FTE
- Printing Services Manager Jeff Schultz (1.0 FTE)
- IT services are provided by the College and University. The college IT support staff is in Cheever Hall and thus offers easy access for faculty, staff and student support.

The School of Architecture adopted a workload policy on August 17<sup>th</sup> in 2015 with revisions dated Sept. 11, 2015, March 27<sup>th</sup>, 2018, and Oct. 10<sup>th</sup>, 2018. The policy states:

1. The normal teaching load for each faculty member, constituting 60% of assigned effort, shall be three (3) courses each semester distributed in one of the following manners:
  - a. Lecture/Design studio/Graduate paper or project
  - b. Design studio/Design studio/Graduate paper or project
  - c. Graduate seminar/Lecture/Graduate paper or project
  - d. Graduate seminar/Design studio/Graduate paper or project
2. All design studios are 6 workload units regardless of the credits assigned. Rationale:
  - a. First year design studios have a typical ratio of 30 students to 1 faculty member with a teaching assistant for each 15 students. Preparing, implementing, reviewing, and grading six (6) to ten (10) design challenges each semester requires approximately 50% more faculty time than a typical 1:1 ratio between credit hours and workload units therefore six (6) workload units are appropriate for a 4-credit first year studio course.
  - b. Second, third, and fourth year design studios have a typical ratio of 12-14 students to 1 faculty member. Preparing, implementing, reviewing, and grading two (2) design challenges each semester requires approximately 20% more faculty time than a typical 1:1 ratio between credit hours and workload units therefore six (6) workload units are appropriate for a 5-credit undergraduate studio course.
  - c. Graduate design studio courses have a typical ratio of 8-10 students to 1 faculty member. Preparing, implementing, reviewing, and grading one (1) design challenge each semester requires a faculty time commitment equivalent to the typical 1:1 ratio between credit hours and workload units. Graduate studios are therefore assigned six (6) workload units.
3. All lecture and seminar courses, unless otherwise noted, have a 1:1 ratio of credit hours to workload units.
4. Faculty teaching ARCH 560, Masters Studio Project, shall be awarded four (4) workload units for each three (3) to five (5) students enrolled in their section. Faculty teaching sections with six (6) or more students shall be awarded eight (8) workload units.
5. Faculty teaching ARCH 575, Professional Paper, shall be awarded three (3) workload units for



each three (3) to five (5) students enrolled in their section. Faculty teaching sections with six (6) or more students shall be awarded six (6) workload units.

### Scholarship

1. The normal faculty expectations for scholarship, constituting 25% of assigned effort, is evidenced by the original intellectual work of faculty that includes the discovery, application, and/or assimilation of new knowledge and the dissemination of that knowledge. This work includes, but is not limited to:
  - a. Conducting research projects
  - b. Securing and administering grants and contracts
  - c. Writing/editing books, articles and other research-based material representing one's original or collaborative research
  - d. Developing new practice models
  - e. Presentations at scholarly conferences
  - f. Participation in design competitions
  - g. Participation in exhibitions
  - h. Creation, development, implementation, study and publishing of pedagogical innovations
  - i. Documented studies of curricula and pedagogical issues
  - j. Pedagogically oriented research
  - k. Innovation in community engagement

### Service

1. The normal faculty expectations for service, constituting 15% of assigned effort, is evidenced by the contribution of faculty knowledge and expertise to assist, and engage individuals and/or organizations to meet goals and solve problems. This work includes, but is not limited to:
  - a. Professional service
    - Contributions to or holding office in a professional society
    - Serving on an editorial board
    - Reviewing manuscripts or competitions for professional journals or sponsored competitions
  - b. Public service
    - Providing professional expertise in collaboration and engagement with local, state, national and global communities
    - Providing professional expertise in collaboration and engagement with local, state, national and global non-profit organizations
  - c. University service
    - Faculty governance
    - Serving on university committees
    - Advising student groups
    - Participation in other activities that contribute to the institution and its programs
2. Service Workload Estimates Assumptions:
  - a. Workload units represent the amount of time a faculty or staff member spends on an assignment each semester (teaching, research & service activities).
  - b. The workload designations listed below are estimates based on the collective memory of faculty and staff.
  - c. Based on the model developed to determine NTT lecture course workloads 3 work load units is equivalent to 45 hours of contact + 90 hours of preparation work over the course of a semester.
3. Estimated Workload for Typical Assignments
  - a. Three (3) hour lecture class: 3 hrs. contact/wk. = 45 hrs.  
+3 hrs. preparation /wk.= 90 hrs.  
135 hours = 3 workload units



- b. Based on the NTT 3 workload unit model a ratio of work load units to hours of work can be determined:
- 1 work load unit =  $135/3 = 45$  hours of work
  - 1/2 work load unit =  $45 \times .5 = 23$  hours of work
  - 1/3 work load unit =  $45 \times .33 = 15$  hours of work
  - 1/4 work load unit =  $45 \times .25 = 11$  hours of work
  - 1/8 work load unit =  $45 \times .13 = 6$  hours of work
- c. For service activities the year begins August 15<sup>th</sup> and ends June 15<sup>th</sup> thus our contracted period of employment is approximately 44 weeks. An estimate of the hours for each service activity are listed below:

**Advisory Council Support**

Committee Chair .25 work load unit = 11 hours of work/semester  
 Committee Member .12 work load units = 6 hours of work/semester

**AIAS Faculty Advisor**

Committee Chair .25 work load unit = 11 hours of work/semester  
 Committee Member .12 work load units = 6 hours of work/semester

**Architectural Experience Program**

Committee Chair 1 work load unit = 45 hours of work/semester  
 Committee Member .5 work load units = 23 hours of work/semester

**Assessment**

Committee Chair .5 work load units = 22.5 hours of work/semester  
 Committee Member .33 work load units = 15 hours of work/semester

**Computer, Equipment, Facilities & Resources (CFAC & EFAC)**

Committee Chair 1 work load unit = 45 hours of work/semester  
 Committee Member .5 work load units = 23 hours of work/semester

**Curriculum**

Committee Chair 1 work load unit = 45 hours of work/semester  
 Committee Member .5 work load units = 23 hours of work/semester

**Graduate or Undergraduate Coordinator**

Committee Chair 3 work load units = 135 hours of work/semester  
 Committee Member 1 work load unit = 45 hours of work/semester

**Graduate Council**

Committee Member .25 work load unit = 11 hours of work/semester

**Graduate Admissions Portfolio Review**

Committee Member .12 work load units = 6 hours of work/semester

**Learning Culture**

Committee Chair .5 work load unit = 23 hours of work/semester  
 Committee Member .25 work load unit = 11 hours of work/semester

**Lecture & Exhibits**

Committee Chair 1 work load unit = 45 hours of work/semester  
 Committee Member .5 work load units = 23 hours of work/semester

**Recruiting**

Committee Chair 3 work load units = 135 hours of work/semester  
 Committee Member 1 work load unit = 45 hours of work/semester

**Retention, Tenure & Promotion for School of Architecture**

Committee Chair 2 work load units = 90 hours of work/semester  
 Committee Member 1 work load unit = 45 hours of work/semester

**Retention, Tenure & Promotion for College**

Committee Chair 3 work load units = 135 hours of work/semester  
 Committee Member 2 work load unit = 90 hours of work/semester

**Retention, Tenure and Promotion for University**

Committee Member 2 work load units = 90 hours of work/semester





**Second Year Admissions Portfolio Review**

Committee Member .12 work load units = 6 hours of work/semester

**Tau Sigma Delta Faculty Advisor**

Committee Chair 1 work load unit = 45 hours of work/semester

Committee Member .5 work load units = 23 hours of work/semester

**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:**

Professor Christopher Livingston has served as the Architect Licensing Advisor since 2005 and he has attended the NCARB Licensing Advisor Summit when it was every year from 2005-2017. In 2017, NCARB decided to hold the event on a biannual basis and I attended the 2019 Summit (Minneapolis). The 2021 Summit was in Miami, during the pandemic, and was not attended by Professor Livingston.

