2020 Conditions and Procedures
Plan to Correct
for Continuing Accreditation

University of Louisiana at Lafayette
School of Architecture and Design

Master of Architecture

Date: June 30, 2024

Plan to Correct
(2020 Procedures)

Institution	University of Louisiana at Lafayette
Name of Academic Unit	School of Architecture and Design

Degree(s) *(check all that apply)*
 Track(s) *(Please include all tracks offered by the program under the respective degree, including total number of credits. Examples:*
 150 semester undergraduate credit hours
 Undergraduate degree with architecture major + 60 graduate semester credit hours
 Undergraduate degree with non-architecture major + 90 graduate semester credit hours)
	☐ Bachelor of Architecture
	     Track:
	 ☒ Master of Architecture
	     Track:
	     Track:
	 ☐ Doctor of Architecture
	     Track:
	     Track:

Year of Previous Visit	2023
Current Term of Accreditation *(refer to most recent decision letter)*	Continuing Accreditation (Eight-Year Term)
Program Administrator	William Riehm Interim Director School of Architecture and Design
Chief Administrator for the academic unit in which the program is located *(e.g., dean or department chair)*	Daryl Moore Dean College of the Arts
Chief Academic Officer of the Institution	Dr. Jamie Hebert Provost and AVPAA University of Louisiana at Lafayette
President of the Institution	Dr. E. Joseph Savoie President University of Louisiana at Lafayette
Individual submitting the APR	William Riehm
Name and Email Address of Individual to Whom Questions Should Be Directed	William Riehm william.riehm@louisiana.edu

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INSTRUCTIONS AND TEMPLATE GUIDELINES

A Plan to Correct is required in cases when the NAAB board determines that the program is not in compliance with one or more of the Conditions for Accreditation, either at the time continuing accreditation is granted or as a result of a Special Report review. Programs with a Plan to Correct will have two years to demonstrate compliance with Conditions for Accreditation noted to be out of compliance. Programs submitting a Plan to Correct will be required to provide a narrative response with supporting documentation and evidence of compliance for each Condition noted to be out of compliance.

Review of the Process. The Accreditation Review Committee (ARC) reviewers will make one of the following recommendations to be acted upon by the board:

- In the event a program has demonstrated compliance with all the Conditions for Accreditation previously noted to be out of compliance, accept the Plan to Correct and approve the program for the remainder of the term of accreditation.
- In the event a program has not demonstrated compliance with the Conditions for Accreditation previously noted to be out of compliance, defer action and require a revised Plan to Correct to address all remaining areas of non-compliance. (Submission timelines are December 15 and June 30.)
- In the event a program's Plan to Correct does not demonstrate compliance with Conditions for Accreditation within two years, continue the Plan to Correct, place the program on notice for a period not to exceed one (1) year, and inform the institution's Chief Academic Officer.
- In the event a program's Plan to Correct does not demonstrate compliance with Conditions for Accreditation within one (1) year of notice, place the program on probation for a period not to exceed one (1) year, require a focused visit on remaining areas of noncompliance within six months, and inform the institution's Chief Academic Officer. All accreditation decisions to place a program on probation will be made public on the NAAB website.

Decisions by the NAAB board regarding the program's Plan to Correct are not subject to reconsideration or appeal.

Instructions
1. Type all responses in the designated text areas. Add additional rows as needed to include all conditions not met.
2. Reports must be submitted as a single PDF following the template format.

Deadline and Submission
Programs determined to be out of compliance with one or more Conditions for Accreditation identified at the spring board meeting will be required to submit a Plan to Correct on or before December 15 of the same year.

Programs determined to be out of compliance with one or more Conditions for Accreditation identified at the fall board meeting will be required to submit a Plan to Correct on or before June 30 of the following year.

Programs that fail to submit a Plan to Correct by the deadline will be placed on Administrative Probation, after notice.

All Plans to Correct should be sent to accreditation@naab.org on or before the appropriate deadline.

NAAB

Plan to Correct Form

Conditions Not Met *List the number and title of each condition that must be addressed in the Plan to Correct.*	Corrective Actions *Provide a narrative describing the corrective actions that have been taken and those that are planned but not yet implemented. For all actions taken, provide supporting evidence as described under the relevant Condition in the 2020 Conditions and 2020 Guidelines for the Accreditation Process.*	Timeline *List the timeline for all corrective actions, including actual or planned start and completion dates.*
SC.2 Professional Practice	**Program Narrative:** ***Decision Letter*** Not Met. The program did not provide sufficient information to meet the requirements of this criterion. In reviewing the evidence, the team noticed that the information presented in the slides dated back to 2016. The program needs to provide evidence of how the program ensures that students understand current information about code of ethics and professional organizations. ***Visiting Team Report*** Met 2023 Team Analysis: The program's matrices indicate two courses across the curriculum where this criterion is addressed ARCH 464(G): Professional Practice and Contract Documents and ARCH 540: Architectural Practice. The team found evidence at the level of understanding for this student criteria in the course lecture notes and syllabus that students are ARCH 540: Architectural Practice. In reviewing the evidence the team notices that the information presented in the slides date back to 2016. A couple of specific example are illustrated in Lecture slides titled ARCH 540_Pro Prac Week 2 Professional Life.pdf with a reference the 2012 AIA Code of Ethics. The current version of the code of ethics is the 2020 AIA Code of ethics. Also the slides reference a summary of the "State of the profession" on page 32 by Robert Ivy, FAIA, as the CEO of the AIA. The present CEO for the AIA is Lakisha Woods. The program provided evidence of plans for recurring assessment and modification for these courses through student work. The learning materials in ARCH 540 – Architectural Practice will be updated for the next course offering in Fall 2024. The section on ethics will reflect the 2020 AIA Code of Ethics, and the "State of the profession" section will be revised to include materials that represent current leaders in the profession.	**Fall 2024** Update of learning materials for ARCH 540 – Architectural Practice: Ethics section will reflect the 2020 AIA Code of Ethics. "State of the Profession" section will be revised to include current leaders in the profession. **Ongoing/Continuing** Implementation of updated materials in ARCH 540. Continuous monitoring and assessment of course materials to ensure they reflect current information about the code of ethics and professional organizations. Collection of student work and feedback for ongoing improvements.

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SC.6 Building Integration	**Program Narrative:** *Decision Letter* Not Met The program did not provide sufficient information to meet the requirements of this criterion. The program needs to provide evidence of students' abilities to integrate elements of this SC, especially mechanical/electrical systems and life safety systems. The program also needs to provide evidence of how the program assesses students abilities related to this criterion. *Visiting Team Report* Not Met The program reports that faculty are in the process of curriculum mapping the studio sequence with the goal of transitioning the content of ARCH 409 and 464 courses to the graduate program. ARCH 501 - Advanced Architectural Design is identified as the course that is beginning to develop the learning objectives into a studio that ensures students understand building integration. The course matrix identifies ARCH 409(G) and 464(G) as primary evidence of this criterion. The school has successfully transitioned the accredited learning outcomes from ARCH 409G - Architectural Design V and ARCH 464G - Professional Practice and Contract Documents to ARCH 501 - Advanced Architectural Design and ARCH 532 - Advanced Building Systems. The studio-based objectives from these courses are now integrated into ARCH 501, the first graduate-level studio. ARCH 501 is designed to enhance building integration understanding. ARCH 532 specifically focuses on outcomes related to building systems integration, including performance, mechanical/electrical systems, and life safety systems (see Appendix I). Student work is inconsistent in demonstrating an understanding of the integration elements of this SC, especially mechanical/electrical systems and life safety systems. There is a lack of documentation of measurable outcomes of building performance. The presentation of student work is limited in text and graphic annotation,	**Completed Fall 2021** ARCH 409(G) Assessment: Improved faculty coordination between courses based on post-term findings. Students confirmed faculty adjustments to assignment deadlines when conflicts occur. Continuous improvement strategies identified but evidence of use not provided. **Completed Fall 2023** ARCH 580 – Advanced Topics in Design: Offered and taught by newly hired faculty specializing in building performance. ARCH 501 - Advanced Architectural Design: Projects completed in this session will be collected and assessed against the criteria of SC.6 using a rubric designed to assess building systems integration learning outcomes. **Completed Spring 2024** ARCH 532 - Advanced Building Systems: Updated with revisions aimed at improving written and graphic evidence of understanding building systems integration, including mechanical/electrical systems and life safety systems. Student work was assessed against using an evaluation rubric. **Fall 2024** Rubric Update: The rubric used in Fall 2023 for assessing building systems integration learning outcomes will be reexamined and updated. ARCH 501 - Advanced Architectural Design: The course will incorporate topics of building performance, mechanical, and electrical systems.

Conditions Not Met	Corrective Actions	Timeline
List the number and title of each condition that must be addressed in the Plan to Correct.	*Provide a narrative describing the corrective actions that have been taken and those that are planned but not yet implemented. For all actions taken, provide supporting evidence as described under the relevant Condition in the 2020 Conditions and 2020 Guidelines for the Accreditation Process.*	*List the timeline for all corrective actions, including actual or planned start and completion dates.*
	thereby limiting the reviewer's understanding of the elements that are depicted in the documents. The visiting team verified that the examples of student work were presented orally during the course.

The school arranged an offering of ARCH 580 – Advanced Topics in Design for Fall 2023, taught by newly hired faculty specializing in building performance. This class ran concurrently with ARCH 509: Masters Project Studio, with a specific focus on building performance. This initiative piloted new instructional tools to meet learning outcomes related to building performance, mechanical, and electrical systems. These topics, along with life safety systems, will be incorporated into the Fall 2024 offering of ARCH 501 - Advanced Architectural Design.

Projects completed in the Fall 2023 session of ARCH 501 were collected and assessed against the criteria of SC.6. Assessment utilized a rubric designed to assess building systems integration learning outcomes (see Appendix I). This rubric will be reexamined in 2024. Should this assessment reveal any deficiencies, revisions will be made to the Fall 2024 session of ARCH 501. Projects from Fall 2024 will also be collected and assessed.

To address the limitations in text and graphic annotation noted in the visiting team report, ARCH 532 - Advanced Building Systems has been updated for Spring 2024 with revisions aimed at improving written and graphic evidence of understanding (see Appendix I).

The Visiting Team verified evidence of continuous improvement for specific courses of this SC. For example, the Fall 2021 ARCH 409(G) assessment indicated that post-term findings resulted in improved faculty coordination between courses. Students verified that faculty will consider adjusting assignment deadlines when conflicts occur. The individual assessments also identify strategies for addressing learned shortcomings of courses. The assessment stated that average grades on individual assignments are tracked each semester, but evidence was not provided to verify this. Assignment rubrics and final evaluation criteria are present, and the visiting team verified that student work is assessed at various points throughout the term, but use of the assessment tools on student work is not demonstrated. | Projects will be collected and assessed with a revised rubric.

Curriculum Assessment Report: Initial report on the multi-year curriculum assessment focusing on integrated design and building technologies expected.

Annual Assessment of Learning Outcomes: Implementation of a rubric for annual assessment of learning outcomes related to SC.6.

Fall 2025

Curriculum Updates Submission: Any curriculum updates resulting from the assessment will be submitted.

Spring 2026

Implementation of Curriculum Updates: Any updates to the curriculum based on the multi-year assessment will be implemented. |

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	Like ARCH 409G, ARCH 501 has been developed through faculty coordination, particularly with ARCH 532. ARCH 501 will persist in using individual assessments to identify and address any gaps in student learning outcomes. Additionally, the course will continue to monitor grades and maintain records of these assessments. Starting in Fall 2024, as previously mentioned, a rubric will be implemented for the annual assessment of learning outcomes related to SC.6. While the direct accreditation concerns are being addressed as outlined above, the school also sees this as an opportunity to evaluate the current curriculum's approach to integrated design. The school is initiating a multi-year curriculum assessment with several objectives, one of which is to explore a scaffolded approach to building student knowledge in building technologies, systems, and integrated design. The initial report from this curriculum assessment is expected in the Fall of 2024. Any resulting curriculum updates will be submitted in the Fall of 2025, with implementation planned for Spring 2026. **Supporting Evidence:** *Course Documentation* *Appendix I.* ARCH 501 - Advanced Architectural Design: Building integration rubric, Fall 2023. ARCH 532 - Advanced Building Systems: Assignments and examples of student work, Spring 2024.	
5.1 Structure and Governance	**Program Narrative:** *Decision Letter* Not Demonstrated. The program did not provide sufficient information to meet the requirements of this Condition. The program needs to provide evidence of multi-year strategic objectives to further continuous improvement. The program needs to provide evidence of Key Performance Indicators in the M.Arch. program and a narrative of how the program is progressing towards its mission and stated multiyear objectives.	**Completed Fall 2023** Establishment of the UL Lafayette Staff Council. Membership elections and creation of bylaws for the Staff Council are underway. Continuous review and improvement of the SEI process to ensure effective incorporation of student feedback.

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	Visiting Team Report Not Described **2023 Team Analysis:** 5.1.1 The program describes its administrative structure and identifies key personnel. As a state university, the top hierarchy is the Governor and the Board of Regents. The university President is the chief executive officer of the UL campus, and the Master of Architecture program reports to the dean of the graduate school. The administrative structure of the School of Architecture and Design (SoAD) consists of a Director (Kari Smith) and five program coordinators. Verified evidence consists of university, college, and school website links with identification of key personnel. The websites are listed under supporting evidence. 5.1.2 Institutional governance structures for faculty are described, and university website links were verified. Faculty meetings are scheduled regularly, and seven standing faculty committees are established to help the Director maintain the school's quality and effectiveness. The roles of staff and students are not described in program or institutional governance structures, and no evidence is provided. Staff and student interviews confirmed that little or no opportunities for those voices are incorporated into the academic unit's governance. Students expressed concern that when their suggestions are noted in end of year exit interviews, for example, they are not implemented. 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. ***Student Governance*** The program has multiple avenues for incorporating student voices into governance. The primary institutional process for soliciting student feedback is the Student Evaluation of Instruction (SEI), administered in each class every semester. The SEI, data, and comments are reviewed by the Dean of the College, the Director of the School, and faculty members. This process informs program-level curricular decisions and contributes to the	Verified evidence of institutional governance structures and identification of key personnel through updated website links. Establishment of the process for collecting and utilizing student feedback to inform strategic curricular changes. **Completed Summer 2024** Updated links provided for University and College Leadership (https://louisiana.edu/about-us/leadership-administration and https://arts.louisiana.edu/about-us/administration) **Summer 2024** Webmaster to update link for School leadership (https://architecture.louisiana.edu/about-us/faculty-staff/directory) **Ongoing/Continuing** Regular faculty meetings and coordination through standing faculty committees to maintain the school's quality and effectiveness. Continuous improvement of program-level curricular decisions informed by SEI data and student feedback from exit surveys. Engagement of student representatives from various organizations (Graduate Student Organization, Student Government Organization, NOMAS, AIAS) in governance processes. Annual review and update of the university, college, and school websites to reflect current administrative structures and key personnel.

| Conditions Not Met
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List the timeline for all corrective actions, including actual or planned start and completion dates. |
|---|---|---|
| | annual faculty performance evaluation, ensuring that student feedback leads to strategic curricular changes.

Additional opportunities for student input include participation in the Graduate Student Organization, Student Government Organization (undergraduate), and Professional Student Organizations such as NOMAS and AIAS. Each of these organizations has student representatives from the School of Architecture and Design who meet with the Dean, the Director, and Faculty Advisors, serving as a communication channel between students and administration. These interactions influence decision-making processes, including matters directly related to curricula.

Upon completion of their undergraduate and graduate studies, students are prompted to complete a voluntary university-wide Exit Survey. This survey collects data on various aspects such as financing education, satisfaction with academic advising and mentorship, and program curriculum and instruction. The results are used to identify key areas for improvement, and ensure student anonymity by requiring a minimum number of responses before data is shared with program leadership (see Appendix II).

Staff Governance

Strategic Priority Three in the 2023-2028 UL Lafayette Strategic Plan addresses the need for greater intentional stewardship, including a Staff Council to ensure shared governance across the University. The Council composition will recognize the various backgrounds and experiences of the University staff. A designated member of the Staff Council will sit on the University Council. Membership in the Council includes staff with a wide range of service lengths, classification types, and departmental diversity. The UL Lafayette Staff Council was established in the fall of 2023. Membership elections and the creation of bylaws are underway.

The goal of the Council, beyond inclusion in the University's shared governance, is to provide professional development opportunities to staff, cultivate a greater sense of connectivity and support between staff members and between the staff and University colleagues, create mentorship and leadership opportunities, and greater support and recognize University staff. | |

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|---|---|---|
| | The College of the Arts has a long-standing staff council that meets monthly. The Administrative Assistant of the School of Architecture and Design and the Fabrication Lab Technician attend and participate in these meetings. The Assistant Dean of the College of the Arts serves as the Chair of the College of the Arts Staff Council and reports to the Dean of the Arts in one-on-one meetings and in College of the Arts Leadership meetings. The Dean of the Arts decisively addresses any concerns the staff has brought forward through the established reporting pathway.

Supporting Evidence:

Updated Websites

University Leadership. https://louisiana.edu/about-us/leadership-administration

College Leadership. https://arts.louisiana.edu/about-us/administration

School Leadership. https://architecture.louisiana.edu/about-us/faculty-staff/directory

Attached Documents

Appendix II.

Master's student exit survey: Architecture (M. Arch.) with individual student responses. Summer 2019 - Summer 2022.

University committee on graduate student success and retention report to graduate council. Academic year 2023 - 2024. | |
| 5.2. Planning and Assessment | **Program Narrative:**

Decision Letter

Not Demonstrated

The program did not provide sufficient information to meet the requirements of this Condition. The program | **Completed September 2023**

UL Lafayette 2023-2028 Strategic Plan approved and adopted.

Fall 2024 |

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	needs to provide evidence of multi-year strategic objectives to further continuous improvement. The program needs to provide evidence of Key Performance Indicators in the M. Arch. program and a narrative of how the program is progressing towards its mission and stated multiyear objectives. ***Visiting Team Report*** Not Demonstrated **2023 Team Analysis:** 5.2.1 While the program has embraced the 2020 NAAB Conditions for M. Arch. coursework, it does not address multi-year strategic objectives to further continuous improvement. An example of this is that individual course assessments were evidenced in 2021 and 2022; however, comprehensive analysis of data over longer periods is not yet occurring, as stated by the program director. Additionally, there was no evidence of an SoAD Strategic Plan that is interrelated with the larger institution's strategic planning and assessment efforts. 5.2.2. The narrative describes Key Performance Indicators for student achievement and graduation rates for the institution, but does not address Key Performance Indicators for the M. Arch. program. 5.2.3 The narrative does not describe how well the program is progressing toward its mission and stated multi-year objectives. 5.2.4 The program identifies personnel and facilities as primary challenges for the program while simultaneously demonstrating a flexible "can do" attitude with the resources that are available. Evidence of the personnel challenges is provided by lists of retirements, resignations, and internal appointments. There is much evidence of the desire to meet students' needs and outcomes. Although not directly part of the M. Arch. program, it should be noted that the program has made significant efforts to meet the incoming first year class of students "where they are" and to remove barriers that prevent success. 5.2.5 The APR describes many successful ways that outside practitioners interface with students and events. These were expanded upon by faculty and students during the Team visit. As confirmed by the Program	University Vice Presidents and Deans finalize Strategic Plans aligned with UL Lafayette Strategic Plan. Schedule established for Schools and Departments to develop aligned Strategic Plans. **2024-2025 Academic Year** School of Architecture and Design begins aligning its Strategic Plan with the University's Strategic Plan. **Expected Spring 2025** Completion of the School of Architecture and Design's Strategic Plan. Development of program-specific strategic plans, including the M. Arch. program. **Expected Summer 2025** Document and update multi-year strategic objectives. Develop and implement Key Performance Indicators (KPIs) for the M. Arch. program. **Expected Fall 2025 and Ongoing** Conduct regular assessments and data analysis to identify trends and areas for improvement. Include a narrative in reports describing progress towards mission and objectives. Continuously monitor and update strategic objectives.

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	Director, there is a lack of data that documents the participation of practitioners so as to demonstrate the value of this resource as part of the planning effort for continuous improvement. The School of Architecture and Design's Strategic Plan is interrelated with the larger institution's strategic planning and assessment efforts. As the University develops its new institutional strategic plan, the School will work toward alignment with those planning activities. The University's multi-year, multi-phased, long-term planning process culminated with the UL Lafayette 2023-2028 Strategic Plan, which was approved and adopted in September 2023. In the fall 2024 term, University Vice Presidents and Deans will finalize their Strategic Plans aligned with the UL Lafayette Strategic Plan. These strategic plans will determine the schedule for the development of Schools and Departments' Strategic Plans aligned with the higher-level plans. Upon the completion of the School and Program strategic plans, the program will provide evidence of multi-year strategic objectives aimed at furthering continuous improvement. These objectives will be documented and regularly updated to reflect progress and ongoing efforts. To measure the effectiveness and progress, the program will develop Key Performance Indicators (KPIs) specific to the M. Arch. program. These KPIs include metrics such as student achievement, graduation rates, engagement with outside practitioners, and employment outcomes. Regular assessments will be conducted, and data will be analyzed over longer periods to identify trends and areas for improvement. The program is committed to progressing towards its mission and stated multi-year objectives. A narrative describing these efforts and achievements will be included in future reports. This will ensure transparency and accountability in how the program addresses its goals. **Supporting Evidence:** ***University Strategic Plan, Fall 2023 Weblink*** https://louisiana.edu/strategicplan	

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6.6 Student Financial Information	**Program Narrative:** ***Decision Letter*** Not Met The program did not provide sufficient information to meet the requirements of this Condition. The program needs to provide evidence of specialized costs associated with the master's program such as computer hardware, software, specialized lab fees, consumable materials, printing, and/or travel. ***Visiting Team Report*** Not Met **2023 Team Analysis** The program has provided links to the University of Louisiana at Lafayette's Office of Student Financial Aid, as well as to information on their Graduate School Graduate Assistantships program. The weblink to the Office of Student Financial Aid provides informative links to various aid programs such as grants, scholarships, work-study, federal and private student loans. The University's information provides an explanation of each of the types of aid listed on their website. Additionally, the program identified their Graduate Assistantships program and provided a link to the website where the program is further explained and clarified that students who participate in the Graduate Assistantships program earn money "in the form of a tuition waiver and/or a monthly stipend." The website provides information about the program and includes a link to the application form to be utilized for being considered for the program. Additional links were provided to the Bursar's office website, the Office of University Housing and Residential Life website, and the Graduate School Tuition and Costs website. The financial aid website provides estimated costs for tuition and fees, books and supplies, room and board and "other costs". These costs are further refined to identify "with parent (commuter)," "campus housing," and "off campus" categories. Worksheets and price calculators are provided to assist prospective students with assessing costs. The housing website provides costs for different housing locations and room occupancy configurations. Meal plan options are also included on the housing website. The Bursar's website breaks down tuition and fees and provides an explanation of how those numbers	**Completed Summer 2023** Discussions with Graduate Coordinator Ashlie Boelkins and Dean of the Graduate School Mary Farmer Kaiser review the provided information on program-specific costs. Chief Diversity Officer Kiwanna McClung works with program faculty to streamline supply lists and set expectations for material quality to reduce financial burden on students. **Completed Fall 2023** Inclusion of detailed estimates of specialized costs associated with the master's program on the university website, and the school updates the information to ensure accuracy. Implementation of streamlined supply lists and material quality expectations to lessen financial burdens on students. New webpage created with estimated program costs. **Ongoing/Continuing** Continuous monitoring and updating of the estimated program costs to ensure accuracy and relevance. Regular communication with students to inform them about specialized costs before they start their education.

Conditions Not Met *List the number and title of each condition that must be addressed in the Plan to Correct.*	Corrective Actions *Provide a narrative describing the corrective actions that have been taken and those that are planned but not yet implemented. For all actions taken, provide supporting evidence as described under the relevant Condition in the 2020 Conditions and 2020 Guidelines for the Accreditation Process.*	Timeline *List the timeline for all corrective actions, including actual or planned start and completion dates.*
	are developed. The Graduate School website provides actual per credit hour tuition and fees for several categories of residency, Resident/US Resident, Resident/International Resident, Non-Resident/US Resident, and Non Resident/International. However, regarding 6.6.2, the program does not provide an initial estimate for the specialized costs associated with the master's program such as computer hardware, software, specialized lab fees, consumable materials, printing, and/or travel. Upon discussing this observation with both the Graduate Coordinator, Ashlie Boelkins, and with the Dean of the graduate school, Mary Farmer Kaiser they acknowledged that these costs are not captured and presented to the students. During the student interview, they indicated that they were unaware of these program-specific costs prior to starting their education. Chief Diversity Officer Kiwanna McClung indicated during her interview that she has worked with Undergraduate program faculty to streamline supply lists and set expectations for the quality of materials to be used for projects in an effort to lessen the financial burden for all students. Information on the school website has been updated with this information. **Supporting Evidence:** ***Estimated Program Cost Weblink*** https://architecture.louisiana.edu/programs/master-architecture/estimated-program-cost/23728-estimated-program-cost	

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Appendix I

ARCH 501 - Advanced Architectural Design: Proposed building integration rubric, Fall 2023.

ARCH 532 - Advanced Building Systems: Assignments and student work examples, Spring 2024.

ARCH 501 - Advanced Architectural Design: Proposed Building Integration Rubric, Fall 2023

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.

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.

DELIVERABLES
(8'x8' panel per student, 35 minutes each: 8-10 minute presentation, 20 minute feedback)

Poetic:

Project Statement
3-4 sentences, NO first person, verbal only
Include your view of the environment 100 years from now & the building's response to that viewpoint.
Design Process
Show your progress including the main idea for design and inspiration
Diagramming
Site Strategy / Big Moves (responding to site analysis)
Environmental / Site Conditions
Program / Circulation
Material Palettes
Sequential Rendered Perspectives
3 Exterior
3 Interior

Technical:

Site Plans: Macro + Micro
Show the building masses, access, entrance, parking lot, landscape, and vegetation
Site Section (1:20 or Choice)
Building Section (1/8"=1'0"; opposite direction of Cake drawing)
Floor Plans (1/8"=1'0")
Piece of Cake Section Perspective (1/8"=1'0")
Include exploded diagrams:
> Spatial Sequence
> Structural System
> Environmental Control Systems (Mechanical / Plumbing)
> Envelope Assembly
Wall Section (1/2"=1'0", labeled)
Building Performance Drawings (Daylighting)

Models:

Site Model (1:20 or Choice)
Building Section Model (1/4" = 1'-0")

MEASURABLE EVIDENCE
Students must achieve all categories below
to proceed into ARCH 502.

5	Poetics: Ability to make **design decisions**.
5	Buildings response to **regulatory requirements**. *(IBC)*
5	Buildings response to **site conditions**.
5	Buildings integration of **accessible design**. *(ADA)*
10	Measurable **environmental impact**.
25 Section)	**Synthesis** (Perspectives, Piece of Cake Drawing + Wall
30	**Technical** Drawings
15	Craft & **Clarity** (Graphics, Composition, Verbal Presentation)
100%	**FINAL REVIEW**

ARCH 532 - Advanced Building Systems: Assignments and Student Work Examples, Spring 2024

CLIMATE ANALYSIS
RELATIVE TEMPERATURE & HUMIDITY
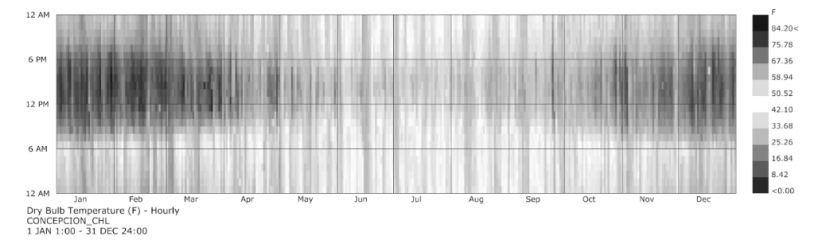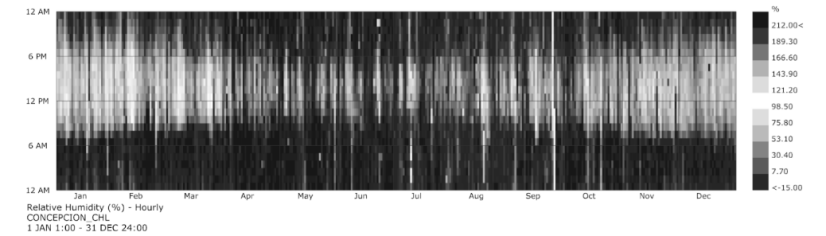
CLIMATE ANALYSIS
PSYCHROMETRIC CHART

Lecture Course

SP 2024 (Adv. Building Systems)
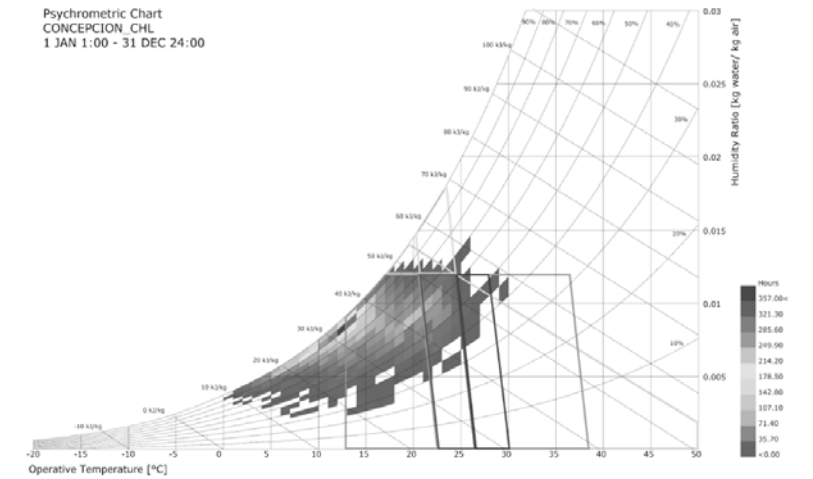
Spring 2024 Course Syllabus
ARCH 532: Advanced Building Systems

Instructor: Mehdi Ghiai
Email: c00566093@louisiana.edu
Office Hours/Location: T 09:00 am – 12:00 pm & 1:00 – 4:00 pm, TH 01:00 - 05:00 pm /JLF 225
Class Details: M&W 02:00- 03:40 pm/ JFL 232

Course Description

Buildings utilize different systems such as structural, environment control, envelope, and safety systems responding to occupants' needs and comfort. The concept of systems as an approach to architectural design begins with identifying the interrelated flows of material, forces, and information in buildings. A comprehensive understanding of integrated building systems and how various building systems work together is essential for designing and constructing sustainable, efficient, and technologically advanced buildings in architecture and construction. A creative performative approach to building system design integrates contemporary environmental challenges with complex geometries emerging from our design studios. In this course we consider programmatic and space requirements, in conjunction with appropriate and responsive envelope/facade design, efficient active and passive building systems, and considerations for operation of the building over its life. The "Advanced Building Systems" course delves into the intricate interplay of various systems that collectively form the backbone of contemporary buildings. This course focuses on the understanding of intelligent design techniques used to optimize building performance throughout its life, in an integrated and holistic manner. The course content includes active and passive building systems as they apply to the overall site, building envelope and façade, building environmental control systems and conveying systems. The students will able to answer "What are the consideration for designing integrated building systems?"

Course Objectives:

Learning Objective 1: Develop an understanding of integrated building systems thinking, application, and analysis.
Learning Objective 2: Discuss the various structural and construction systems for high-rise buildings
Learning Objective 3: Describe performance-based building design and building energy simulation
Learning Objective 4: Develop an understanding of optimized strategies and techniques for building envelope systems, including energy performance, materials use/selection and weatherization.
Learning Objective 5: Identify the latest technologies in building design and construction, such as Augmented Reality (AR), Virtual Reality (VR), and Artificial Intelligence (AI).

Required Course Materials

Students in this course will use different book chapters for reading from following list:
1- Ajla Aksamija. (2013). Sustainable Facades. John Wiley & Sons.
2- Allen, E., & Iano, J. (2017). The architect's studio companion: rules of thumb for preliminary design. John Wiley & Sons, Inc.
3- Anderson, K. (2014). Design Energy Simulation for Architects. Routledge.
4- Bachman, L. R. (2003). Integrated buildings: the systems basis of architecture. John Wiley & Sons.
5- Sandaker, B. N., Eggen, A. P., & Cruvellier, M. R. (2013). The Structural Basis of Architecture.

Week	Date	Topics	Details and Activities
1			
	1/10/2024	Course Introduction	Review Course Syllabus, Materials, and Projects
2	1/15/2024	Holiday- No Class	
	1/17/2024	What is System Thinking?	Book Chapter Reading (Ch 1 & 2/ IBS)
3	1/22/2024	The Integrated Building Systems	Book Chapter Reading (Ch 3 & 4/ IBS)
	1/24/2024	Structural Systems 1: Fundamentals in Structure	Book Chapter Reading (Sec 2-1 & 2-2/ ASC), Groupe 1 Presentation- Quize 1
4	1/29/2024	Structural System 2: High-Rise Buildings Design (A)	
	1/31/2024	Construction Projects Tour	
5	2/5/2024	Structural System 3: High-Rise Buildings Design (B)	Project 1 Introduction
	2/7/2024	Structural System 3: High-Rise Buildings Case Study	Groupe 2 Presentation
6	2/12/2024	Holiday- No Class	
	2/14/2024		
7	2/19/2024	Environmnetal Control Systems 1: Passive and Active Systems	Project 1 Deadline
	2/21/2024	Environmnetal Control Systems 2: HVAC (HVAC Lab Tour + Lecture)	Book Chapter Reading (Ch 4/ ASC)
8	2/26/2024	Environmnetal Control Systems 3: Indoor Environmnetal Quality	Quize 2
	2/28/2024	Building Envelope system and assemblies 1	Book Chapter Reading (Ch 1& 2/SF)- Guest Lecturer from UTSA
9	3/4/2024	Building Envelope system and assemblies 2	Book Chapter Reading (Ch 3& 4/SF)- Project 2 Introduction
	3/6/2024	Building Envelope system and assemblies 3	Groupe 3 Presentation
10	3/11/2024	Project 2 Work Day	
	3/13/2024	Building Performance 1: Fundamentals of Building Performance Simulation	Project 2 Introduction- Quize 3
11	3/18/2024	Building Performance 2: Building Energy Modeling	Book Chapter Reading (Ch 1,2 & 4/ DSA)
	3/20/2024	Building Performance 3: Building Energy Modeling	AIA Building performance Reading
12	3/25/2024	Spring Break- No Class	
	3/27/2024		
13	4/1/2024	Spring Break- No Class	
	4/3/2024	Travel to San Antonio	Project 3 Deadline (Building Energy Modeling ARCH 502)
14	4/8/2024	Building Materials 1: Materials for Sustainability	Advance Materials- Guest Lecturer) from LSU
	4/10/2024	Building Materials 2: Life Cycle Assessment	Book Reading (LCAB)- Quize 4
15	4/15/2024	Building Management System	Groupe 4 Presentation
	4/17/2024	New Technologies for Design and Construction	AR, VR, and AI (Guest Lecturer) from TTU
16	4/22/2024	Project 2 Review	Physical Models
	4/24/2024	Final Project	Case Study for Integrated Building Systems

Integrated
Building
Systems

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- **Weekly Lectures**
- **Student Presentation**
- **Group Discussion**
- **Guest Lecturers**
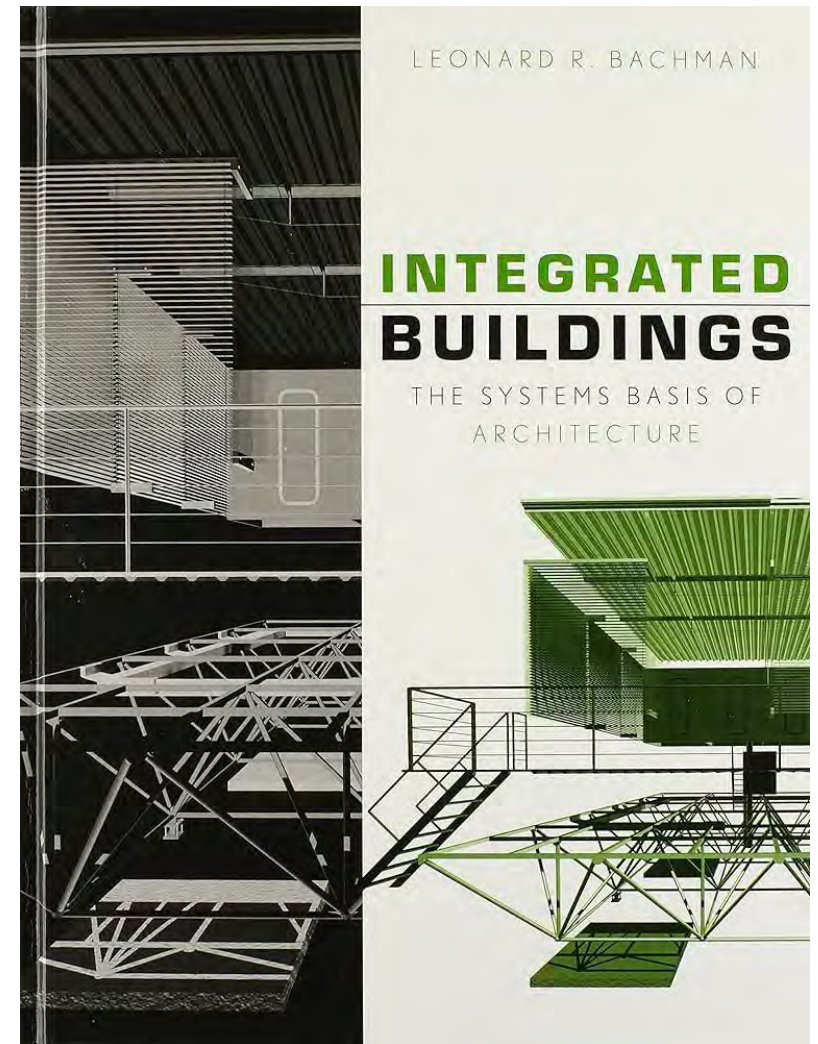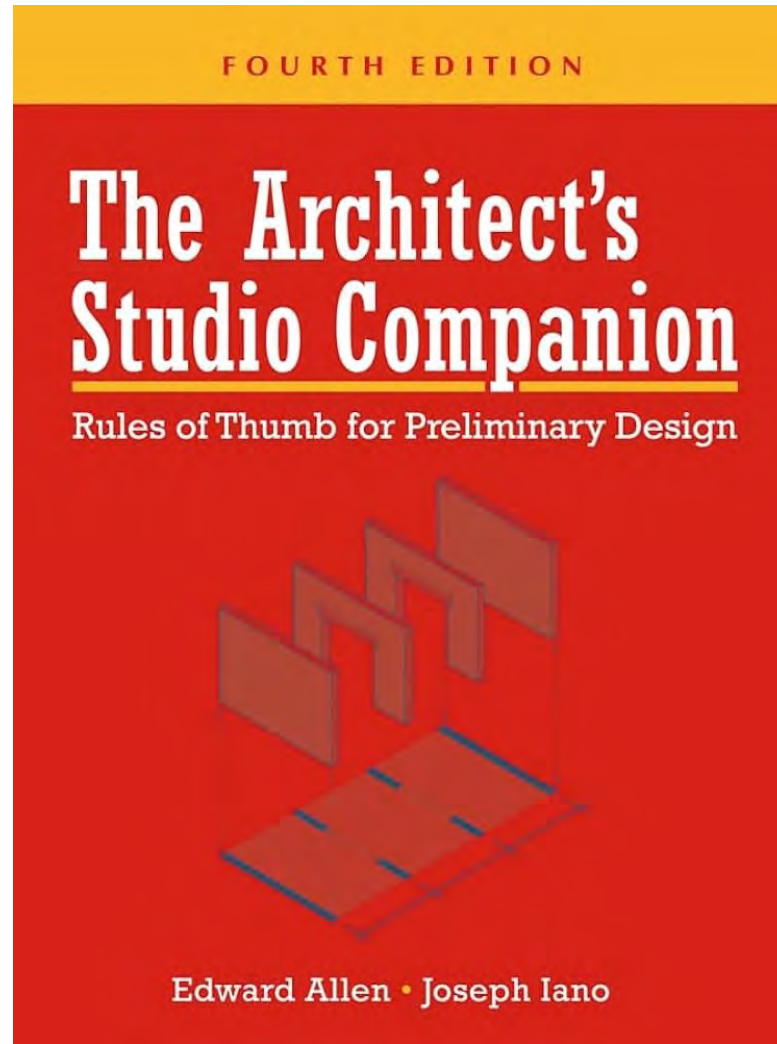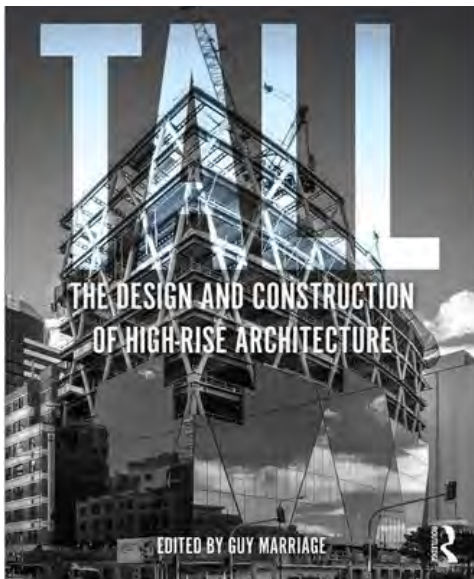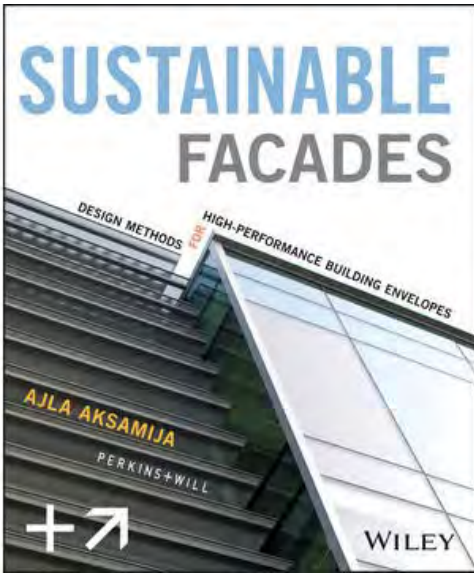- **Hands on Learning**
- **Readings**
- **Projects**

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SUSTAINABLE FACADES
DESIGN METHODS FOR HIGH-PERFORMANCE BUILDING ENVELOPES
AJLA AKSAMIJA
PERKINS+WILL
WILEY

TALL
THE DESIGN AND CONSTRUCTION OF HIGH-RISE ARCHITECTURE
EDITED BY GUY MARRIAGE

FOURTH EDITION

The Architect's Studio Companion
Rules of Thumb for Preliminary Design

Edward Allen • Joseph Iano

LEONARD R. BACHMAN
INTEGRATED BUILDINGS
THE SYSTEMS BASIS OF ARCHITECTURE

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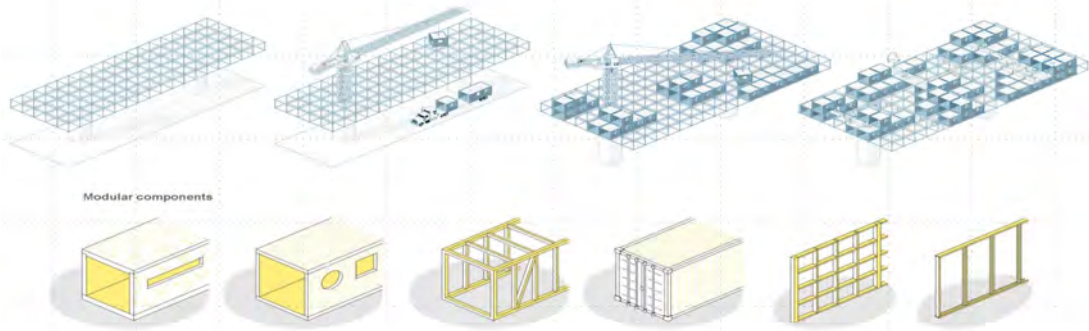
Systems in Architecture

ARCH 532: Advanced Building Systems

Instructor: Mehdi Ghiai
Spring 2024

High-Rise Buildings

ARCH 532: Advanced Building Systems

Instructor: Mehdi Ghiai
Spring 2024

Indoor Environmental Quality

ARCH 532- Spring 2024

Instructor: Mehdi Ghiai

Passive Systems in Architecture

ARCH 532

Instructor: Mehdi Ghiai
Spring 2024

Web Applications

These are browser-based web apps that use mainly WebGL and SVG. They should run fine in any reasonably recent desktop, phone or tablet web browser without requiring any special plugins.
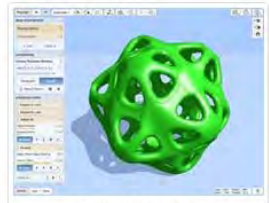
Polyhedra Generator

Launch App...

Read more...

Tree Generator

Launch App...
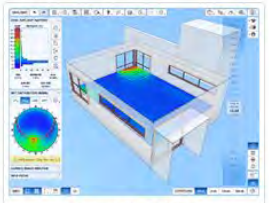
Read more...

Dynamic Daylighting

Launch App...

Read more...

Psychrometric Chart

Launch App...

Read more...
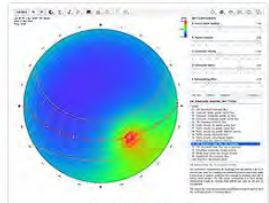
CIE Sky Generator

Launch App...
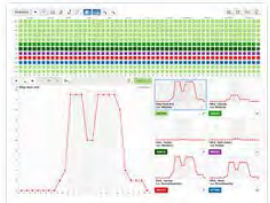
Read more...

Schedule Editor

Launch App...

Read more...
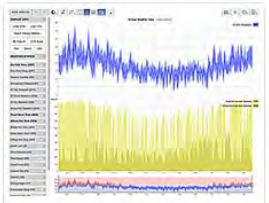
Data View 2D

Launch App...

Read more...
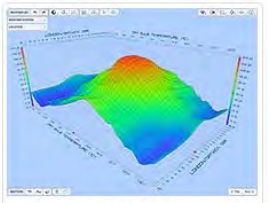
Weather Data

Launch App...

Read more...
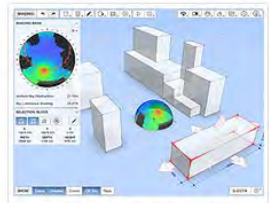
Dynamic Overshadowing

Launch App...

Read more...
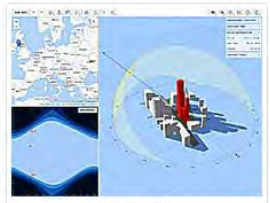
3D Sun-Path

Launch App...

Read more...

Earth and Sun

Launch App...

Read more...
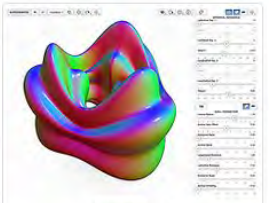
Supershapes

Launch App...

Read more...

Meeting Planner

Launch App...

Read more...
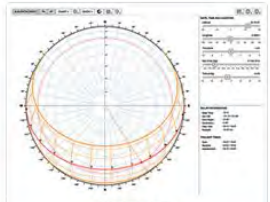
2D Sun-Path

Launch App...
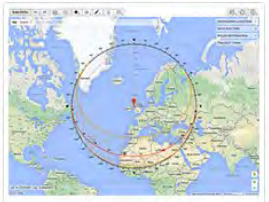
Read more...

Sun-Path on Map

Launch App...

Read more...

AndrewMarsh.com

Figure 8a: Heat Index contours mapped over the chart.

Figure 8b: PMV contours mapped over the chart.

Figure 8c: The ASHRAE 55 comfort zone overlay.

Figure 8d: The EN-15251 comfort categories overlay.

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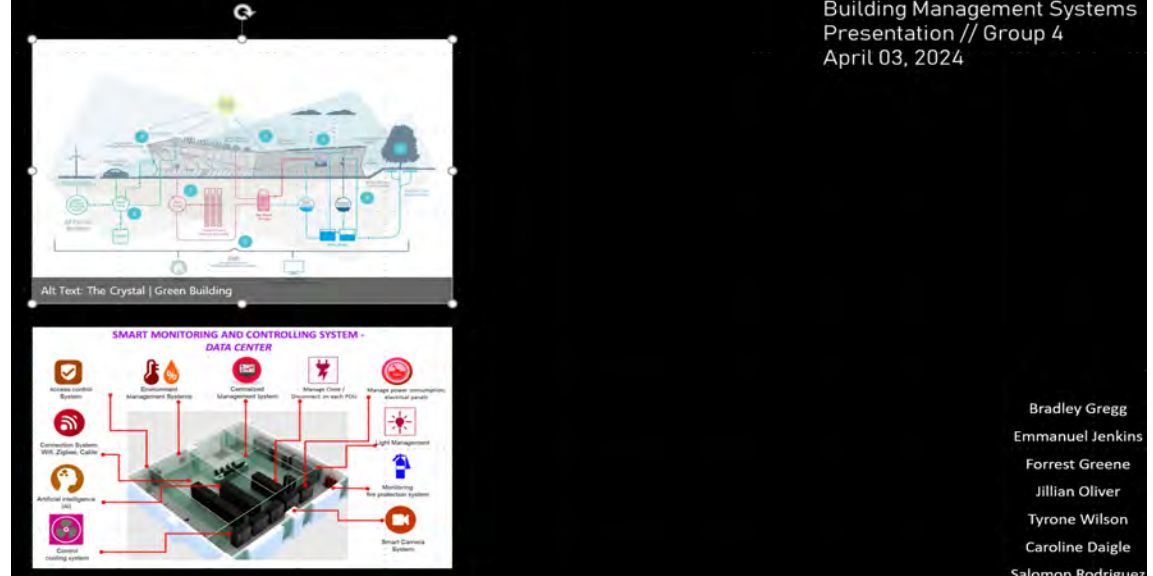
The Fundamentals of Structural Systems
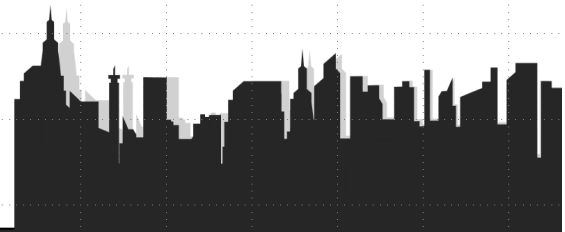
ARCH 530 – ADVANCED BUILDING SYSTEMS
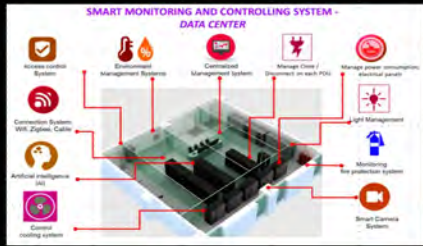

HIGH-RISE BUILDINGS
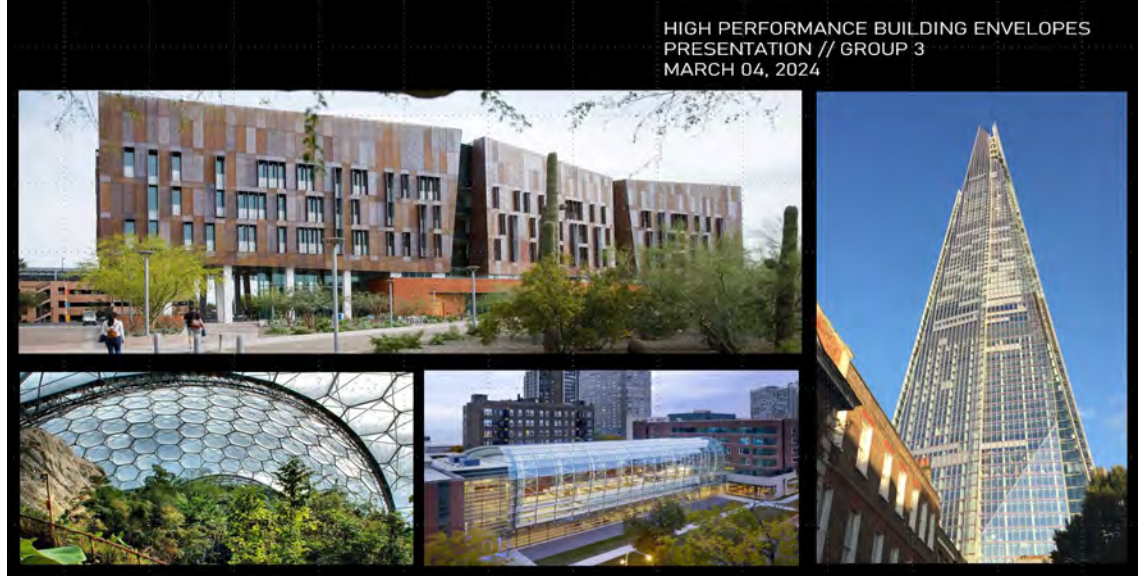
HIGH PERFORMANCE BUILDING ENVELOPES
PRESENTATION // GROUP 3
MARCH 04, 2024

Building Management Systems
Presentation // Group 4
April 03, 2024

Alt Text: The Crystal | Green Building

SMART MONITORING AND CONTROLLING SYSTEM - DATA CENTER

Bradley Gregg
Emmanuel Jenkins
Forrest Greene
Jillian Oliver
Tyrone Wilson
Caroline Daigle
Salomon Rodriguez

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▾ Tall Building Design Project ✎

⚙

High-rise building design serves as a good example of integrating different systems in building design, especially the structural system. In this project, each group will create two concepts for a 20-30 story high-rise office building (Approx. 10,000 sf to 15,000 sf GFA). The deliverables include:

- Site Plan (Show the building footprint in the site boundary and its coverage + Axon)

- Structural systems and grids (Material and type of structural system+ grids)

- Core & Services plan (1'= 1/4")

- Typical Floor Plan (1'= 1/8")

- Building sections (One section from whole building 1'= 1/8" and one section from selected floor with details 1'= 1/4")

- Revit Files

Each group is required to submit this project digitally through OneDrive by **February 26th.**

▾ Envelope Fragment Model Project ✎

⚙

The building envelope plays a critical role in building design as a separator from the exterior environment and shapes the building. This project aims to create a physical model at a scale of 1':3" based on modifying an existing high-performance building envelope, demonstrating the envelope system and how it complies with the surrounding environment. The physical models will be presented on **April 22nd, 2024.**

▾ Building Perfomance Project ✎

⚙

Building performance is an essential aspect of building design to comply with sustainable development goals. In this project, each student will create a Revit model and evaluate it through COVE.TOOL software to understand how building elements impact building performance, energy consumption, and lighting. Students are expected to submit their projects on OneDrive **by April 14th.**

▾ Study Case Project (Final Project) ✎

⚙

Project 4 (Final Project): The main idea for this course is to identify the terms "system" and "integration" in architecture and building design and how your knowledge support your studio project. For this purpose, each student will study a high-performance building, addressing the main systems implemented in each building, how these systems are integrated to create a whole, and what type of integration is utilized in each project. Each student will submit findings in digital format (5-10 pages report including images and drawings) and give a short presentation on **May 2nd, 2024.**
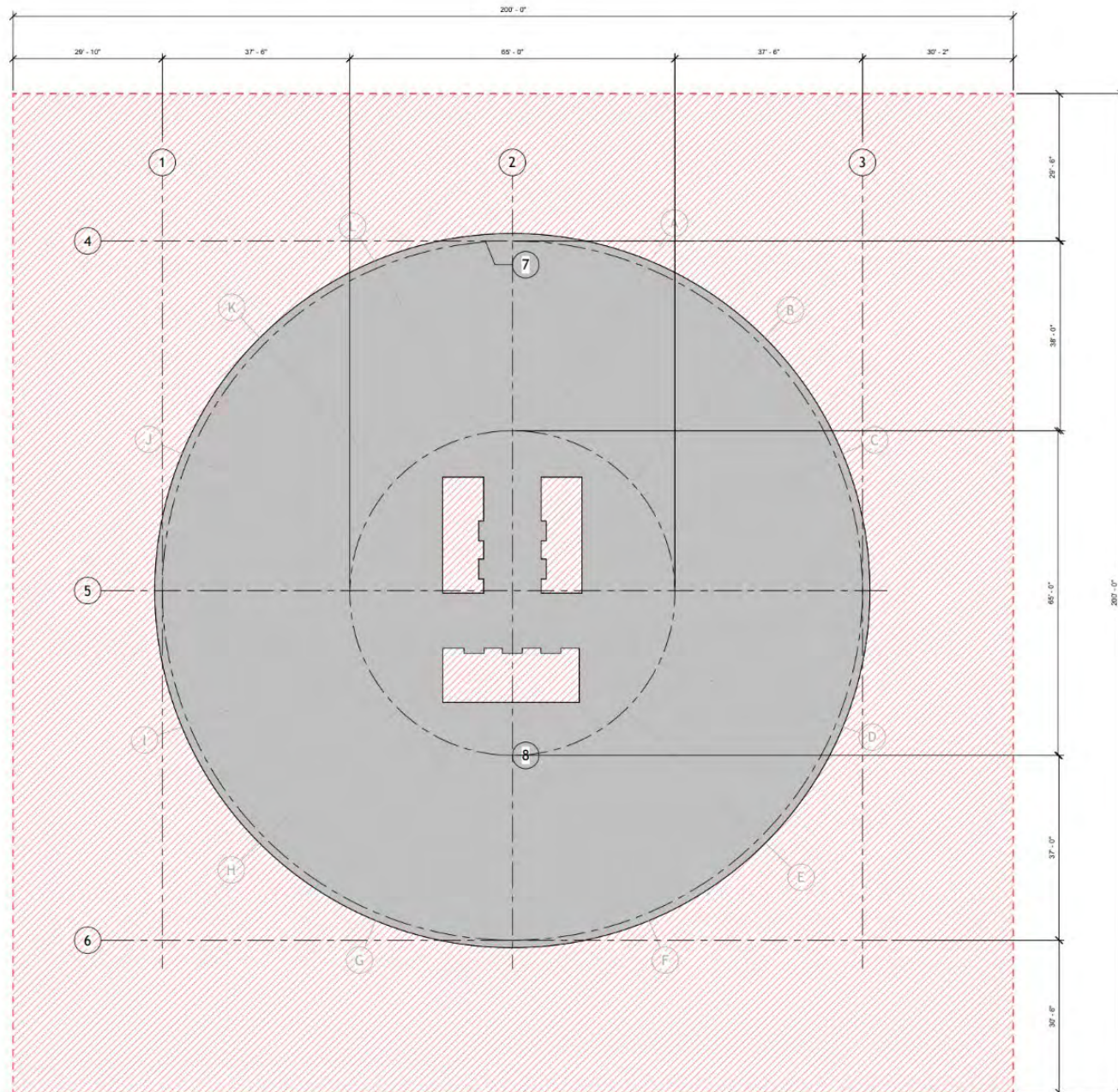
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Group 2:
Garrett Bueche
Kirsten Cases
Kris Lyon
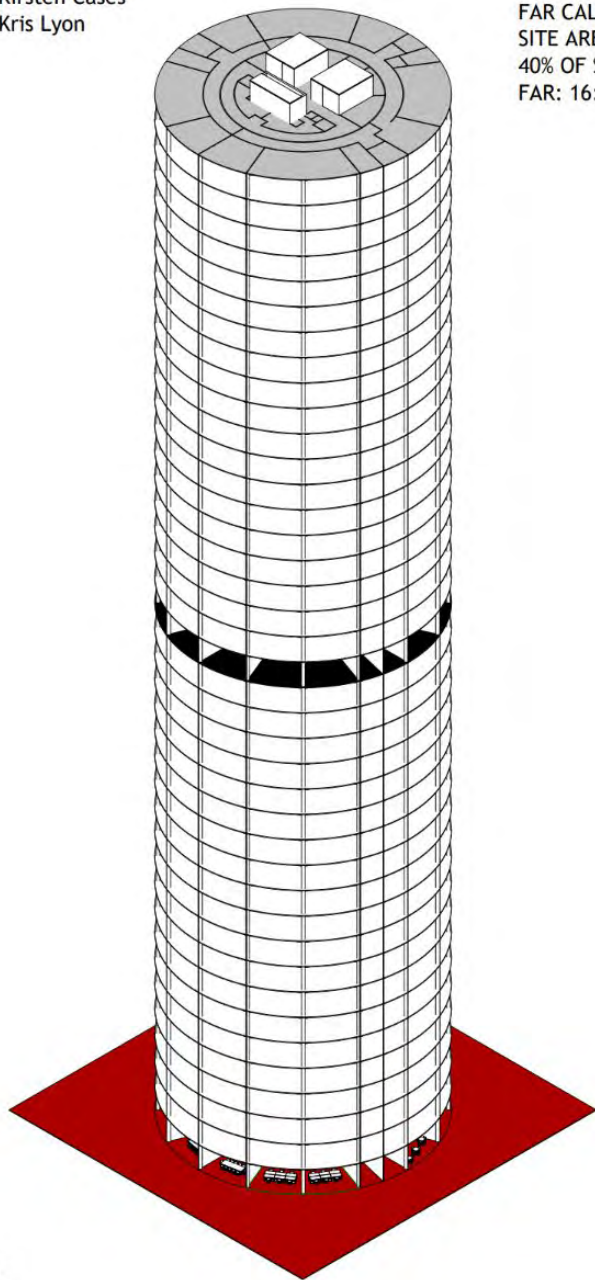
FAR CALCULATIONS:
SITE AREA: 40,000 sf
40% OF SITE
FAR: 16:1

Project 1

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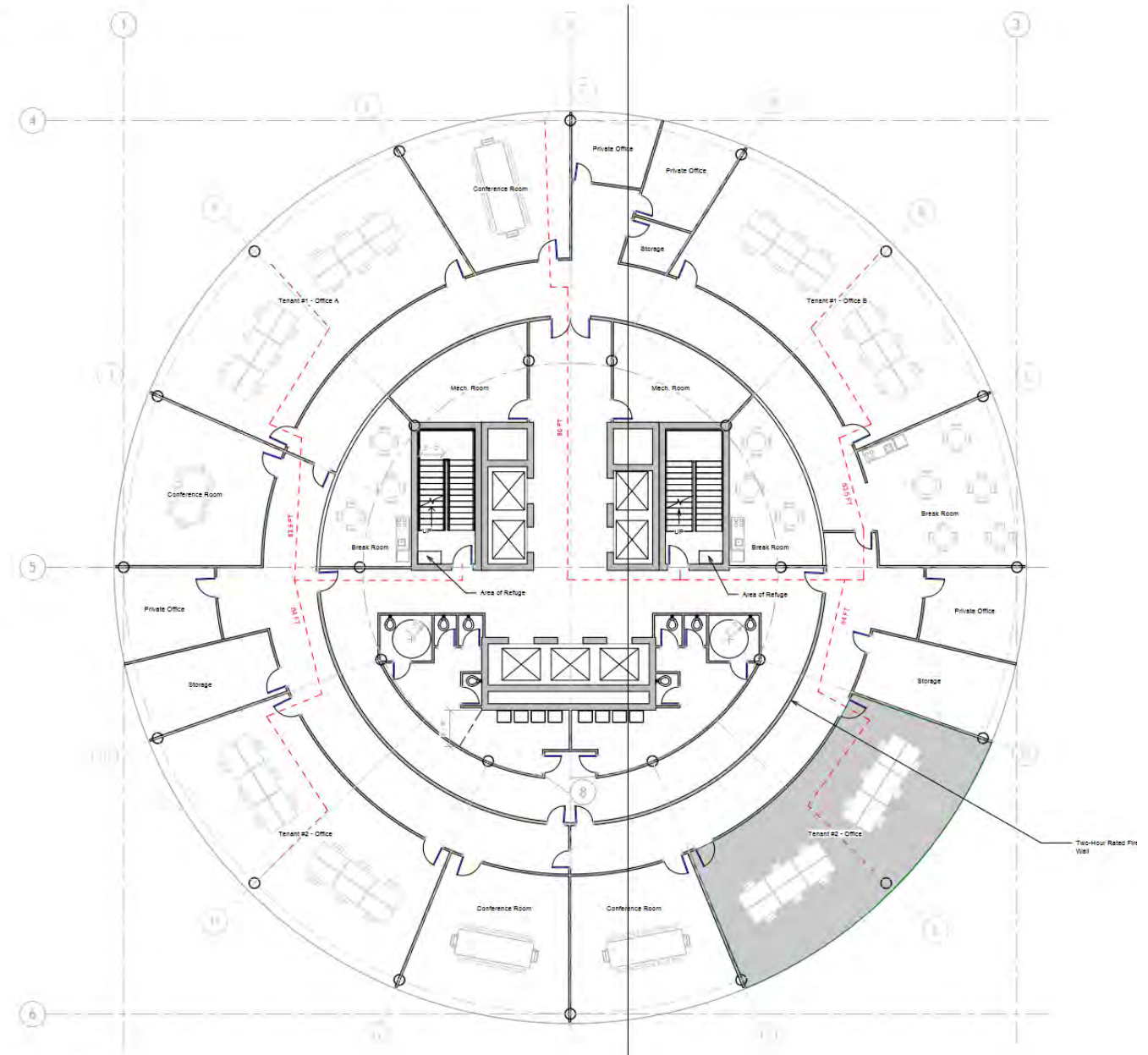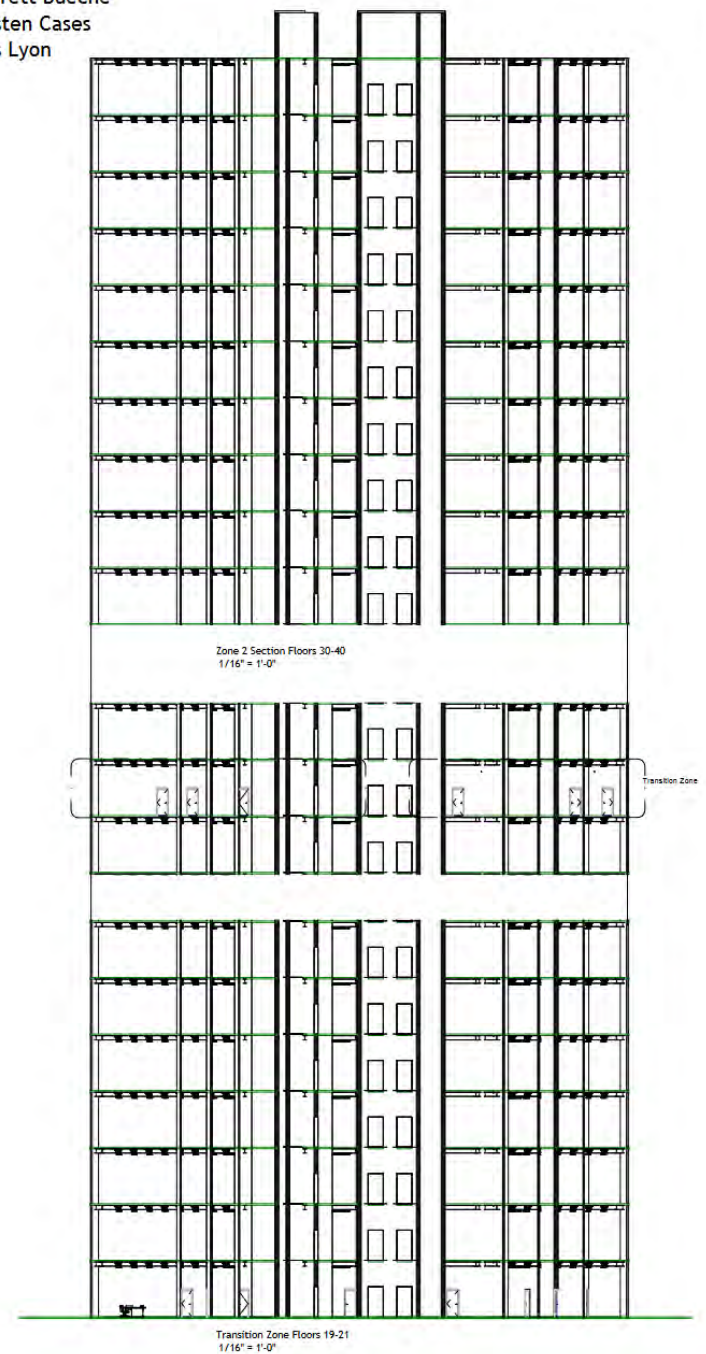LOUISIANA
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Site Plan

Group 2:
Garrett Bueche
Kirsten Cases
Kris Lyon

Zone 2 Section Floors 30-40
1/16" = 1'-0"

Transition Zone

Transition Zone Floors 19-21
1/16" = 1'-0"

OCCUPANCY LOAD:
CLASSIFICATION - BUSSINESS
15399 GROSS sf / 150 = 103 MAX OCCUPANTS
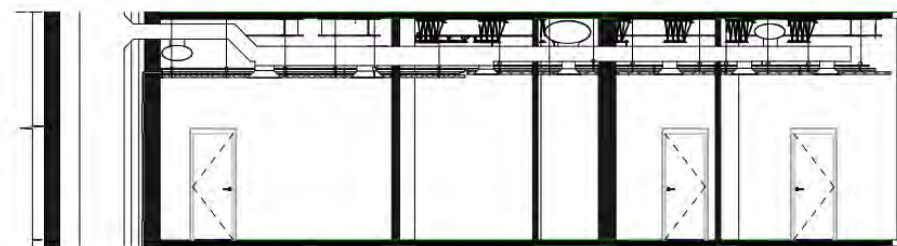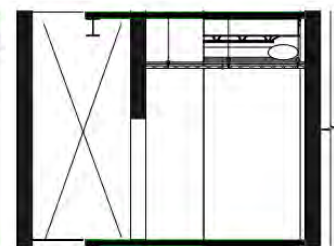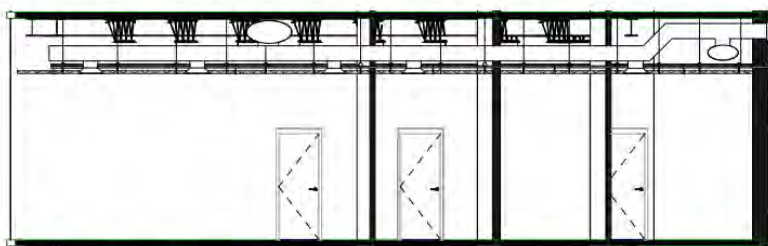
LAVATORY CALCULATIONS:
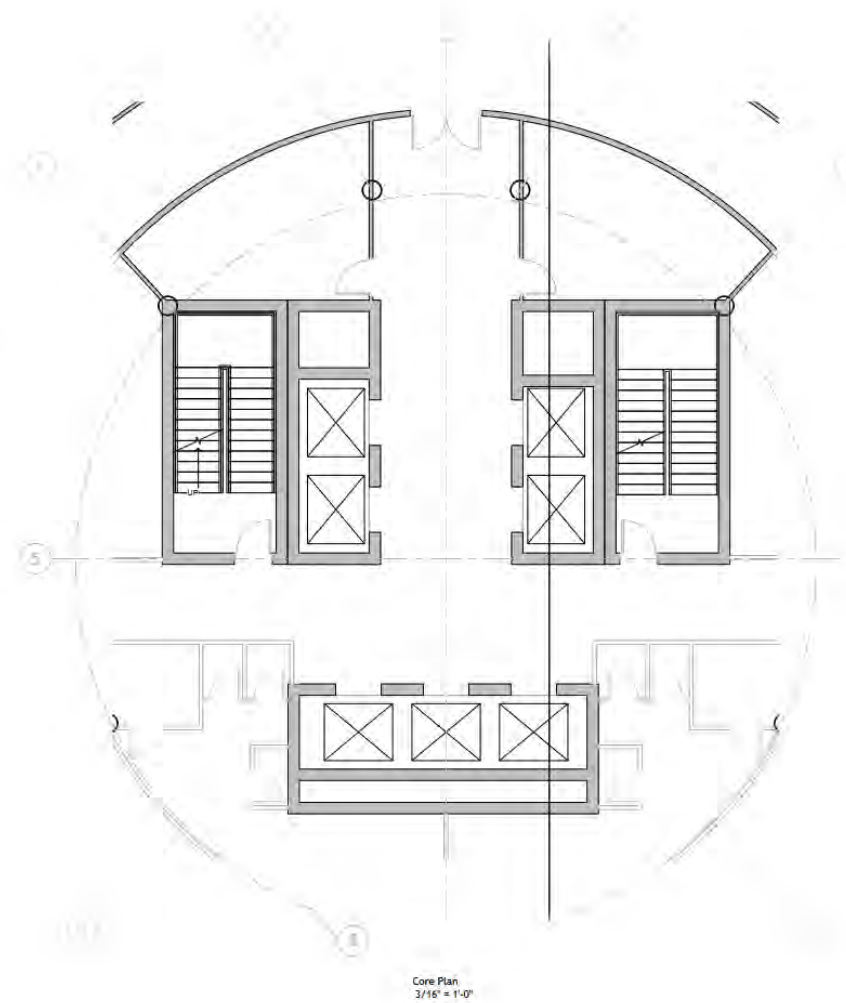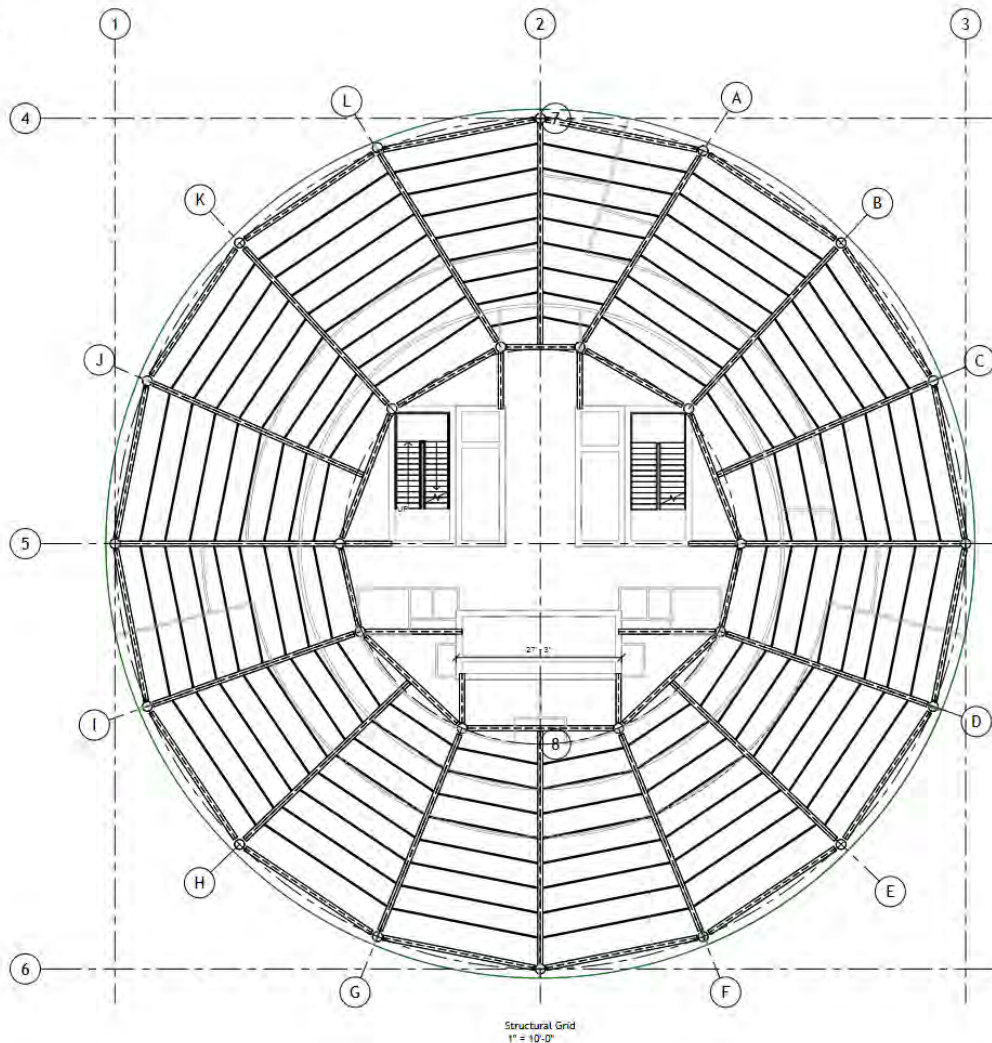MALE & FEMALE - 1/PER 40 FOR 1ST 80,
1/PER 80 FOR REST

WATER CLOSET CALCULATIONS:
MALE & FEMALE - 1/PER 25 FOR 1ST 50,
1/PER 50 FOR REST

Typical Floor Plan
1/8" = 1'-0"

Group 2:
Garrett Bueche
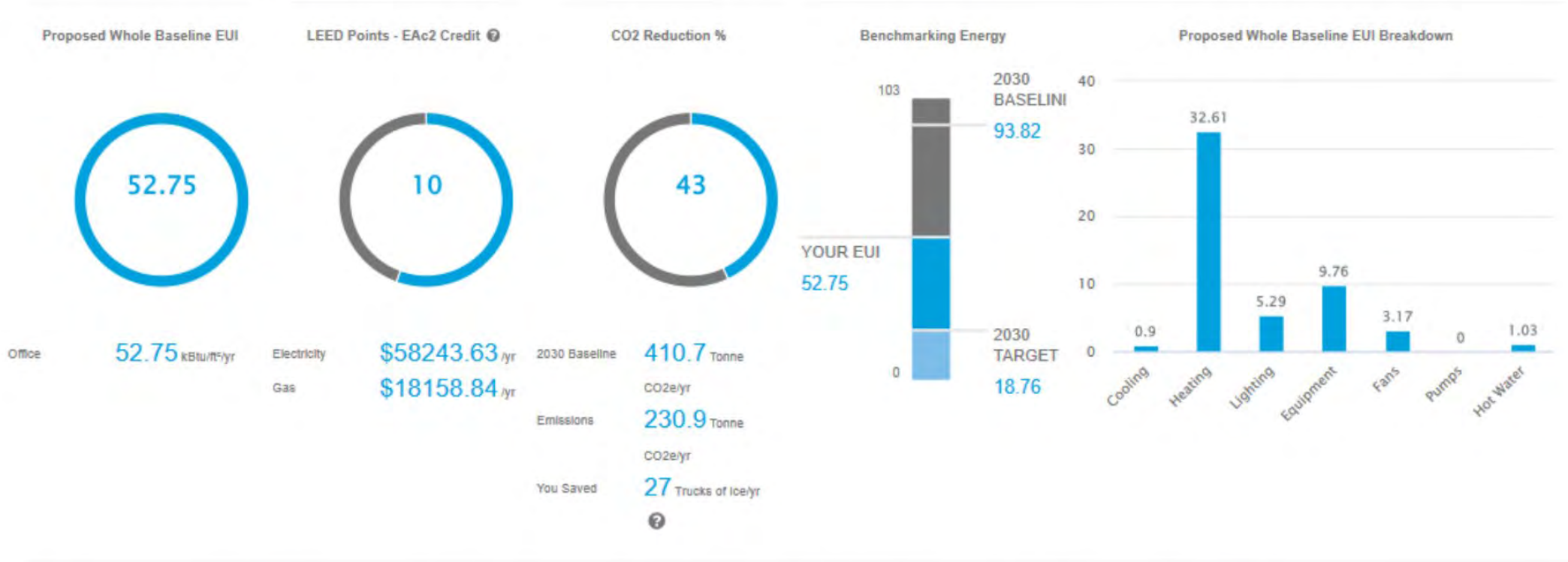Kirsten Cases
Kris Lyon

Structural Grid
1" = 10'-0"

Core Plan
3/16" = 1'-0"

MEP Details West
1/4" = 1'-0"

MEP Details East
1/4" = 1'-0"

Baseline Energy

Project 2

Emmanuel Jenkins

Water Use

Project 2

Project 2

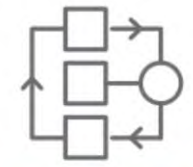# COST VS ENERGY OPTIMIZATION

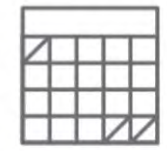## Office Options

26
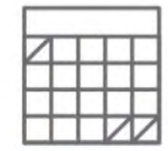Technology Options

4608
Possible Combinations

Daylight Sensors (%)
Partial Sensors: 50%
No Sensors: 0%
Sensors: 100%

Occupancy Sensors (%)
Partial Sensors: 50%
No Sensors: 0%
Sensors: 100%

Heating Set-Point
Standard
Adjusted

Cooling Set-Point
Standard
Adjusted
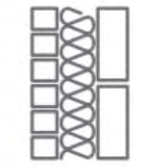
Wall R-Value
Stucco, 2 layers, on steel frame, R-13 + R-18.8 c.i. 34.02
Stucco, 2 layers, on wood frame, R-13 14.99
Stucco, 2 layers, on steel frame, R-15 + R-7.69 c.i. 17.24
Stucco, 2 layers, on steel frame, R-19 + R-10 c.i. 19.46
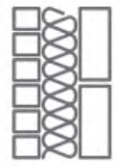
Glazing U-Value
Fixed window, type 12, double pane w/heat reflective film SHGC-0.45/U-0.26
YKK AP Curtain wall, double pane, YCW 750 OGP for 1" Glazing Laminated Infill (w/ Aluminum Spacer) SHGC-0.39/U-0.29
Curtain wall, type 1, double pane, light & heat reflective glass, tinted SHGC-0.23/U-0.28
Aluminum frame, fixed window, double pane IGU SHGC-0/U-0

Roof R-Value
Low Slope Roofing, EPDM, 60 mils, on steel deck, R-35 c.i. 38.3
Low Slope Roofing, EPDM, 60 mils, on steel deck, R-24 c.i. 25.6
Low Slope Roofing, EPDM, 60 mils, on steel joists, R-13 + R-10.9 c.i. 26.11
Corrugated metal roofing, on steel deck, R-49 54.8

System Type
Single Zone, with Furnace and Packaged DX
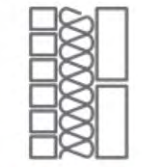
Spandrel U-Value
Energy Code Min 0.25

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Project 2
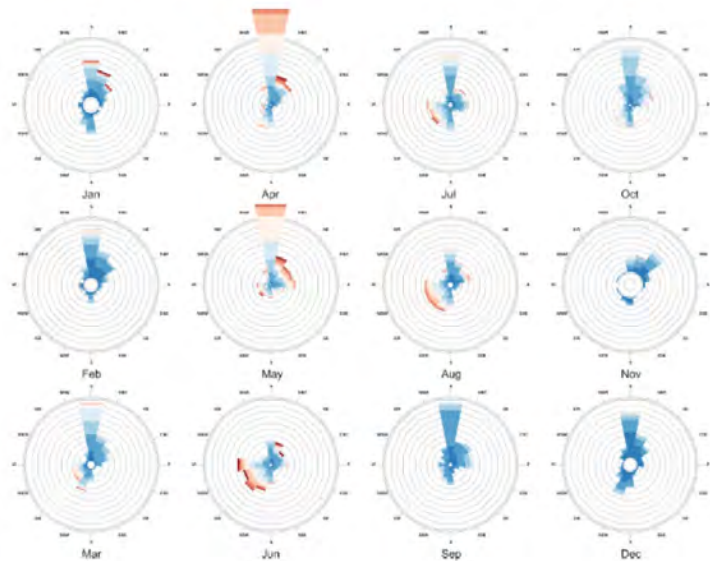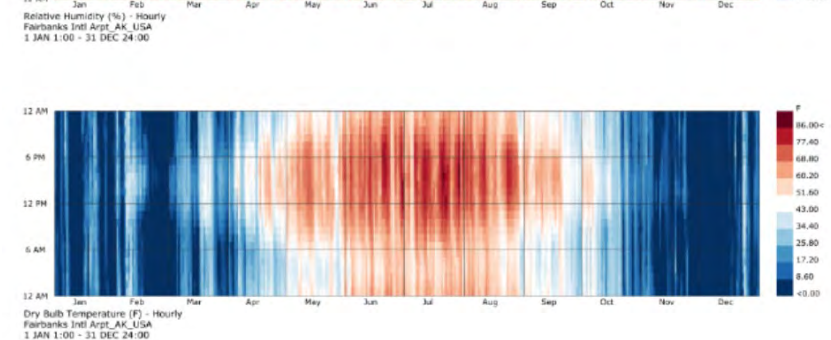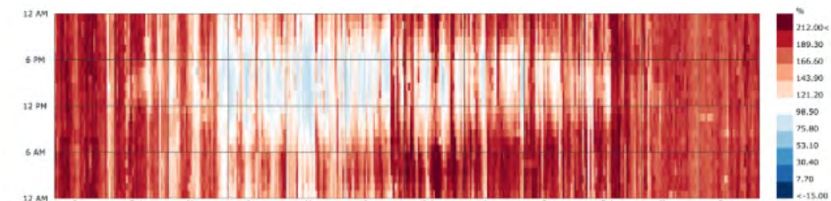
2030 PALETTE