Professor Livingston conducts two lectures each year to ensure that students are aware of the program, its opportunities and requirements. In the fall of each year the lecture is given to first year students in ARCH 121, Introduction to Design and in the spring a similar but more detailed lecture is given to 3<sup>rd</sup> year students in ARCH 340, Building Construction II. Professor Livingston is also available for individual student discussions during his office hours and students are frequently recommended to him by the undergraduate student academic advisory.

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

**Program Response:**

All full-time faculty and staff and continuing part-time faculty receive a professional development allowance of \$2,000 per academic year for use as they see fit subject to approval by the director. Faculty and staff utilize these funds for travel to conferences, the purchase of books, participation in workshops either in-person or through distant learning, continuing education expenses, and travel to other programs to observe administrative, teaching, and facility operations.

**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:**

Undergraduate academic and personal advising is carried out by a full-time adviser for the school with an office on the first floor of Cheever Hall. The position is funded through the university shared services system Advising Commons. Graduate academic and personal advising is carried out as an overload assignment by the business office manager who was previously the director of student services providing academic advising to both undergraduate and graduate students.

Career guidance is carried out by full-time faculty of the School of Architecture in two forms. Studio faculty, because of the low student – teacher ratio, are closely aligned with their students interests and needs therefore they frequently and informally provide advising related to professional practice. In a more formal manner faculty are assigned approximately 20 students who they are required to meet with as a group once each semester for discussions related to both academic and professional topics. These





students may also make individual appointments with their assigned advisor for more personal assistance at any time.

University Student Health Partners Counseling and Psychological Services (CPS) specializes in college mental health and is available to all students. The professional staff at CPS provide group and individual counseling services, outreach and prevention, and consultation to parents, faculty, staff, students and others in our community. Students may choose to visit CPS or may be referred for a visit by faculty and staff of the school.

Internships are coordinated by the Internship Coordinator, Teaching Professor Chere LeClair, FAIA. There are specific learning objectives and student assignments associated with the class, ARCH 498. Professor LeClair has weekly on-line meetings with the students enrolled in the course and exhibition boards are due at the conclusion of the class documenting the character of the office and the work the students were involved with. A reflective paper articulating the student's professional and socio-cultural experience is a requirement for completion of the course. Professor LeClair reviews each office offering internship and provides the office with a document outlining the responsibilities of the office and the student interns.

The School of Architecture utilizes three forms of job placement:

1. Offices seeking graduates or part-time employees are required to submit job descriptions and these are forwarded by the undergraduate and graduate student academic advisors to all students in the program and previous graduates who have notified the school that they are interested in being made aware of employment opportunities.
2. The School of Architecture holds what is called "Celebration" every fall semester. The event is advertised to all offices that have employed the school's graduates in the past and offices that have expressed an interest in hiring our graduates or interns. Offices provide the school with web-site information and brief descriptions of the office which the school distributes to both undergraduate and graduate students who then sign up for interviews. The "Celebration" event is a dinner at which offices reserve a table and provide dinner with members of the office permitting informal discussions regarding the office's employment needs, characteristics of the office and discussions with the students.
3. The University hosts an annual fall and spring career fair to which employers from across the country are invited. Employers meet with students and interview for internships and full-time employment. Students in the architecture program are encouraged to attend the career fair.

Additionally, beginning with the fall 2022 semester an "E" mentorship program will be instituted. The on-line mentorship program is sponsored by the School of Architecture Advisory Council and is intended to link students with a professional who can act as a mentor to the students newly admitted to the second year of the environmental design degree program. Mentors will remain with the student throughout their undergraduate career and aid them in understanding the relationship between education and practice, help students better understand practice, offer the students the opportunity to visit the mentor's office, help in acquiring internships and eventually support the graduate in acquiring a job.

## **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:**

The Strategic Plan of the University and adopted by the School of Architecture in 2019 identifies the intention of Goal 1.1 to be to "broaden access for underrepresented populations ..."

### **Faculty Diversity**



For the fall of 2022 the administration of the school has a male director and female assistant director (fellow) while 10 men and 5 women make up the full-time teaching faculty of the school. The ratio among part-time faculty is 6 men to 2 women. This ratio was dramatically altered when 3 full-time non-tenure track women who had been teaching in the school for the last 3 years chose not to teach this academic year for a variety of reasons. One was replaced by a full-time non-tenure track woman and the other two were replaced by 4 men teaching part-time. All members of the faculty, except one are white.

The search for and hiring of both tenure track and non-tenure track faculty is managed through the office of Human Resources which ensures that all recruiting and hiring efforts are non-discriminatory and focus on increasing the diversity of MSU employees.

**Faculty Physical Resources**

All tenure track and full-time non-tenure track faculty have private offices. Part-time faculty typically share an office with another part-time faculty member. All buildings, offices, classrooms and toilets are ADA accessible. Faculty with special needs are served by the University office of Human Resources by the Americans With Disabilities Act Coordinator.

**Faculty Financial Resources**

A policy in place prior to the program’s 2014 accreditation has been followed with salaries for initial hires of assistant professor tenure track positions at the Oklahoma State Survey regional average for higher research institutions. A 2020-2021 School of Architecture Faculty Salary Survey illustrates the compensation of school faculty relative to the OSU averages:

Title	OSU Research Average	Highest %	Lowest %	Average %
Associate Professor	\$ 90,497	89%	76%	84.2%
Professor	\$128,545	78%	72%	75.6%
Assistant Teaching Professor	\$2,276 / Workload Unit	97%	85%	90.3%
Teaching Professor	\$3,677 / Workload Unit	67%	65%	66.0%
Instructor	\$2,276 / Workload Unit	88%	81%	85.0%

Annual faculty salary raises are awarded by the Board of Regents subject to funding by the State Legislature. No salary increases were authorized for the academic years 2022-2023, 2020-2021 and a 2% raise was awarded for the 2018-2019 academic year. Annual merit salary increases available for both tenure track and full time non-tenure track faculty are awarded by the director from a fund made available through the Provost’s Office and distributed by the CAA Dean’s Office. The funding varies each year but on average there is funding for a 3% raise available for 3 faculty. Merit awards are based on the faculty member’s annual review. Equity awards are available at the discretion of the Provost and when available and directed to faculty members, both tenure track and non-tenure track who fall most significantly below 70% of the OSU average.

All full-time faculty and continuing part-time faculty receive a professional development allowance of \$2,000 per academic year for use as they see fit subject to approval by the director.

**Staff Diversity**

The Director of the School of Architecture has hiring authority for three staff members. All other supporting staff are employed by the CAA Dean or University Shared Services. One position is currently open. One staff member is female and the other male and both are white. The search for and hiring of staff is managed through the office of Human Resources which ensures that all recruiting and hiring efforts are non-discriminatory and focus on increasing the diversity of MSU employees.

**Staff Physical Resources**

All staff have private offices. All buildings, offices, classrooms, and toilets are ADA accessible. Staff with special needs are served by the University office of Human Resources by the Americans With Disabilities Act Coordinator.



### Staff Financial Resources

Staff within the School of Architecture are identified as classified employees and all salaries and benefits are set by the MUS Staff Compensation Plan subject to the MSU Classified Employees Collective Bargaining Agreement.

All full-time staff members receive a professional development allowance of \$2,000 per academic year for use as they see fit subject to approval by the director.

### Student Diversity

The school has achieved an approximately 50/50 gender balance among students however beyond this the student population of the school reflects neither the demographics of the state of Montana nor the nation:

	<u>2021 Montana Population</u>	<u>School</u>	<u>Nation</u>
○ White	88.7%	85.4%	57.80%
○ American Indian	6.0%	1.5%	.07%
○ Hispanic	4.3%	5.7%	18.70%
○ Multiracial	3.0%	Not Reported	4.10%
○ Black	0.6%	1.5%	12.10%
○ Asian	1.0%	2.4%	5.90%

### Student Physical Resources

All buildings, offices, classrooms, and toilets are ADA accessible. Students with special needs have access to the Office of Disability Services. This office provides access to all college programs, services, activities and facilities for students with disabilities. This includes encouraging self-advocacy for students and connecting them with resources and support services across campus to help them achieve their personal best. Faculty and staff are notified by the Office of Disability Services when specific accommodations are needed to accommodate the student.

First year students utilize “hot” desks for each of the four first year studios that occur throughout the day. Additional desks are located around the perimeter of the studio and available to students at any time for work on homework assignments. These desks are fixed in height but when needed unique desks and seating accommodations are available. Lockers are available adjacent to the first-year studio so that all students have adequate storage for materials and tools required to satisfy the projects assigned. Second through fifth year students each have a personal desk with built in lockable draws for the storage of their materials and tools. These desks have adjustable heights, and a variety of seating types are available to accommodate the person choices of students.

### Student Financial Resources

The Office of Financial Aid Services provides financial assistance to all students. All students seeking financial assistance must complete a FAFSA application and this is utilized both by the university and school to determine financial need and the resources available to meet that need either through loans, scholarships or student employment. The School of Architecture relies on university scholarships for first year students. Following acceptance into the second year of the Environmental Design Degree program or admittance into the graduate program all students are eligible to apply for approximately \$85,000 in annual scholarships drawn from approximately \$1,500,000 in endowed scholarship funds. Most of these scholarships are merit based but approximately 15% include a need component in the award criteria.

Graduate students are eligible to apply for graduate teaching assistantships (GTA). Approximately 25 such positions are available each semester. GTA positions cover the cost of 12 credits of graduate course work each semester and provide a small monthly stipend.

The AIAS students attend the first few days of first year studios to ensure that the first year students are aware of the used free tools and materials that are always available in the AIAS office and supply room.

**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:**

Following the school's 2014 accreditation cycle the School of Architecture developed a Succession Policy, which was adopted in 2019. The policy states that:

*The School of Architecture succession strategy should seek to maintain (a) breadth of expertise while seeking to enrich the School of Architecture's:*

- a. Diversity*
- b. Currency*
- c. Research*
- d. Interdisciplinarity*

This policy has been utilized in hiring non-tenure track faculty with good success. Following the 2014 accreditation visit the school employed 10 non-tenure track faculty members. Six were male and four females, all white. Through resignations and retirements all but two are no longer teaching in the school. The school utilizes a pool of applicants for non-tenure track positions managed by the Office of Human Resources (HR). The director and non-tenure track search committee have vigorously sought women to apply for non-tenure track position through the HR pool. During the 2021-2022 academic year the school continued to employ 10 non-tenure track faculty members. Six were female and four were male, all white, but effectively reversing the ratio of female to male non-tenure track faculty members.

For the 2021-2022 academic year tenure track and non-tenure track faculty totaled 22 of which 12 were male and 10 females.

The first tenure-track search since the 2014 accreditation visit was authorized in 2022 and was for 2 tenure track positions. Extensive efforts in advertising were taken to attract applicants from underrepresented groups including advertising with the Association for Women in Architecture & Design and the National Organization of Minority Architects. Thirty-seven applications were received including 7 from women applicants. No applicant identified themselves as part of a minority ethnicity. Of the 7 applicants 3 had credentials and teaching areas of expertise duplicating that of one of our existing female faculty and 3 did not meet minimum qualifications. The remaining female candidate was a finalist and offered a position but declined because of salary offered relative to the cost of living in Bozeman, Montana. Although having appropriate to hiring as an assistant professor the candidate's salary expectation was equivalent to that of a new full professor in the School of Architecture.

The school has 3 open tenure track positions and hopes to advertise for these positions during the 2022-2023 academic year and will again make every effort to fulfill the aspirations of the school's succession policy.

The staff of the school are classified employees and all searches for staff are conducted and managed by the Office of Human Resources. The Human Resources Office provides leadership, guidance and administration of classification, recruitment, payroll and benefits for all classified employees and administers the MSU affirmative action plans for minorities and women, protected veterans and individuals with disabilities. It is the goal of the school to create greater diversity among the staff, but the school is entirely dependent on position pools created by Human Resources. Because of low salaries these are filled almost exclusively by local residents and thus the demographics of applicants and hires reflects the demographics of the community and state which is 88.7% white.



Comparative Demographics

	2021-2022 Students	2021-2022 Faculty	2021-2022 Staff
Female	49.3%	45.5%	50.0%
Male	50.7%	54.5%	50.0%
White	85.4%	100.0%	100.0%
American Indian	1.5%	0.0%	0.0%
Hispanic	5.7%	0.0%	0.0%
Multiracial	0.0%	0.0%	0.0%
Black	1.5%	0.0%	0.0%
Asian	2.4%	0.0%	0.0%

**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:**

The university, through New Student Services is the primary recruiter of new students to Montana State University and hence the School of Architecture student population reflects very closely that of the university. The school supplements, within its operating budget, additional recruiting efforts at three architecture recruiting fares in Boston MA, Dallas TX, and Boulder CO, where the school has had successful efforts at recruiting diverse populations for both the undergraduate and graduate programs.

The school seeks to increase the racial diversity of its student population to be more representative of the urban environments in which many of our students will be employed, the clients with whom they will be working and the goals of the AIA to increase diversity in the profession. For our location in the Northern Rockies doubling the percentage of American Indian, Hispanic and Multiracial students would be a major achievement. To achieve this goal the school is working in collaboration with the school's Advisory Council to develop a recruiting effort in Billings, Montana where the largest population of Native American students is enrolled in public schools (4.6%). In this prototype effort members of the profession will offer presentations on the role of architects in society and how the profession can be a leader in direct engagement with issues such as housing, environmental stewardship, and the reduction of energy consumption. Students will be invited to visit offices to experience the work environment and view projects. Following this prototype effort advisory council members and faculty from the school will give presentation in the major reservation communities of Box Elder, Browning, Crow Agency, Pablo. and Poplar. Further diversity will be sought through the advisory council members recruiting at high schools in their urban communities such as Seattle, Portland, LA, and Denver.

To enhance the chances for success under-represented students who choose architecture as their major will be offered mentorship and work opportunities throughout their academic career by the offices participating in this program.

Comparative Demographics

	2021-2022 Architecture Students	MSU Students
Female	49.3%	48.0%
Male	50.7%	52.0%
White	85.4%	83.5%
American Indian	1.5%	1.5%
Hispanic	5.7%	5.0%
Multiracial	0.0%	5.0%
Black	1.5%	0.5%
Asian	2.4%	1.0%
Other/Unreported	3.5%	3.5%

**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:**

The university has policies in place to further Equal Employment Opportunity/Affirmative Action through to following programs:

- Affirmative Action Program for Individuals with Disabilities
- Affirmative Action Program for Veterans
- Affirmative Action Program for Minorities and Women
- Affirmative Action Program for Individual with Disabilities

Recruitment Guidelines have been established and are both enforced and monitored by the Office of Human Resources.

The university established, in 2017, a Diversity and Inclusion Framework. The Framework includes a Diversity Statement as well creating a Diversity Council responsible for monitoring the success of diversity and inclusion goals and strategies. The MSU Diversity Council provides guidance, consultation, and leadership to support the advancement of institutional efforts to create a diverse, inclusive, and equitable campus environment.

The College of Arts and Architecture has an Assistant Dean JoDee Palin who's primary responsibility is to promote, assist, and implement the university's Diversity and Inclusion Framework throughout the college.