The strategies below are applicable to your building and location

Building Facade

Clerestories and Skylight
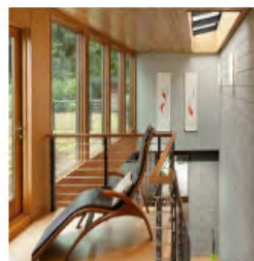
Direct Gain: Heat Storage

Earth Sheltering

Top Daylighting Controls

East/West Shading

Top Daylighting

Relative Humidity (%) - Hourly
Fairbanks Intl Arpt_AK_USA
1 JAN 1:00 - 31 DEC 24:00

Dry Bulb Temperature (F) - Hourly
Fairbanks Intl Arpt_AK_USA
1 JAN 1:00 - 31 DEC 24:00
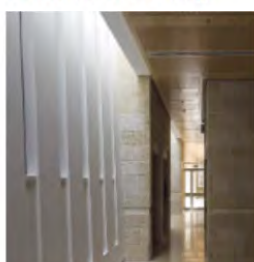
Psychrometric Chart
Fairbanks Intl Arpt_AK_USA
1 JAN 1:00 - 31 DEC 24:00

Operative Temperature [°C]
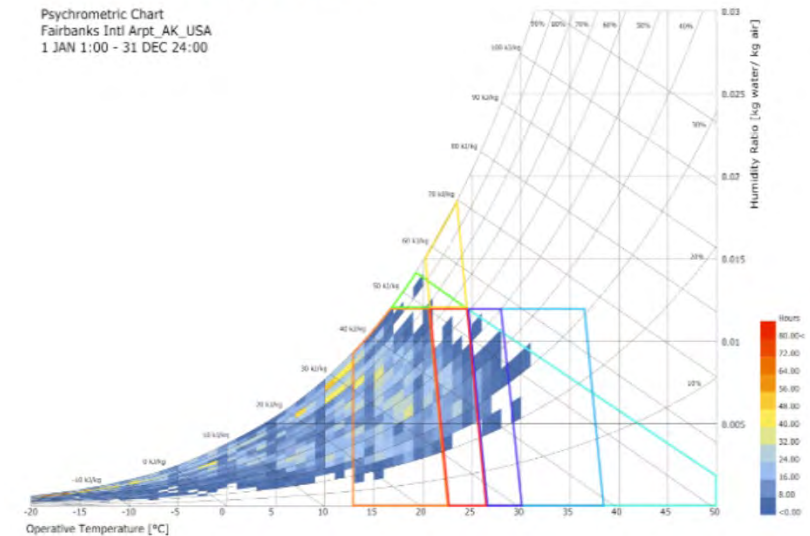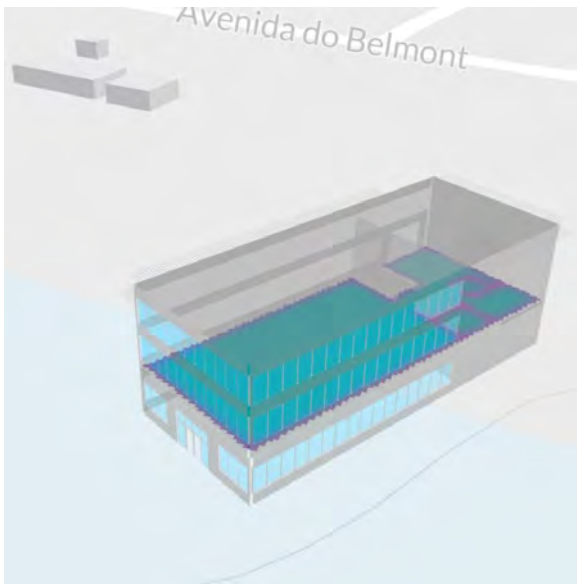
COVID -19

sDA

Solar Radiation

Quality Views

ASE

Sun Hours

Project 2

Final Project
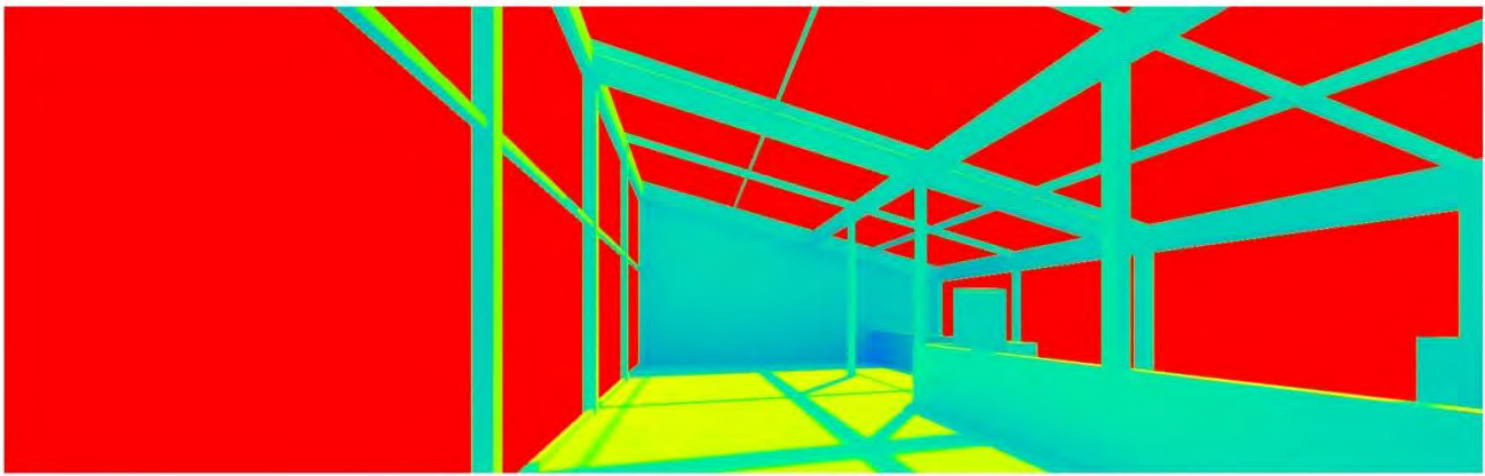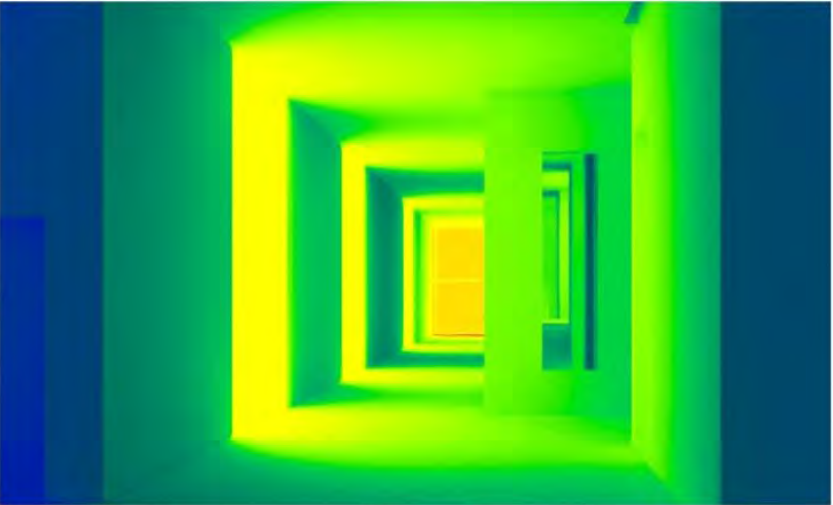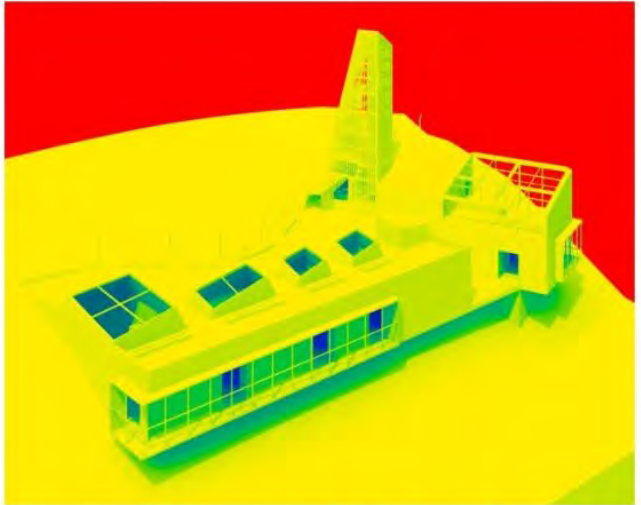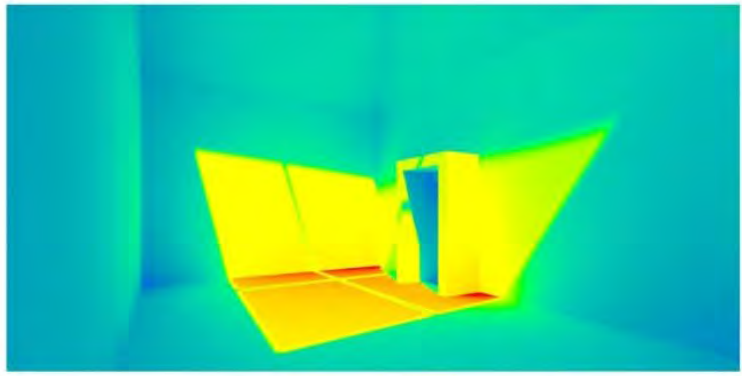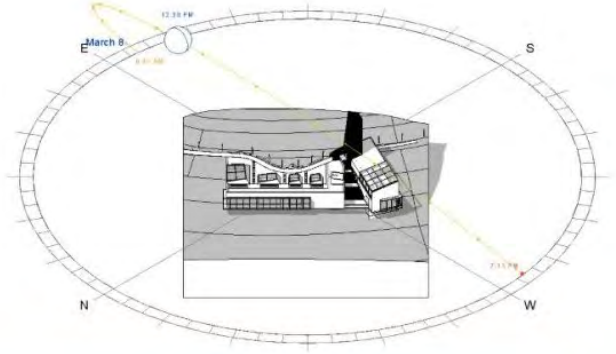
Nest We Grow

Taiki-cho, Hokkaido, Japan

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SCAD
SCHOOL OF ARCHITECTURE AND DESIGN

ARCH 532:
ADVANCED BUILDING
SYSTEMS
Spring 2024

2- Structural Systems

The structural system of "Nest We Grow" is ingeniously designed to support both the architectural integrity and the ecological function of the building. Constructed primarily from timber sourced locally from Hokkaido, the structure utilizes a series of wooden frames that form an open lattice, promoting both stability and openness. This framework
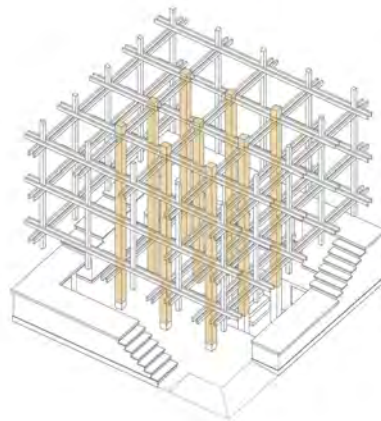
4- Envelope Systems

The building envelope of "Nest We Grow" is designed with a keen focus on environmental efficiency and aesthetic synergy with its surroundings. The envelope features a prominent translucent membrane that serves multiple functional purposes. This material choice ensures that a maximum amount of natural daylight can filter through, vital for the plants growing inside, while also providing sufficient thermal insulation to cope with Hokkaido's harsh winters. The sides of the building are constructed with a combination of open wooden lattices and clear glass panels, balancing the need for exposure to natural elements with the necessity of shelter from adverse weather conditions. This blend of materials not only enhances the building's thermal performance but also maintains a visual and physical connection between the interior spaces and the natural landscape outside, further emphasizing the project's integration with its environment. This thoughtful design of the building envelope contributes significantly to the building's sustainability and its dynamic interaction with natural light and air.
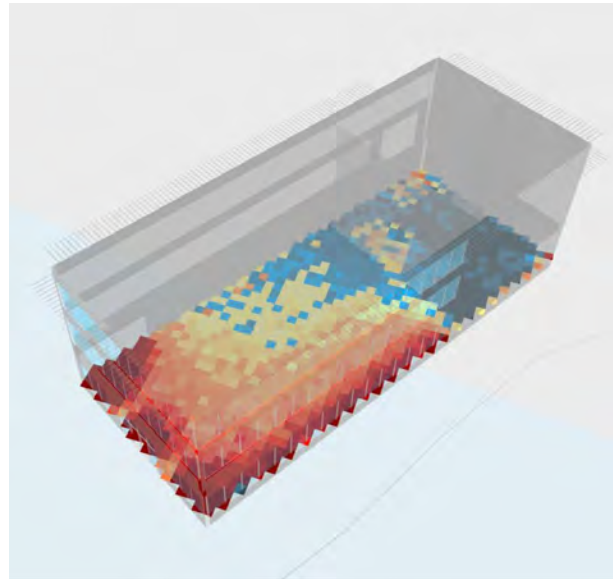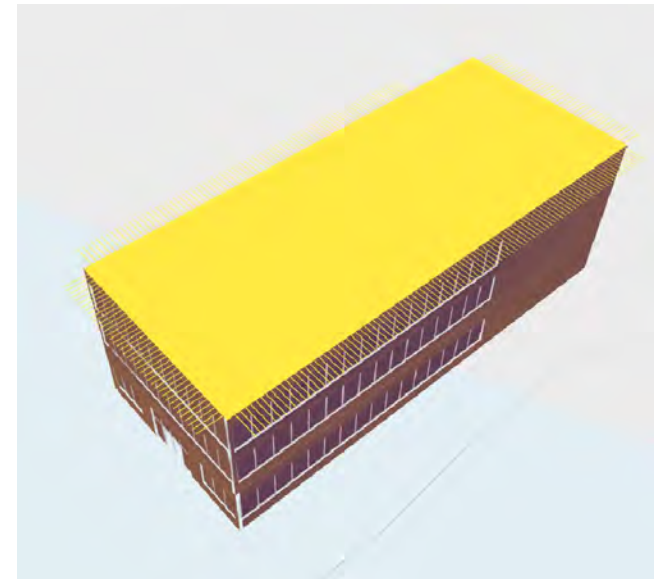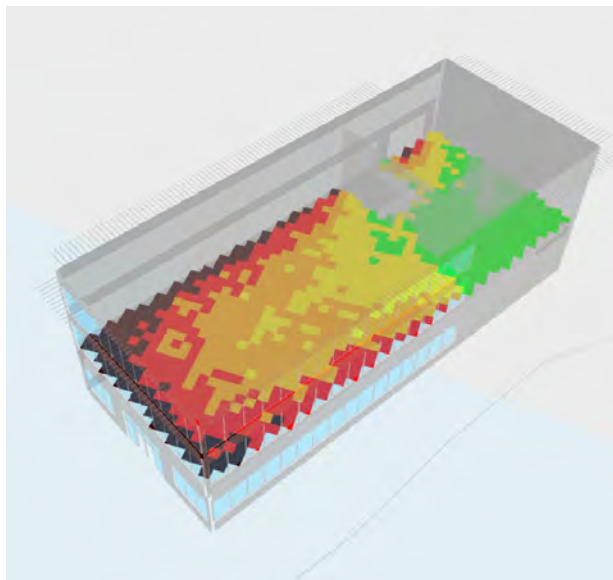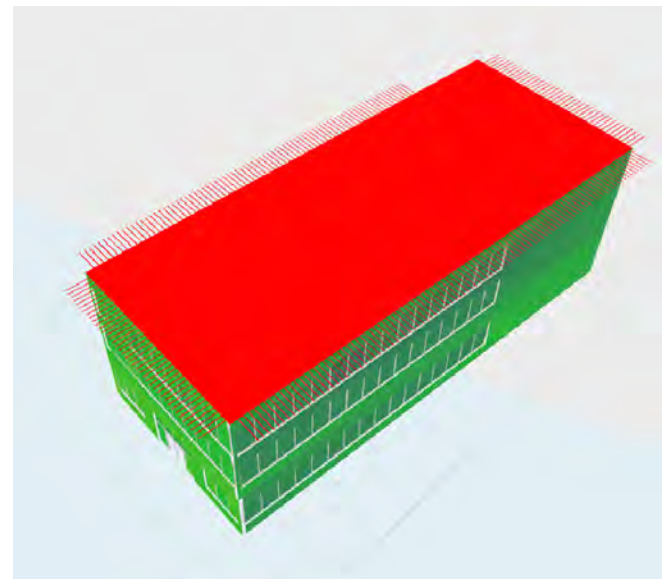

5- Systems Integration

"Nest We Grow" seamlessly integrates various architectural systems to foster sustainability and functionality within its structure. The building's structural system, predominantly crafted from locally sourced timber, forms a resilient and flexible lattice that supports both the architecture and integrated plant life. This framework is crucial for ensuring structural integrity while facilitating the growth of vegetation directly on the building, symbolizing a living interaction between nature and built environment. The

not only supports the physical building but also serves as a trellis for plants to grow upon, integrating agriculture directly into the architecture. The openness of the design ensures ample sunlight and air circulation, essential for the plants within, and creates a natural ventilation system that mitigates the need for artificial climate control. The choice of materials and the structural design exemplify a commitment to sustainability and reflect the local building traditions, making "Nest We Grow" a paradigm of eco-friendly architectural design.

tal systems, including strategic orientation for optimal solar gain and a d roof membrane, ensure efficient light penetration and thermal insulation, oth plant growth and energy conservation. Additionally, natural ventilation is rough the building's open design, enhancing air quality and temperature hout reliance on mechanical systems. The building envelope, combining membranes with wooden lattices and glass, maximizes daylight use and rformance, while maintaining harmony with the external environment. , these systems demonstrate a holistic approach to sustainable architectural basizing eco-efficiency and connectivity to nature.

3- Environmental Control Systems

"Nest We Grow" incorporates several environmentally conscious systems that exemplify sustainable architectural practices. The building is strategically oriented to maximize passive solar gain, which, combined with its high-performance translucent membrane on the roof, optimizes natural light penetration while minimizing heat loss. This setup not only enhances the growth of the plants housed within but also ensures that the indoor spaces remain warm during the cold Hokkaido winters without excessive reliance on artificial heating. Moreover, the structure's open lattice design facilitates natural ventilation, which efficiently regulates air quality and temperature throughout the year. Rainwater is harvested and recycled within the building, used both for irrigating plants and for the building's maintenance needs.

Storing

Growing

Cooking / Dining

Harvesting

UNIVERSITY of
LOUISIANA
LAFAYETTE

Bullitt Center

Miller Hull Partnership

ARCH 532:
ADVANCED BUILDING SYSTEMS
Spring 2024

0-   Table of Contents

1-   <u>**Introduction**</u>

The Bullitt Center is a great example of sustainable innovation, particularly in commercial office building design. It is located in Seattle, Washington, USA, and contains approximately 52,000 square feet of gross floor area. It was designed by the Miller Hull Partnership. This firm has a great deal of expertise in sustainable architectural designs.

Within this case study, about the Bullitt Center, focal points will extend beyond the building's façade. Important factors like it's intricate systems and forward-thinking design principles will be discussed and shown throughout. The Bullitt Center is well known for its sustainable construction and reputation for creating and influencing standards for environmental responsibility in the built environment. At the core of the Bullitt Center lies a valuable integrated approach to sustainability, a blend of modern technology, and eco-conscious design strategies. From energy and water management to waste reduction and material selection, every part of the Bullitt Center's design and functions reflects an important attention to detail and a commitment to sustainable practices.

The energy systems of the Bullitt Center stand as great examples of renewable energy integration. Its consists of an expansive rooftop solar panel array that takes in light from the Pacific Northwest's abundant sunlight. Because of this, it is capable of generating renewable electricity to power the building's operations. Energy-efficient lighting fixtures, combined with advanced HVAC systems and passive design principles, also contribute to minimizing energy consumption while ensuring optimal indoor comfort for occupants.

Water is managed efficiently in the Bullitt Center's design because of its importance in the Pacific Northwest. Innovative rainwater harvesting systems capture and store rainwater for non-potable uses such as landscape irrigation and toilet flushing. Additionally, advanced greywater treatment processes enable the building to recycle and reuse water effectively, reducing strain on municipal water supplies and promoting sustainable water usage practices.

Waste management strategies at the Bullitt Center are equally important. The building has composting toilets and vigorous recycling programs. This helps minimize landfill waste and allows for a closed-loop approach to resource utilization. Materials are also sourced locally and have low environmental impacts. All of these factors contribute to the Bullitt Center's commitment to responsible construction practices and lifecycle sustainability.

In this case on the Bullitt Center, not only will the buildings integrated systems be talked about, but also the collaborative efforts included in the design process. Innovative thinking influenced its conception and realization heavily. Insights from key stakeholders, including architects, engineers, and sustainability experts, will illuminate the decision-making processes, challenges faced, and lessons learned, highlighting the critical role of interdisciplinary collaboration and visionary strategies in creating a truly high-performance, sustainable building.

2-   <u>**Structural Systems**</u>

The Bullitt Center's structural systems included a blend of sustainability, innovation, and structural efficiency, reflecting a holistic approach to high-performance building design. This iconic structure in Seattle, Washington, USA, not only showcases groundbreaking sustainability features but also demonstrates the integration of structural elements to support its ambitious design goals.

1. Foundations and Load Bearing Structure:

The building's foundation is designed to support its six-story height and accommodate the various loads imposed by the structure, occupants, and equipment. Utilizing sustainable construction practices, the foundation incorporates recycled materials where feasible, minimizing environmental impact during construction. The load-bearing structure, typically comprising steel and concrete elements, is engineered to meet stringent seismic requirements due to the region's seismic activity.

2. Vertical and Lateral Load Resistance:

Vertical load resistance is primarily provided by columns and beams strategically placed throughout the building's footprint. These elements transfer gravity loads from the floors and roof to the foundation, ensuring structural stability. Lateral load resistance, crucial for seismic events and wind forces, is achieved through a combination of bracing systems, shear walls, and moment-resisting frames integrated into the building's core and perimeter.

3. Integration with Sustainable Design:

The Bullitt Center's structural design integrates seamlessly with its sustainable features. For instance, the building's efficient floor plate layout maximizes natural daylight penetration, reducing reliance on artificial lighting and lowering energy consumption. This layout also optimizes space for passive heating and cooling strategies, further enhancing the building's overall energy performance.

4. Material Selection and Lifecycle Considerations:

Sustainable material choices play a pivotal role in the Bullitt Center's structural systems. Where feasible, materials with high recycled content and low embodied carbon are prioritized, aligning with the project's sustainability goals. Additionally, considerations for material durability, maintenance requirements, and end-of-life recycling are factored into the design, ensuring a lifecycle approach to building sustainability.

5. Flexibility and Adaptability:

The Bullitt Center's structural systems are designed with flexibility and adaptability in mind. This approach allows for future modifications and tenant fit-outs while minimizing structural disruptions and environmental impacts. Modular construction techniques may also be incorporated, promoting resource efficiency and ease of assembly.

575 photovoltaic panels

19 inverters convert DC electricity to AC

Glulam timber frame

Bullitt Foundation

International Futures

Sonos

PAE Consulting Engineers

Hammer & Hand, and the University of Washington Center for Integrated Design

International Living Future Institute

AC combining panel: Utility required disconnect

Main electrical panel

26 geothermal wells, 400 feet deep

6. **Innovative Structural Technologies:**

      The building incorporates innovative structural technologies such as advanced composites, timber construction, or sustainable concrete mixes to enhance structural performance while reducing environmental footprint. These technologies align with the building's overall theme of sustainable innovation and serve as showcases for future sustainable construction projects.

7. **Public Accessibility and Educational Opportunities:**

      The Bullitt Center's structural systems are not only functional but also serve as educational tools for visitors and industry professionals. Public tours and educational programs highlight the integration of sustainable design principles with structural engineering, fostering a deeper understanding of sustainable building practices and inspiring future innovations in the construction industry.

      In conclusion, the Bullitt Center's structural systems exemplify the combination of sustainability and structural integrity, showcasing how innovative design and engineering can create high-performance buildings that tread lightly on the environment while setting new standards for functionality and resilience in the built environment.

MATERIALS & CONSTRUCTION

V^3 VOLUME OF WOOD USED: 24,526 CUBIC FEET

US & CANADIAN FORESTS GROW THIS MUCH WOOD IN: 2 MINUTES

C   CARBON STORED IN WOOD: 545 METRIC TONS OF CO_2

CO_2 AVOIDED GREENHOUSE GAS EMISSIONS: 1,158 METRIC TONS OF CO_2

✓   TOTAL POTENTIAL CARBON BENEFIT: 1,703 METRIC TONS OF CO_2
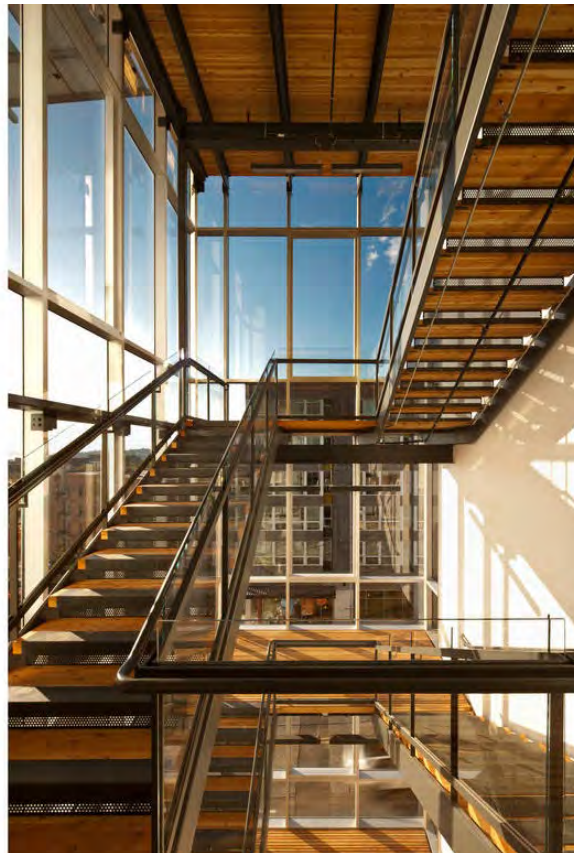
3-   <u>Environmental Control Systems</u>

The Bullitt Center's environmental control systems represent sustainable design, integrating advanced technologies with passive strategies to create a comfortable indoor environment while minimizing energy consumption and environmental impact. This structure shows how innovative thinking and system integration can revolutionize building operations for long-term sustainability.

1. **Passive Design Strategies:**

The Bullitt Center utilizes natural resources through passive design strategies. Orientation, shading, and natural ventilation are a few examples of how it accomplishes that. Large windows and a specific orientation optimize natural daylighting, while reducing the need for artificial lighting during day. External shading devices and glazing treatments mitigate solar heat gain in summer while allowing solar heat gain in winter. This allows for more thermal comfort year-round by visitors.

2. **Energy-Efficient HVAC Systems:**

The building employs highly efficient Heating, Ventilation, and Air Conditioning (HVAC) systems designed to minimize energy consumption while maintaining indoor air quality and comfort. Energy recovery ventilation (ERV) systems capture and exchange heat between incoming and outgoing air streams, reducing the HVAC load and overall energy demand.

3. **Renewable Energy Integration:**

Renewable energy sources play a crucial role in the Bullitt Center's environmental control systems. A large rooftop solar photovoltaic (PV) array creates clean electricity to offset the building's energy needs. This is including HVAC operation and lighting. Smart energy management systems evaluate energy use based on real-time data and occupancy patterns.

4. **Water Conservation and Management:**

Environmental control isn't only focused on temperature regulation to include water conservation and management systems. Low-flow fixtures, efficient irrigation practices utilizing harvested rainwater, and greywater recycling contribute to reductions in water usage, aligning with the building's sustainability goals.

WATER PERFORMANCE FOR LIVING BUILDING CHALLENGE
NET-ZERO WATER & ECOLOGICAL FLOW

Building graphics courtesy of Miller Hull
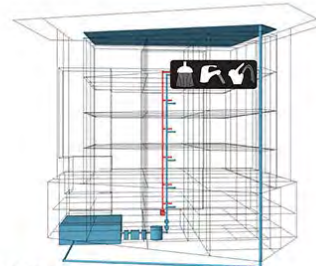
RAINWATER COLLECTION
100% DEMAND MET ON SITE
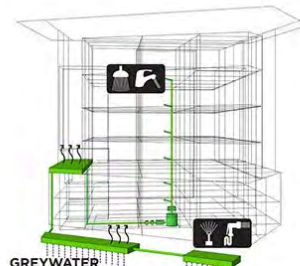
GREYWATER
100% TREATMENT ON SITE
EVAPOTRANSPIRATION & INFILTRATION
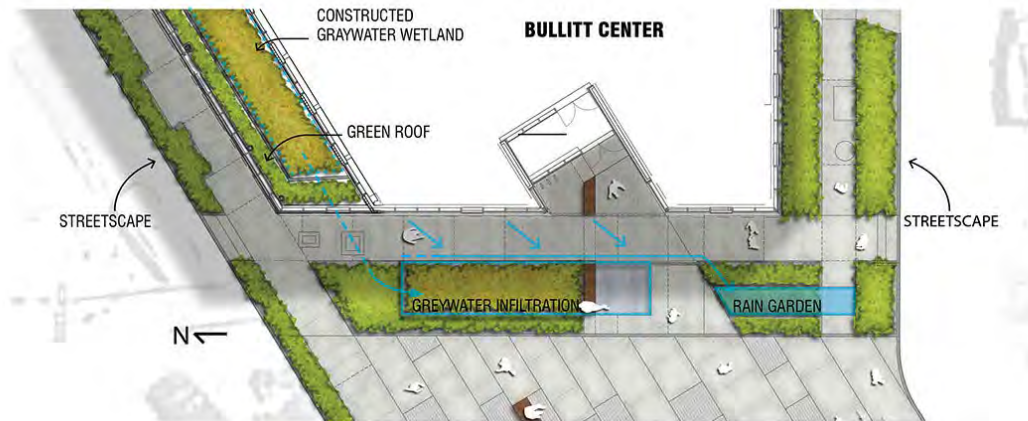
5. **Building Automation and Controls:**

Advanced building automation and controls play a huge role in optimizing environmental performance. Automated systems monitor indoor environmental factors such as temperature, humidity, and air quality, adjusting HVAC settings and ventilation rates accordingly. Occupancy sensors and smart lighting controls further reduce energy waste by ensuring lighting is used only when needed.

6. **Occupant Engagement and Comfort:**

A key aspect of the Bullitt Center's environmental control systems is occupant engagement and comfort. User-friendly interfaces and interactive displays allow occupants to monitor and adjust their environment, promoting energy-conscious behaviors and enhancing overall satisfaction with indoor conditions.

7. **Continuous Monitoring and Performance Optimization:**

The Bullitt Center continues ongoing monitoring and performance optimization of its environmental control systems. Data and building management systems analyze energy usage patterns, identify optimization opportunities, and support predictive maintenance strategies.

In conclusion, the Bullitt Center's environmental control systems exemplify a holistic approach to sustainable building design, where passive strategies, advanced technologies, renewable energy integration, and occupant engagement converge to create a harmonious and efficient indoor environment.

4-   <u>Envelope Systems</u>

The Bullitt Center's envelope system represents a different approach to sustainable building design. It blends cutting-edge materials and advanced technologies to create a high-performance building envelope.
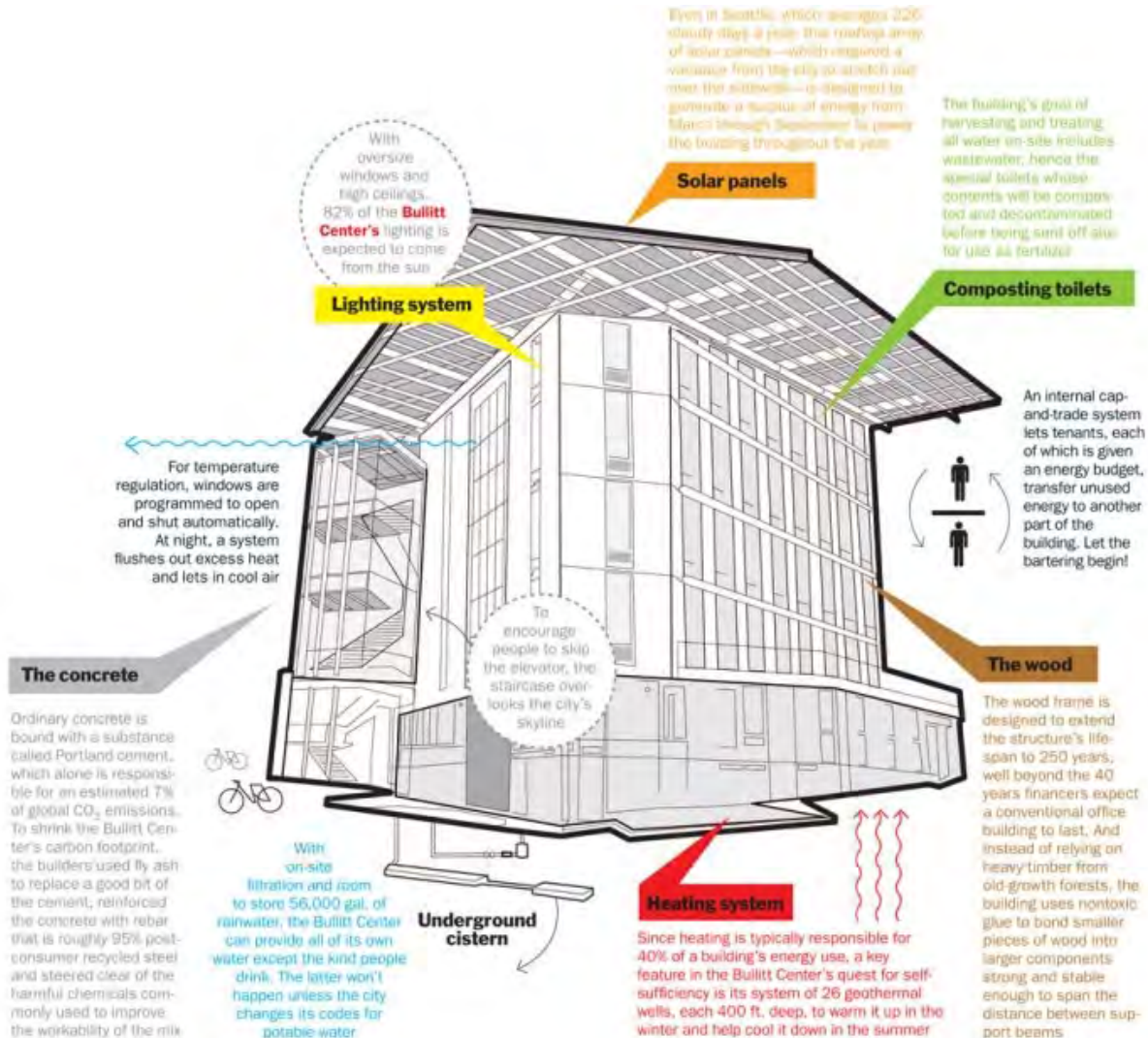
1. **High-Performance Building Materials:**

The Bullitt Center's envelope incorporates high-performance building materials selected because of their thermal efficiency, durability, and sustainability. These materials include advanced insulation such as rigid foam boards or spray foam insulation, high-performance glazing with low-emissivity coatings, and thermally broken framing systems to minimize thermal bridging.

2. **Airtight Construction and Thermal Bridging Mitigation:**

Airtight construction techniques and attention to detail during assembly ensure minimal air leakage through the building envelope. This is crucial for maintaining interior comfort, reducing energy losses due to infiltration, and enhancing overall building performance.

Additionally, strategies to mitigate thermal bridging at connection points further optimize thermal efficiency.

3. **Solar Heat Gain Management:**
　　The building envelope integrates strategies to manage solar heat gain effectively, especially in the Pacific Northwest's variable climate. External shading devices, low-emissivity glazing, and reflective coatings on exterior surfaces help regulate solar radiation. This also reduces cooling loads during warmer months while also allowing passive solar heating in colder months.

4. **Moisture Management and Durability:**
　　Moisture management strategies are integrated into the envelope system to prevent water infiltration, moisture accumulation, and potential damage to building materials. Vapor barriers, proper drainage systems, and moisture-resistant materials contribute to the building's long-term durability and resilience against climatic challenges.

5. **Integration with Passive Design Principles:**
　　The Bullitt Center's envelope design integrates with passive design principles to optimize natural light, ventilation, and thermal comfort. Well-placed windows and shading elements maximize daylight penetration while minimizing glare and solar heat gain. Natural ventilation strategies, facilitated by operable windows or passive vents, enhance indoor air quality and reduce reliance on mechanical cooling systems.

LIGHT & AIR

ENVELOPE
1 OPERABLE WINDOWS FOR VENTILATION & COOLING
2 TRIPLE-GLAZED HIGH PERFORMANCE WINDOWS
3 OPERABLE BLINDS MINIMIZE HEAT AND GLARE

COOLING
4 CEILING FANS FOR THERMAL COMFORT
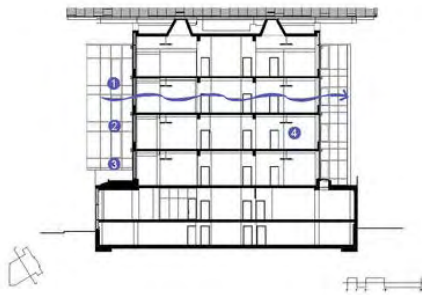
West facade with exterior motorized shades on upper stories. Ground floor is shaded by the trees in the park

6. **Insulation and Energy Efficiency:**

        The envelope's insulation plays a crucial role in maintaining thermal comfort. By minimizing heat transfer through walls, roofs, and floors, the Bullitt Center has exceptional energy efficiency levels, supporting its goal of net-zero energy operation while also minimizing its environmental footprint.

7. **Lifecycle Considerations and Sustainable Practices:**

        Sustainable practices extend beyond initial construction to encompass the lifecycle of the building envelope. Durable materials, low maintenance, and considerations for future additions or upgrades ensure long-term performance and sustainability. Additionally, selecting materials with low embodied carbon and environmental impact aligns with the Bullitt Center's commitment to sustainable building practices.

        The Bullitt Center's envelope system exemplifies a synergy of innovative design, advanced materials, and sustainable strategies, showcasing how a well-designed building envelope can significantly impact energy efficiency, occupant comfort, and environmental sustainability. By pushing the boundaries of envelope performance and integrating seamlessly with overall building systems, the Bullitt Center sets an example for future sustainable buildings. It encourages a shift towards more resilient, energy-efficient, and environmentally conscious architecture.

5-   Other systems
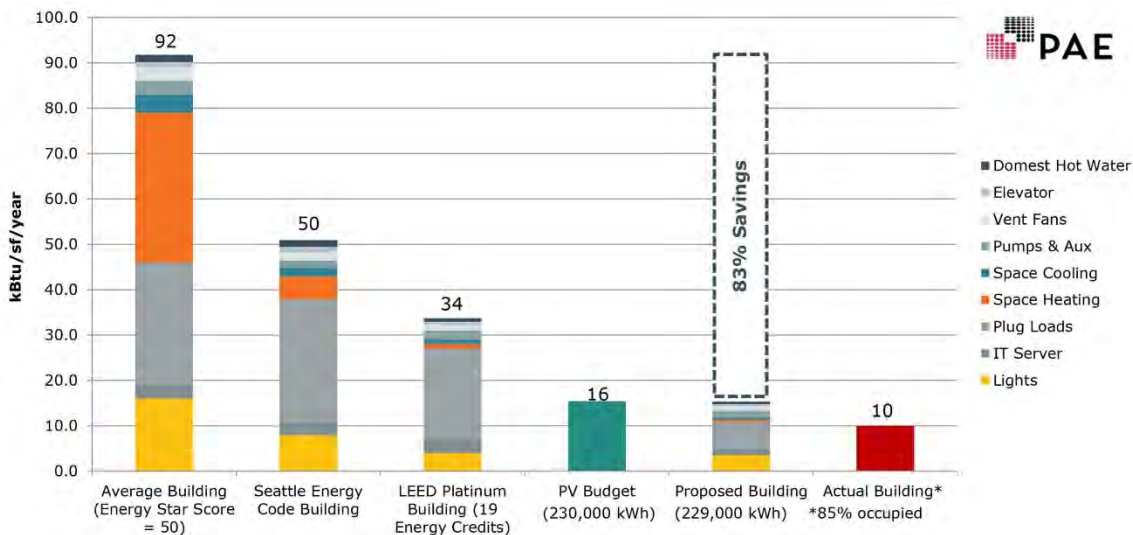
Beyond the structure, environmental control, and envelope systems, the Bullitt Center incorporates several other innovative systems that contribute to its high-performance and sustainability. These systems showcase a holistic approach to building design, addressing diverse aspects such as water conservation, renewable energy integration, smart technology utilization, and occupant well-being.

1. Water Conservation and Treatment Systems:

In addition to rainwater harvesting and greywater recycling mentioned earlier, the Bullitt Center implements advanced water conservation strategies. This includes low-flow fixtures, efficient irrigation systems for landscaping using harvested rainwater, and on-site water treatment technologies for ensuring water quality and reducing reliance on external water sources.

2. Smart Building Management and Controls:

Smart building technologies play a crucial role in optimizing energy efficiency, occupant comfort, and overall building performance. The Bullitt Center may utilize advanced Building Management Systems (BMS) to monitor and control HVAC, lighting, and other systems based on real-time data, occupancy patterns, and environmental conditions. Integration with smart meters and energy analytics software enables fine-tuning of energy usage and identifying optimization opportunities.

3. Biophilic Design Elements:

Biophilic design principles are integrated into the building's interior spaces to promote well-being and connection with nature. This includes incorporating indoor plants, natural materials, access to daylight and views of greenery, and creating biophilic design features such as living walls or indoor gardens. These elements not only enhance aesthetics but also contribute to improved air quality, stress reduction, and overall occupant productivity and satisfaction.

5. Waste Management and Recycling Systems:

Beyond waste reduction strategies, the Bullitt Center implements comprehensive waste management and recycling systems. This includes designated recycling areas, composting

facilities for organic waste, and partnerships with waste management companies for responsible disposal of non-recyclable materials.

6. **Emergency and Backup Systems:**

Ensuring operational resilience, the Bullitt Center incorporates emergency and backup systems for critical functions. This includes backup power systems such as batteries or generators to maintain essential services during power outages, emergency lighting systems, and fire safety systems designed for minimal environmental impact.

These additional systems at the Bullitt Center demonstrate a comprehensive and forward-thinking approach to sustainable building design. By addressing water conservation, renewable energy diversification, smart technology integration, biophilic design, waste management, and resilience, the building not only minimizes its environmental footprint but also creates a healthier, more productive, and resilient environment for its occupants.
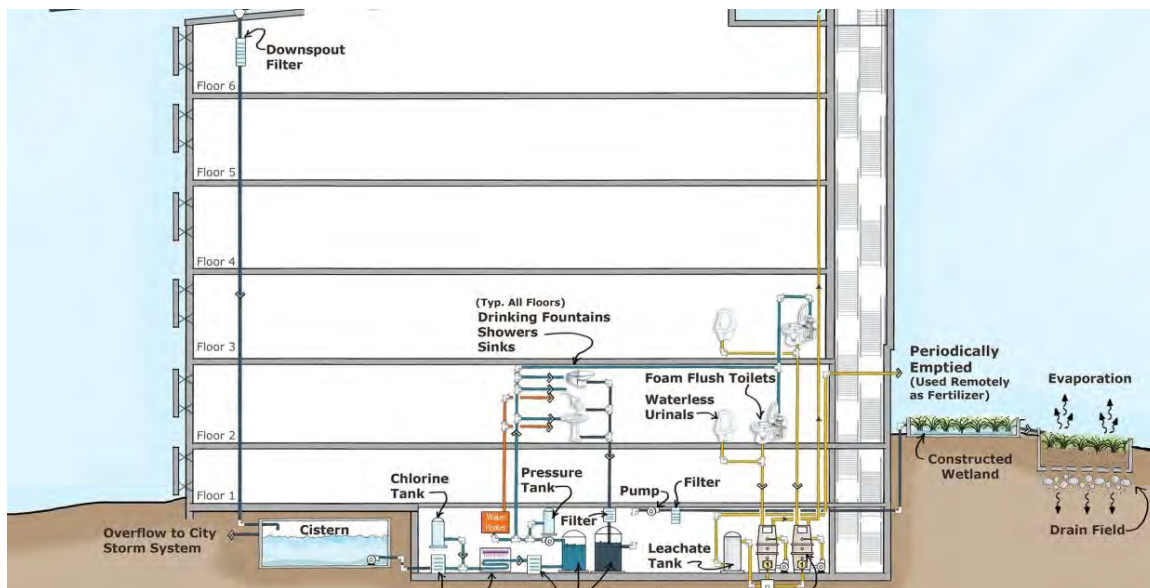
6-   Systems Integration

The Bullitt Center exemplifies integrated systems where visual, physical, and performance elements converge to create a high-performance and sustainable building environment. These integrated systems not only optimize resource efficiency but also enhance occupant comfort, well-being, and overall building performance.

Visual Integration:
Visual integration at the Bullitt Center focuses on harmonizing architectural design, natural elements, and visual aesthetics to create a visually engaging and inspiring environment.

Daylighting Strategies: Strategic placement of windows, skylights, and light shelves maximizes natural daylight penetration, reducing reliance on artificial lighting and creating bright, inviting indoor spaces.
Views and Connectivity: Thoughtful design considerations ensure occupants have access to exterior views, green spaces, and natural elements, fostering a connection with the surrounding environment and promoting well-being.

LIGHT & AIR

DAYLIGHT
TYPICAL FLOOR 75% DAYLIT
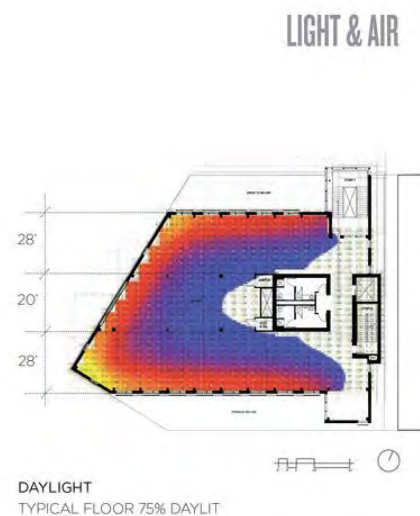
Physical Integration:
Physical integration includes coordination and interaction of building systems, structural elements, and occupant interactions within the built environment.

Structural-Energy Synergy: Structural elements such as thermal mass in floors or walls may be utilized for passive heating or cooling, optimizing energy efficiency without compromising structural integrity.

Occupant Comfort Systems: HVAC systems, shading devices, and acoustic treatments work in concert to maintain comfortable indoor conditions, mitigate external disturbances, and promote a productive work environment.

Performance Integration:

Performance integration focuses on building performances across energy, water, waste management, and environmental sustainability metrics through interconnected systems and data-driven strategies.

Energy-Efficient Systems: Integrated energy management systems monitor energy usage, control lighting and HVAC based on occupancy and environmental conditions, and optimize renewable energy generation and storage for maximum efficiency.

Water Conservation and Management: Smart water meters, efficient fixtures, greywater recycling, and rainwater harvesting systems integrate to minimize water usage, promote sustainable water practices, and reduce strain on municipal resources.

Waste Reduction and Recycling: Integrated waste management systems streamline waste sorting, recycling processes, and composting, fostering a culture of waste reduction and resource recovery within the building.

The Bullitt Center's approach to integrated systems includes individual components that emphasize and enhance the environmental sustainability and occupant experience. By blending visual aesthetics, physical functionality, and performance optimization, the building sets a precedent for holistic design and operation strategies in high-performance/sustainable architecture. This integrated approach not only reduces environmental impact but also creates a dynamic and inspiring built environment that supports human well-being and productivity.

7-   Area of Improvement

When considering areas for improvement in building systems, especially in retrofitting existing structures like the Bullitt Center, several key aspects come to mind that can further enhance sustainability, energy efficiency, occupant comfort, and operational resilience.

1. **Advanced Energy Storage and Management:**
Implementing advanced energy storage systems, such as large-scale batteries or thermal energy storage, can enhance the Bullitt Center's ability to store more renewable energy. The stored energy could be utilized during high demand periods or when renewable generation is low.

2. **Dynamic Building Envelope Solutions:**
Electrochromic or smart glass windows can improve solar heat gain management and daylighting control. These technologies can automatically adjust tint levels based on external conditions.

3. **Integration of Smart Sensors and IoT Devices:**
Including smart sensors, Internet of Things (IoT) devices, and building automation systems can provide real-time data on energy usage, indoor air quality, occupancy patterns, and equipment performance.

4. **Biophilic Design Enhancements:**
Expanding biophilic design elements such as living walls, green roofs, and indoor gardens can further enhance indoor air quality, occupant well-being, and connection with nature.

Retrofitting Measures for Redesigning the Project:

Comprehensive Energy Audit: Conduct a detailed energy audit to identify energy-intensive areas and opportunities for energy conservation measures (ECMs) such as LED lighting upgrades, HVAC system optimizations, and building envelope improvements.

Integrated Renewable Energy Systems: Integrate additional renewable energy sources like wind turbines or geothermal heat pumps to diversify renewable energy generation and achieve higher levels of energy autonomy.

Smart Building Upgrades: Retrofit existing systems with smart controls, occupancy sensors, and energy-efficient technologies to optimize energy use, reduce waste, and enhance occupant comfort.

Water Efficiency Upgrades: Upgrade water fixtures, install advanced water recycling and treatment systems, and implement smart irrigation practices to minimize water consumption and promote sustainable water management.

Occupant Engagement Initiatives: Implement educational programs, energy-saving competitions, and feedback mechanisms to engage occupants in sustainable practices and promote a culture of environmental responsibility.

By implementing these retrofitting measures and redesigning systems with a focus on sustainability and efficiency, the Bullitt Center can grow its position as an architectural example of sustainable architecture.

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WESTWOOD HILLS

NATURE CENTER

Minneapolis, Minnesota

ARCH 532:

ADVANCED BUILDING
SYSTEMS
Spring 2024

Lexi Palumbo

1- Introduction

The Westwood Hills Nature Center, a project owned by the city of St. Louis Park, Minnesota, is an educational and recreational facility designed by HGA Architects and Engineers. The design phase was completed in 2018, with substantial completion of the project achieved in 2020. This 13,565-square-foot environmental learning center sits on a 160-acre site that was formerly a golf course and has since been transformed by the city into a nature preserve with marshes, woods, and restored prairie. The new center, which cost $12.5 million—$10.3 million excluding furnishings—replaces a smaller, one-room building, significantly expanding the facility's capacity for educational programs and public engagement. The successful completion of this center was the result of a collaborative effort involving a wide range of professionals, including architects, engineers, exhibit designers, naturalists, educators, a city advisory committee, program and facility staff, a city planner, a sustainability specialist, and the construction team.
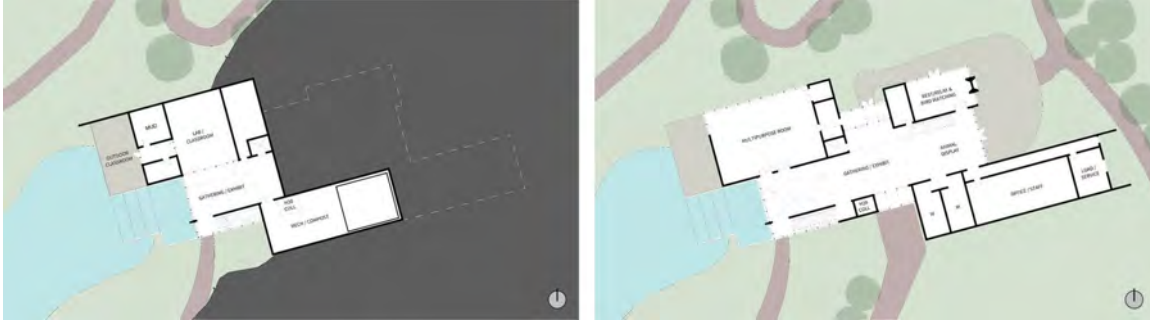

Above: Layout of 160-acre site
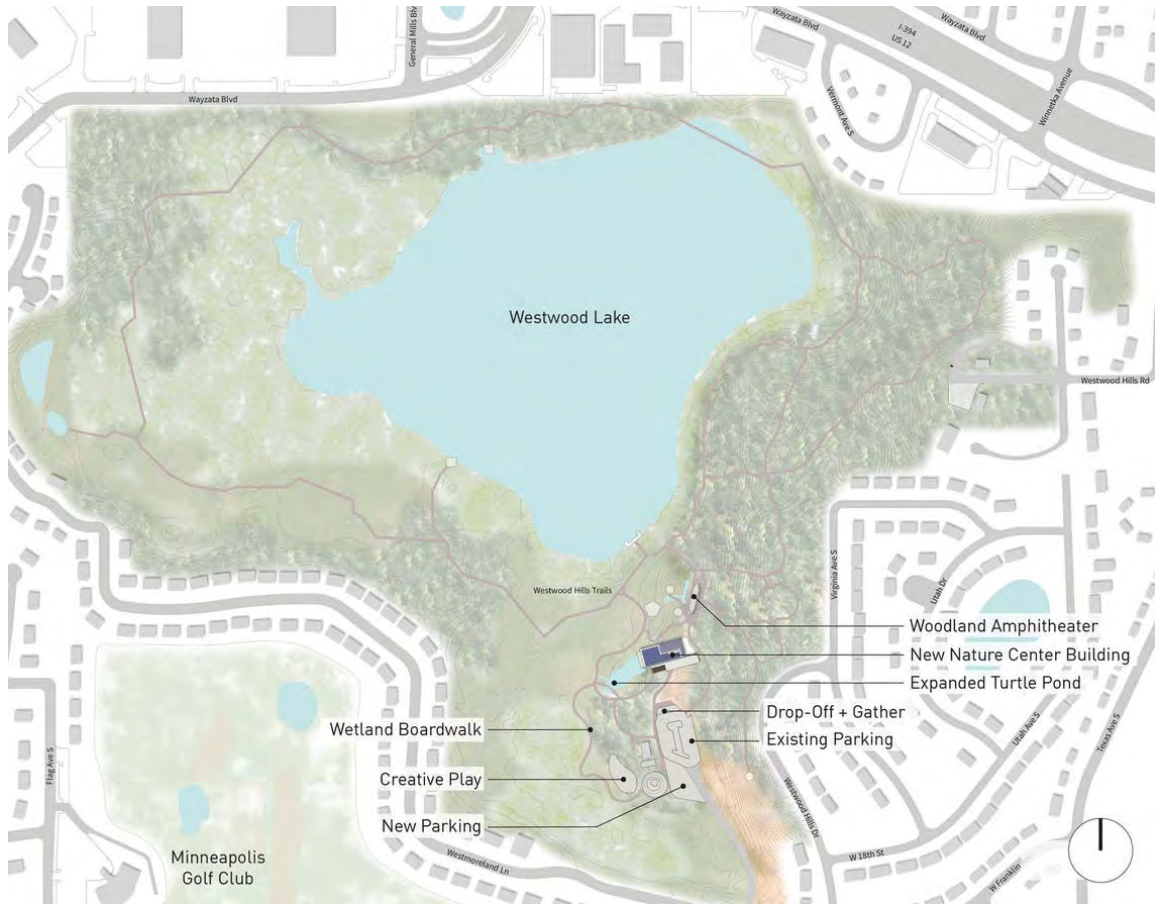
Above:

Site Plan

Above:

Scheme on site

Above:

Marsh Level Floor plans, Entry Level Floor Plan
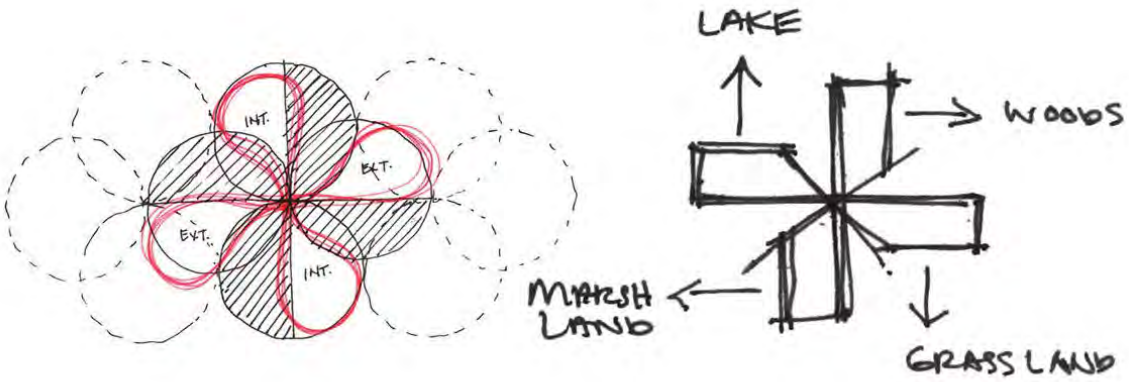
Above: Engagement of site sketch

2- Structural Systems

The structural systems of the Westwood Hills Nature Center in Minnesota prominently feature wood for its structural and non-structural components, exterior cladding, and finishes, chosen for aesthetic warmth and sustainability. The design highlights an exposed wood structure that takes inspiration from the microscopic arrangement of wood fibers, scaling this up to architectural dimensions. The construction utilizes glue-laminated timber, which is composed of smaller wood pieces for enhanced strength and stability. Columns made from this material are paired and integrated into the building's exterior, doubling as functional and communal elements like entries and seating. Additionally, the roof is strategically angled to optimize natural light and views for the interior spaces, contributing to the center's environmental efficiency and visitor experience.

Above: Exploded axon of structural framing components

Above: Glue-laminated members exterior covered space

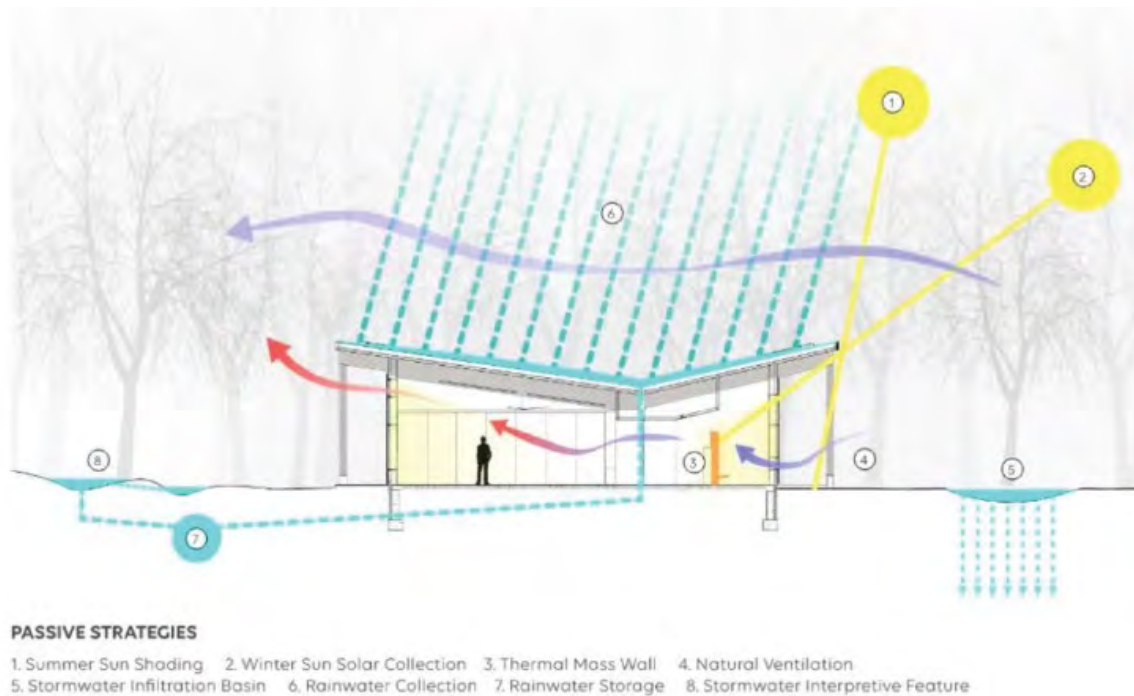*Above: Main public exhibit space, showing interior exposed structure*

3- Environmental Control Systems

The environmental control system of the Westwood Hills Nature Center in Minnesota is designed with sustainability and energy efficiency as core principles. The building utilizes its envelope, orientation, and shading to harness the natural resources of sun and wind, maximizing passive heating, cooling, and daylighting strategies. During the winter, the center capitalizes on solar gain and incorporates in-floor radiant heating for comfort, while in the warmer months, a combination of operable windows and ceiling fans provides low-energy cooling through "task-oriented" ventilation strategies.

Optimized system setpoints contribute to the facility's efficiency, further reducing energy loads through the integration of LED lighting and utilizing a geothermal well field that supports the all-electric boilers for the radiant floor heating system. The Westwood Hills Nature Center also employs WeatherShift technology, which uses projected future weather data and historical data within its energy model to ensure the building's performance is aligned with its zero energy goals, securing its environmental viability for the future.

PASSIVE STRATEGIES

1. Summer Sun Shading   2. Winter Sun Solar Collection   3. Thermal Mass Wall   4. Natural Ventilation
5. Stormwater Infiltration Basin   6. Rainwater Collection   7. Rainwater Storage   8. Stormwater Interpretive Feature

Above: Diagram of passive strategies

4- Envelope Systems

The envelope system of the Westwood Hills Nature Center in Minnesota is a high-performance structure designed to significantly reduce energy consumption and carbon emissions. It features fiber cement siding, a slab with an R-value of R10, walls rated at R30, and a roof with an R45 rating, indicating a robust capacity for insulating against heat flow. The inclusion of dual-element glazing aids in minimizing cold drafts during the winter.

A key achievement of the building's design is its 100% reduction in operational carbon from the benchmark when renewable energy sources are taken into account. All the energy required for the center is derived from renewable sources, ensuring that the operational energy footprint is net-zero.

Operable windows are strategically placed to optimize airflow and natural cooling during the summer months, contributing to the building's passive cooling strategies.

HGA's calculations indicate that a similar-sized building constructed to code standards and heated with an electric boiler would produce over 130 tons of carbon emissions each year. In contrast, the nature center, if managed properly, is expected to generate no carbon emissions, aligning with its zero-emissions goal. The total embodied and operational carbon over a 10-year period is calculated to be 198,789.9 kg CO2e.

There are two significant lessons from this project that can be applied to future endeavors: firstly, the integration of architectural and engineering concepts early in the design process is crucial for setting and achieving performance goals. Secondly, maintaining tight specifications and diligent construction observation is essential for realizing a high-performance, airtight building envelope. These practices ensure that the facility not only meets but exceeds environmental performance targets.
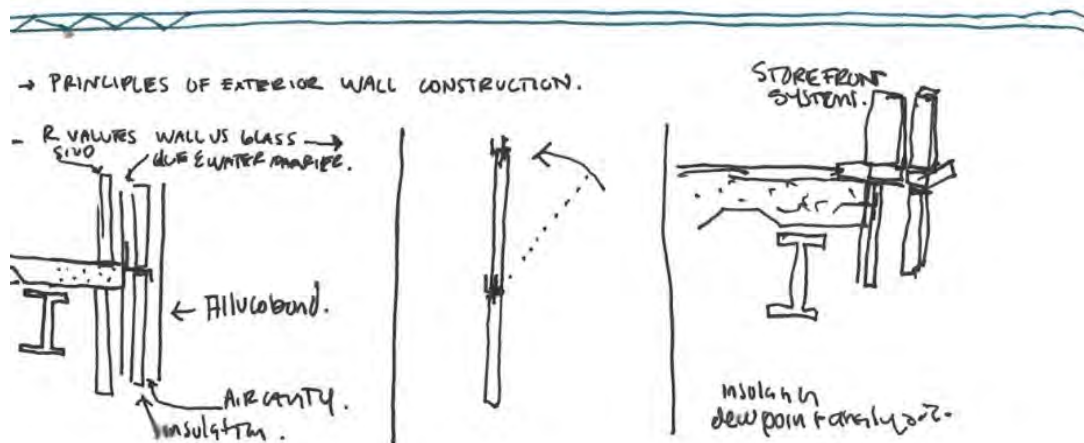
Above: sketch from architect's notes showing the breakdown of the wall system

Above: Fiber Cement Siding on façade

Above: Exterior View

5- Other systems (Optional)

The Westwood Hills Nature Center effectively manages water use and conservation on its site. Rainwater is collected from the roof and site, stored underground, and then treated through natural filtration basins, which also serve as educational exhibits. Pervious surfaces in the parking area aid in filtering stormwater. Inside, low-flow fixtures reduce water use by 38%, and the use of native plants in landscaping eliminates the need for irrigation. The center's design and operations are focused on reducing the environmental impact and educating visitors on sustainable water practices.
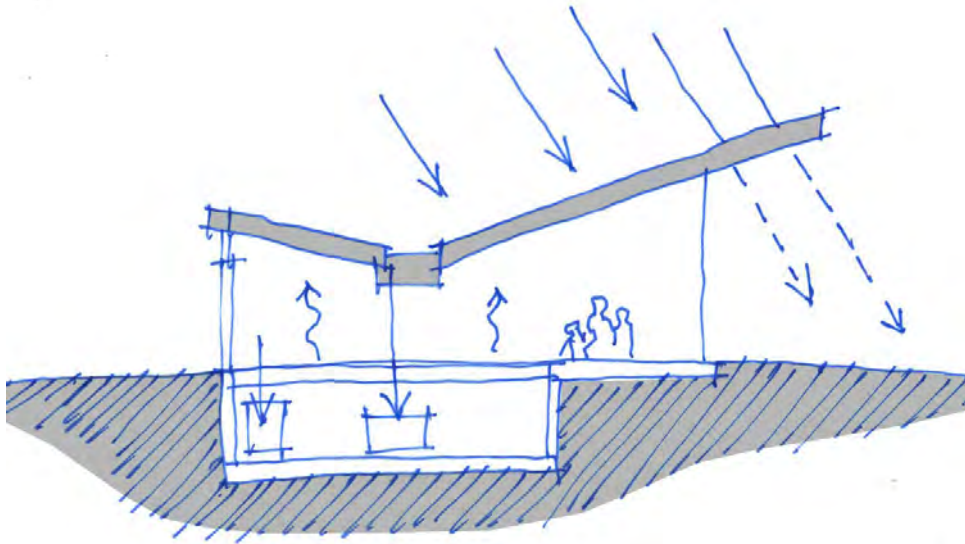
*Above: Diagram sketch of how water moves around the building*

Above: Ariel rendering of the site, showing roof water drainage

6- Systems Integration

The Westwood Hills Nature Center's approach to lighting and material selection is deeply rooted in environmental consciousness and health considerations. Photosensors, dimmable LED fixtures, and strategically placed reflective soffits ensure that spaces along the classroom corridor are evenly lit by natural daylight. Material choices for the wood structure and roof deck were guided by frameworks such as Declare, Cradle-to-Cradle, and the Living Product Challenge Red List to minimize indoor air quality issues. Alaskan yellow cedar was specifically selected for its lack of requirement for harmful chemical treatments, thus avoiding toxic off-gassing from substances like phthalates, formaldehyde, asbestos, creosote, and pentachlorophenol.

Finishings and additional materials, including window treatments, fabrics, laminates, and wall bases, were chosen for their environmental and health benefits, evidenced by third-party certifications or product transparency disclosures like Environmental Product Declarations (EPDs) or Health Product Declarations (HPDs). The building's aesthetic integrates these carefully selected materials into its design with exposed structures and polished concrete floors, intentionally minimizing decorative finishes to reduce the presence of VOCs.

In the construction and maintenance phase, thermal imaging played a crucial role in ensuring the integrity of the building's environmental control systems. This technology was used to detect air infiltration issues, pinpointing areas where the air barrier was compromised at sprinkler pipe penetrations, which were then addressed through targeted repairs. This attention to detail in both material selection and construction techniques underscores the project's commitment to long-term sustainability and occupant well-being.
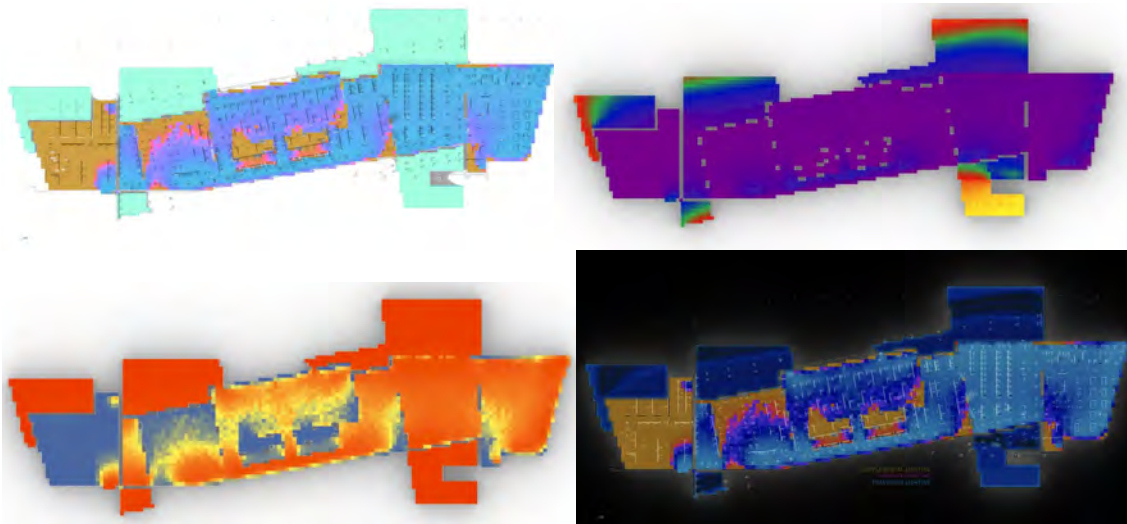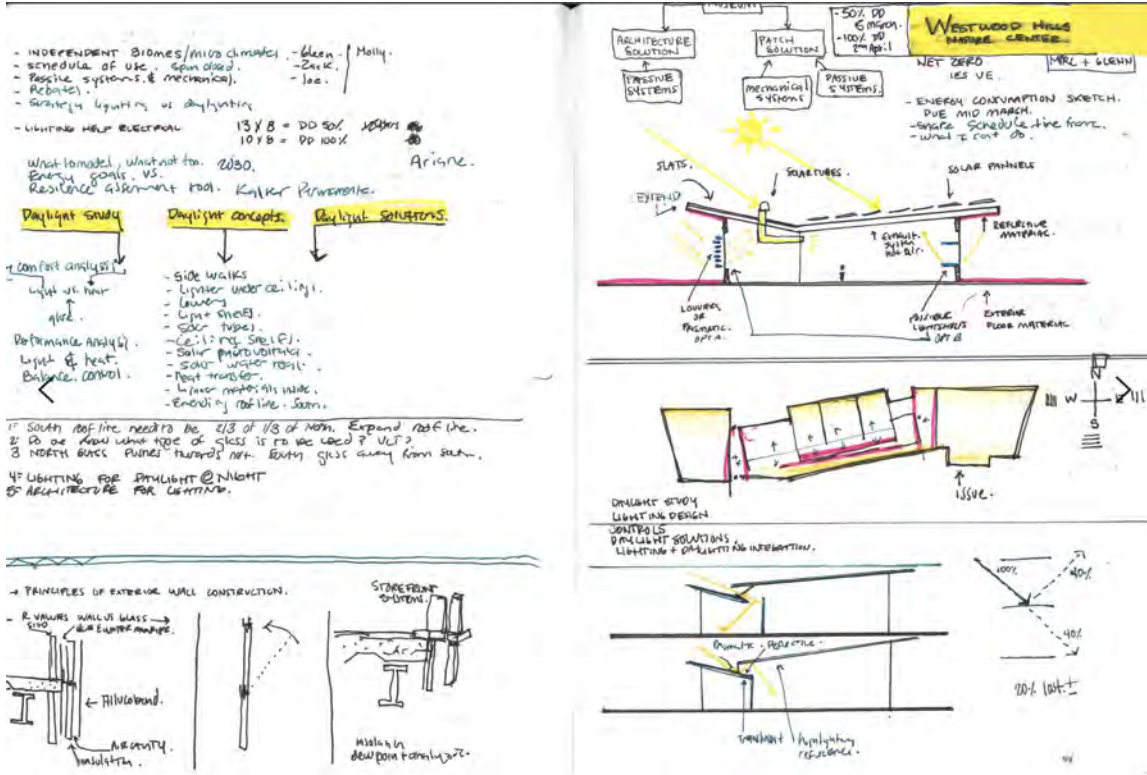

Above: Analysis study

Above: Custom-formed concrete thermal feature walls

Above: Interior, Exterior

Above: Architect's sketchbook of approach to project

Above: Image of mechanical room, showing some systems

7- Area of Improvement

With the building being net-zero, I do not see a place for modifications on the systems. One area of improvement I would recommend would be adding skylights at the middle of the roof slope. The slope sits right in the middle of the lobby and lacks natural light, which makes artificial lighting use increase in that area.

Using radiant heating in the roof system could have reduced the overall mass of the roof, reducing material use and optimizing the water runoff system year round.

Above: Lobby

Above: Interior, learning space

8- References

Westwood Hills Nature Center (aia.org)

GWWO Architects | Projects | Westwood Hills Nature Center (gwwoinc.com)

Westwood Hills Nature Center Wins 2023 AIA COTE Award for Sustainable Design - HGA

WESTWOOD HILLS NATURE CENTER - Regens Design

St. Louis Park's Next-Generation Nature Center — ENTER (entermn.com)

Dixon Water Foundation

Josey Pavilion

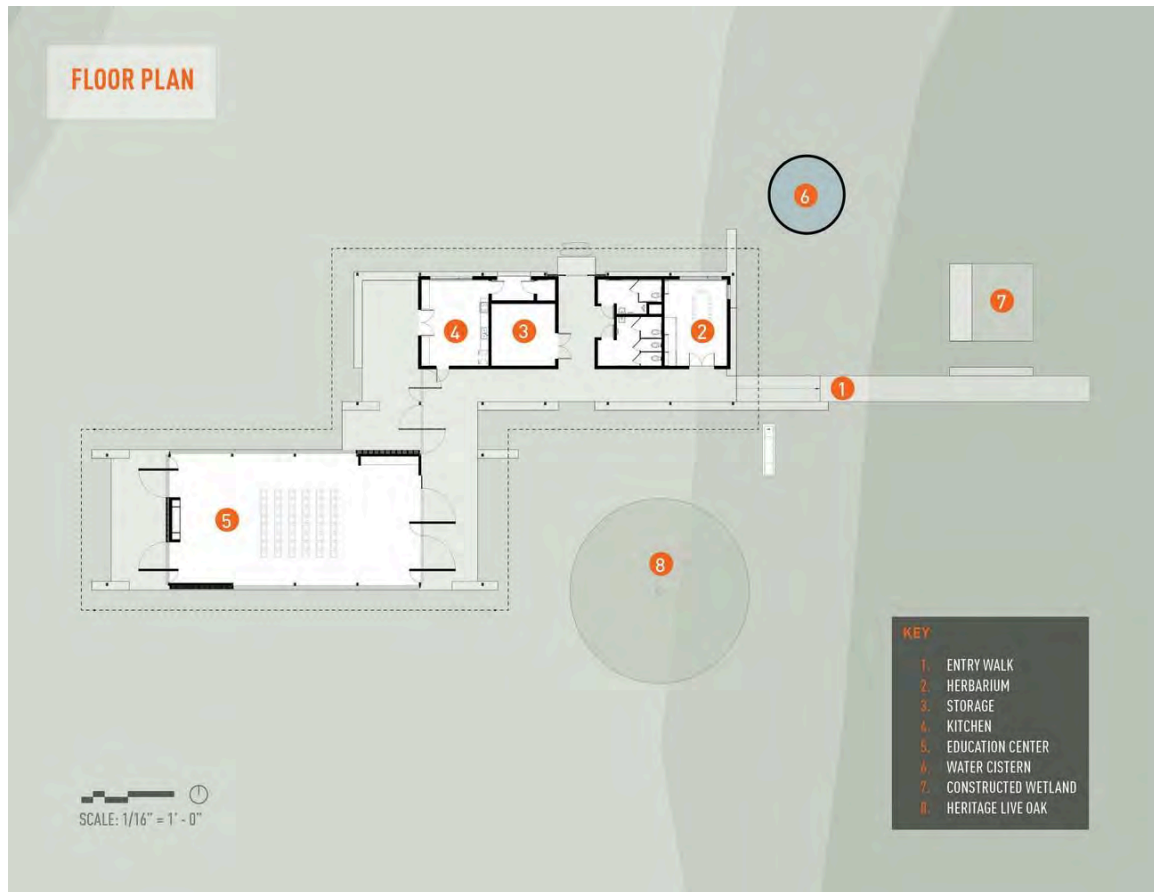Lake|Flato Architects

ARCH 532:

ADVANCED BUILDING SYSTEMS

Spring 2024

UNIVERSITY *of* LOUISIANA LAFAYETTE

SOAD
SCHOOL OF ARCHITECTURE AND DESIGN
UNIVERSITY OF LOUISIANA AT LAFAYETTE

1- Introduction

The Dixon Water Foundation Josey Pavilion, designed by Lake|Flato Architects, stands as a paradigm of sustainable architecture in Decatur, Texas. Completed in 2014, this 5,400 square foot facility serves as both a meeting and educational center, dedicated to advancing the Dixon Water Foundation's mission of promoting sustainable land management to preserve water resources. Noteworthy for its commitment to environmental stewardship, the pavilion is a pioneering project aiming to meet the rigorous standards of the Living Building Challenge—the first of its kind in Texas. Set against the backdrop of the native prairie landscape, the building's design seamlessly integrates ecological sensitivity with functional elegance, fostering a deep connection between natural and built environments. Through its innovative use of materials and design principles that emphasize energy efficiency and minimal environmental impact, the Josey Pavilion exemplifies how architecture can lead in the fight against climate change and resource depletion.
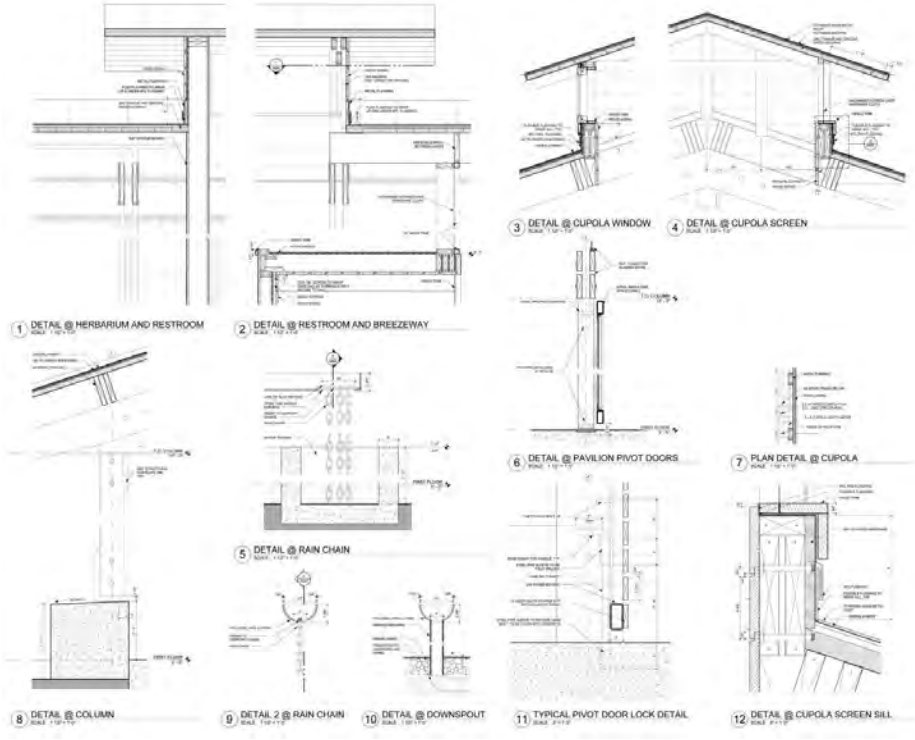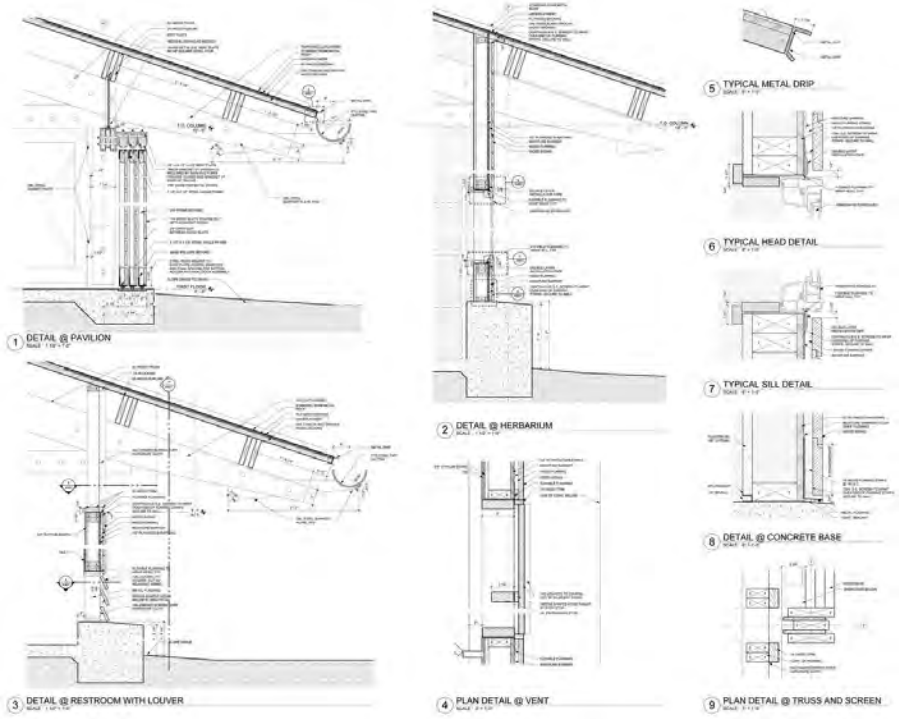

FLOOR PLAN

SCALE: 1/16" = 1' - 0"

KEY
1. ENTRY WALK
2. HERBARIUM
3. STORAGE
4. KITCHEN
5. EDUCATION CENTER
6. WATER CISTERN
7. CONSTRUCTED WETLAND
8. HERITAGE LIVE OAK

2- Structural Systems

The structural design of the Dixon Water Foundation Josey Pavilion, meticulously crafted by Datum Engineers, embodies advanced sustainable construction techniques. This innovative architectural effort features two primary structures, which are architectural mirrors of one another, strategically designed not only for aesthetic cohesion but also for functional efficacy. These structures are positioned to capitalize on natural environmental advantages, such as optimal sunlight and prevailing wind patterns, integral to the pavilion's passive heating and cooling strategies. The framework employs locally sourced, environmentally low-impact materials, which are fundamental to the pavilion's goals of maintaining a minimal carbon footprint and blending seamlessly with the native prairie landscape.

Key structural elements include robust heavy timber construction coupled with high-performance, energy-efficient systems that ensure both durability and ecological integrity. This approach extends to the thoughtful integration of features like operable wood slat doors and a rooftop cupola, enhancing natural ventilation and daylight use, thereby reducing reliance on mechanical systems. Furthermore, the careful arrangement of the pavilion's components around a central courtyard and heritage oak tree not only fortifies the structure against the elements but also creates a serene, inviting space for community engagement and education. This structural system supports the building's physical and functional demands while epitomizing the project's commitment to sustainability and minimal environmental disturbance.

1 DETAIL @ PAVILION

2 DETAIL @ HERBARIUM

3 DETAIL @ RESTROOM WITH LOUVER

4 PLAN DETAIL @ VENT

5 TYPICAL METAL DRIP

6 TYPICAL HEAD DETAIL

7 TYPICAL SILL DETAIL

8 DETAIL @ CONCRETE BASE

9 PLAN DETAIL @ TRUSS AND SCREEN

1 DETAIL @ HERBARIUM AND RESTROOM

2 DETAIL @ RESTROOM AND BREEZEWAY

3 DETAIL @ CUPOLA WINDOW

4 DETAIL @ CUPOLA SCREEN

5 DETAIL @ RAIN CHAIN

6 DETAIL @ PAVILION PIVOT DOORS

7 PLAN DETAIL @ CUPOLA

8 DETAIL @ COLUMN

9 DETAIL 2 @ RAIN CHAIN

10 DETAIL @ DOWNSPOUT

11 TYPICAL PIVOT DOOR LOCK DETAIL

12 DETAIL @ CUPOLA SCREEN SILL

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3- Environmental Control Systems

The Dixon Water Foundation Josey Pavilion employs a sophisticated array of environmental control systems designed to optimize its sustainability and reduce its ecological footprint. At the heart of these systems is the building's passive design, which maximizes natural ventilation and daylighting to significantly reduce the need for mechanical heating, cooling, and lighting. The architecture features large, operable wood slat doors that allow breezes to flow freely through the open spaces, effectively cooling the pavilion during the warmer months. During colder periods, strategic placement of the buildings and their deep overhangs protect the interiors from the harsh winds, while the thermal mass of construction materials helps retain heat.