The school complies with all college and university policies. Additionally, the School of Architecture requires that all syllabi must include the following:

*The School of Architecture at Montana State University seeks to create a positive, enthused and respectful learning environment. To achieve this goal the School has developed the Studio Culture Policy to supplement the Montana State University Student Conduct Code and the Montana State University School of Architecture Studio Policies. The Studio Policy started its development in and is uniquely responsive to the beliefs, attitudes and aspirations of the students, faculty, and administration of the School of Architecture at Montana State University." The complete Studio Culture Policy is attached and can be found at: <http://www.arch.montana.edu/documents/StudioCulturePolicy.pdf>*

*Montana State University expects all students to conduct themselves as honest, responsible and law-abiding members of the academic community and to respect the rights of other students, members of the faculty and staff and the public to use, enjoy and participate in the University programs and facilities. For additional information reference: [http://www2.montana.edu/policy/student\\_conduct/cg600.html](http://www2.montana.edu/policy/student_conduct/cg600.html)*

*If you are a student with a disability and wish to use your approved accommodations for this course, please contact me during my office hours to discuss. Please have your Accommodation Notification or Blue Card available for verification accommodations. Accommodations are approved through the Office of Disability Services located in SUB 174.*

*Respect for Diversity: It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender identity, sexual orientation, disability, age, socioeconomic status, ethnicity, race, religion, culture, perspective, and other background characteristics. Your suggestions about how to improve the value of diversity in this course are encouraged and appreciated. Please let*



me know ways to improve the effectiveness of the course for you personally or for other students or student groups.

In addition, in scheduling due dates, I will attempt to avoid conflicts with major religious holidays. If, however, I have inadvertently scheduled an exam or major deadline that creates a conflict with your religious observances, please let me know as soon as possible so that we can make other arrangements.

I support an inclusive learning environment where diversity and individual differences are understood, respected and a source of strength. We expect that students, faculty, administrators and staff at MSU will respect differences and demonstrate diligence in understanding how other peoples' perspectives, behaviors, and worldviews may be different from their own.

**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:**

Cheever Hall and all buildings on campus utilized for administration, administrative support, teaching, and learning conform to the requirements of the ADA for access, use and egress. Students, staff, and faculty have access to the Office of Disability Services which determines appropriate accommodations and directs the school in strategies to meet the different physical and/or mental abilities of those seeking 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:**

The School of Architecture utilizes a studio-based education pedagogy in which the principles of Bloom's taxonomy are employed in small studios where the ratio varies from an average of 1 faculty member to 10 students at the graduate level to a high average of 1:13 in the 2<sup>nd</sup> year of the undergraduate program. Non-studio courses also utilize Bloom's taxonomy in building knowledge and comprehension, but it is in the studio that application, analysis, synthesis, and evaluation are most fully realized.

Faced with a finite of space suitable for studio teaching and the requirement by the college dean and university provost that the school accept all qualified students into the second year of the Environmental Design Degree Program the school sought peer studies to determine the appropriate square footage necessary to accommodate studio workstations. Two regional peer institutional studies quantifying the appropriate space requirements were approved by the University Space Management staff as appropriate for comparative analysis. These are the Idaho State University Space Planning Guidelines developed by Idaho State Facilities Services in 2009 and the University of Colorado Boulder Space Needs Analysis by Paullen & Associates in 2010. A summary of the two studies regarding lab (studio) space to support studio-based learning follows:

University	Average Square Feet/Workstation	Student Workstation Occupancy Rate	Weekly Workstation Credit Hours/Student
Idaho State	75	80%	16
U. of Colorado	80	80%	20

Definitions:





Studio space is a space used primarily for formally or regularly scheduled instruction (including associated mandatory, but non-credit-earning activities) that require special purpose equipment or a specific space configuration for student participation, experimentation, observation, or practice in an academic discipline. A space is considered to be scheduled if the activities generate weekly student contact hours, the activities fulfill course requirements, and/or there is a formal convener present.

Average Square Feet Per Station establishes an order of magnitude for class laboratory (studio) space within the major Classification of Instructional Programs (CIP), Architecture.

School of Architecture has available the following dedicated studio spaces:

Cheever RM 145*	Cheever RM 157	Cheever RM 208	Cheever RM 235	Cheever RM 236	Reid RM 306
2,900 SF	4,185 SF	2,900 SF	3,050 SF	3,390 SF	2,150 SF

The fall 2022 total square feet, not including RM 145\*, dedicated to studio space is 15,675 SF

\*RM 145 is dedicated to 1<sup>st</sup> year studio space in which students utilize “hot desks” where four (4) students share the same desk for 2-hour periods throughout the day with adjacent storage lockers.

Beginning in the fall of 2019 the School of Architecture was directed to accept all qualified students into the second year of the Environmental Design Program. Acceptance into the program is based on a minimum overall GPA of 2.7, a minimum Architecture GPA of 3.0 and an acceptable portfolio submission of work from the first-year design studio courses. The follow chart indicates the number of students entering first year and the number accepted into the second year:

<b>Fall 2017</b> 102- 1 <sup>st</sup> Yr.	<b>Fall 2018</b> 99-1 <sup>st</sup> Yr.	<b>Fall 2019</b> 127- 1 <sup>st</sup> Yr.	<b>Fall 2020</b> 123- 1 <sup>st</sup> Yr.	<b>Fall 2021</b> 118- 1 <sup>st</sup> Yr.	<b>Fall 2022</b> 156- 1 <sup>st</sup> Yr.
<b>Fall 2018</b> 75- 2 <sup>nd</sup> Yr.	<b>Fall 2019</b> 80- 2 <sup>nd</sup> Yr.	<b>Fall 2020</b> 93- 2 <sup>nd</sup> Yr.	<b>Fall 2021</b> 87- 2 <sup>nd</sup> Yr.	<b>Fall 2022</b> 82- 2 <sup>nd</sup> Yr.	<b>Fall 2023</b> 110-2 <sup>nd</sup> Yr.
74% retention	81% retention	73% retention	71% retention	70% retention	assume 70% retention

Average retention rate of 73.8% from 1<sup>st</sup> year fall enrollment to 2<sup>nd</sup> year fall enrollment

Anticipating that the policy of admitting all qualified 2<sup>nd</sup> year students will continue the following chart indicates the cumulative effect of this policy and assumes that the school will reach its maximum physical capacity in 2022 at which time the average SF/WS/student will be 71 SF, somewhat below the recommended average but given the school’s recent experience viable.

Enrolled	Enrolled	Enrolled	Enrolled	Enrolled	Enrolled	Projected
Students	Projected Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
2 <sup>nd</sup> year	44	81	68	82	110	80
3 <sup>rd</sup> year	51	42	72	62	76	103
4 <sup>th</sup> year	24*	29*	22*	30*	32*	56*
Graduate #1	37	36	28	25	60	60
Graduate #2	<u>32</u>	<u>31</u>	<u>41</u>	<u>28</u>	<u>21</u>	<u>60</u>
<b>Total Students</b>	<b>188</b>	<b>219</b>	<b>231</b>	<b>227</b>	<b>299</b>	<b>359</b>

\*Note that approximately 1/3<sup>rd</sup> of the 4<sup>th</sup> year student are studying abroad or enrolled in an internship off campus.

Until the fall of 2022 there was 13,525 SF of studio space available for 2<sup>nd</sup> – 5<sup>th</sup> year workstations. With the addition of Reid 306 in the fall of 2022 students in the 2<sup>nd</sup> through 5<sup>th</sup> year have 15,675 SF available. Utilizing the current and projected enrollments the average square footage per workstation is indicated.

Average Square Feet Per Workstation	Enrolled Fall 2019	Enrolled Fall 2020	Enrolled Fall 2021	Enrolled Fall 2022	Projected Fall 2023	Projected Fall 2024
	188	219	231	227	299	359
	<b>72 SF/WS</b>	<b>62 SF/WS</b>	<b>59 SF/WS</b>	<b>69 SF/WS</b>	<b>52 SF/WS</b>	<b>44 SF/WS</b>





During the fall of 2020 the school utilized a lounge space and a corridor to minimize the impact of more students but in the fall of 2021 those spaces were no longer available thus creating an intolerable teaching and learning environment. The result was significant student behavioral issues among third year students, a lack of common review spaces, excessive noise and studio faculty dissatisfaction with the teaching and learning environment.