The pavilion also incorporates a rooftop cupola, which acts as a natural ventilation chimney, drawing hot air up and out of the building, thereby enhancing comfort without the use of energy-intensive systems. For water management, the pavilion includes an advanced on-site wastewater treatment system, which treats all water used on-site and returns it cleanly to the local watershed, demonstrating a commitment to sustainable water use practices. Additionally, the pavilion is powered entirely by solar energy, with photovoltaic panels installed to meet 100% of its energy needs, underscoring its status as a net-zero energy building. These integrated environmental control systems showcase the pavilion's leading-edge approach to sustainable design, making it a model for environmentally conscious architecture in harmony with its surroundings.

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PASSIVE COMFORT

Winter Wind Rose

Summer Wind Rose
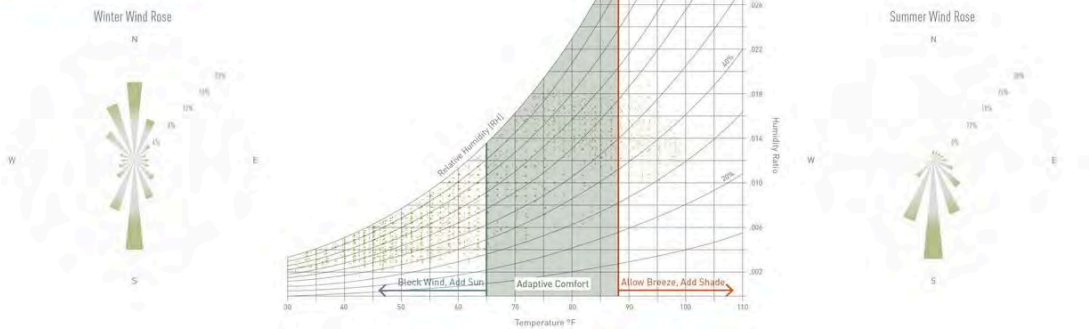
During the winter, sliding and pivoting doors can be closed up to block winds

During the summer, the whole project can be opened up to allow breeze to flow through.

When the wind was 20 to 30mph outside, wind in the education center behind the wood slat doors, was measured to be 3.7mph at doors, 0.5mph 5 feet from the doors, and 0.0mph 10 feet from the doors. The slat spacing was designed with a 30% openness factor, similar to that of a Live Oak Tree.

4- Envelope Systems

The envelope systems of the Dixon Water Foundation Josey Pavilion are meticulously designed to harmonize with its environmental goals, focusing on durability, energy efficiency, and a low ecological impact. The building's exterior is characterized by the use of natural, locally-sourced materials that not only reflect the local vernacular but also provide excellent thermal mass, reducing the need for artificial heating and cooling. The use of heavy timbers and reflective metal roofing contributes to the pavilion's thermal regulation, keeping the interiors cool during hot Texas summers and warm in the winter.

Significantly, the pavilion incorporates high-performance glazing on windows and doors to enhance insulation and minimize heat transfer, supporting its passive solar design strategies. These glazed elements are strategically positioned to maximize natural daylight penetration while minimizing direct solar gain, aided by deep overhangs that shade the building's interior during peak sun hours. The gaps between the structural wood slats are also a crucial aspect of the envelope system, allowing for adjustable natural ventilation that helps regulate the indoor climate naturally and efficiently. This thoughtful integration of envelope systems underscores the pavilion's commitment to sustainability, ensuring that the building minimizes energy consumption while providing a comfortable environment for its users year-round.

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5- Other systems (Optional)

In addition to its structural and envelope systems, the Dixon Water Foundation Josey Pavilion incorporates several other systems that bolster its sustainability credentials and functionality. One of the key systems is its on-site renewable energy generation. The pavilion is equipped with solar panels that produce 100% of its energy requirements, ensuring it operates as a net-zero energy building. This aligns with its goal under the Living Building Challenge to be self-sufficient and environmentally restorative.

Another innovative system in place is the building's rainwater harvesting capability. The pavilion collects rainwater from its roofs, which is then filtered and used for non-potable purposes such as irrigation and toilet flushing, significantly reducing its demand on local water resources. This system is part of a broader strategy to manage and sustain the natural hydrological cycle of the surrounding environment.

Indoor air quality is also a focal point in the pavilion's design. The use of non-toxic, low-emission materials throughout the interior ensures that the air quality inside is safe and healthy for occupants. This consideration extends to the selection of finishes, adhesives, sealants, and furnishings, all of which adhere to the strictest environmental and health standards.

Furthermore, the pavilion employs an integrated waste management system that emphasizes recycling and composting, reducing the impact of construction and operational waste. This system is part of a comprehensive approach to minimize the building's overall environmental footprint and to promote sustainability in every aspect of its operation and maintenance.

Together, these systems demonstrate the Josey Pavilion's commitment to innovative, sustainable practices that go beyond conventional building techniques, embodying principles that encourage environmental stewardship and resource efficiency.

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EMBODIED ENERGY

Building Elements

Construction Materials

Life Cycles

Every effort was made to source local materials. Materials used to build the Josey Pavilion came from:

Dallas/Ft. Worth Area - 32%
Texas - 44%
Continental US - 99%

Embodied energy was calculated over a 60 -Year Timeline using Tally. Strategies to decrease embodied energy included sourcing local materials and useing low energy materials such as wood. 100% of the embodied energy of the building materials were offset through CarbonFund.org.

Nationally Sourced Materials

Regionally Sourced Materials

WATER CYCLE
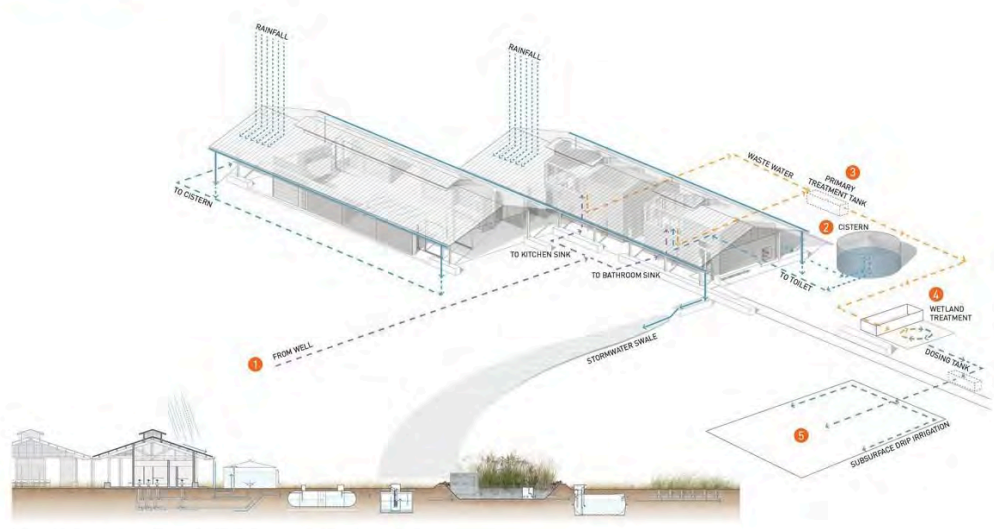
Cross sectional view of the water treatment and purification system

1. Potable water travels to the kitchen and bathroom sinks, drawing from the aquifer below the project site.

2. Rainwater collected in the 13,000 gallon storage tank provides for 100% of non-potable uses, such as sewage conveyance and irrigation needs.

3. Greywater from the sinks and blackwater from the toilets is transferred to storage tanks for initial filtration.

4. Water circulates through the constructed wetland several times, cleansed by the wetland's plant roots and gravel.

5. After the water has been polished, it is pumped to a drip field which returns the cleansed water through the earth, back into the aquifer.

6- Systems Integration

Physical Integration

Physical integration refers to the way different building systems are installed and configured to interact directly with each other within the building's structure. In the Josey Pavilion, physical integration is exemplified through the seamless incorporation of structural elements with mechanical systems. For example, the solar panels are physically integrated into the roofing structure, not only to capture maximum sunlight but also to maintain the aesthetic integrity of the design. Additionally, the rainwater harvesting system is physically integrated with the roofing and plumbing systems, allowing rainwater to be collected directly from roof surfaces, channeled through integrated gutters and pipes, and stored in underground reservoirs for use.

Visual Integration

Visual integration focuses on the aesthetic alignment of various systems within the building's overall design concept. At the Josey Pavilion, visual integration is achieved through the use of materials and design elements that reflect the natural environment, helping the building blend into the surrounding landscape. The use of natural wood, stone, and reflective metal surfaces ensures that both the passive and active systems not only perform their functions but also enhance the building's visual appeal. The operable wood slat doors, for example, are visually integrated into the walls, contributing to the facade's uniform look while functioning dynamically to regulate ventilation.

Performance Integration

Performance integration involves the coordination of various building systems to enhance overall efficiency and effectiveness. The Josey Pavilion utilizes a building management system (BMS) that integrates various subsystems such as heating, ventilation, air conditioning, lighting, and water systems into a single interface that optimizes building performance. This BMS dynamically adjusts settings based on real-time environmental data and occupancy levels, significantly enhancing energy efficiency and comfort. The integration of passive design features like deep overhangs for shade and the strategic orientation for maximum daylight also work in concert with active systems like the HVAC and lighting to minimize energy use while maintaining indoor comfort.

7- Area of Improvement

While the Dixon Water Foundation Josey Pavilion currently stands as a model of sustainable architecture, further enhancements can be made to push its environmental and functional boundaries. Enhancing energy efficiency could be achieved by incorporating bifacial solar panels and solar tracking systems, which would optimize solar energy capture throughout the day. Expanding the rainwater harvesting system to include advanced purification technologies could allow for broader applications, such as in landscape irrigation and possibly for use within the herbarium.

Introducing a more advanced HVAC system equipped with Variable Refrigerant Flow (VRF) technology would significantly improve energy efficiency and allow for individual climate control across different areas, boosting both comfort and performance. Incorporating smart building technologies, such as IoT-enabled sensors, could dynamically adjust building conditions based on real-time occupancy and environmental data, enhancing the building's responsiveness and energy conservation.

In terms of materials, exploring the use of recycled or bio-based materials, especially in non-load-bearing components, could further reduce the building's environmental impact.

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Moreover, integrating extensive biophilic design elements, such as living green walls and larger energy-efficient windows, could strengthen the connection between occupants and the natural surroundings while enhancing indoor air quality and visual appeal.

These proposed retrofitting measures would not only elevate the pavilion's sustainability credentials but also demonstrate an ongoing commitment to innovation and environmental stewardship, keeping the building at the forefront of ecological design.

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8- References

https://www.archdaily.com/772041/dixon-water-foundation-josey-pavilion-lake-flato-architects

https://www.lakeflato.com/content/digital-pin-josey-pavilion

https://www.dezeen.com/2015/08/28/josey-pavilion-lake-flato-visitors-centre-education-decatur-texas/amp/

Appendix II

Master's student exit survey: Architecture (M. Arch.) with individual student responses. Summer 2019 - Summer 2022.

University committee on graduate student success and retention report to graduate council. Academic year 2023 - 2024.

NAAB

Master's Student Exit Survey: Architecture (M. Arch.) with Individual Student Responses
Summer 2019 - Summer 2022.

MASTER'S STUDENT EXIT SURVEY

ARCHITECTURE (M.Arch.)
WITH INDIVIDUAL STUDENT RESPONSES
SUMMER 2019-SUMMER 2022

SUMMER 2019, FALL 2019, SPRING 2020, SUMMER 2020, FALL 2020, SPRING 2021, SUMMER 2021, FALL 2021, SPRING 2022, SUMMER 2022

UL Lafayette Graduate School

Table of Contents

In what graduate program are/were you enrolled?

Row Labels	Count of x
Architecture (M.Arch.)	15
Grand Total	**15**

Q5 Did you attend the program primarily full-time or part-time?

Chart showing:
- Full-time: 13
- (blank): 2
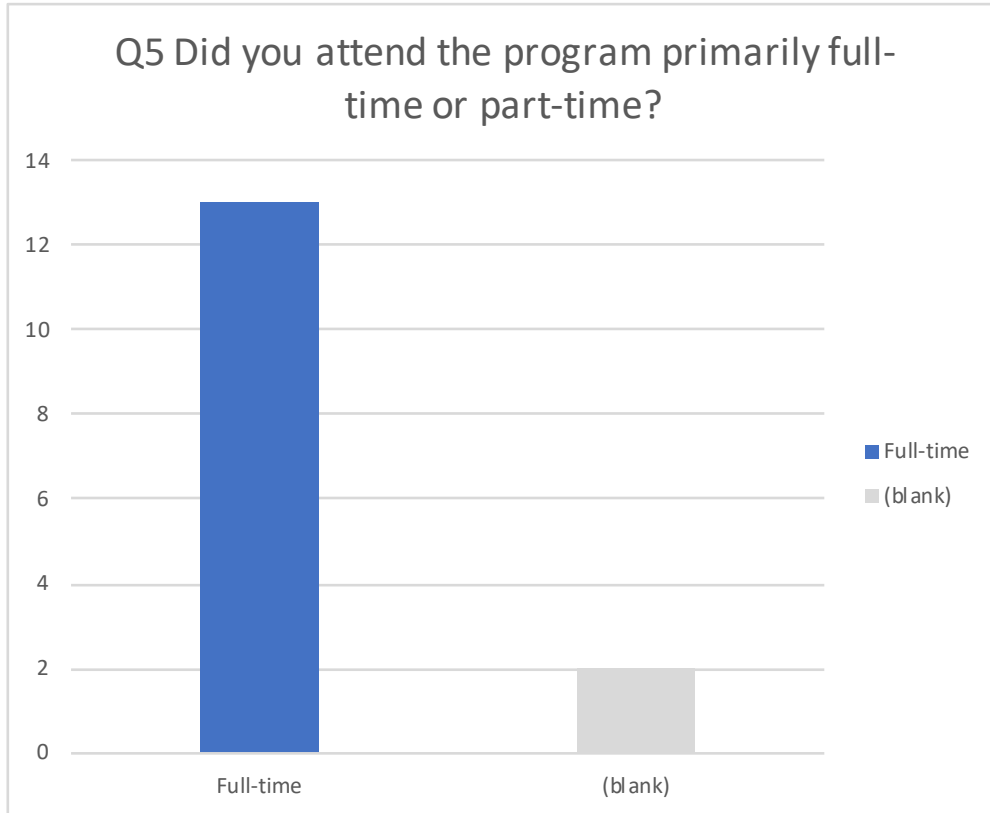
Q5 Did you attend the program primarily full-time or part-time?	Count of x
Full-time	13
(blank)	2
Grand Total	**15**

Q6 Is the program that you are completing an online program?
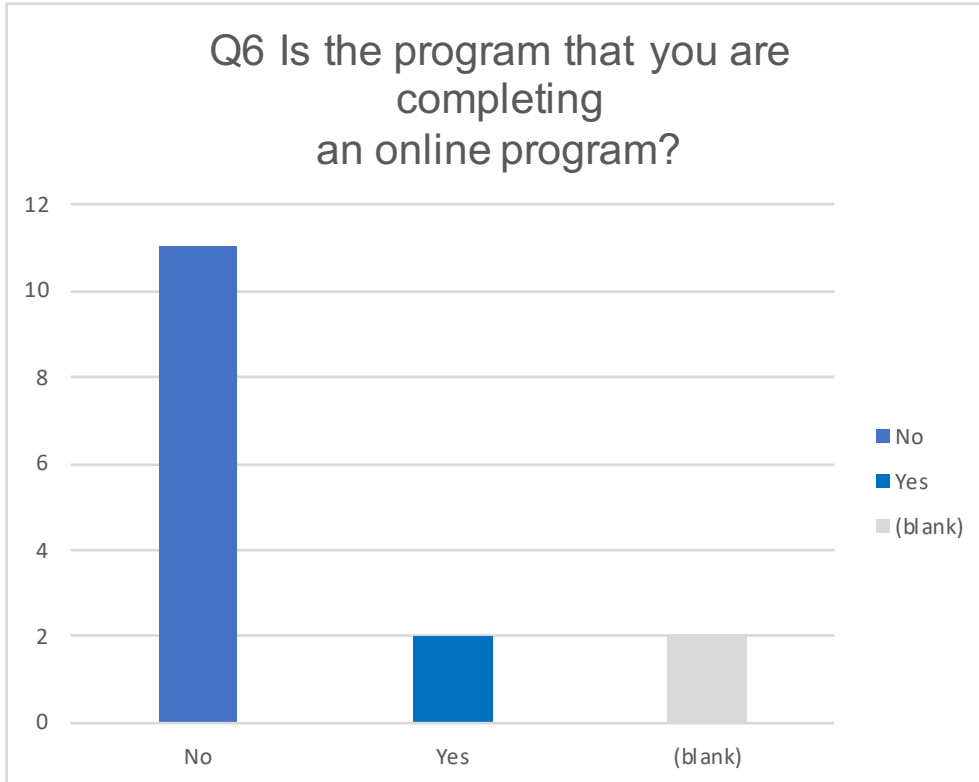
Q6 Is the program that you are completing an online program?	Count of x
No	11
Yes	2
(blank)	2
Grand Total	**15**

Q7 Have you taken a leave of absence since you enrolled in the program?
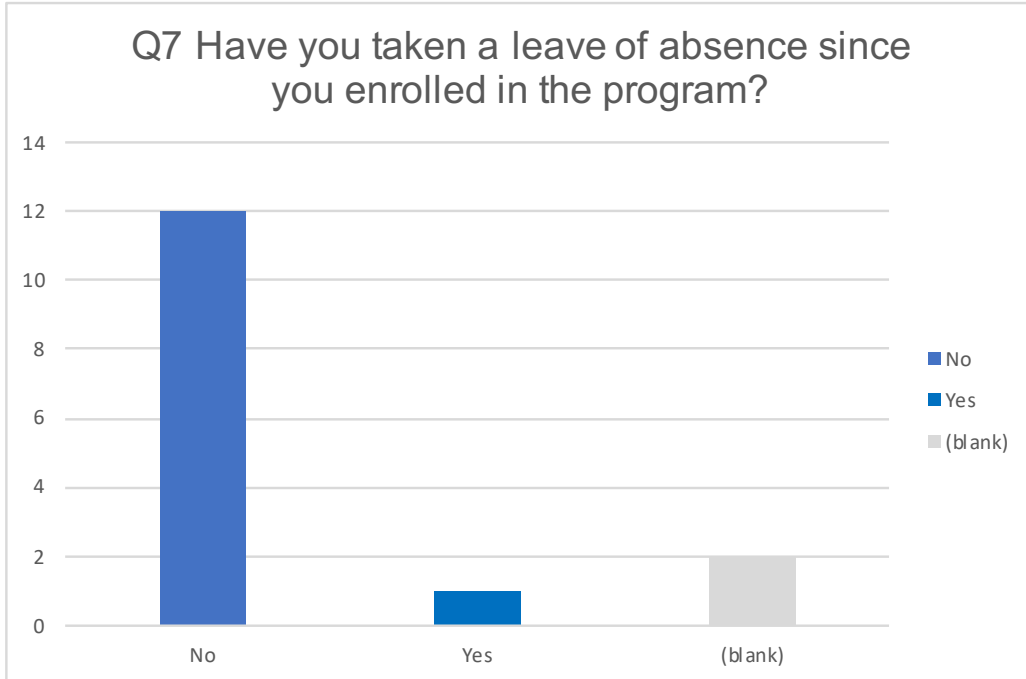
Q7 Have you taken a leave of absence since you enrolled in the program?	Count of x
No	12
Yes	1
(blank)	2
Grand Total	**15**

Q8 In total, how long was your leave of absence?
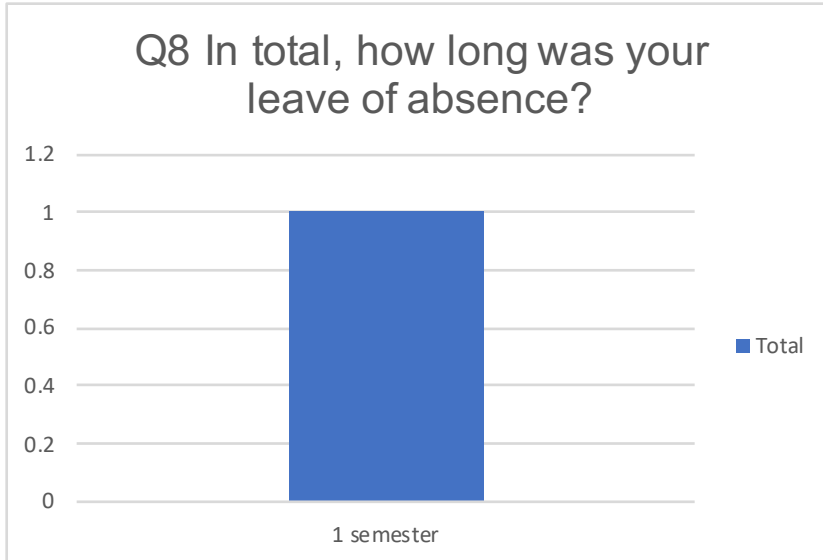
Q8 In total, how long was your leave of absence?	Count of x
1 semester	1
Grand Total	**1**

Q9 What were the main reasons for the leave of absence? (Check all that apply.)
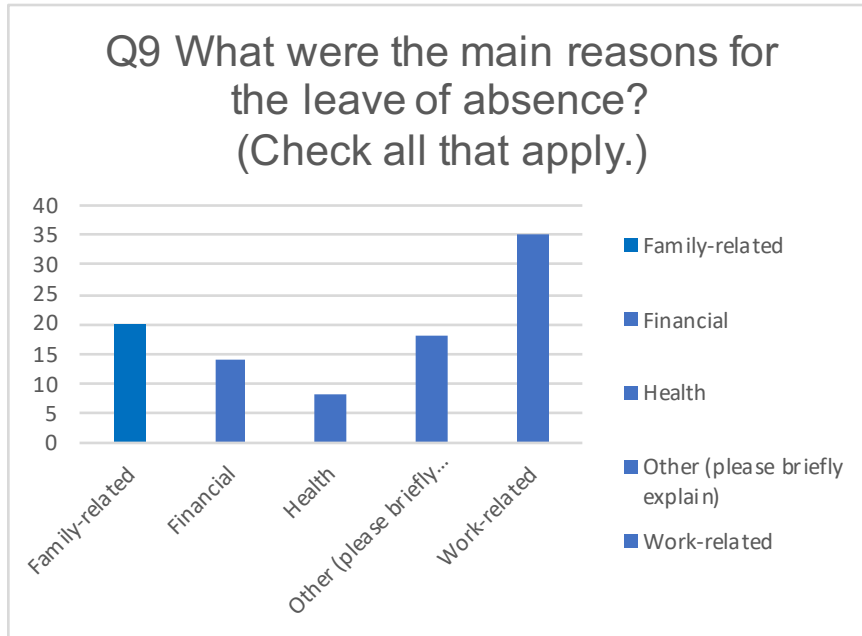
Q9 What were the main reasons for the leave of absence?	Count
Family-related	20
Financial	14
Health	8
Other (please briefly explain)	18
Grand Total	

Q10 What were the THREE main reasons you enrolled in your master's program? (Check up to three responses.)
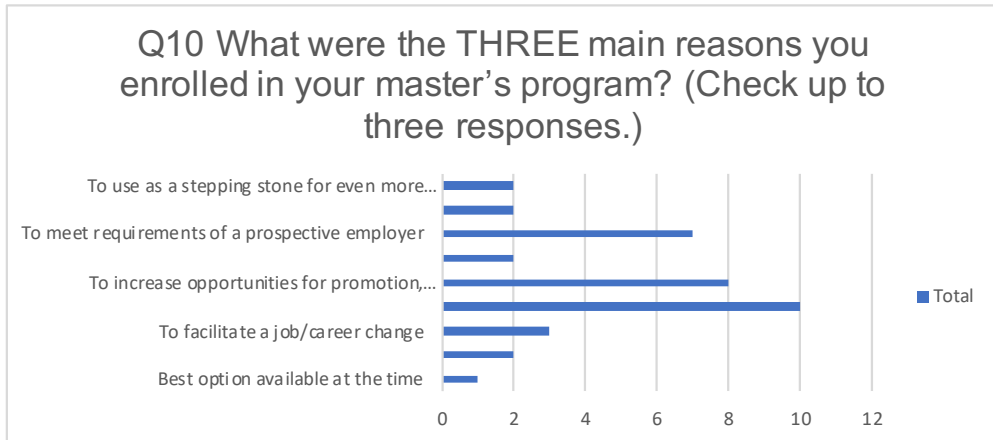
Q10 What were the THREE main reasons you enrolled in your master's program?	Count
Best option available at the time	1
Other (please briefly explain)	2
To facilitate a job/career change	3
To improve my skills and knowledge	10
To increase opportunities for promotion, advancement, and/or pay	8
To learn more about something in which I am particularly interested	2
To meet requirements of a prospective employer	7
To meet requirements of my current employer	2
To use as a stepping stone for even more education (e.g., Ph.D.)	2
Grand Total	**37**

Q11 What are your future plans after getting your degree over the next year? (Check all that apply.)
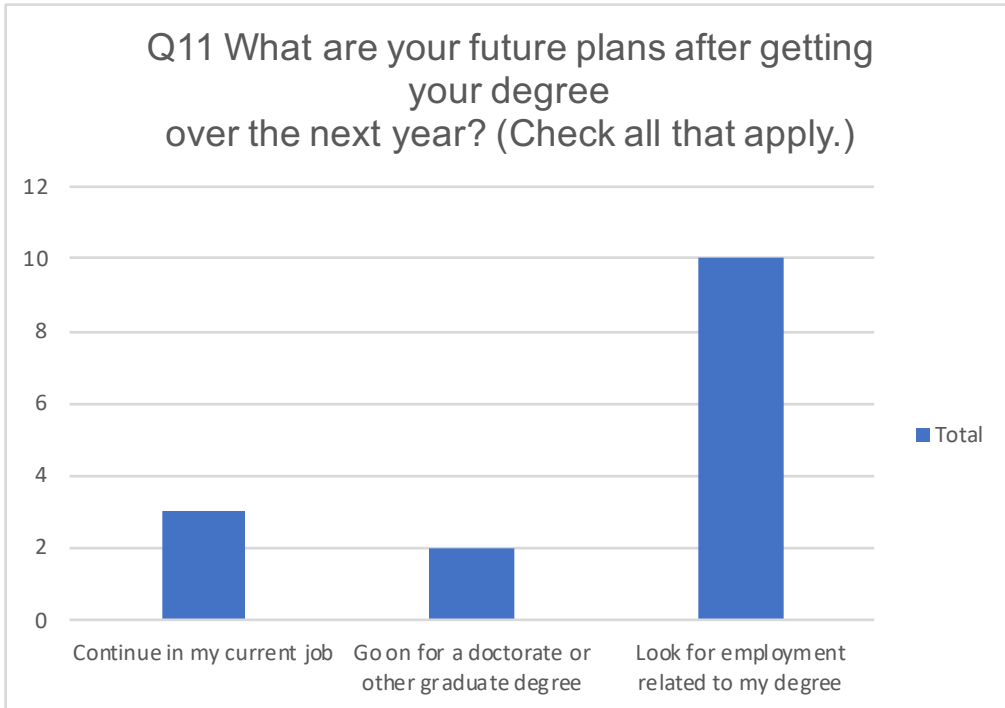
Row Labels	Count of ResponseId Response ID
Continue in my current job	3
Go on for a doctorate or other graduate degree	2
Look for employment related to my degree	10
Grand Total	**15**

Q12 Did you visit the campus before enrolling in the program?
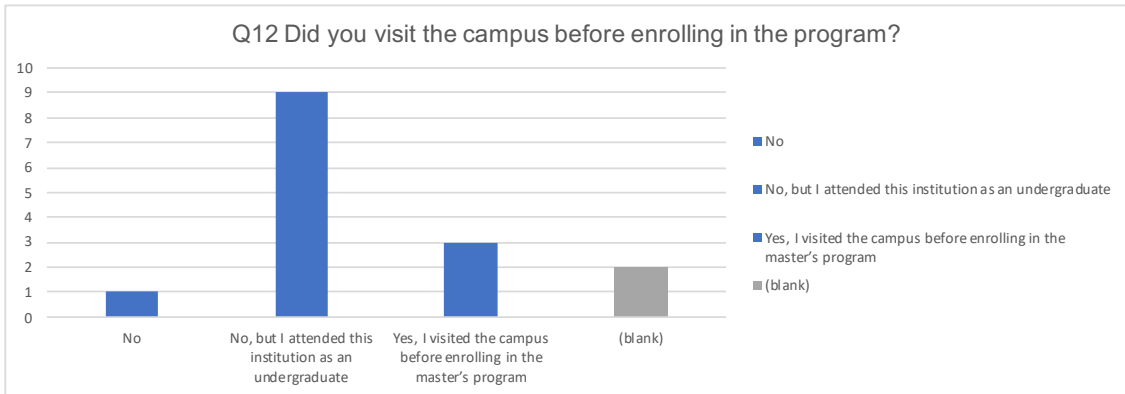
Row Labels	Count of Q12 Did you visit the campus before enrolling in the program?
No	1
No, but I attended this institution as an undergraduate	9
Yes, I visited the campus before enrolling in the master's program	3
(blank)	2
Grand Total	15

Q14 Excluding assistantships, fellowships, or traineeships, are you working for pay at or outside the university?
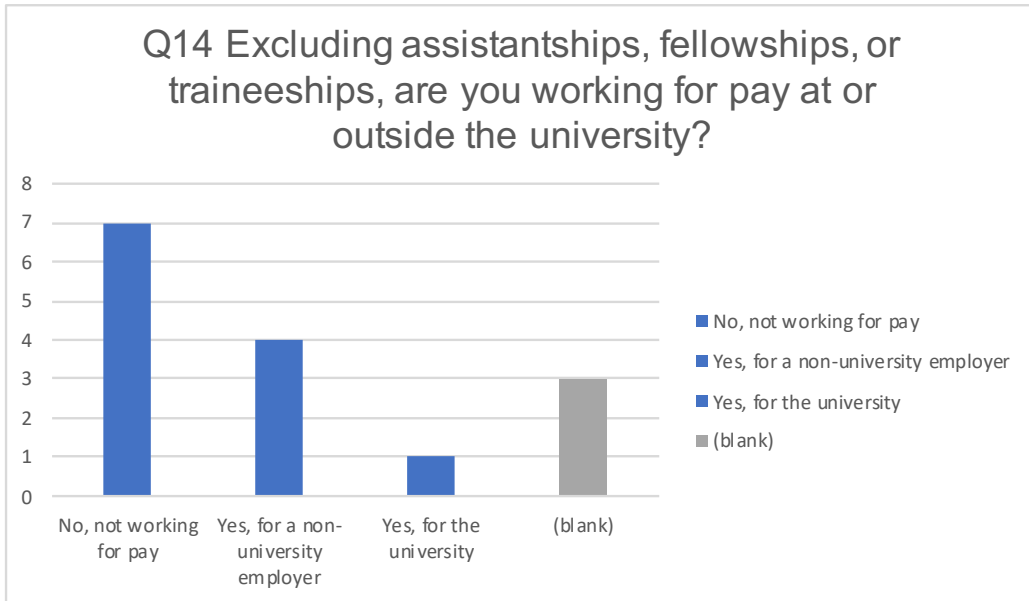
Row Labels	Q14 Are you working for pay at or outside the university?
No, not working for pay	7
Yes, for a non-university employer	4
Yes, for the university	1
(blank)	3
Grand Total	**15**

Q15 On average, how many hours per week are you working for pay during this semester?
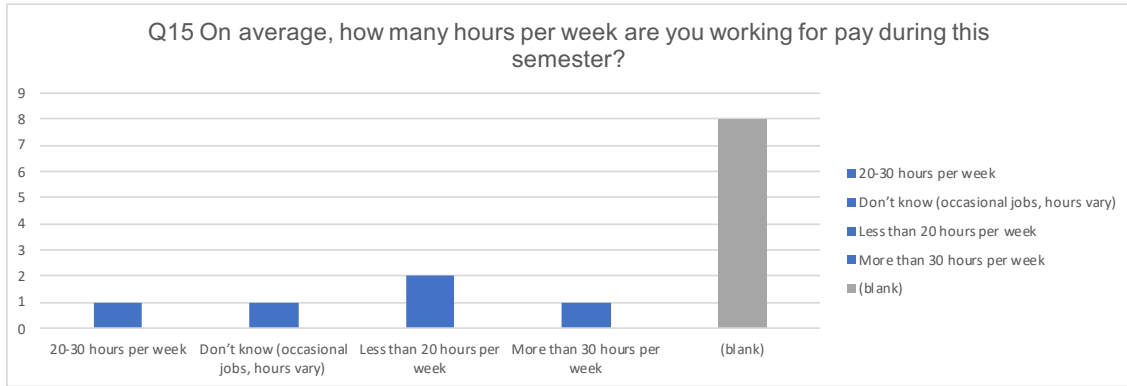
Row Labels	Count of Q15 On average, how many hours per week are you working for pay during this semester?
20-30 hours per week	1
Don't know (occasional jobs, hours vary)	1
Less than 20 hours per week	2
More than 30 hours per week	1
(blank)	8
Grand Total	**13**

Q17.1 Indicate the LARGEST source of financial support for your master's program.
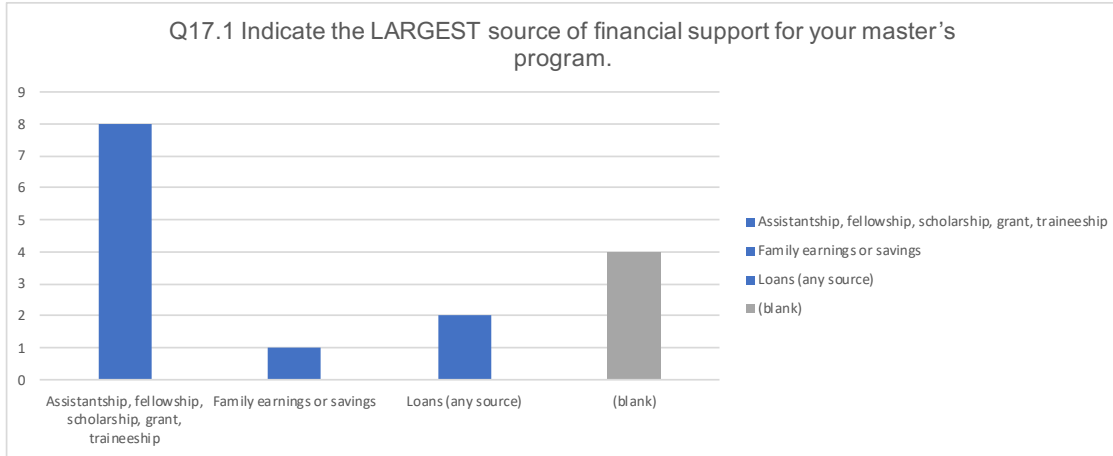
Row Labels	Q17 Indicate the LARGEST source of financial support for your master's program.
Assistantship, fellowship, scholarship, grant, traineeship	8
Family earnings or savings	1
Loans (any source)	2
(blank)	4
Grand Total	**15**

Q18 Indicate the SECOND LARGEST source of financial support for your master's program.
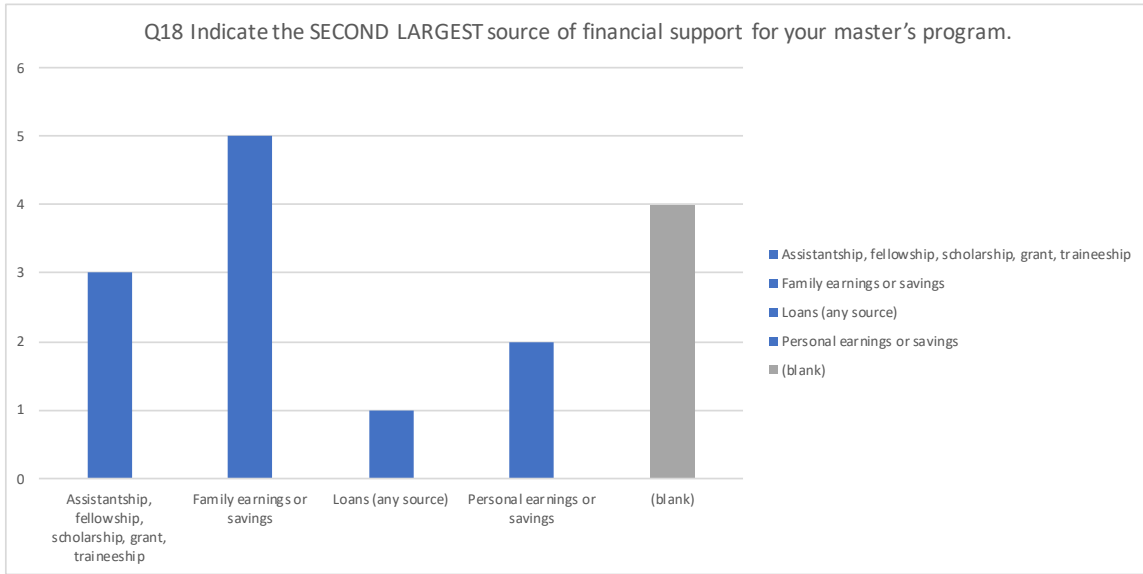
Row Labels	Indicate the SECOND LARGEST source of financial support for your master's program.
Assistantship, fellowship, scholarship, grant, traineeship	3
Family earnings or savings	5
Loans (any source)	1
Personal earnings or savings	2
(blank)	4
Grand Total	**15**

Q19 Approximately how much money did you PERSONALLY borrow in student loans for your UNDERGRADUATE education?

Legend:
- $1 - $5,000
- $20,001 - $50,000
- $5,001 - $20,000
- None
- (blank)
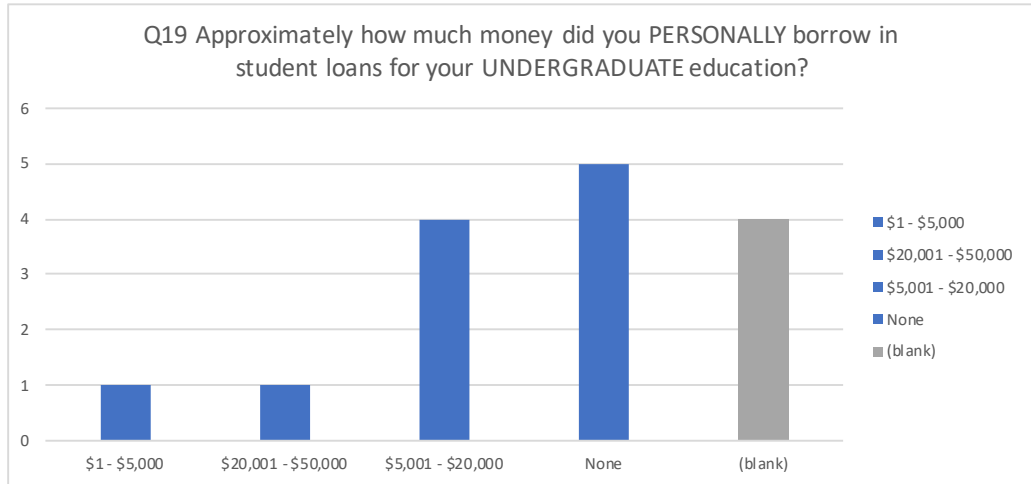
Row Labels	Q19_how much money did you PERSONALLY borrow ... UNDERGRADUATE education?
$1 - $5,000	1
$20,001 - $50,000	1
$5,001 - $20,000	4
None	5
(blank)	4
Grand Total	15

Q21 Were you guaranteed financial support at the time you were admitted to your Master's program?

Legend:
- No
- Yes, for more than one year
- Yes, for the first year only
- (blank)
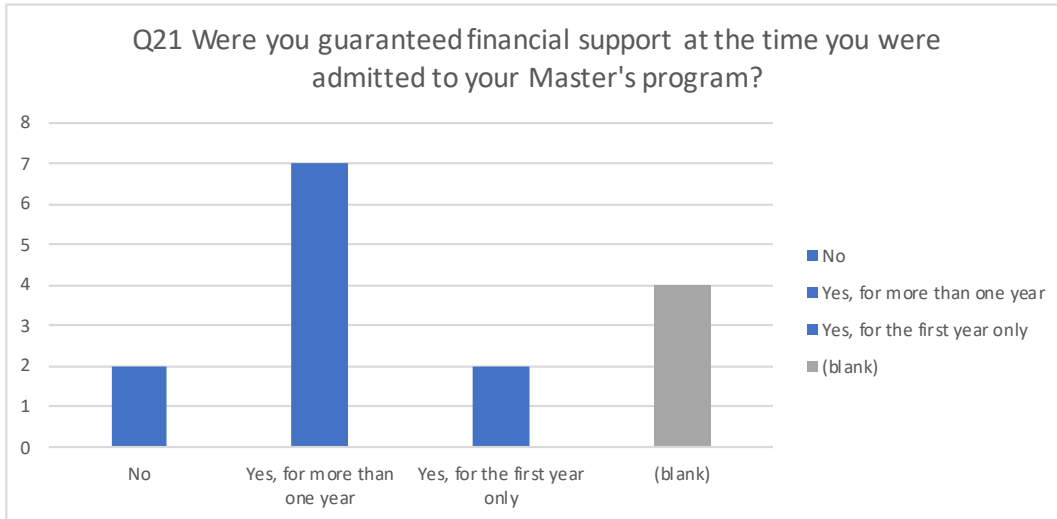
Row Labels	Count of Q21 Were you guaranteed financial support … Master's program?
No	2
Yes, for more than one year	7
Yes, for the first year only	2
(blank)	4
Grand Total	15

Q23 Do you have an advisor?
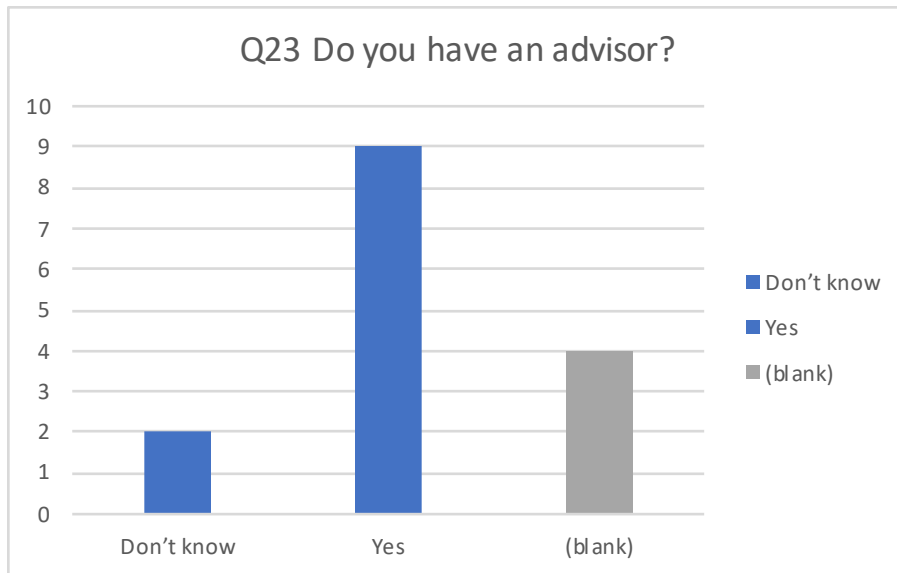
Q23 Do you have an advisor?	Count of Q23 Do you have an advisor?
Don't know	2
Yes	9
(blank)	4
Grand Total	**15**

How frequently do you meet with your advisor(s) to formally discuss your academic progress?

Legend:
- Monthly
- Once a semester/quarter
- Once a year
- (blank)
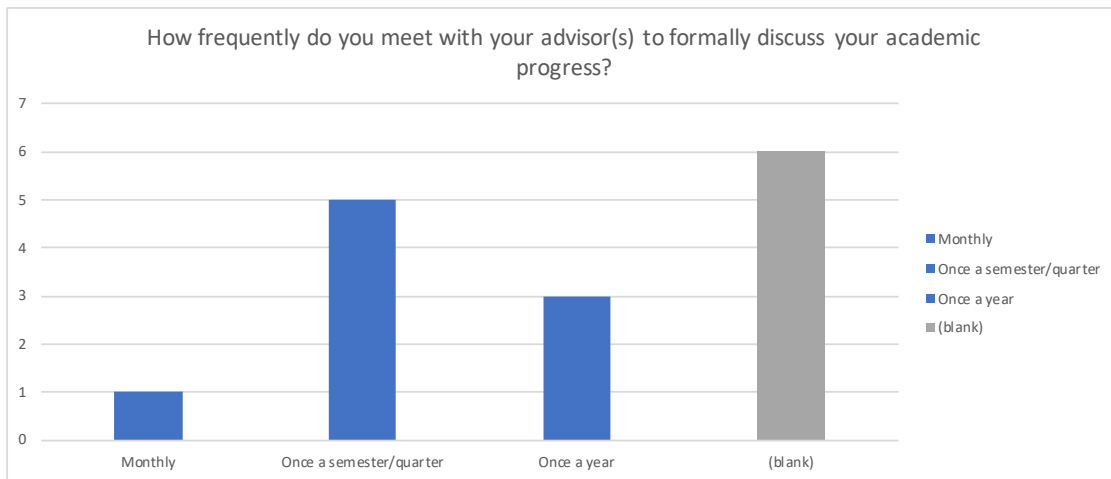
Row Labels	Count of Q24 How frequently do you meet with your advisor(s) to formally discuss your academic progress?
Monthly	1
Once a semester/quarter	5
Once a year	3
(blank)	6
Grand Total	15

Q25 To what extent is the feedback provided by your advisor useful?
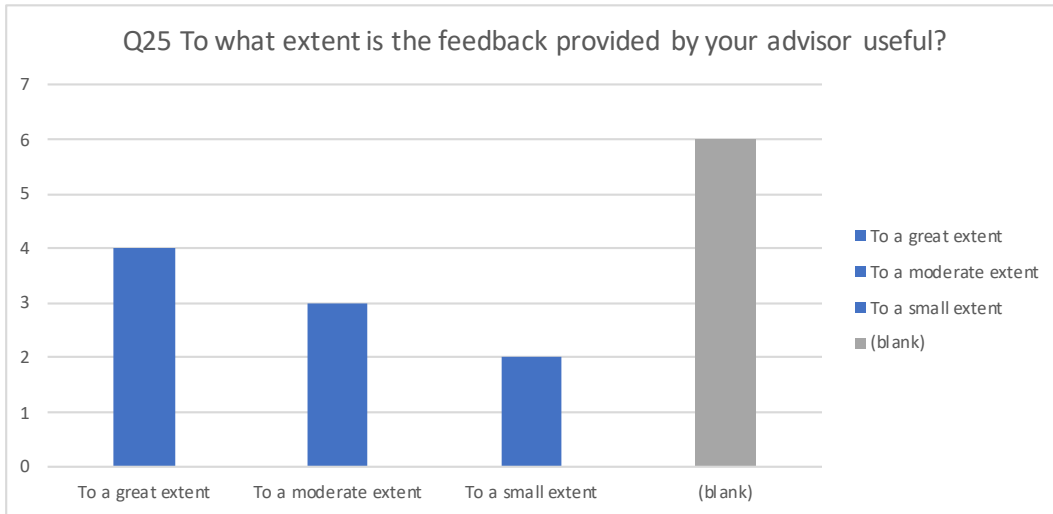
Row Labels	Count of Q25 To what extent is the feedback provided by your advisor useful?
To a great extent	4
To a moderate extent	3
To a small extent	2
(blank)	6
Grand Total	**15**

Q26 How helpful is your advisor in supporting your career goals?
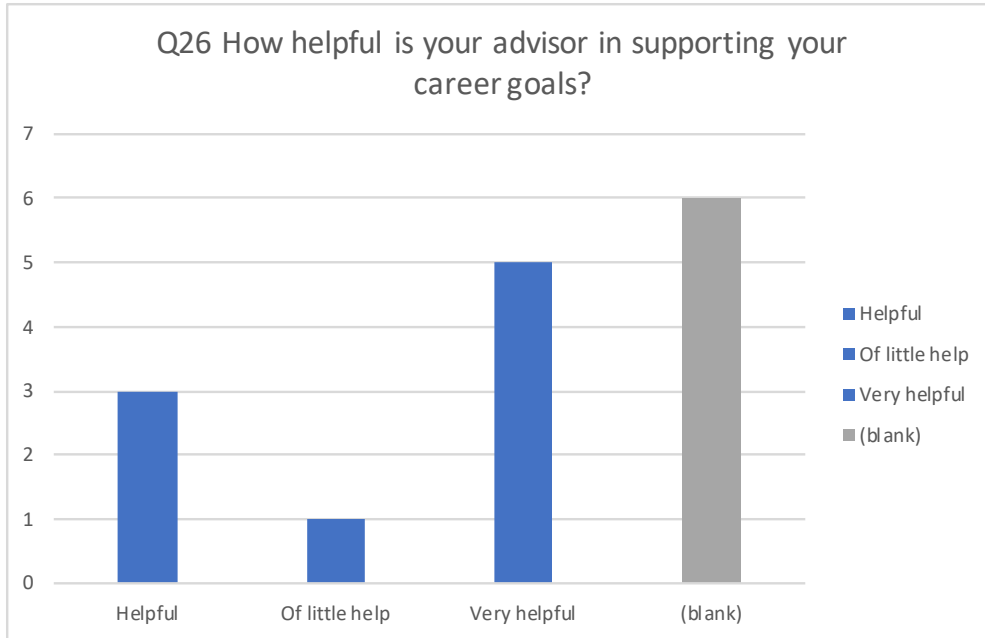
Row Labels	How helpful is your advisor in supporting your career goals?
Helpful	3
Of little help	1
Very helpful	5
(blank)	6
Grand Total	**15**

Q27 How satisfied were you with the quality of advising?Q27
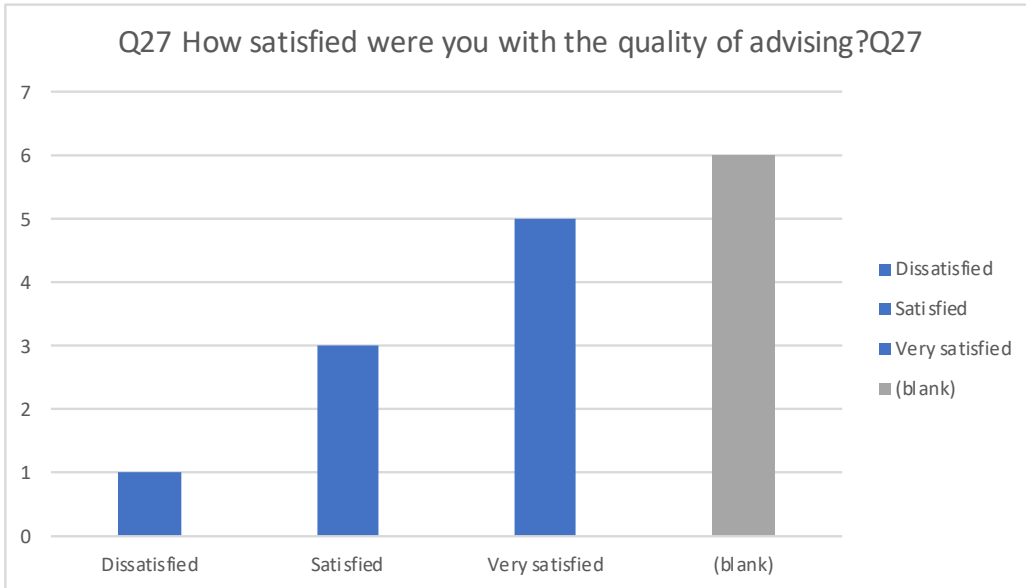
Row Labels	Count of Q27 How satisfied were you with the quality of advising?
Dissatisfied	1
Satisfied	3
Very satisfied	5
(blank)	6
Grand Total	**15**

Which of the following would have improved the advising experience? (Check all that apply.)
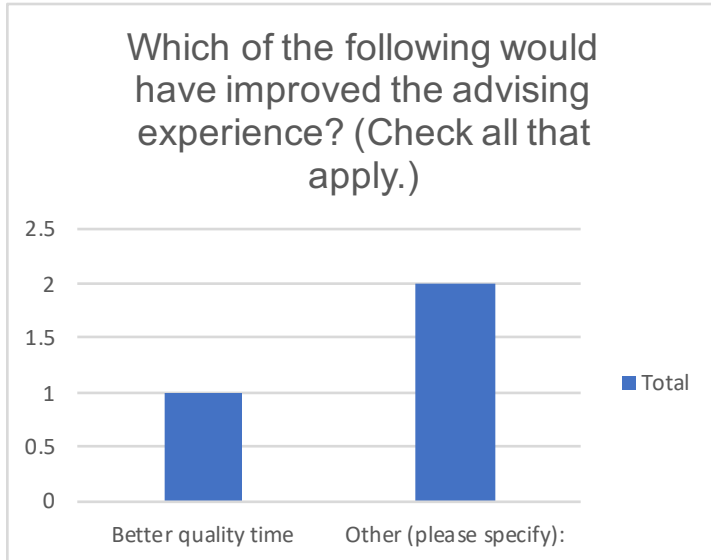
Row Labels	Count of ResponseId Response ID
Better quality time	1
Other (please specify):	2
Grand Total	**3**

Q29 Did your program or department hold an orientation when you enrolled in this master's program?
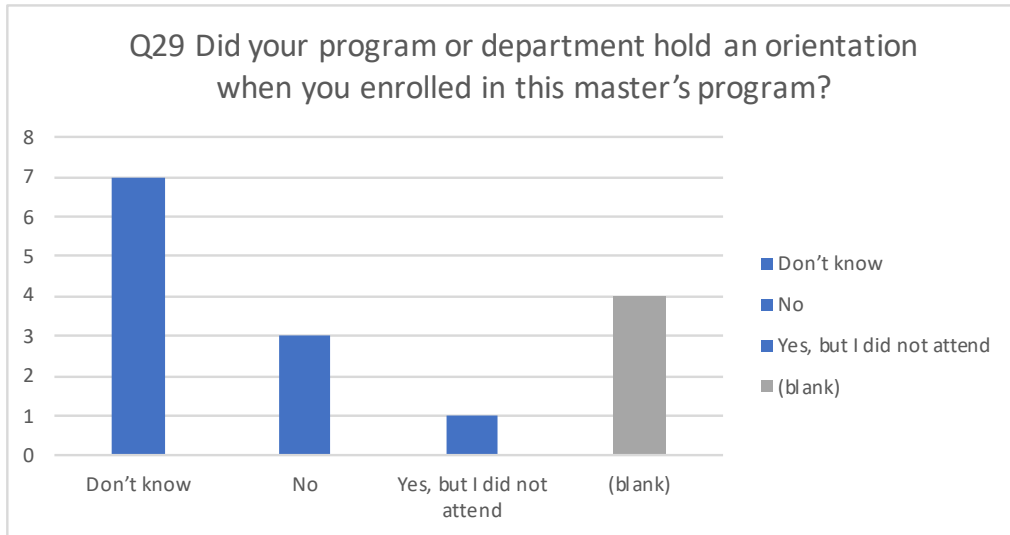
Row Labels	Q29 Did your program or department hold an orientation...?
Don't know	7
No	3
Yes, but I did not attend	1
(blank)	4
Grand Total	15

Q30_1 Indicate the extent to which you agree with the following statements about your program: Requirements of my program were presented in clear, written form
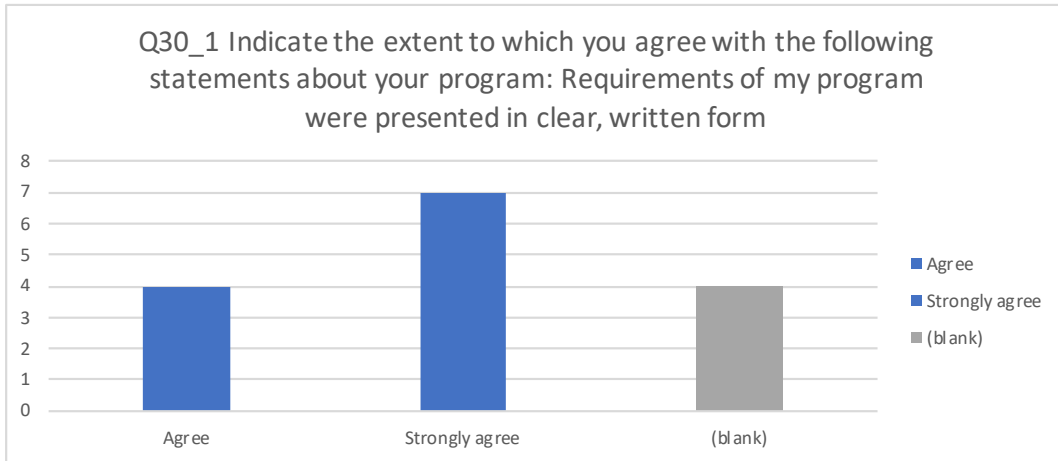
Row Labels	Q30_1 Requirements of my program were presented in clear, written form
Agree	4
Strongly agree	7
(blank)	4
Grand Total	**15**

Q30_2 Indicate the extent to which you agree with the following statements about your program. - The faculty were helpful and interested in students
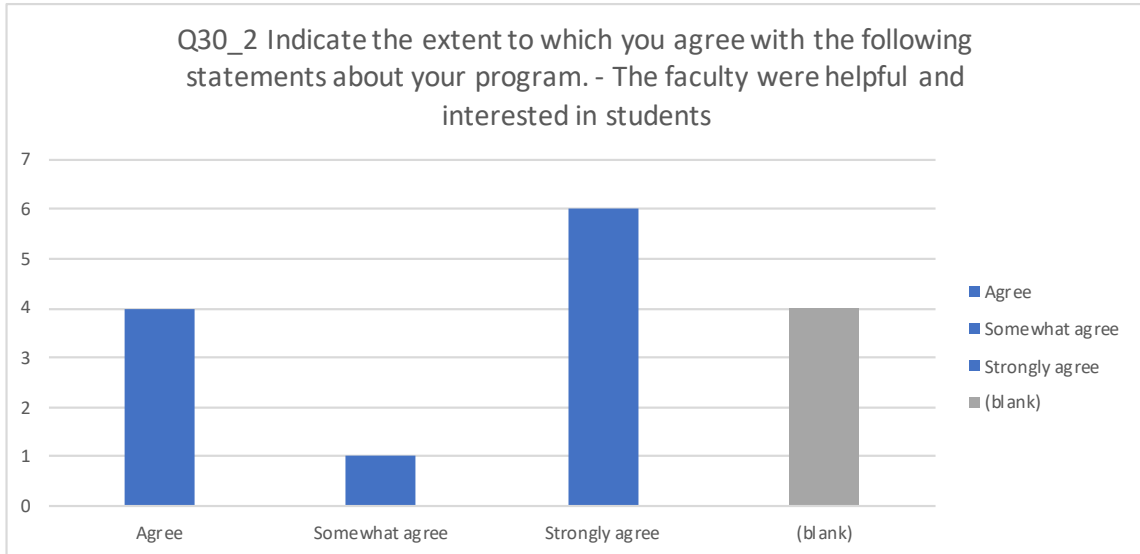
Q30_2 Indicate the extent to which you agree: The faculty were helpful and interested in students	Count
Agree	4
Somewhat agree	1
Strongly agree	6
(blank)	4
Grand Total	**15**

Q30_3 Indicate the extent to which you agree with the following statements about your program. - Academic milestones and timelines were clearly outlined

Legend:
- Agree
- Neither agree nor disagree
- Strongly agree
- (blank)
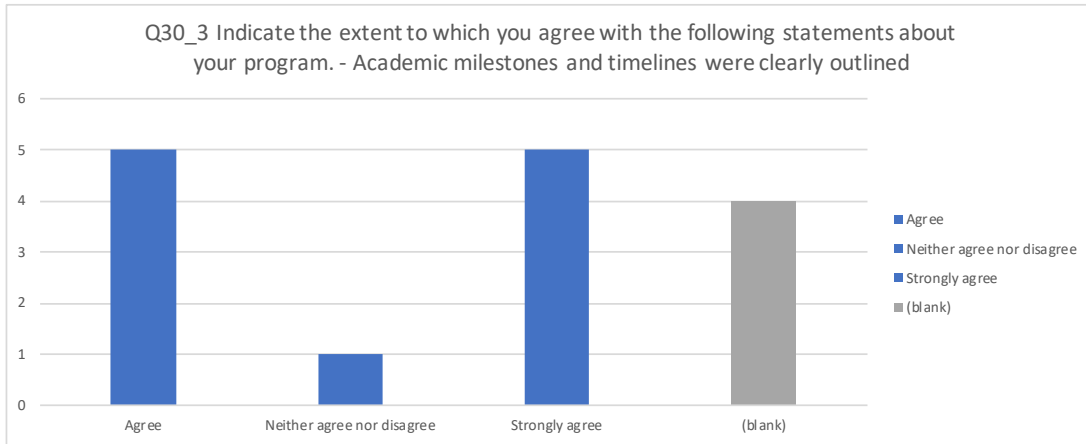
Row Labels	Q30_3 Indicate the extent to which you agree: Academic milestones and timelines were clearly outlined
Agree	5
Neither agree nor disagree	1
Strongly agree	5
(blank)	4
Grand Total	15

Q30_4 Indicate the extent to which you agree with the following statements about your program. - Courses were available when I needed them
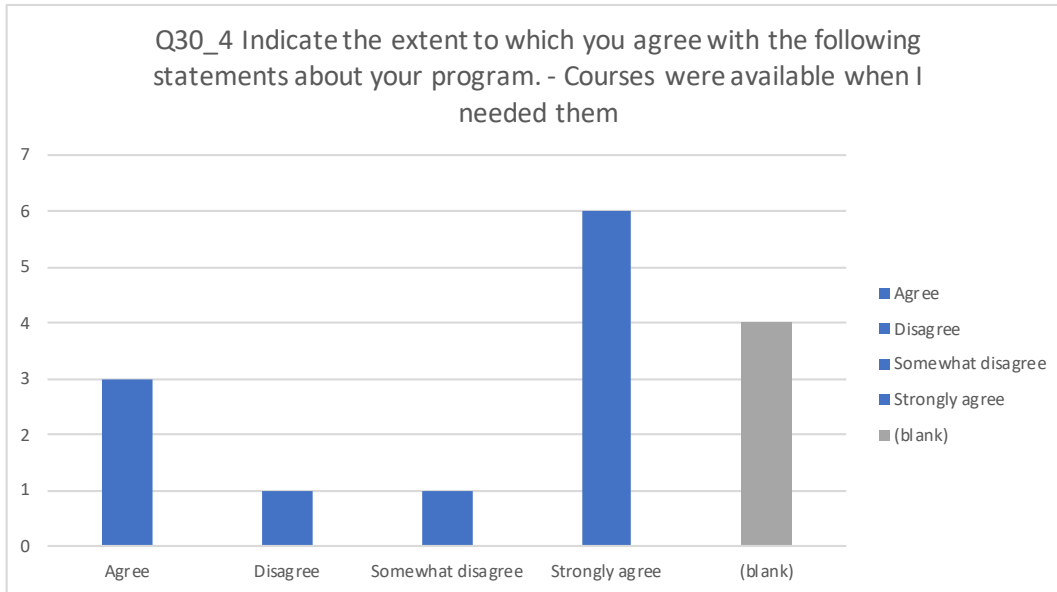
Q30_4 Indicate the extent to which you agree: Courses were available when I needed them	Count of x
Agree	3
Disagree	1
Somewhat disagree	1
Strongly agree	6
(blank)	4
Grand Total	**15**

Q30_5 Indicate the extent to which you agree with the following statements about your program. - The program was well-structured in terms of sequence of courses
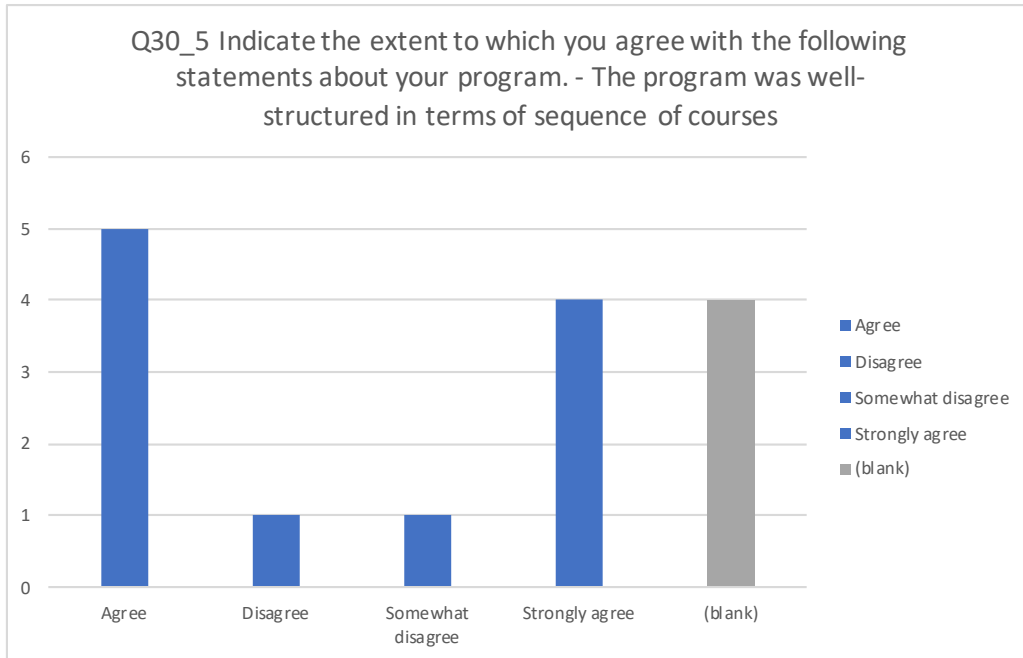
Row Labels	Q30_5 ...The program was well-structured in terms of sequence of courses
Agree	5
Disagree	1
Somewhat disagree	1
Strongly agree	4
(blank)	4
Grand Total	15

Q30_6 Indicate the extent to which you agree with the following statements about your program. - Overall, the courses provided useful information

Legend:
- Agree
- Neither agree nor disagree
- Strongly agree
- (blank)
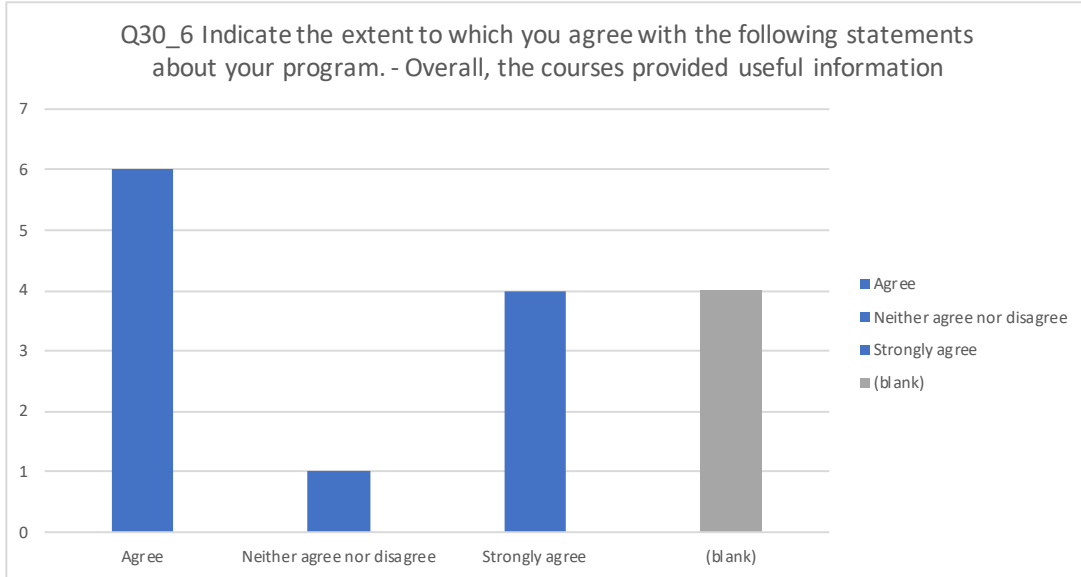
Row Labels	Indicate the extent to which you agree: Overall, the courses provided useful information
Agree	6
Neither agree nor disagree	1
Strongly agree	4
(blank)	4
Grand Total	15

Indicate the extent to which you agree with the following statements about your program. - Some courses or components of the program were a waste of my time
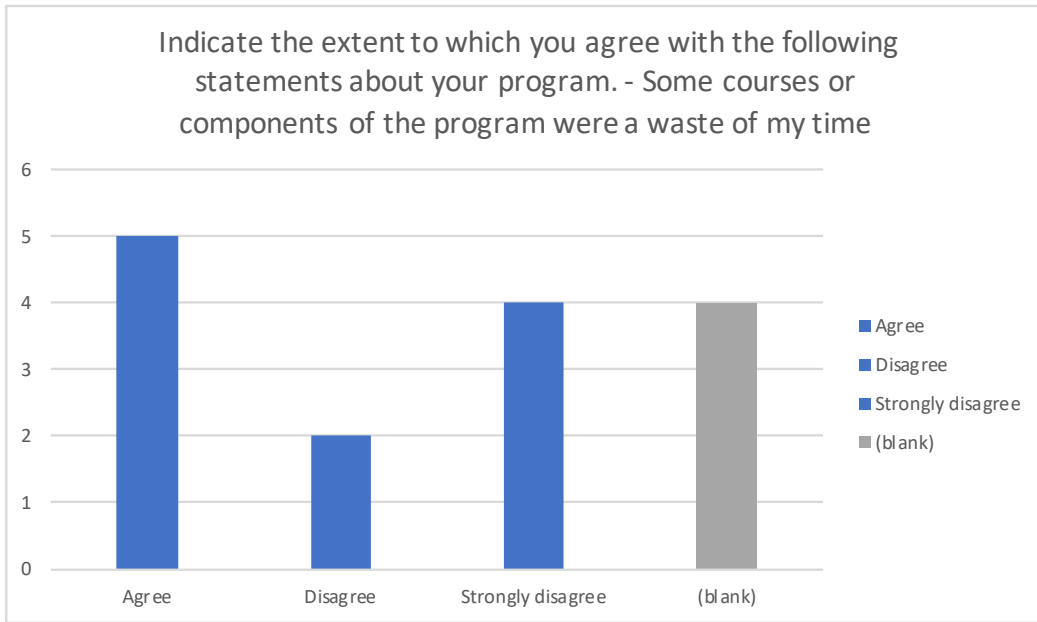
Indicate the extent to which you agree: Some courses ...were a waste of my time	Count of x
Agree	5
Disagree	2
Strongly disagree	4
(blank)	4
Grand Total	**15**

Indicate the extent to which you agree with the following statements about your program. - The faculty were generally supportive and available
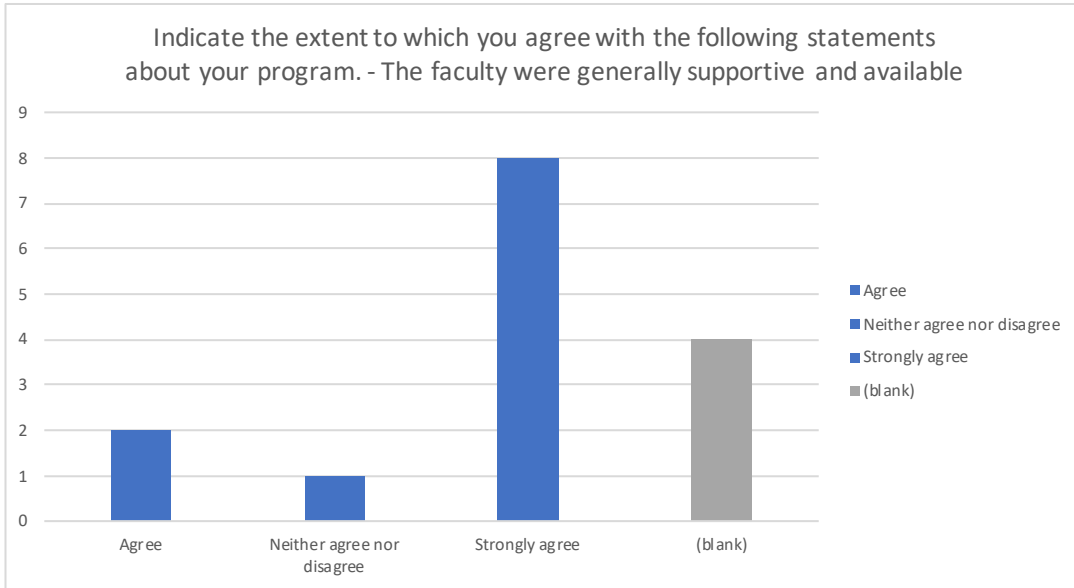
Row Labels	Q30_8 Indicate the extent to which you agree: The faculty were generally supportive...
Agree	2
Neither agree nor disagree	1
Strongly agree	8
(blank)	4
Grand Total	15

Q30_9 Indicate the extent to which you agree with the following statements about your program. - Requirements and expectations for assistantships were clearly articulated (for example, in terms of time required, time off, workload, sick time, etc.)
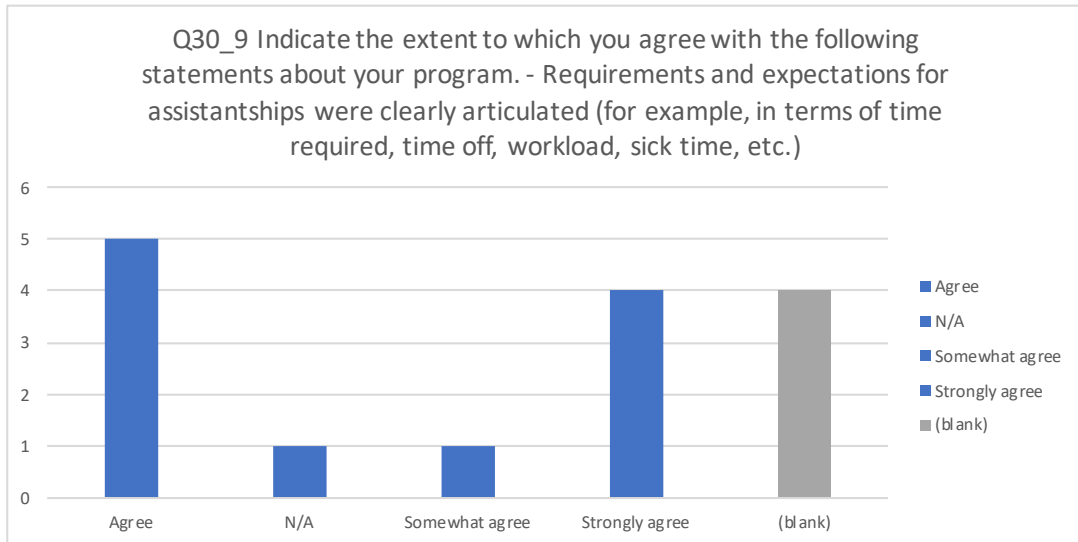
Q30_9 Indicate the extent to which you agree: Requirements for assistantships clearly articulated	Count of x
Agree	5
N/A	1
Somewhat agree	1
Strongly agree	4
(blank)	4
Grand Total	**15**

Q31 Overall, how satisfied are you with the quality of teaching in the courses you have taken?

Row Labels	Count of Q31 Overall, how satisfied are you with the quality of teaching...?
Satisfied	6
Very satisfied	5
(blank)	4
Grand Total	15

Q32_1 Did you participate in or use any of the following? (Check all that apply.) - Social events for students and faculty
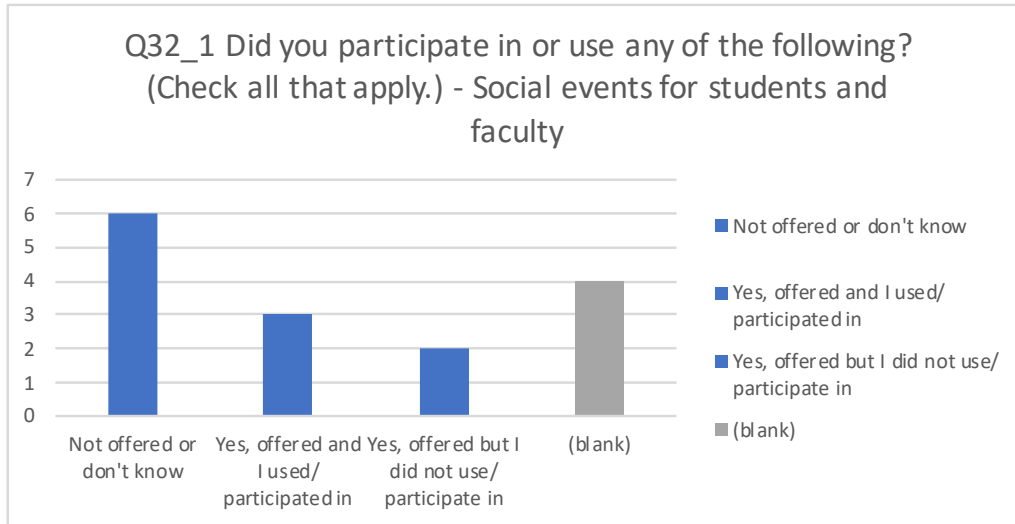
Q32_1 Did you participate in or use any of the following? Social events…	Count of x
Not offered or don't know	6
Yes, offered and I used/ participated in	3
Yes, offered but I did not use/ participate in	2
(blank)	4
Grand Total	**15**

Q32_2 Did you participate in or use any of the following? (Check all that apply.) - Speaker series

Legend:
- Not offered or don't know
- Yes, offered and I used/ participated in
- Yes, offered but I did not use/ participate in
- (blank)
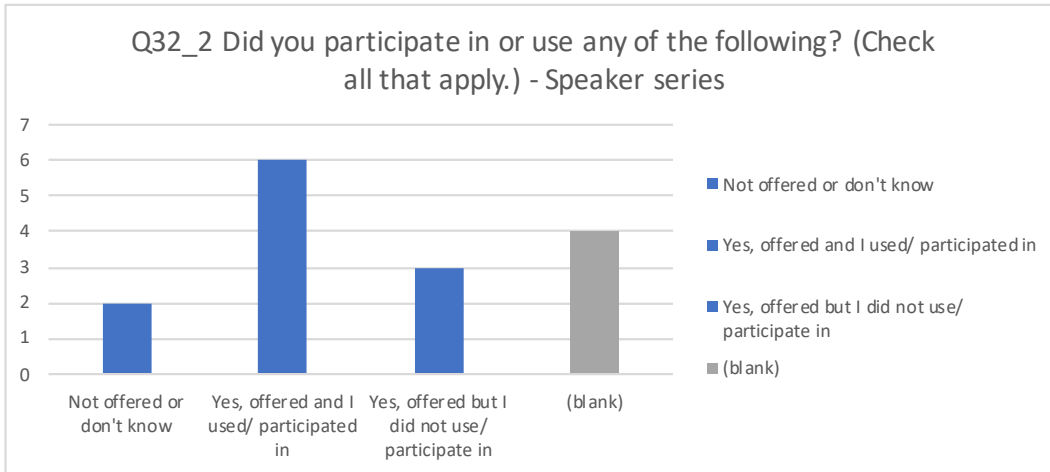
Row Labels	Count of Q32_2 Did you participate ... Speaker series
Not offered or don't know	2
Yes, offered and I used/ participated in	6
Yes, offered but I did not use/ participate in	3
(blank)	4
Grand Total	**15**

Q32_3 Did you participate in or use any of the following? (Check all that apply.) - Job placement services
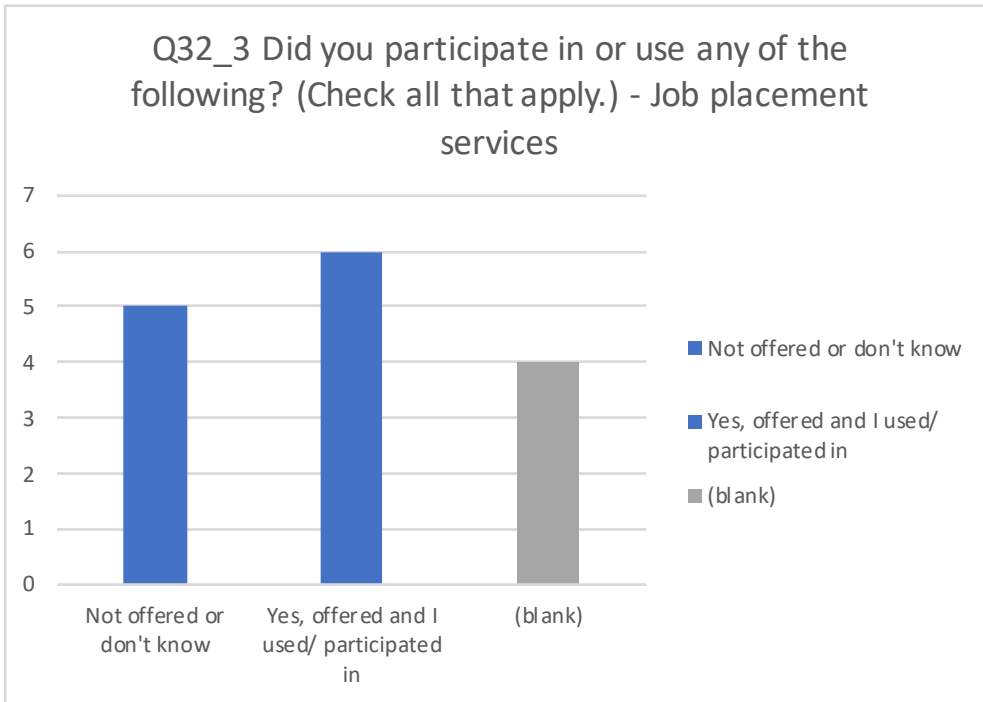
Count of Q32_3 Did you participate in… Job placement services	Count of x
Not offered or don't know	5
Yes, offered and I used/ participated in	6
(blank)	4
Grand Total	**15**

Q32_4 Did you participate in or use any of the following? (Check all that apply.) - Career counseling
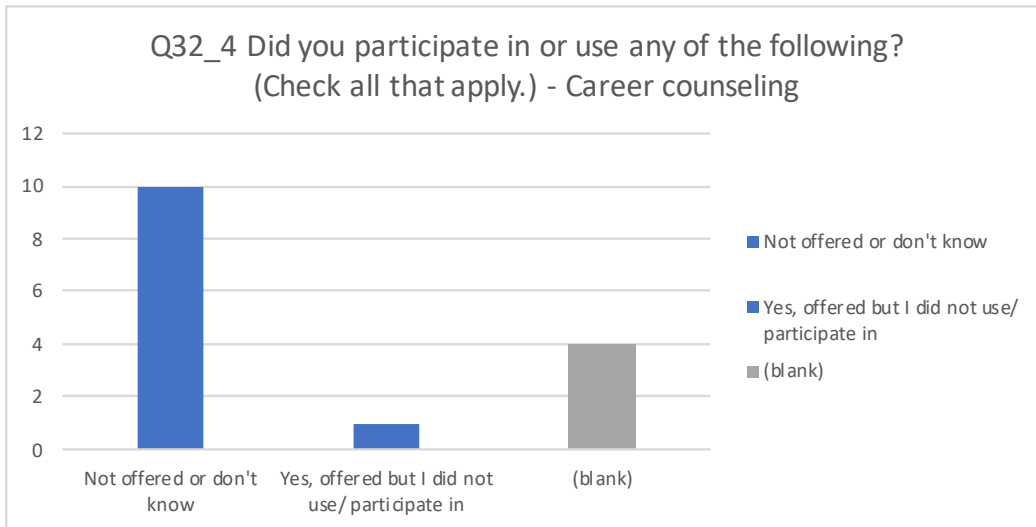
Row Labels	Q32_4 Did you participate in ... Career counseling
Not offered or don't know	10
Yes, offered but I did not use/participate in	1
(blank)	4
Grand Total	**15**