The following chart indicates the appropriate additional square footage per workstation needed to reach recommended 75 SF/workstation:

<u>Year</u>	<u>Square Feet Required</u>	<u>Existing SF</u>	<u>SF Needed to reach 75 SF/WS</u>
2022	17,025 SF	15,575 SF	1,450 SF
2023	22,425 SF	15,575 SF	6,850 SF
2024	26,925 SF	15,575 SF	11,350 SF

Given the physical space available for student workstations the student enrollment in the School of Architecture reaches its maximum viable number of approximately 227 students in the fall of 2022. Either additional space is made available to accommodate the increasing demand for an architectural education or a limit must be placed on the number of students accepted into the second year.

To maintain the 69 SF/WS reached in 2022 only 38 of the estimated 110 students likely to be qualified for second year admission can be admitted into the second year of the School of Architecture program in the fall of 2023 and only 13 qualified students could be admitted into the second year of the program in 2024.

Numerous studies have been conducted by the School of Architecture and MSU Campus Planning, Design & Construction to identify a long-term solution to the increasing student population in the School of Architecture. In 2021 these included the conversion of the SOB building, currently managed by the Office of Auxiliary Services, into classrooms and multi-use spaces, and infill additions to the first floor of Cheever Hall on the north and south sides. These studies can be found in the booklet *The Workshop of Potential Architectures*. In April of 2022 MSU Campus Planning, Design & Construction hired Cushing Terrell Architects to develop a construction budget for expanding the 2nd floor of Cheever Hall. The resulting studio space and costs from these studies are indicated in the chart below:

<u>Proposal</u>	<u>Studio Space</u>	<u>Cost in 2022 Dollars</u>
SOB Building First Floor	36 workstations	\$2,583,525 (extensive building repairs required)
North Side 1 <sup>st</sup> Floor Cheever	40 workstations	\$1,376,200
South Side 1 <sup>st</sup> Floor Cheever	10 workstations	\$ 565,000
2 <sup>nd</sup> Floor of Cheever Infill	60 workstations	\$1,001,434

Comments:

SOB Building – Auxiliary Services wishes to keep the building and is unwilling to transfer the building to the university for academic use.

Cheever North and South Sides – Requires wall enclosures, additional HVAC and electrical services. Existing toilet facilities in Cheever can be utilized.

Cheever 2<sup>nd</sup> Floor – Assumes minimal HVAC and electrical modifications.

At this time no action has been taken to move forward with any of the proposed long-term solutions.

**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:**

The School of Architecture occupies Cheever Hall with one studio located in Reid Hall. Students enrolled in the program have access to Cheever Hall and the Reid studio 24 hours a day, 7 days a week when classes are in session.

Lectures and seminars occur in classrooms across campus. In addition to the 19,860 square feet dedicated to studios and group review spaces the school has two seminar rooms seating approximately 15, one consultation room for 5 students and faculty, a 50 seat and 100 seat lecture hall and a 72 seat Technology Enhance Active Learning (TEAL) classroom. Cheever also houses the school's fully equipped wood and metals shop and two galleries. The gallery on the lower floor is utilized most of the semester for exhibits but during mid-term and final reviews is utilized for studio presentations/reviews. An upstairs gallery is utilized for teaching and group reviews throughout the semester. All studios, classrooms and seminar spaces are provided with a large flat screen monitor for use by faculty and students. All the classroom, except the studio space are administered by the university's Office of the Registrar and serve students from across the campus. Non-classroom spaces serving students include a print room, photography room, paint booth and a computer lab.

All administrative, faculty and staff offices are in Cheever Hall. Each full-time faculty and staff member has an office while part-time faculty share office space.

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:**

All full-time faculty have a single occupancy office with adequate space for preparation, research, and adequate space for mentoring and student advising. Part-time faculty share office space with adequate room for teaching preparation and have a consulting room in which they can meet privately with students. For gatherings of ten+/- students or faculty there is a first floor reading room with a flat screen monitor.

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

**Program Response:**

All faculty and students utilize the online learning management system, Brightspace by D2L for classes at Montana State University. The system permits faculty to post syllabi, schedules, assignments, articles, videos, grades, etc. online and permits students to post responses to assignments and communicate with their faculty member online.

All studios are arranged in a rectangular manner with student desks on the perimeter surrounding a large worktable where daily discussions and presentations occur and group site models can be accessed by all the students in the studio. A mobile flat screen monitor is provided in each studio for use by the instructor and students for presentations, WebEx meetings, instructional videos and linkage to students who must miss class for medical reasons.

All students are required to have a personal laptop computer beginning in the 2<sup>nd</sup> year of the program. They have access to an extensive list of software programs provided at no charge from University IT and the school including Acrobat DC, the Autodesk Rendering suite (AutoCAD Architecture, 3DSMax, Revit, Fusion 360, Solidworks), , the Adobe Suite, Android Studio, ArcPro, ArGIS, Automation Studio, Dream Weaver, Premiere Pro, Google Earth Pro, Illustrator, InDesign, Micosoft Office, Photoshop, R Studio, Rhinoceros, Rhinoceros Grasshopper, and SketchUp Pro. The school's computer lab has 10 high speed desktop rendering computers available 24 hours a day.

All classrooms and lecture halls in Cheever Hall and throughout campus have a computer station and large overhead presentation screens with which faculty can make presentations, illustrate their lecture, link to external sources for visiting lecturers, show videos, offer the lecture on-line and record the lecture for students who missed the lecture or seek to review the content.

Seminar spaces in Cheever Hall are equipped with a flat screen monitor which may be plugged into



faculty and student laptops.

A Cheever Hall reading room, containing books and periodicals supporting the pedagogy of the school is planned for construction during the 2022-2023 academic year. It will be located on the first floor and accessible to students in architecture 24 hours a day, 7 days a week.

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:**

Not Applicable

**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:**

The School of Architecture has three sources of revenue, a state funded operations and personell budget which is derived from the Board of Regents allocation to Montana State University. The office of the provost allocates, based on historic needs and the office of Budget Analysis recommendations, funding to the colleges. The College of Arts and Architecture dean then distributes the state funding to the dean’s office for personnel, special projects, grants, etc. and then allocates the state funding to each school. The school budgets are primarily historically based but the university has, for the past 5 years required a 2% reallocation of the college budget to be returned to the provost for allocation to growing programs and new initiatives by the university. Because of the 2% return to the provost’s office school budgets do not necessarily reflect recent history. Student program fees are the largest component of the school’s operating budget and in conjunction with funding through the Montana State University Foundation make it possible for the school to meet its teaching and learning goals each academic year. Student program fees are negotiated with the students at the School of Architecture every two years. The current fees are \$75 for each 1<sup>st</sup> year student, \$450 for students in the 2<sup>nd</sup> -4<sup>th</sup> year and \$600 for graduate students each semester. Upon approval by the students the fee proposal is forwarded to the Board of Regents for authorization. Foundation funding is based on a return of 4% on endowments dedicated to the School of Architecture. The following chart illustrates the funding for FY22 and funding over the past 4 years.