Q32_5 Did you participate in or use any of the following? (Check all that apply.) - Ombudsman, grievance procedures, conflict resolution
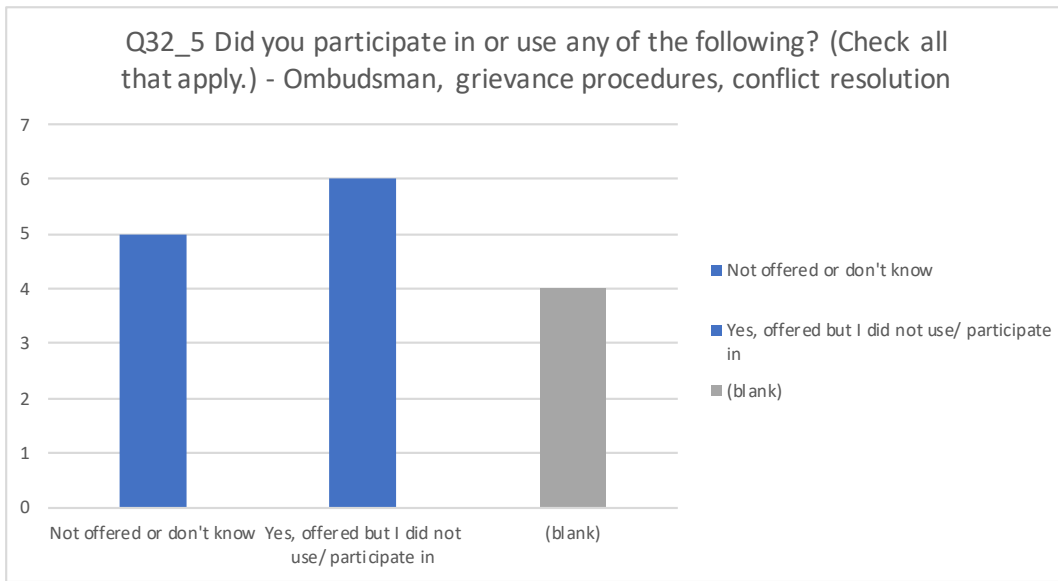
Q32_5 Did you participate in or use...Ombudsman, grievance procedures, conflict resolution	Count
Not offered or don't know	5
Yes, offered but I did not use/participate in	6
(blank)	4
Grand Total	**15**

Q32_6 Did you participate in or use any of the following? (Check all that apply.) - Student associations
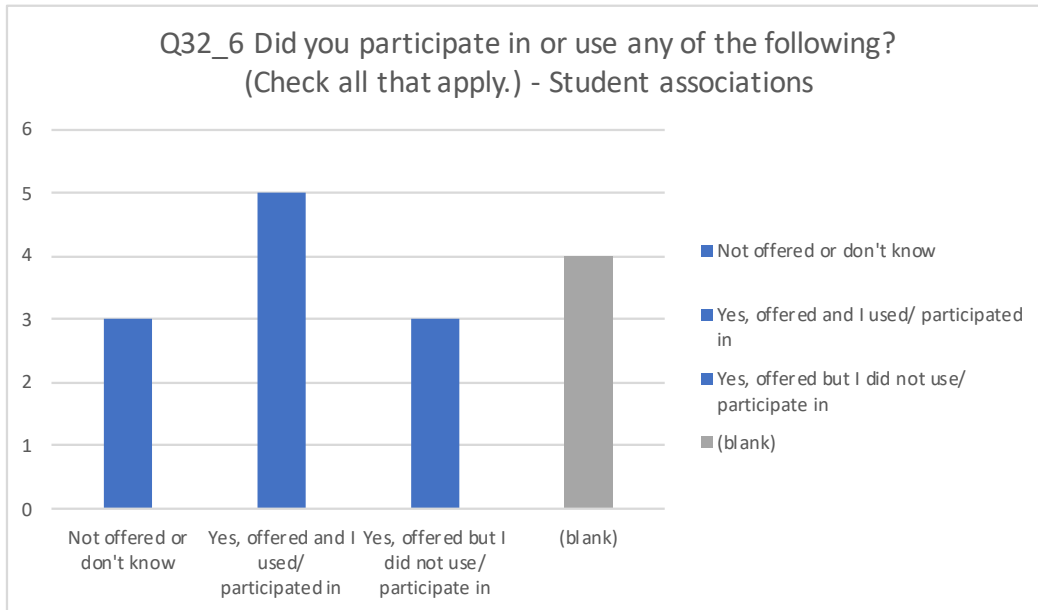
Row Labels	Q32_6 Did you participate in ... Student associations
Not offered or don't know	3
Yes, offered and I used/ participated in	5
Yes, offered but I did not use/ participate in	3
(blank)	4
Grand Total	**15**

Q33_1 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Oral communication and presentation skills
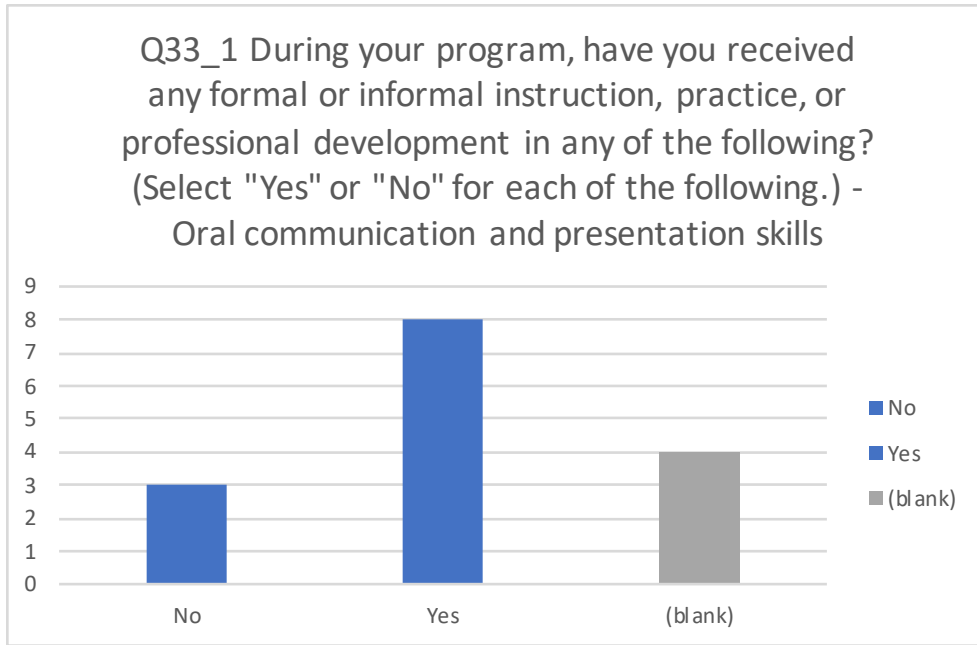
Q33_1 Have you received instruction in: Oral communication...	Count of x
No	3
Yes	8
(blank)	4
Grand Total	**15**

Q33_2 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Writing clearly for different audiences
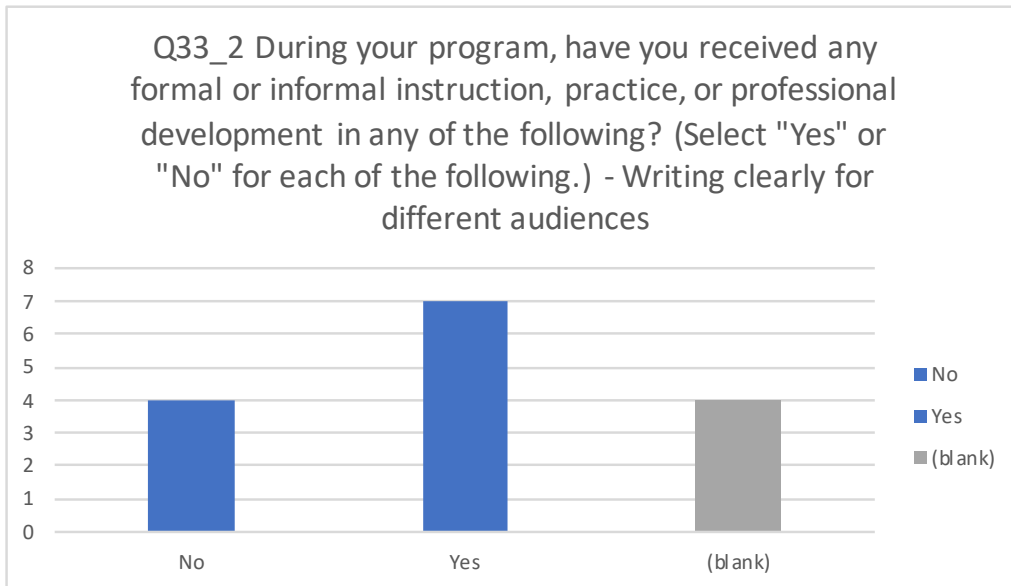
Q33_2 During your program, have you received instruction in: Writing…	Count of x
No	4
Yes	7
(blank)	4
Grand Total	**15**

Q33_3 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Research methods
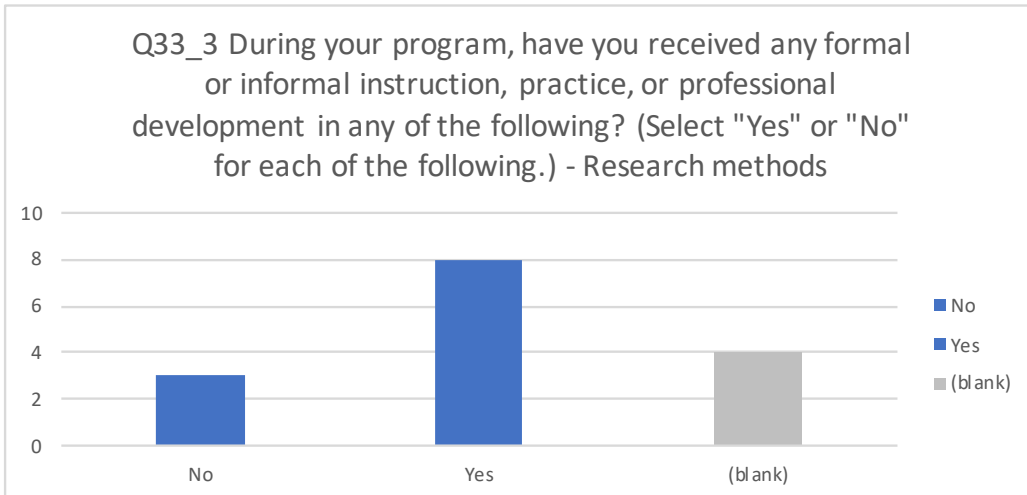
Q33_3 During your program, have you received training in: Research methods	Count of x
No	3
Yes	8
(blank)	4
Grand Total	**15**

Q33_4 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Working in collaborative groups
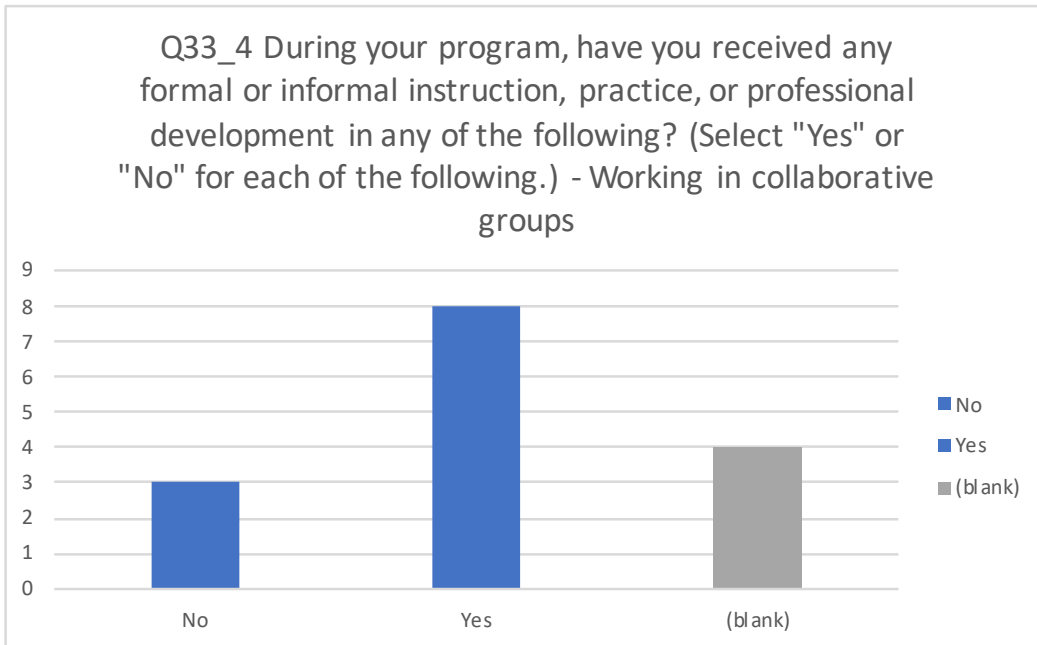
Q33_4 Have you received instruction in: Working in collaborative groups	Count of x
No	3
Yes	8
(blank)	4
Grand Total	15

Q33_5 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Conducting independent research/scholarship
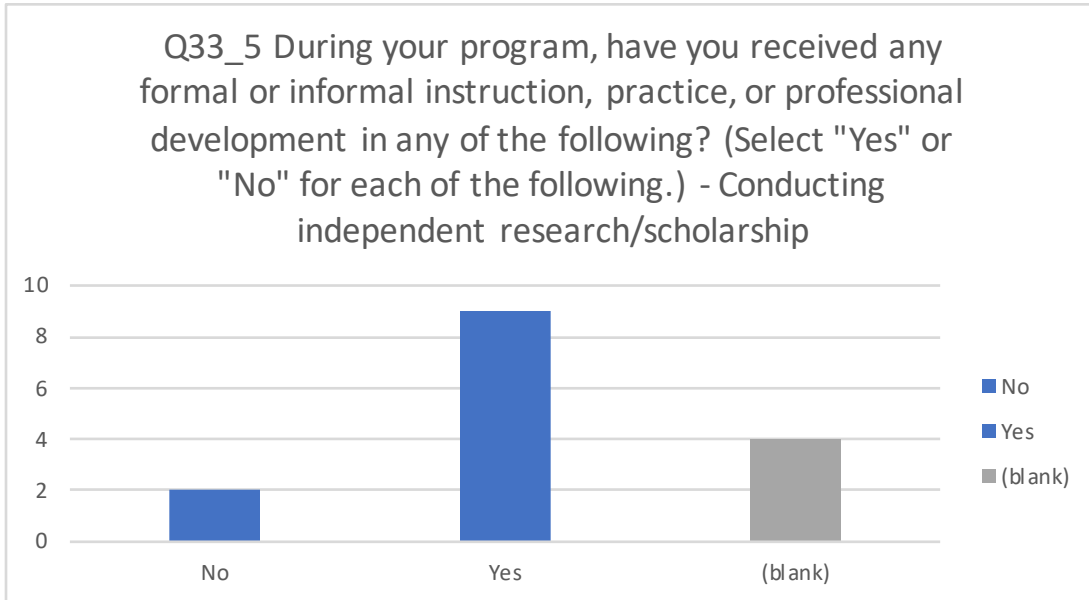
Q33_5 Have you received instruction in: Conducting independent research	Count
No	2
Yes	9
(blank)	4
Grand Total	**15**

Q33_6 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Project management (e.g., budgeting, staffing,...
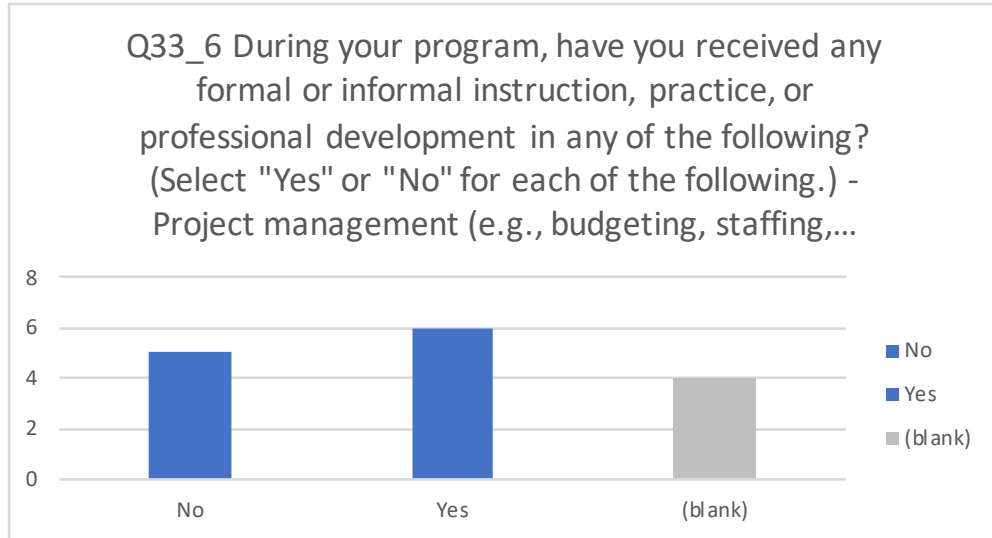
Q33_6 have you received any instruction in: Project management	Count of x
No	5
Yes	6
(blank)	4
Grand Total	**15**

Q33_7 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Research/professional ethics

Q33_7 During your program, have you received informal instruction in: Research/professional ethics	Count of x
No	2
Yes	9
(blank)	4
Grand Total	**15**

Q33_8 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Teaching skills/methods
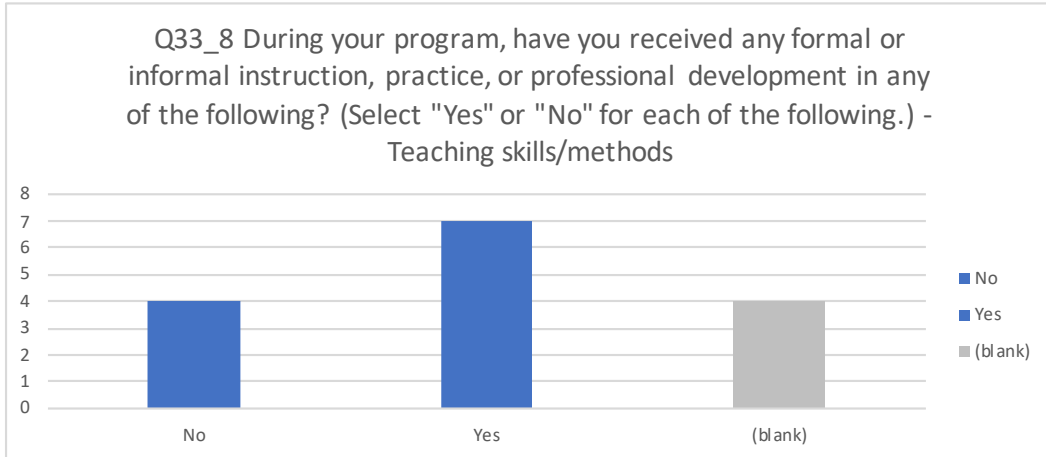
Q33_8 Have you received any formal or informal instruction in: Teaching skills/methods	Count of x
No	4
Yes	7
(blank)	4
Grand Total	**15**

Q33_9 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Preparation for job interviews

Row Labels	Q33_9 During your program, have you received any instruction in... job interviews
No	6
Yes	5
(blank)	4
Grand Total	15

Q33_10 During your program, have you received any formal or informal instruction, practice, or professional development in any of the following? (Select "Yes" or "No" for each of the following.) - Preparation for non-academic careers
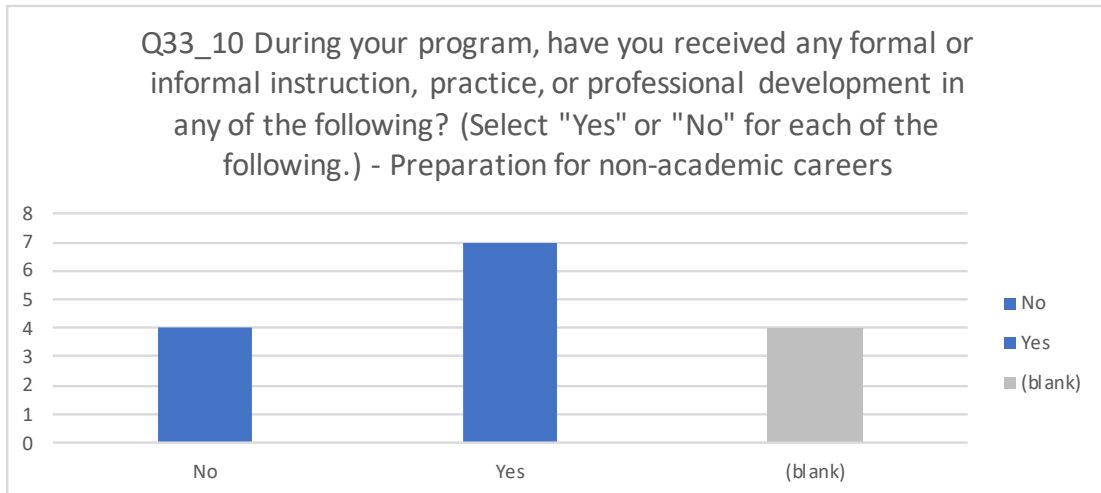
Q33_10 Have you received any instruction in: Preparation for non-academic careers	Count of x
No	4
Yes	7
(blank)	4
Grand Total	**15**

Q34 Have you experienced any of the following during the past two years? (Check all that apply.)
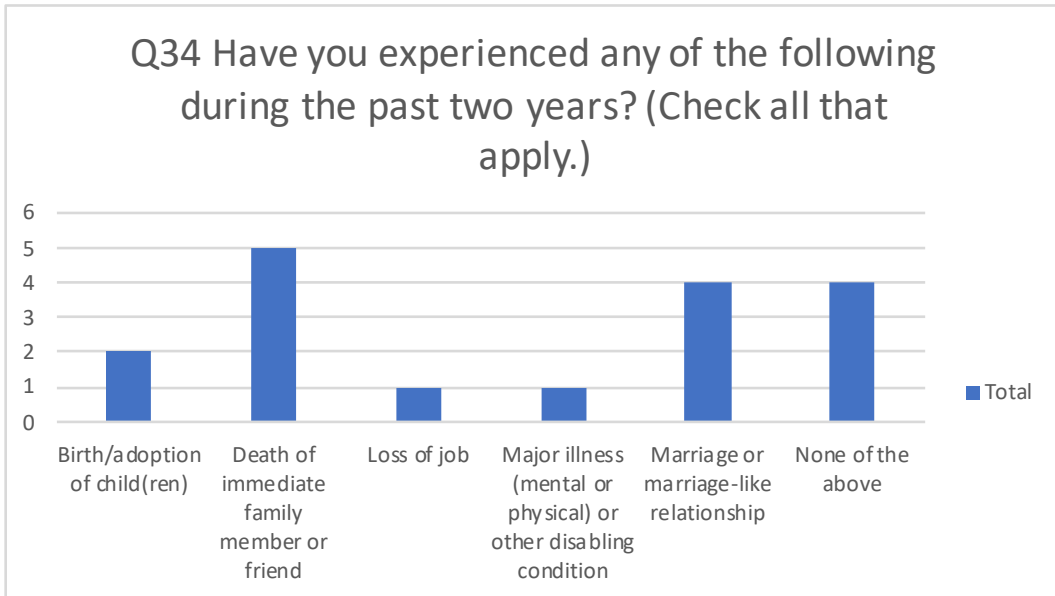
Have you experienced any of the following during the past two years?	Count of x
Birth/adoption of child(ren)	2
Death of immediate family member or friend	5
Loss of job	1
Major illness (mental or physical) or other disabling condition	1
Marriage or marriage-like relationship	4
None of the above	4
Grand Total	**17**

Q35_1 Since entering this program, how often have you felt that: - Your job responsibilities interfered with school
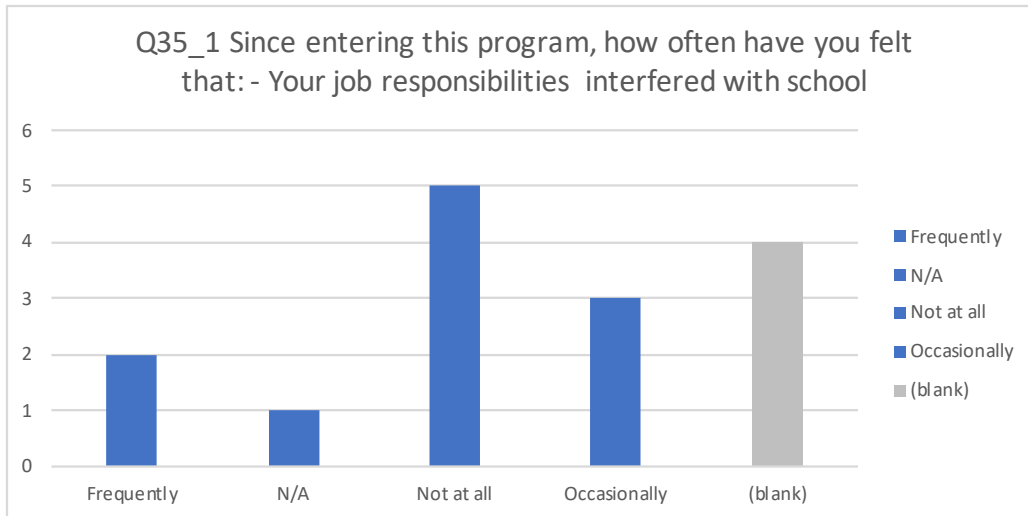
Count of Q35_1 How often have you felt... job responsibilities interfered with school	Count
Frequently	2
N/A	1
Not at all	5
Occasionally	3
(blank)	4
Grand Total	**15**

Q35_2 Since entering this program, how often have you felt that: - Your family responsibilities interfered with school
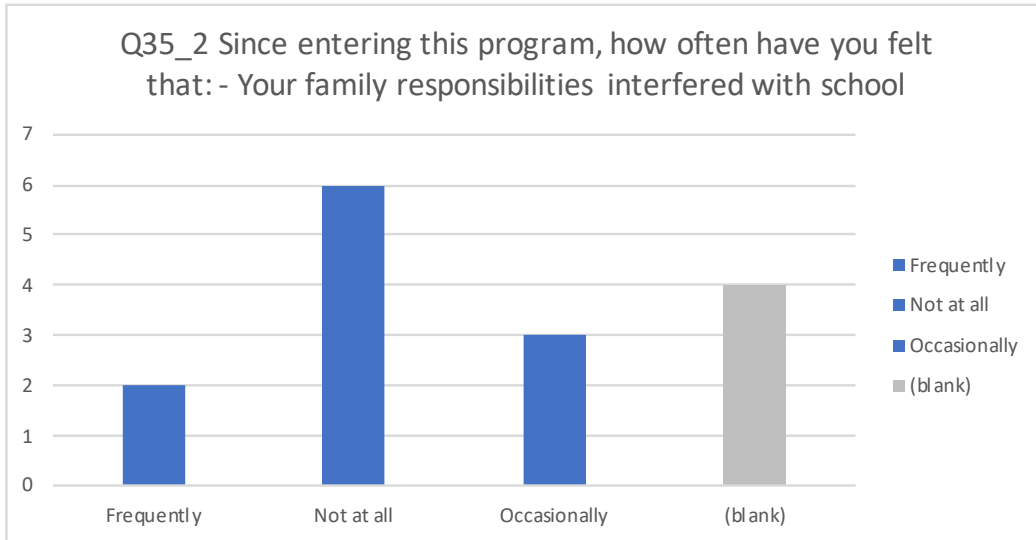
Q35_how often have you felt ... family responsibilities interfered with school	Count of x
Frequently	2
Not at all	6
Occasionally	3
(blank)	4
Grand Total	**15**

Q35_3 Since entering this program, how often have you felt that: - Your employer supports your academic aspirations
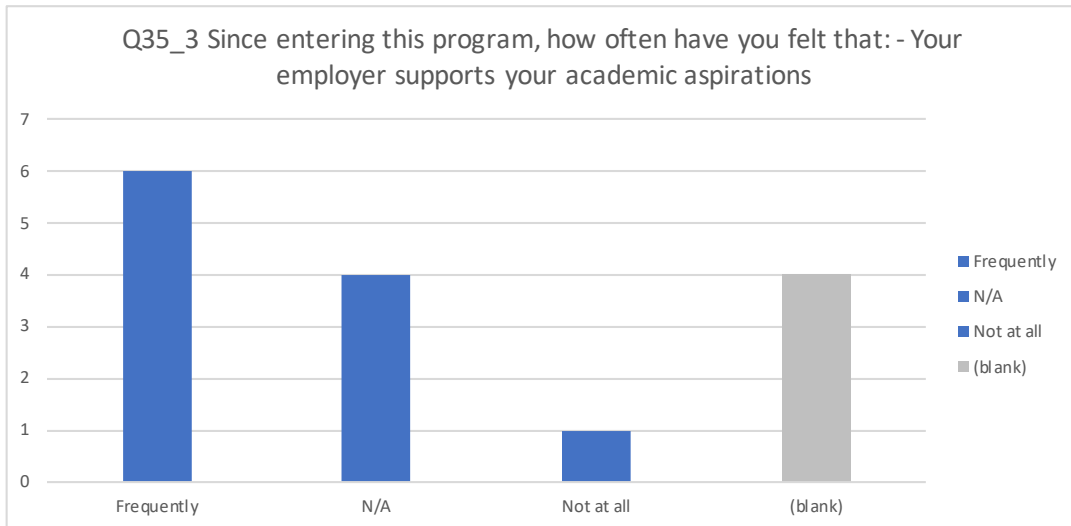
Count of Q35_3 How often have you felt ... Your employer supports your academic aspirations	Count of x
Frequently	6
N/A	4
Not at all	1
(blank)	4
Grand Total	**15**

Q35_4 Since entering this program, how often have you felt that: - You were treated unfairly at school because of your gender, race/ethnicity, sexual orientation, or religion
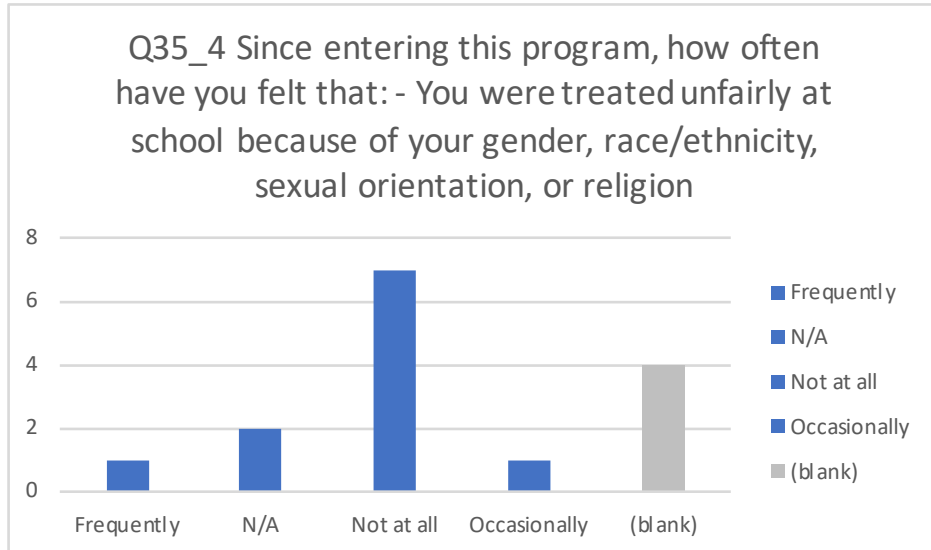
Q35_4 How often have you felt: You were treated unfairly…	Count of x
Frequently	1
N/A	2
Not at all	7
Occasionally	1
(blank)	4
Grand Total	**15**

Q35_5 Since entering this program, how often have you felt that: - Your family fully supports your academic aspirations
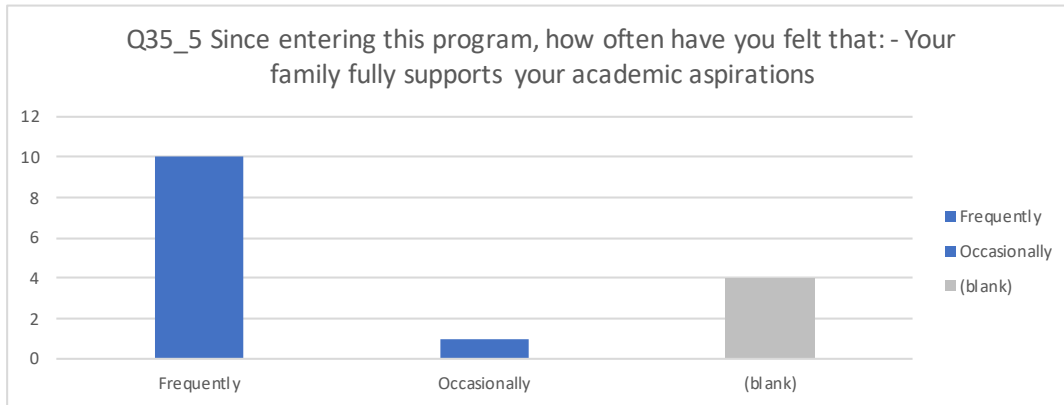
Count of Q35_5 How often have you felt... Your family fully supports your academic aspirations	Count of x
Frequently	10
Occasionally	1
(blank)	4
Grand Total	**15**

Q36_1 Since entering this program, how often have you felt: -
Isolated from other students in the program
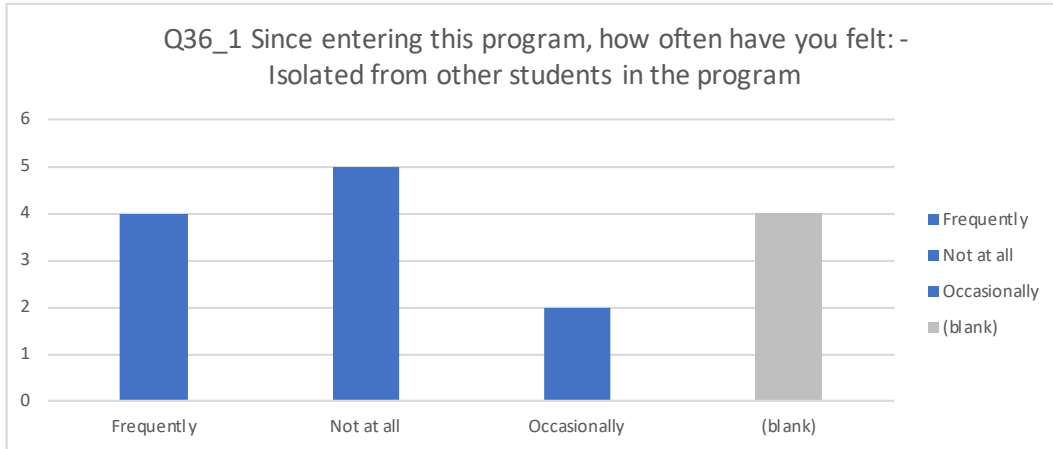
Row Labels	Q36_1 How often have you felt: - Isolated from other students in the program
Frequently	4
Not at all	5
Occasionally	2
(blank)	4
Grand Total	**15**

Q36_2 Since entering this program, how often have you felt: - Disengaged/disinterested in school
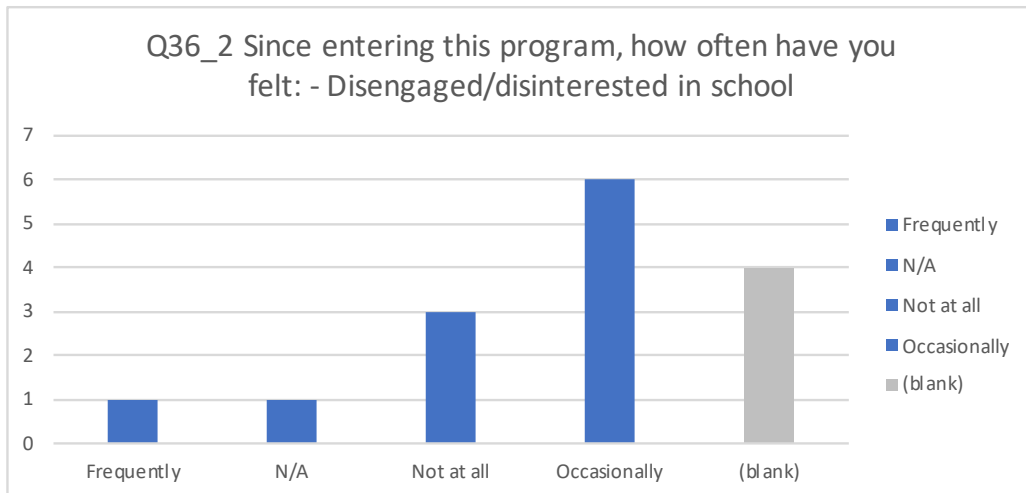
Count of Q36_2 How often have you felt: Disengaged/disinterested in school	Count of x
Frequently	1
N/A	1
Not at all	3
Occasionally	6
(blank)	4
Grand Total	15

Q36_3 Since entering this program, how often have you felt: - Supported by a network of students in the program
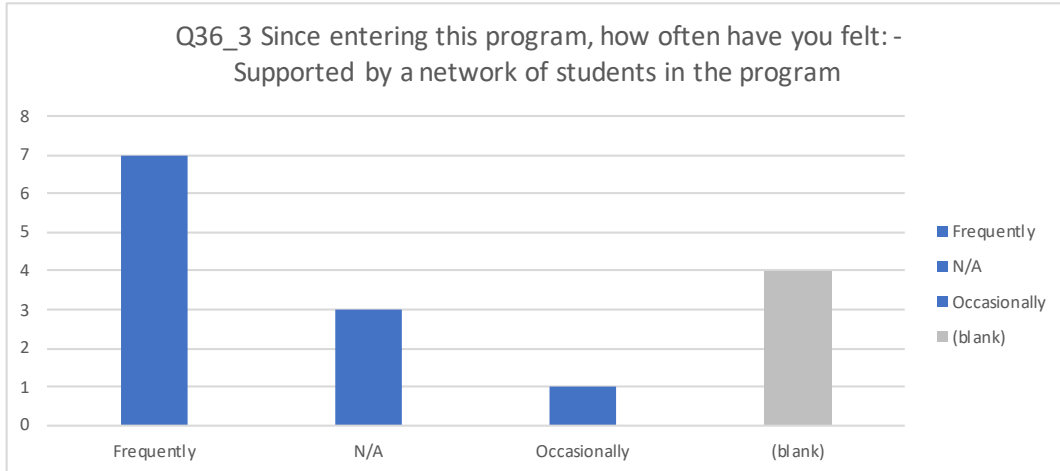
Count of Q36_3 How often have you felt: - Supported by a network of students in the program	Count of x
Frequently	7
N/A	3
Occasionally	1
(blank)	4
Grand Total	**15**

Q36_4 Since entering this program, how often have you felt: - Interested and engaged in your educational program
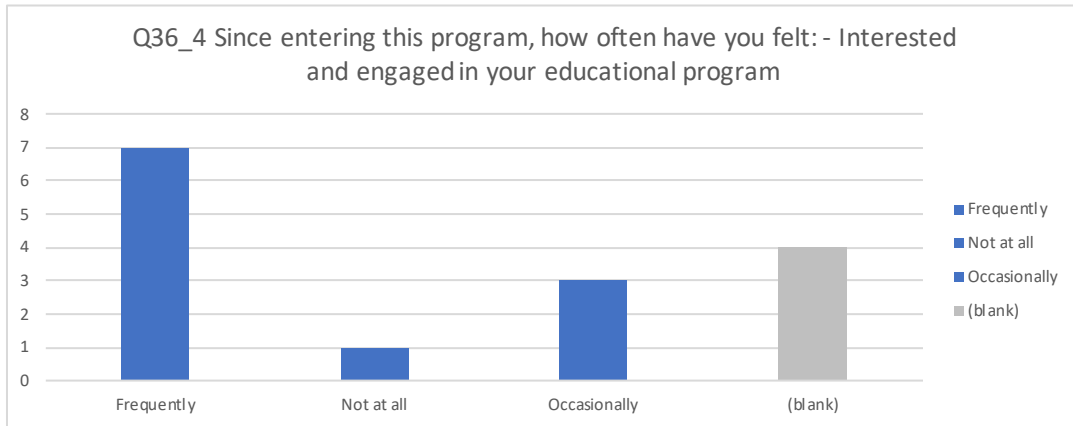
Row Labels	Q36_4 How often have you felt: - Interested and engaged in your educational program
Frequently	7
Not at all	1
Occasionally	3
(blank)	4
Grand Total	**15**

Q36_5 Since entering this program, how often have you felt: - Worried about your mental or physical health
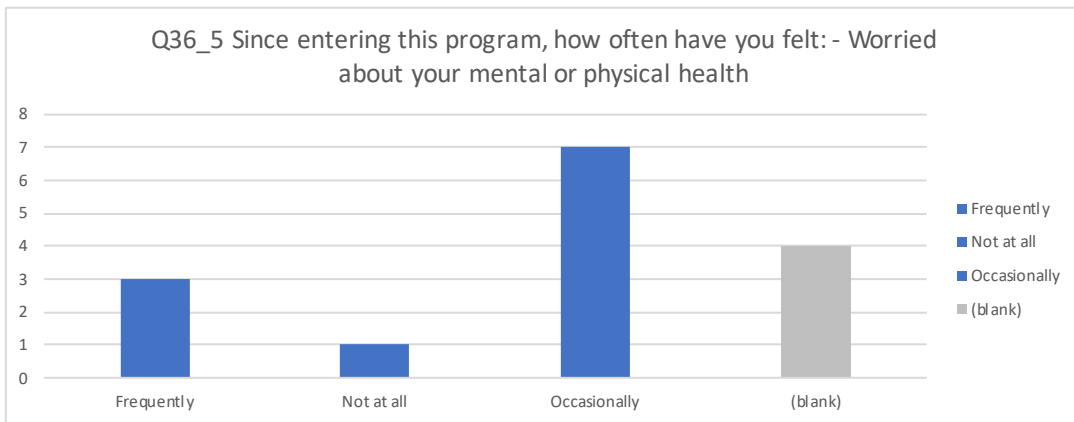
Row Labels	Count of Q36_5 How often have you felt: - Worried about your mental or physical health
Frequently	3
Not at all	1
Occasionally	7
(blank)	4
Grand Total	**15**

Q36_6 Since entering this program, how often have you felt: - That your program will help you meet your career goals

Legend:
- Frequently
- Not at all
- Occasionally
- (blank)
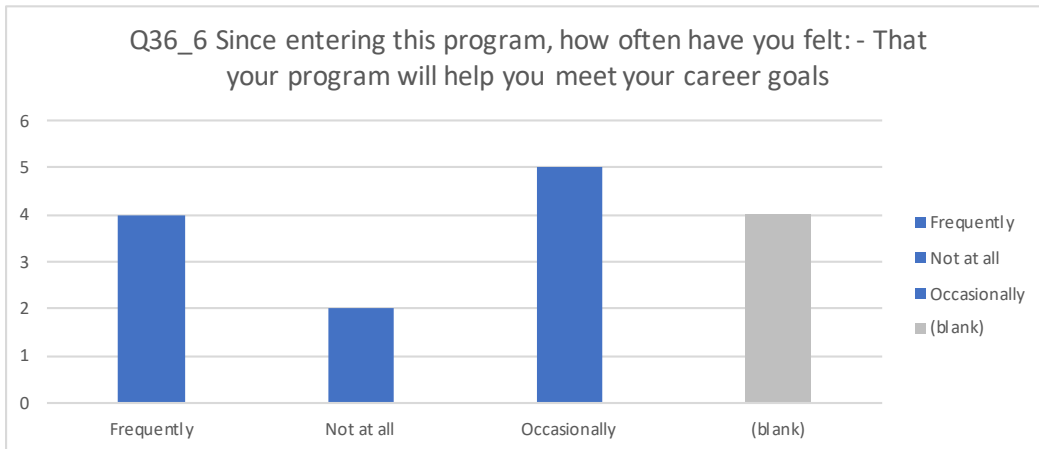
Q36_6 How often have you felt...That your program will help you meet your career goals	Count of x
Frequently	4
Not at all	2
Occasionally	5
(blank)	4
Grand Total	15

Q37 Did you ever have concerns about not being able to complete your degree?
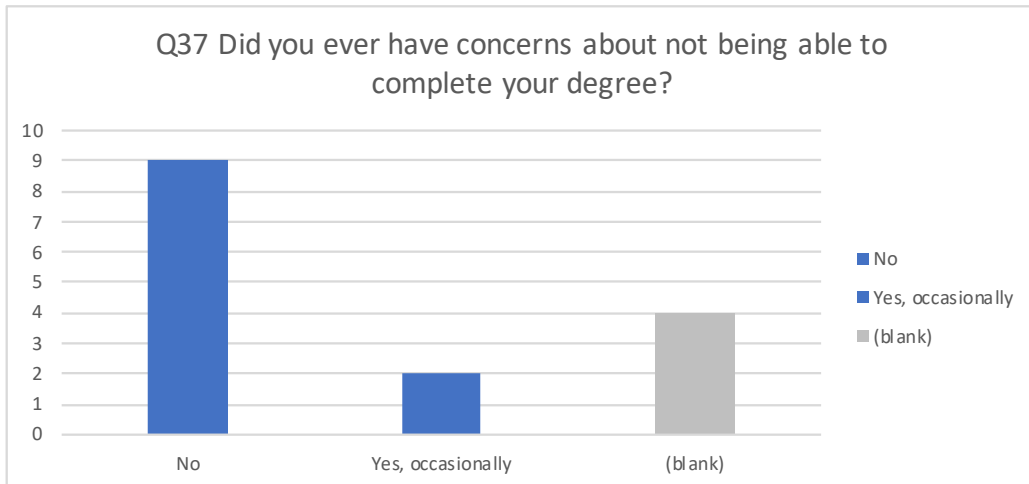
Q37 Did you ever have concerns about not being able to complete your degree?	Count of x
No	9
Yes, occasionally	2
(blank)	4
Grand Total	**15**

Q39_1 To what extent did the following factors contribute to your ability to complete the program? - Financial support from the institution or program
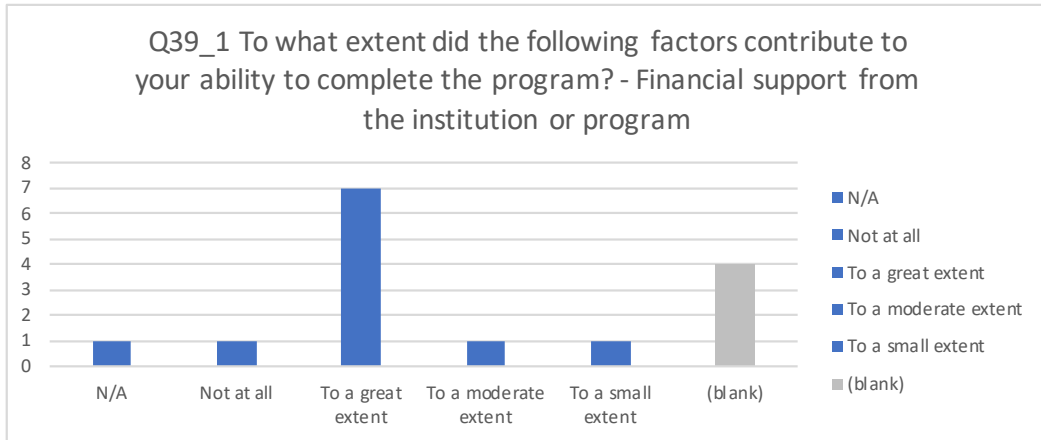
Q39_1 To what extent did financial support … contribute to your ability to complete?	Count of x
N/A	1
Not at all	1
To a great extent	7
To a moderate extent	1
To a small extent	1
(blank)	4
Grand Total	15

Q39_2 To what extent did the following factors contribute to your ability to complete the program? - Supportive faculty

Q39_2 To what extent did supportive faculty contribute to your ability to complete the program?	Count of x
To a great extent	7
To a moderate extent	2
To a small extent	1
(blank)	4
Grand Total	14

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Q39_3 To what extent did the following factors contribute to your ability to complete the program? - Student loans

Count of Q39_3 To what extent did the following factors contribute... Student loans	Count of x
N/A	5
Not at all	2
To a great extent	3
To a small extent	1
(blank)	4
Grand Total	**15**

Q39_4 To what extent did the following factors contribute to your ability to complete the program? - My advisor
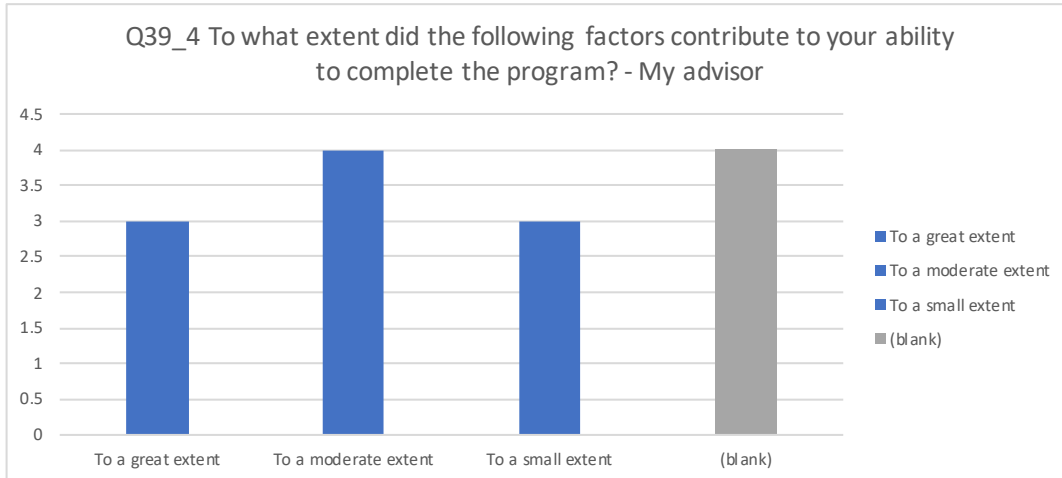
Row Labels	Q39_4 did the following factors contribute to your ability to complete? - My advisor
To a great extent	3
To a moderate extent	4
To a small extent	3
(blank)	4
Grand Total	**14**

Q39_5 To what extent did the following factors contribute to your ability to complete the program? - Program structure

Q39_5 To what extent did program structure contribute to your ability to complete?	Count of x
To a great extent	3
To a moderate extent	5
To a small extent	3
(blank)	4
Grand Total	**15**

Q39_6 To what extent did the following factors contribute to your ability to complete the program? - Motivation and determination
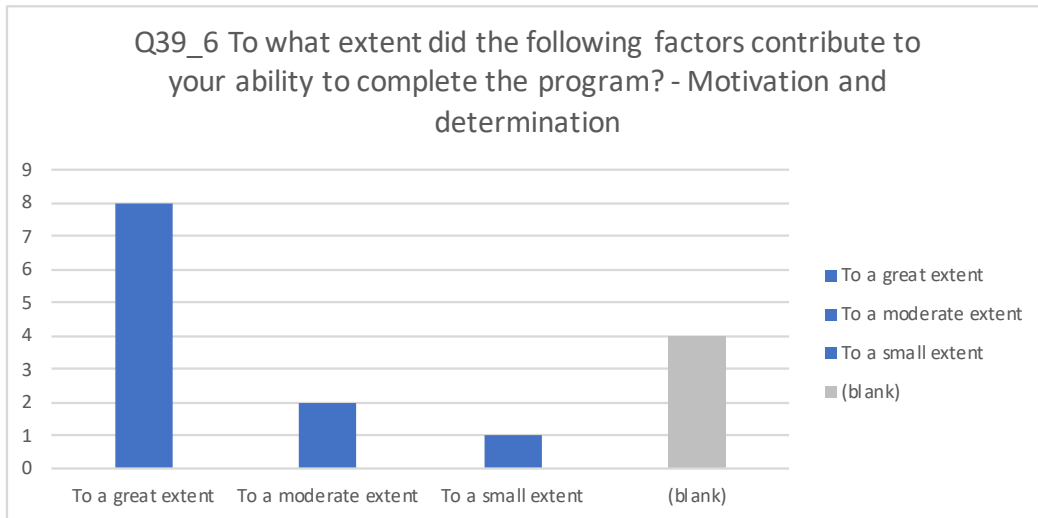
Q39_6 did motivation and determination contribute to your ability to complete	Count of x
To a great extent	8
To a moderate extent	2
To a small extent	1
(blank)	4
Grand Total	**15**

Q39_7 To what extent did the following factors contribute to your ability to complete the program? - Family (non-financial) support
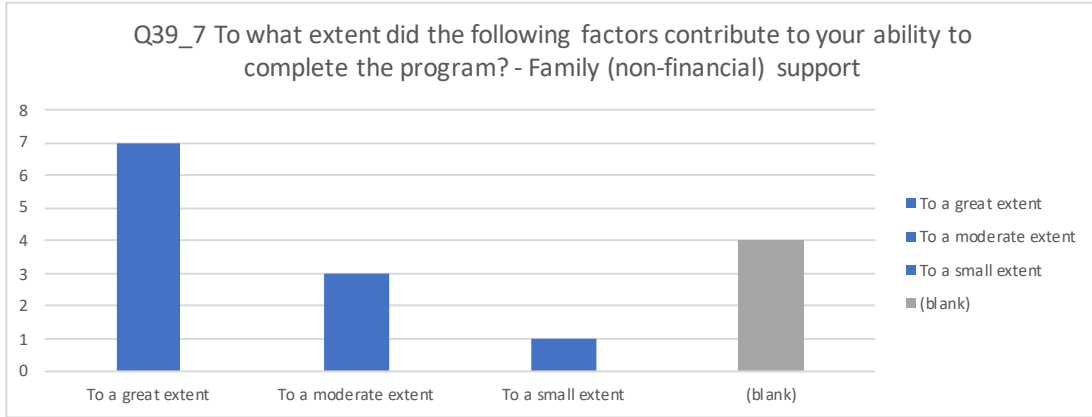
To what extent did Family (non-financial) support contribute to your ability to complete the program?	Count of x
To a great extent	7
To a moderate extent	3
To a small extent	1
(blank)	4
Grand Total	**15**

Q39_8 To what extent did the following factors contribute to your ability to complete the program? - Peer support

Row Labels	Q39_8 To what extent peer support contribute to your ability to complete the program?
To a great extent	7
To a moderate extent	1
To a small extent	2
(blank)	4
Grand Total	14

Q39_9 To what extent did institutional or program supports contribute to your ability to complete the program? - Institutional or program supports

Q39_9 To what extent did Institutional contribute to your ability to complete the program?	Count of x
N/A	2
Not at all	1
To a great extent	3
To a moderate extent	3
To a small extent	2
(blank)	4
Grand Total	**15**

Q39_11 To what extent did the following factors contribute to your ability to complete the program? - Supportive employer

Q39_11 To what extent did a supportive employer contribute to your ability to complete the program?	Count of x
N/A	4
Not at all	1
To a great extent	4
To a moderate extent	2
(blank)	4
Grand Total	**15**

Q39_12 To what extent did the following factors contribute to your ability to complete the program? - Quality of teaching
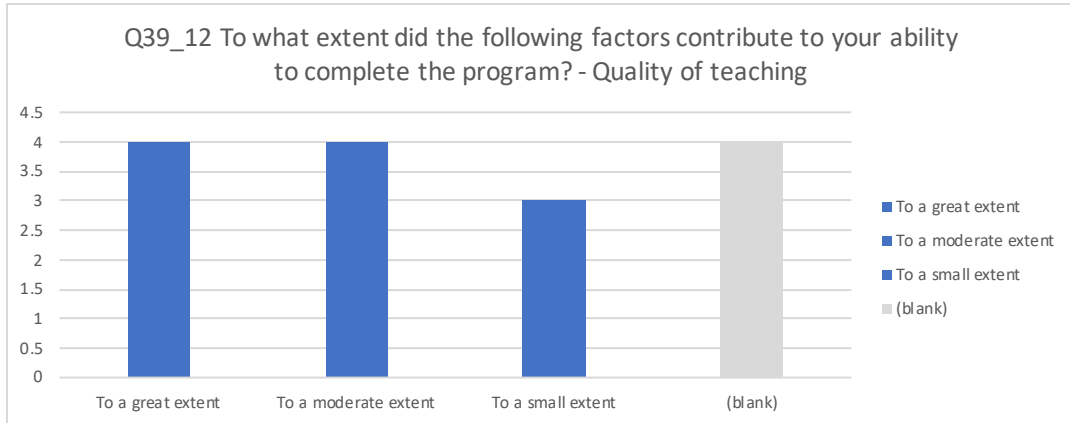
Q39_12 To what extent did quality of teaching contribute to your ability to complete the program?	Count of x
To a great extent	4
To a moderate extent	4
To a small extent	3
(blank)	4
Grand Total	**15**

Q39_13 To what extent did the following factors contribute to your ability to complete the program? - Being a full-time student

Q39_13 To what extent did being a full-time student contribute to your ability to complete the program?	Count of x
To a great extent	7
To a moderate extent	2
To a small extent	2
(blank)	4
Grand Total	**15**

Q39_14 To what extent did the following factors contribute to your ability to complete the program? - Other

Q39_14 To what extent did the other factors contribute to your ability to complete the program?	Count of x
N/A	4
To a great extent	2
To a small extent	1
(blank)	6
Grand Total	**13**

What other factors contributed to your ability to complete the program? (Open Ended answers)
Jesus
Grand Total

Count of Q41 What did you like LEAST about your program?
I disliked the lack of options to take electives in different semesters.
Little real-life experience, though it was had because of COVID-19
Not being better prepared in undergrad for architecture related knowledge due to the surplus of general education courses required. I wish the program could offer concentrations within architecture that focus on the different aspects, phases, and sectors within architecture.
Not enough exposure to the diversity of ideas/research/design taking place in the field of architecture.
Some of the graduate school curriculum was thin. More class options would have been nice.
The degree of social separation.
Grand Total

Count of Q42 What changes to the program or institution would help students complete the degree in a timely manner?
I think the program is set up in a great way that allows us to be prepared to get a job after graduation. It takes your own self guidance and motivation to get the work done.
In-person critique of student work.   Checking in on students who seem to be struggling in some capacity.
Making it easier to take different electives
N/A   Most students do complete the degree in a timely manner.
Grand Total

Q44 What is your marital status? (Check only one.)

Legend:
- Married or in a marriage-like relationship
- Never married
- (blank)
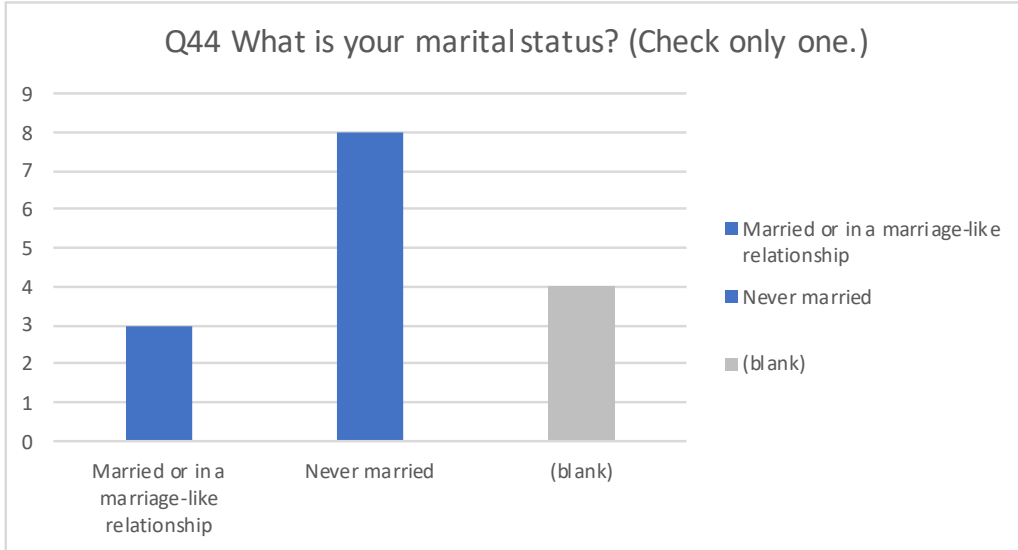
Count of Q44 What is your marital status? (Check only one.)	Count of Maritial Status
Married or in a marriage-like relationship	3
Never married	8
(blank)	4
Grand Total	**15**

Q45 Is your spouse/partner currently working?

Q45 Is your spouse/partner currently working?	Is your spouse/partner currently working? Count
No	2
Yes, full-time	3
(blank)	10
Grand Total	**15**

Q46 Do You Identify As
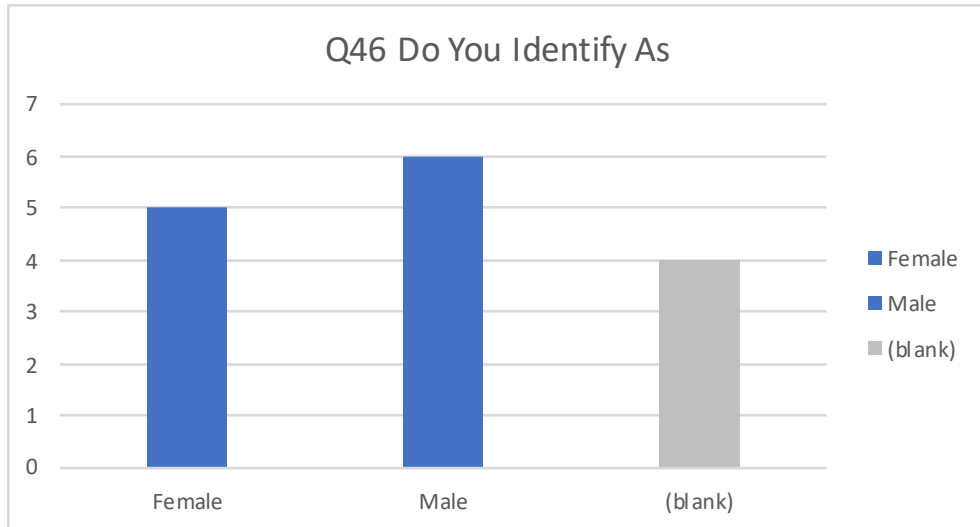
Count of Q46 Are you Indentified As	Count of Q46 Are you Indentified As
Female	5
Male	6
(blank)	4
Grand Total	**15**

Q47 Not including yourself or your spouse/partner, how many dependents do you have?
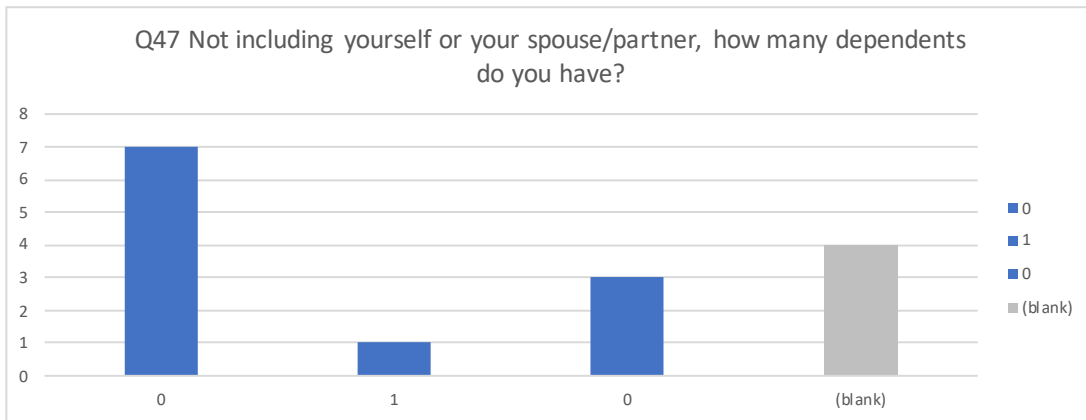
Row Labels	Q47_Not including yourself or your spouse/partner, how many dependents do you have?
0	7
1	1
0	3
(blank)	4
Grand Total	**15**
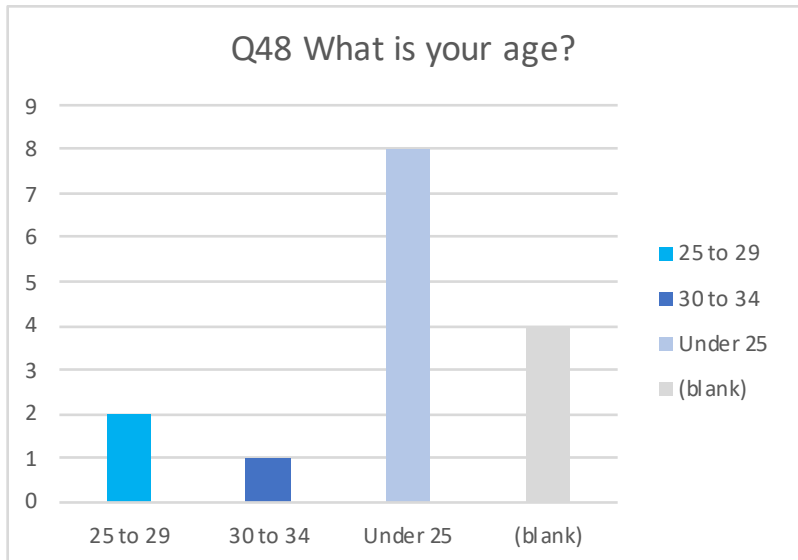
Q48 What is your age?

Row Labels for age ranges	Question 48 Count by age group
25 to 29	2
30 to 34	1
Under 25	8
(blank)	4
Grand Total	**15**

Q49 What is your citizenship status?
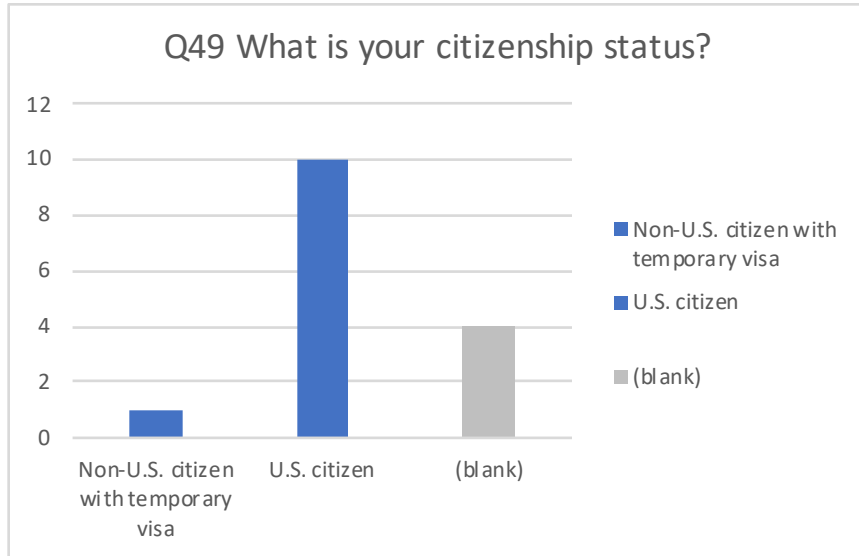
Count of Question 49 What is your citizenship status?	Count of x
Non-U.S. citizen with temporary visa	1
U.S. citizen	10
(blank)	4
Grand Total	**15**

Q50 Are you Hispanic or Latino/Latina?
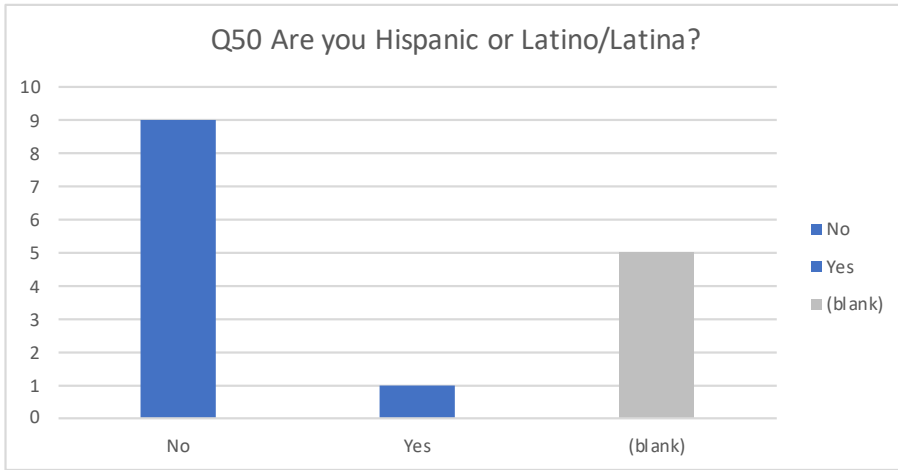
Count of for Question 50	Count of Question 50 Are you Hispanic or Latino/Latina?
No	9
Yes	1
(blank)	5
Grand Total	15

Q51 What is your racial background?
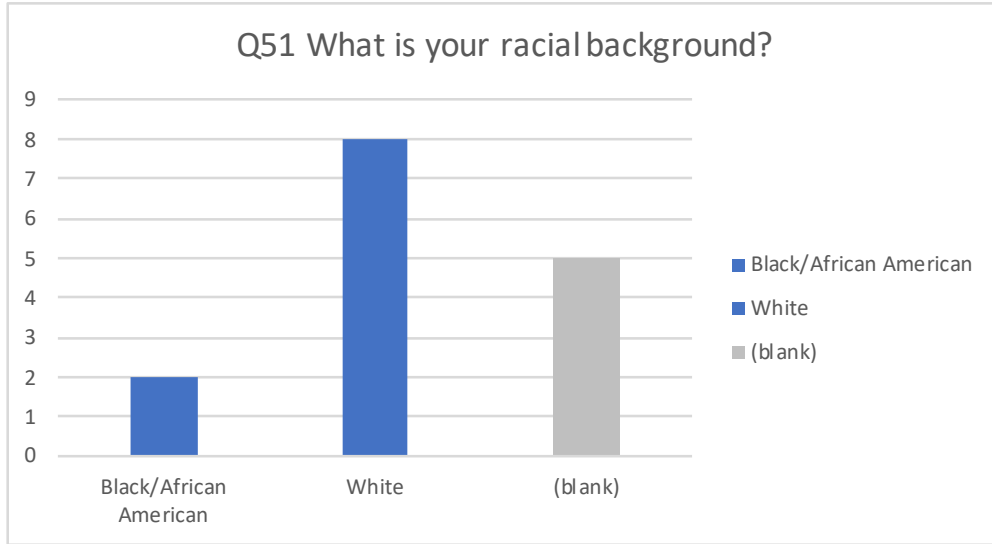
Row Labels	Count of Question 51 What is your racial background?
Black/African American	2
White	8
(blank)	5
Grand Total	**15**

University Committee on Graduate Student Success and Retention Report to Graduate Council.
Academic year 2023 - 2024.

University Committee on Graduate Student Success and Retention
Report to Graduate Council

Academic Year 2023-2024

Revised Mission (recommended for adoption in September 2023, revisions bolded):
The mission of the University Committee on Graduate Student Success and Retention shall be to examine the comprehensive graduate student experience at UL Lafayette, in an effort to **support the graduate education community to resource every graduate student in persistence toward program completion, personal well-being, and professional success.**

Charge: The University Committee on Graduate Student Success and Retention shall work with the Graduate School and the Graduate Council to support the retention and success of students in both degree and non-degree graduate programs. In doing so, and in partnership with other campus constituencies, it shall assess graduate student needs, reasons for stop out and dropout, and barriers to completion; professional development for career success; University services and student affairs support systems for graduate students; and other retention-related topics.

The committee is charged more specifically with the responsibility:

- to collect and analyze data regarding graduate student retention;
- to identify factors and develop recommendations for policies or interventions to improve graduate student success; and
- to report annually its findings and recommendations.

The committee shall submit a written report annually to the Graduate Council on its general findings and broad recommendations; this report shall be shared at the annual meeting of the Graduate Faculty. It shall also provide annually a more detailed report, including data gathered/assessed and detailed justification for recommendations made, to the Dean of the Graduate School and the Provost.

Meetings and Membership:
Eight (8) meetings were held during the 2023-2024 academic year from August to April, including monthly meetings August through November of the Fall 2023 semester and January through April the Spring 2024 semester. Meeting agendas, supplementary materials, and minutes are available on the S&RC Moodle. Members Emily Sandoz, Philip deMahy, and Graduate Assistant Abbey Warren (Fall 2023) or Chloe Guidry (Spring 2024) met weekly to prepare materials to support productive meetings.

The members of the University Committee on Graduate Student Success and Retention for the 2023-2024 academic year included the following Graduate Faculty Representatives:

Emily Sandoz, Chair (PSYC; Chair), Jennifer Allain (NURS), Lauren Auverset (CMCN), Brian Bolton (FNAN), Micah Bruce-Davis (EDCI), Sebnem Cilesiz (EDFL), Kumer Das (Office for Research), Philip de Mahy (Graduate School), Mary Farmer Kaiser (Graduate School), Chris Giroir (EDFL), Emad Habib (CIVE), Rose Honegger (Global Engagement), Jonathan Kulp

(MUS), Patricia Lanier (MGMT), Justin Lynd (MATH), Amanda Mayeux (Graduate Council), Kiwana McClung (Campus Diversity), Robert Michael (PSYC), Robert Miller (CIVE), Margarita Perez (Dean of Students), Brian Schubert (GEOL), Kari Smith (ARCH)

Major Action Items

1. During Summer 2023, Dr. Sandoz, Abbey Warren, and Assistant Dean Philip deMahy met regularly to prepare for the 2023-2024 Academic Year. Tasks included:
   a. Supporting Graduate School staff in cleaning and coding of Climate Survey and Exit Survey data
   b. Analyzing and preparing Climate Survey and Exit Survey data for S&RC consumption and consideration
   c. Supporting the Graduate School with implementation of Stop Out/Drop Out and Programming Effectiveness Brief Survey
   d. Supporting the Graduate school as needed around new appointments, re-appointments, and renewed commitments to the S&RC
2. S&RC reconvened in August 2023 to pilot the annual 2023-2024 agenda introduced in Spring 2023.
3. S&RC voted to revise our Mission in September 2023 after student and faculty stakeholder data from Spring and Summer 2023, which revealed a need to pivot our efforts to focus on promoting the student experience of success and persistence rather than the university experience of success and retention. This resulted in the revision of our mission, as noted in the heading above.
4. S&RC reviewed data from the 2023 Climate Survey and made recommendations for data collection and new initiatives (**see Table 1**).
5. A Job Description was written for the S&RC GA position (**see Appendix A**) and a new GA, Chloe Guidry, was hired.
6. S&RC reviewed data from the XXX-XXX Exit Survey and made recommendations for data collection and new initiatives (see Table 1).
7. S&RC used the Tracking Student Success survey to collect data among Graduate Coordinators on how Graduate Student Success (current and alumni) is being documented. S&RC reviewed data from the Fall 2023 Tracking Student Success survey and recommended that the Graduate School work with the Office for Student & Faculty Excellence to resource Grad Programs to track the success of our students and alumni, perhaps making use of existing platforms (e.g., Presence or Academe).
8. S&RC reviewed data from the Fall 2023 Non-returners' Survey, committed to ongoing analysis of these data.
9. S&RC discussed dissertation completion programming across a number of levels of intervention (i.e., project management, dissertation community, individual coaching; see Table 1)
10. S&RC requested that qualitative data (i.e., free responses) be aggregated and provided to committee as themes for all datasets (i.e., Climate Survey, Exit Survey, Programming Effectiveness.
11. The S&RC approved a new biennial agenda with a calendar for Fall 2024-2025, which sets specific goals for each of the 8 planned workshop-based meetings (**see Appendix B**).

12. Dr. Sandoz presented a brief summary of S&RC activities along with a call to volunteers to the meeting of the Graduate Faculty and the Graduate Leadership.

Summer Goals

Dr. Sandoz, Dean deMahy, and GA Chloe Guidry will meet regularly during the Summer to:
1. Review Programming summary from AY 2023-2024
2. Clean, code, and analyze attendance data and programming effectiveness data
3. Support implementation of changes to data collection

Fall Goals

1. S&RC will pilot the new biennial agenda, which will provide a template for an annual cycle to be followed going forward. Overall, the goals met by this agenda will include:
   a. Review of current programming and design of overall Programming Assessment survey
   b. Two-phase data analysis of Programming Effectiveness data and official recommendations for programming and other initiatives and for future data collection.
   c. Design and implementation of initial data collection on overall annual programming targeting Graduate Students.
   d. Two-phase data analysis of Exit Survey data and official recommendations for programming and other initiatives and for future data collection.
   e. Two-phase data analysis of Non-returners' Survey data and official recommendations for programming and other initiatives and for future data collection

In addition, the S&RC will continue to provide support to the Graduate School as needed.

Thank you for the opportunity to serve in this way.

Sincerely,

Dr. Emily K. Sandoz

Table 1. Summary Recommendations from Climate Survey

Data Collection	
Recommendation	**Objective**
Reverse response options	to ease analysis in future administrations such that responses indicating greater magnitude are to the right of those indicating lesser magnitude
Clarify instructions in mentorship section	to make clear to student respondents to describe their subjective experience of mentorship to improve guidance about the referent for these questions or provide opportunities for the student respondent to clarify
Revise items in mentorship section	to include items that are inclusive of emerging models of graduate student mentorship (particularly those that might be targeted in UL's mentorship initiatives)
Addition of items relevant to graduate student success and persistence	to increase number of variables that can directly assess success and persistence in terms of persistence toward program completion, professional success, and personal well-being
Include option for respondent to link responses to demographics, quantitative markers of academic success, and responses across surveys (e.g., Exit Survey, program effectiveness survey) while maintaining confidentiality	to allow for converging student reported concerns with typically used measures of academic success as well as other self-reports to allow for consideration of the unique concerns of more vulnerable demographic groups

New Initiatives	
Priority Area	**Recommendations**
Better Addressing the Unique Needs of Graduate Students with Disabilities	Changes to membership charge of S&RC to include a representative from ODS. Collaboration with ODS to educate graduate faculty on the current services available to graduate students, how ODS services are typically used, how graduate faculty can best support ODS in their work with graduate students Collaboration with ODS to educate graduate students on the current services available to graduate students, how ODS services are typically used, how graduate students can access ODS services Literature review on graduate student disabilities and accommodations, with a particular emphasis on mental health and

	related disabilities that are likely to go undiagnosed and/or be misunderstood Explore challenges to Graduate Students gaining diagnoses and other needed documentation for ODS services, along with potential resources at UL for addressing these challenges.
Supporting ABD Students toward Dissertation Completion	Specific data collection around the unique needs of UL graduate students with ABD status as well as the graduate faculty that work with them. Literature review examining best practices around supporting graduate students with ABD status as well as the graduate faculty that work with them. For example, we would strongly suggest consideration of existing models for compensation and other incentivization of faculty working with ABD students Identification of the programming and other initiatives that serve ABD students, and specific evaluation of the effectiveness of those efforts on program completion, professional success, and personal well-being
Building an Effective Mentorship Culture	Foster cultural change to better resource excellence in mentoring across the university by optimizing the impact of those with existing strengths in mentorship and fostering the growth and development of those with room to improve. Implement initial training (e.g., Dr. Pfund's training) in a train the trainer model and commitment to data collection could take advantage of those mentors at UL who are particularly talented with and committed to mentorship and empower them to support their colleagues more directly.

Table 2. Summary Recommendations from Exit Survey

Data Collection	
Recommendation	**Objective**
Expand Q4 in doctoral version	to expand the factors that contribute to completion out across all categories instead of having respondents simply rank the top factors
Add "here at UL" for items that ask about supportive faculty	to discriminate from those with external faculty mentors.
Add a series of questions that allow respondents to report on barriers they have overcome	to allow for more direct comparison with the Nonreturners' survey. Specifically, we would recommend allowing them to indicate to what extent the same factors listed on the Nonreturners' survey were a barrier they overcame.
Update the Not Applicable response option to a more meaningful response (i.e., "I did not…)	to prevent "Not at All" being selected when "Not Applicable" is more accurate.
Addition of items relevant to graduate student success and persistence	to increase number of variables that can directly assess success and persistence in terms of persistence toward program completion, professional success, and personal well-being
Include option for respondent to link responses to demographics, quantitative markers of academic success, and responses across surveys (e.g., Exit Survey, program effectiveness survey) while maintaining confidentiality	to allow for converging student reported concerns with typically used measures of academic success as well as other self-reports to allow for consideration of the unique concerns of more vulnerable demographic groups
New Initiatives	
Priority Area	**Recommendations**
Building an Effective Mentorship Culture	Divergence in mentorship experiences across graduating students with different identities suggest a need for identity-sensitive mentorship, where mentors are trained to recognize and navigate how divergences in identity and disparities in power challenge the mentoring relationship. Narrowness in the mentorship relationships reported on suggested that it could be useful to resource (i.e., train and incentivize) different types of mentorship outside of the traditional academic

	advisor or thesis/dissertation chair. For example, faculty sponsors for student organizations and staff supervisors for GA positions both could serve as important mentors in students' lives. Students who complete seem to be more effective at finding and securing mentors, suggesting a need for training students to co-create and navigate a mentorship relationship.
Facilitating grad students' family and other support	Programming focused on training students to: (1) talk to friends and family outside of the university about the purpose, activities, roles, etc. particular to graduate school. (2) acknowledge and assess interpersonal needs at different points in their training (3) navigate personal challenges while in Graduate School Continued events targeting social connection within the UL community, and adding events targeting outside connections as well (i.e., family-, friend-, and partner-oriented events)
Nurturing grad student determination and motivation	Programming that directly trains students to resource their own motivation and determination, and that train faculty to resource student motivation and determination

Appendix A
GA Job Description

Graduate Assistant to University Committee on Graduate Student Success and Retention

This GA position primarily involves administrative and analytic support for the University Committee on Graduate Student Success and Retention (S&RC), the mission of which is "to examine the comprehensive graduate student experience at UL Lafayette, in an effort to support the graduate education community to resource every graduate student in persistence toward program completion, personal well-being, and professional success." The GA role involves assisting the chair both in facilitating monthly S&RC workshops and in completing weekly goals. Weekly goals focus on literature review and data collection, analysis, summary, and dissemination. This GA works collaboratively under supervision of the Chair of the S&RC, with whom they meet weekly, integrating a student perspective into S&RC leadership. They may also collaborate with other university GAs, faculty, or staff as needed.

Ideal candidates will demonstrate effectiveness with:

   teamwork and responding to feedback

   working independently where appropriate and seeking support or feedback where beneficial

   planning and delivering workshops and other presentations

   building data collection tools on Qualtrics

   review of scholarly literature on higher education

   use of Excel for data coding and reduction, data analysis, and data summary

   use of Powerpoint to design visuals for monthly workshops and other presentations

Appendix B
Biennial Agenda S&RC AY 2023-2024 and 2024-2025 (Revised)

August 2023
Welcome
Orientation to Committee, Summer updates (Climate Survey, Exit Survey Data, Programming   Effectiveness), Year-long agenda
Update on stakeholders' data: Defining Success and Persistence/Retention, Contexts that   contribute
Review and revise proposed Definition (Success and Persistence/Retention), Mission, and   Objectives

September 2023
Climate Survey (How are we doing at the things our stakeholders say promote success and
retention/persistence? Request for further data analysis? Request lit review? Recommended changes to climate survey?)

Data collection on Graduate programs' current approaches for tracking Grad Student success in current and past students

October 2023
Climate Survey (Requested analyses presented: How are we doing at the things our stakeholders say promote success and retention/persistence? Review and approve recommended changes to climate survey to send to Grad School, Request lit review presented.

November 2023
Climate Survey Recommendations

January 2024
Welcome
Review Fall

February 2024
Exit Survey (How are we doing at the things our stakeholders say promote success and retention/persistence? Request for further data analysis? Request lit review? Recommended changes to climate survey?)

March 2024

Exit Survey (Requested analyses presented: How are we doing at the things our stakeholders say promote success and retention/persistence? Review and approve recommended changes to climate survey to send to Grad School, Request lit review presented.)

April 2024

       Nonreturners Survey –(What factors contribute to folks not persisting?) Recommendations, Recommended changes to Nonreturners survey

       Comparison Nonreturners and Exit Survey (What is different between folks who persist and those who don't? Requests for further data analysis? Request lit review?)

Summer 2024
       Reviewing Programming summary
       Cleaning, coding, and analyzing: attendance data, effectiveness data
       Support implementation of changes to data collection

August 2024

Welcome
       Orientation to Committee
       Fall Review
       Summer updates
       Year-long agenda
Programming summary, attendance data, effectiveness data

September 2024

       Review of ongoing programming in light of Climate, Exit, and Nonreturners' Survey recommendations (What do we have in place intended to impact these variables? How is what we have working? If we don't have programming or other related initiatives in place, what are our recommendations?)

       Review of specific programming effectiveness data collection (How is our current programming serving our mission?)

October 2024

       Revisit programming effectiveness data, Recommendations for new programming and other initiatives, Recommendations for data collection

       Design overall programming assessment (Assessment of: Programming familiar with, attended, interested but didn't attend, reasons for not attending programming interested in, ideas for programming, other stuff we should know) and recommendations for data collection

November 2024

Review and approve recommended changes to programming effectiveness data collection, and overall programming assessment

January 2025

Welcome
Review Fall
Overall programming assessment data with recommendations for initiatives and data collection, requests for more data analysis

February 2025

Revisit programming assessment data with new analysis, summary recommendations

Exit Survey (How are we doing at the things our stakeholders say promote success and retention/persistence? Request for further data analysis? Request lit review? Recommended changes to exit survey?)

March 2025

Revisit exit survey

Non-returner's survey (What factors contribute to folks not persisting?)
Recommendations, Recommended changes to Nonreturners survey

April 2025

Non-returner's and exit surveys in comparison (What is different between folks who persist and those who don't? Requests for further data analysis? Request lit review?)

Review and revise Mission, Charge, Membership, and Objectives