State Funding	\$2,018,186		
	Personnel	\$1,923,374	
	Operations	\$ 94,812	
Student Program Fees	\$ 188,036		
	Craft Shop	9%	\$ 16,922
	Course Supplies & Materials	8%	\$ 15,043
	Electives	2%	\$ 3,761
	Field Trips	58%	\$109,061
	Lecture/Exhibit Series	18%	\$ 33,847
	Personnel	2%	\$ 3,761
	Visiting Professionals	3%	\$ 5,641
<b>Total State Funding:</b>	<b>\$2,206,222</b>		



**Budget History**

	FY22 -2021/22	FY21 - 2020/21	FY20 -2019/20	FY19- 2018/19
<b>Architecture</b>				
Personnel	\$1,923,374	\$1,828,268	\$1,788,490	\$1,757,852
Operations	\$ 94,812	\$ 63,689	\$ 86,880	\$ 126,237
<b>Total</b>	<b>\$2,018,186</b>	<b>\$1,891,957</b>	<b>\$1,875,370</b>	<b>\$1,884,089</b>
<b>Course Fees</b>	\$ 188,036	\$ 208,127	\$ 174,400	\$ 187,441
<b>Total</b>				
<b>State Funding</b>	<b>\$2,206,222</b>	<b>\$2,100,084</b>	<b>\$2,049,770</b>	<b>\$2,071,530</b>

Funds available from the Montana State Foundation at the conclusion of FY 22 were:

Endowment	Available Cash	Endowment Value
Scholarship Funds	\$84,150	\$1,406,586
Excellence in Architecture	\$20,019	
Bob and Darin Utzinger Endowment for the School of Arch.	\$71,046	\$1,076,774
Alston G. and Thelma Guttersen Pursuit of Excellence in Arch.	\$ 3,435	\$ 233,015
Architecture Endowment for Excellence	\$21,623	\$ 237,471
Page Werner Architecture Development	\$11,799	
Architecture Special Programs	\$ 5,396	
School of Architecture Visiting Professorship	\$27,656	\$ 866,334
School of Architecture Advisory Council	\$97,545	
Tiny Shelters Initiative	\$32,675	
Mary Elizabeth McClure Memorial Endowment for the School	No allocation	\$ 498,750
<b>Total Foundation Funding</b>	<b>\$375,344</b>	<b>\$4,081,880</b>

**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:**

Renee Library serves the students and faculty of Montana State University and houses approximately 5,500 books, journals, periodicals, and articles associated with architecture and landscape architecture. This is approximately 2,000 fewer resources than were available to students and faculty during the 2014 accreditation cycle. The reduction in resources is due to the limited capacity of Renee Library. Culling of the library resources is based on frequency of use. Inter-library loan is available to students and faculty making many resources not available in Renee Library accessible from other institutions.

The library is open 7am-12am Monday-Thursday, 7am-6pm on Friday, 10am-5 on Saturday and 10-12am on Sundays. The library is staffed and managed by the MSU Library and the collection is accessible through a computer catalog system.

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:**

Renee Library has library and visual resource professionals who provide assistance during the hours of library operation including specialists in research and instruction, technology, publications, data services and information access.



## 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 Statement on NAAB-Accredited degrees is located on the MSU School of Architecture's website under the About\_NAAB Accreditation page found at:

<https://arch.montana.edu/about/naab-accreditation.html>

In addition, this statement occurs on the School of Architecture Overview page for both the Bachelor of Arts in Environmental Design undergraduate degree program and the Master of Architecture degree program which can be found at:

<http://catalog.montana.edu/undergraduate/artsarchitecture/environmental-design/>

<http://catalog.montana.edu/graduate/arts-architecture/architecture/>

The Statement on NAAB-Accredited Degrees is also included in our primary print materials—our undergraduate and graduate prospective student brochures as well as our v17 book (printed in 2016 and 2019) and v18 book (currently being printed in 2022). The Statement on NAAB-Accredited Degrees occurs in the front matters of both books.

### 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:

The School of Architecture's website includes or provides access to all of the above NAAB Conditions and Procedures documents on a single webpage located on the About\_NAAB\_Accreditation webpage under the "NAAB Conditions and Procedures for Accreditation" heading. This webpage can be found at:

<https://arch.montana.edu/about/naab-accreditation.html>



This web page Includes links to following items:

- a) Conditions for Accreditation, 2020 Edition
- b) Conditions for Accreditation, 2009 Edition which were the conditions in effect at the time of our 2014 site visit
- c) Procedures for Accreditation, 2020 Edition
- d) Procedures for Accreditation, 2012 Edition, which were the conditions in effect at the time of our 2014 site visit.

Following are two paragraphs taken from our About\_NAAB\_Accreditation page--  
<https://arch.montana.edu/about/naab-accreditation.html> --with the links to the above Conditions and Procedures.

“NAAB Conditions and Procedures for Accreditation

During MSU's last NAAB site visit in 2014, the [2009 Conditions for Accreditation](#) outlined the requirements for continued accreditation at that point in time. During the 2014 site visit, the [2012 Procedures for Accreditation](#) provided the process used for that site visit and review.

For MSU's upcoming NAAB site visit in 2023, the [2020 Conditions for Accreditation](#) outline the requirements for continued NAAB accreditation of our professional program. In addition, NAAB provides the [2020 Procedures for Accreditation](#) to explain the review process by which schools receive and maintain their professional accreditation and the review process to be used during the 2023 site visit.”

### 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:

Our website provides students with access to a number of career development resources and academic resources under the People\_Current Students\_Student Resources webpage. This page is located at

[https://arch.montana.edu/people/current-students-student\\_resources.html](https://arch.montana.edu/people/current-students-student_resources.html)

The resources on this webpage include:

#### Career Development Resources

- Architectural Careers (non-MSU Resources)
  - [Architecture Career Guides](#) provides resources that lead students through the steps in becoming an architect including selecting educational programs and pursuing a career in architecture and other fields.
- Career, Internship & Student Employment Services through the MSU Allen Yarnell Center for Student Success)
  - Students have access to the Allen Yarnell Center for Student Success, [Career, Internship and Student Employment Services](#), which supports students through personalized advising, tutoring and coaching. The resources include resume tips, job search strategies, interview preparation and job posting.

#### Academic Resources

- School of Architecture advising
  - Students have access to three levels of advising including faculty academic advisors and a departmental advisor.



- <https://arch.montana.edu/people/current-students-advising.html>
  - Students can schedule an appointment with their advisors using MSU online Navigate scheduling program
    - <https://montana.navigate.eab.com/app/#/authentication/remote/>
- MSU Office of Student Success
  - <https://www.montana.edu/aycss/success/>
- SmartyCats Tutoring Programs
  - <https://www.montana.edu/aycss/success/smartycats/index.html>
- Writing Center
  - <https://www.montana.edu/writingcenter/>
- Math and Stat Center
  - <https://math.montana.edu/undergrad/msc/>

### Internship Resources

- Architecture Residency Design Studio
  - Students have an option to participate in a 6-month internship as part of their fourth-year design studio sequence.
- Hire-a-Bobcat online recruiting platform for students and employers. Students can view and apply for internships and job posting from architectural firms and allied disciplines throughout the United State and abroad
  - <https://www.montana.edu/aycss/careers/hireabobcat.html>
- Links are also available to Internship website Chegg, a career portal and job posting site
  - <https://www.internships.com/architecture>
- and a link to Archinect, another job posting website.
  - <https://archinect.com/jobs>

### Professional Resources

Links to the following professional organizations are also included on our Student Resources webpage.  
[https://arch.montana.edu/people/current-students-student\\_resources.html](https://arch.montana.edu/people/current-students-student_resources.html)

Located under the “Student Organizations” heading on the Student Resources webpage

- American Institute of Architects Students

Located under the “Professional Resources” heading on the Student Resources webpage

- American Institute of Architects
- National Council of Architectural Registration Boards
- National Architectural Accrediting Board
- Association of Collegiate Schools of Architecture

## 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:**

The School of Architecture’s website includes or provides access to all of the above NAAB Accreditation Reports and related documents. The location of these documents and/or links are shown on a single webpage located on the About\_NAAB\_Accreditation webpage. This webpage can be found at:

<https://arch.montana.edu/about/naab-accreditation.html>

- a) The links to the 2016 Interim Progress Report and the 2019 Interim Progress Report can be found on our About\_NAAB\_Accreditation webpage located at:

<https://arch.montana.edu/about/naab-accreditation.html>

The text and links below are copied from our NAAB\_Accreditation webpage

“2016 Interim Progress Report

[Read the Montana State 2016 IPR](#)

2019 Interim Progress Report

[Read the 2019 Interim Progress Report”](#)

- b) There was no NAAB Plan to Correct from 2014 Site Visit. There were no NAAB responses to any annual reports submitted since the 2014 site visit.
- c) The Link to the 2014 NAAB Decision Letter can be found on our About\_NAAB\_Accreditation webpage located at:

<https://arch.montana.edu/about/naab-accreditation.html>

The text and links below are copied from our NAAB\_Accreditation webpage

“2014 NAAB Decision Letter

[Read the 2014 NAAB Decision Letter”](#)

- d) The link to the 2013 Architecture Program Report can be found on our About\_NAAB\_Accreditation webpage located at:

<https://arch.montana.edu/about/naab-accreditation.html>

The text and links below are copied from our NAAB\_Accreditation webpage

“2013 Architecture Program Report

[Read the 2013 Architecture Program Report”](#)

- e) The 2014 Visiting Team Report is located at the About\_NAAB\_Accreditation webpage:

<https://arch.montana.edu/about/naab-accreditation.html>

The text and links below are copied from our NAAB\_Accreditation webpage

“2014 Visiting Team Report

[Read the 2014 NAAB Visiting Team Report”](#)





- f) There was no school response to the 2014 Visiting Team Report.
- g) There was no Plan to Correct resulting from the 2014 Site Visit
- h) NCARB ARE passing rates from 2014-2021 for Montana State University graduates are shown on our website. We include both MSU passing rates and the national average passing rates in our information. This information is updated every spring. There is a link—the image of ARE Passing Rates—on our home page [www.arch.montana.edu](http://www.arch.montana.edu) that connects viewers to our ARE Passing Rates webpage found at:

[https://arch.montana.edu/ARE\\_Passing\\_Rates.html](https://arch.montana.edu/ARE_Passing_Rates.html) .

- i) The School of Architecture’s Learning and Teaching Culture Policy is located under the “MSU School of Architecture Learning and Teaching Culture Policy” header on the About\_Policies webpage located at

<https://arch.montana.edu/about/policies.html>

- j) Links to Diversity & Inclusion Policy and resources are located under the “Diversity & Inclusion Policy” header on our About\_Policies webpage, which is located at

<https://arch.montana.edu/about/policies.html>

These links provide students access to the resources and information at the MSU Office of Diversity and Inclusion at <https://www.montana.edu/diversity/index.html> These links also provide access to the Diversity and Inclusion Student Commons website. As described on their website, “The Diversity and Inclusion Student Commons promotes inclusion and understanding of difference, supports students from underrepresented identity groups, and encourages critical thinking about diversity topics.”

<https://www.montana.edu/studentdiversity/>

## 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:

#### Pre-Professional Undergraduate Degree Program—Incoming Freshman

The MSU School of Architecture has a pre-professional undergraduate degree program, Bachelor Arts in Environmental Design, which accepts students who apply to our Environmental Design program as incoming freshman and accepts transfer students seeking advanced placement.



For students applying to the first year of our program, the first year courses in the Environmental design classes are considered open enrollment, which means any student may apply to Montana State University and pursue the first year of the curriculum by declaring Environmental Design as their major, without any additional application to the School of Architecture. This information is included on our People\_Pro prospective Students\_Undergraduate webpage located at:

<https://arch.montana.edu/people/prospective-students-undergraduate.html>

From this page students can use a link to see the admission requirements for freshman students apply directly to Montana State University.

<https://www.montana.edu/admissions/apply/freshman.html>

This webpage includes the admission application, application fee, high school transcript or approved equivalency exam and college transcripts, advanced placement scores and International Baccalaureate exams. This webpage provides the MSU academic requirements in each of these areas as well as the required College Preparatory Curriculum and readiness in math and writing. The following text is taken directly from this webpage.

#### “Application Process

The first year of classes are considered open enrollment, which means any student may apply to Montana State University and pursue the first year of the Architecture curriculum by declaring Environmental Design as their major, without any additional application to the School of Architecture. [Admission Requirements for Freshman Students.](#)



[Apply Now!](#)

The Apply Now link on our website will take a student to the MSU Admissions portal located at <https://www.msuadmissions.org/application/> where students can fill out the necessary forms to apply to the BAED at MSU.

Expenses and access to Financial Aid resources will be discussed in the Program Response to Section 6.6 Student Financial Information located later in this report.

### **Pre-Professional Undergraduate Degree Program—Formal Admission into the Second Year of the Environmental Design Undergraduate Program**

The MSU School of Architecture has a formal admission process for students moving from the first year of the Environmental Design program to the second year of the Environmental Design program. This admission process is described in the ‘Formal Admission to Second-Year’ section of the People\_Pro prospective\_Student\_Undergraduate webpage found at

<https://arch.montana.edu/people/prospective-students-undergraduate.html>

The process for formal admission, described on this webpage, includes the completion of three architecture courses—ARCH 121IA, ARCH 151RA, ARCH 152IA—plus a math and physics course before entering the second year of the program. In addition, students submit a portfolio of their first-year work to be reviewed by School of Architecture faculty—receiving a minimum score of 6 (on a scale of 1 to 12). Finally, students must have a 2.7 overall GPA and a 3.0 design studio GPA in order to be formally admitted into the second year of the Environmental Design program.

### **Pre-Professional Undergraduate Degree Program—Transfer Students**



The process for evaluating transfer students for admission into the BAED program is outlined on our website on the People\_Pro prospective Students\_Transfer\_Second Degree Students webpage under the "Transfer Students with, or without, prior architecture studies" headings located at:

[https://arch.montana.edu/people/prospective-students-transfer\\_second\\_degree.html#transfer\\_with](https://arch.montana.edu/people/prospective-students-transfer_second_degree.html#transfer_with)

Transfer students with prior architecture courses completed are required to submit a transcript and portfolio, if applicable, of their prior design studio work to the MSU School of Architecture for review. The departmental advisor and/or the undergraduate coordinator or director of the school will undertake a review to determine if prior courses taken will satisfy the NAAB Program Criteria (PC) or Student Criteria (SC) that we have assigned to each MSU course. Transfer students submit syllabi and/or schedule and assignments from the courses they have taken so that a substantive evaluation of their prior architecture courses can be undertaken.

Faculty review any transfer portfolios and provide a recommendation on the placement of the transfer student into the appropriate level of design studio at MSU.

In addition, for non-architecture courses, the School of Architecture relies upon the MSU Office of Admissions and the University's transfer equivalency website to evaluate general education and non-general education course equivalencies for the transfer students.

For transfer students, without any prior architecture courses, the evaluation process focuses upon general and non-general education courses. These students typically take our first-year design studio sequence either in the academic year or in our compressed summer semester offering.

At the end of this evaluation process, a detailed program of study is prepared for each student so that they know exactly what courses they will need to take at MSU to complete their degree and how long it will take for them to receive their B.A. in Environmental Design or M.Arch.

Our website also directs transfer student to complete the [General Transfer Student Application](#) with the MSU Admissions Office and provides them with general information from the Office of Admissions at their website [Office of Admissions General Information](#)

### **Professional Master of Architecture Graduate Degree Program—Admission Process**

Application information for our Master of Architecture (M.Arch) program is located on our website at two locations depending upon whether a student has an undergraduate degree in Architecture or Environmental Design or in a field unrelated to Architecture..

### **Students with an Undergraduate Pre-professional Degree in Architecture or Environmental Design**

For students who have an undergraduate pre-professional degree in Architecture or Environmental Design, the application information is located on our People\_Pro prospective Students\_Graduate webpage found at

<https://arch.montana.edu/people/prospective-students-graduate.html>

The admission process is located on this page under the "Admissions" heading and includes

- Application Deadline,
- Application Process (Application form, Application Fee, Letters of Recommendation, Transcripts and Portfolio of Work),
- Admission Criteria (cumulative GPA 40%, Portfolio Review 40%, Letters of Reference 10%, Architecture Design Studio GPA (10%)
- Placement/Admission Status

### **Students with an Undergraduate Pre-professional Degree in a field unrelated to Architecture**



For students who have an undergraduate degree in a field unrelated to Architecture, the application information is located on our People\_Pro prospective Students\_Transfer and Second Degree Students\_webpage located at:

[https://arch.montana.edu/people/prospective-students-transfer\\_second\\_degree.html#second\\_degree](https://arch.montana.edu/people/prospective-students-transfer_second_degree.html#second_degree)

This information is located under the “Second Bachelor’s Degree Students (Post-Baccalaureate)” heading. These students will apply to MSU as a Post-Baccalaureate student in order to complete the requirements of our Environmental Design program. Once those students have completed the Environmental Design requirements, they will apply to our Master of Architecture degree program as described above and on our website. A link to apply to MSU and enter our Environmental Design program as a second-degree student takes students to the Application Procedure for second degree students found at:

[http://catalog.montana.edu/undergraduate-admissions/#Second\\_Bachelors\\_Degree](http://catalog.montana.edu/undergraduate-admissions/#Second_Bachelors_Degree)

f) Explanation of how student diversity goals affect admission procedures

Our open admission policy for students in the first year of the Environmental Design program is intended to provide greater access for all students to study architecture—including those students from underrepresented groups. We recognize that students come to MSU with a wide-range of academic and non-curricular experiences in their respective high school and community colleges. Some of those institutions have extensive resources and special courses that provide a strong foundation for pursuing architecture as a course of study. However, not all schools have these same resources. By having open admission into our first year of the Environmental Design curriculum, students have the opportunity to study architecture and learn the fundamentals of design and critical thinking regardless of their prior experiences or resources. Our open admission policy provides an opportunity for students—who may not have the experience or prior resources to develop a portfolio of work—to explore and demonstrate their design and thinking skills in a university environment.

In addition, we offer a compressed summer first-year design studio sequence that allows more students to obtain the necessary skills and knowledge in order to continue on into the second-year of the Environmental Design program. In some cases, the summer studio is used by students to improve their GPA and/or portfolio and apply at the conclusion of the Summer Semester. In other cases, students can transfer into the Environmental Design program in Spring Semester and ‘catch-up’ by using the summer studio to apply for the second year. Having this open admission policy and summer design studio opportunity allows us to provide greater accessibility to an architectural education to diverse populations of students.

## 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:

MSU and the School of Architecture provide information on Financial Aid and Scholarships in numerous locations on our website. There are multiple places where different types of students—prospective students, current students, etc.—would access our website. As such we have tried to locate links to Financial Aid and Scholarships on the following five webpages of our website:

#### 1. Undergraduate Students

People\_Pro prospective Students\_Undergraduate webpage



<https://arch.montana.edu/people/prospective-students-undergraduate.html>

This website contains a link to undergraduate scholarships that are available to MSU students, a second link to MSU's Office of Financial Aid, and a third link that takes students to a specific webpage in the Office of Financial Aid that provides information to students on how to Pay for School. The Office of Financial Aid website provides students with information on applying for financial aid, application forms, eligibility requirements, acceptance forms and FAFSA assistance to name a few of the resources available to students.

The following text/links are taken from the Prospective\_Student\_Undergraduate webpage:

"Scholarships and Financial Aid

[Incoming Students](#)

The only scholarship money available to a student entering the first year of the Environmental Design undergraduate program is scholarship money available from the Office of Admissions. Read here for more information on [MSU Undergraduate Scholarships](#).

For information on, and application forms for, financial aid to attend Montana State University, visit the website of the [Office of Financial Aid](#).

Read here for [additional financial guidance information](#) on how to pay for school."

## **2. Graduate Students**

People\_Pro Prospective Students\_Graduate webpage

<https://arch.montana.edu/people/prospective-students-graduate.html>

and

## **3. Transfer and Second Degree Students**

People\_Pro Prospective Students\_Transfer and Second Degree Students webpage

[https://arch.montana.edu/people/prospective-students-transfer\\_second\\_degree.html](https://arch.montana.edu/people/prospective-students-transfer_second_degree.html)

Both of these webpages contain a link to MSU's Office of Financial Aid, and a second link that takes students to a specific webpage in the Office of Financial Aid that provides information to students on how to Pay for School.

The following text and links are taken from the Prospective Student\_Graduate and Transfer and Second-Degree Students webpage.

"Financial Aid

[Incoming Students](#)

For information on, and application forms for, financial aid to attend Montana State University, visit the website of the [Office of Financial Aid](#).

Read here for [additional financial guidance information](#) on how to pay for school."

## **4. Current Students - Cost**

People\_Current Students\_Cost

<https://arch.montana.edu/people/current-students-cost.html>

and



## 5. Current Students – Student Resources

People\_Current Students\_Student Resources

[https://arch.montana.edu/people/current-students-student\\_resources.html](https://arch.montana.edu/people/current-students-student_resources.html)

Both of these web pages contain links to Financial Information on Scholarships, Cost of Attendance, the Office of Financial Aid and Additional Financial Guidance for students. The text and links below are copied from these two webpages.

“Financial Resources

Financial Aid

Montana State University provides valuable [Financial Information](#) on scholarships, the cost of attending MSU, and additional financial guidance. The [Office of Financial Aid](#) provides students with information and application materials for obtaining a wide-range of financial assistance.

Read here for [additional financial guidance information](#) on how to pay for school.”

In addition, these two webpages include information and application process for School of Architecture scholarships. For graduate students, these webpages contain information on applying for Graduate Teaching Assistant positions.

In addition, both of these web pages contain a link to the MSU Cat \$scholarships webpage. This webpage provides students with a searchable database of scholarships available to MSU students and the ability and information to apply for any scholarship for which they meet the eligibility criteria. The following text and link is taken from the School’s webpages on Cost and Student Resources.

“MSU Cat \$scholarships

All current students at MSU can apply for all eligible scholarships using MSU [Cat \\$scholarship.](#)”

**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:

The School of Architecture has created a webpage that provides prospective students and current students with the estimated expenses for attending the MSU School of Architecture program. The Undergraduate, Graduate and Transfer webpages for Prospective Students as well as the Cost webpage for Current Students listed in Section 6.6.1 have links to the Estimated Expenses website show below.

<https://arch.montana.edu/people/current-students-cost.html>

Costs for students will vary based upon a number of conditions such as:

- Is the student a resident of Montana or a non-resident?
- Is the Student part of the Western Undergraduate Exchange?
- What year of the program is the student enrolled in?
  - Architecture Program Fees are based upon a student’s degree status—Environmental Design Foundations (first year); Environmental Design (second through fourth year) or Master of Architecture (graduate).



- Field trips and studio supplies will also vary by each year of the program.

The Cost web page provides the following information for students so that they can gain a more accurate estimate of their cost of education by identifying which of the above categories describe their individual situation.

### **Undergraduate Estimated**

#### Undergraduate University Costs

- University Tuition/Fees
- Room/Board
- Books/Supplies (for general university courses)
- Miscellaneous University costs

#### Undergraduate Architecture Costs

- Architecture Program Fee
- Architecture Books/Supplies
- Architecture Field Trip Costs

### **Graduate Estimated Expenses**

#### Graduate University Costs

- University Tuition/Fees
- Room/Board
- Books/Supplies (for general university courses)
- Miscellaneous University costs

#### Graduate Architecture Costs

- Architecture Program Fee
- Architecture Books/Supplies
- Architecture Field Trip Costs