Architecture Program Report

University of California, Berkeley

2024

National Architectural Accrediting Board, Inc.

NAAB

Architecture Program Report (APR)

2020 Conditions for Accreditation
2020 Procedures for Accreditation

Institution	**University of California, Berkeley**
Name of Academic Unit	Department of Architecture, College of Environmental 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 ☒ Master of Architecture Track: M.Arch (non pre-professional degree + 72 graduate semester credit hours) Track: M.Arch with Advanced Standing (pre-professional degree 120 credits + 48 graduate semester credit hours ☐ Doctor of Architecture
Application for Accreditation	**Continuing Accreditation**
Year of Previous Visit	2016
Current Term of Accreditation *(refer to most recent decision letter)*	Continuing Accreditation (Eight-Year Term)
Program Administrator	Elena Lunt, Department Manager
Chief Administrator for the academic unit in which the program is located *(e.g., dean or department chair)*	Lisa Iwamoto Chair and Professor, Department of Architecture
Chief Academic Officer of the Institution	Ben Hermalin, Provost
President of the Institution	Michael Drake
Individual submitting the APR	Lisa Iwamoto
Name and email address of individual to whom questions should be directed	Lisa Iwamoto liwamoto@berkeley.edu

Submission Requirements:

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

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INTRODUCTION

Progress since the Previous Visit (limit 5 pages)

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

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

Program Response:

The department has taken actions to correct the conditions not met from the previous NAAB report. The full 2016 Visiting Team Report can be found here:

2016 Visiting Team Report

Conditions NOT MET from the last visiting team report are listed verbatim (in underlined text) here:

Conditions Not Achieved from the 2016 Visiting Team Report:

- I.2.1- Human Resources and Human Resources Development
- B.9 – Building Service Systems

The VTR and actions taken on these unmet conditions are as follows:

I.2.1 – Human Resources and Human Resource Development

The program must demonstrate that it has appropriate human resources to support student learning and achievement. This includes full- and part-time Instructional faculty, administrative leadership, and technical, administrative, and other support staff.

- The program must demonstrate that it balances the workloads of all faculty to support a tutorial exchange between the student and the teacher that promotes student achievement.
- The program must demonstrate that an Architect Licensing Advisor (ALA) has been appointed, is trained In the Issues of IDP, has regular communication with students, is fulfilling the requirements as outlined in the ALA position description, and regularly attends ALA training and development programs.
- The program must demonstrate that faculty and staff have opportunities to pursue professional development that contributes to program improvement
- The program must describe the support services available to students in the program, including, but not limited to, academic and personal advising, career guidance, and internship or job placement.
- [X] Not Demonstrated

2016 Team Assessment

Faculty teaching loads are carefully managed and typically limited to two courses per semester. While faculty research requirements for tenured or ladder faculty are high, faculty often use their research to inform their teaching and syllabi. Through the university, faculty have many resources to develop their teaching and research skills. The program provides faculty workspace for research, course preparation, and student mentorship. Students find faculty approachable and feel comfortable seeking feedback.

The department chair is also the Architect Licensing Advisor. He keeps his ALA-related information fairly current through information he receives from NCARB, although he has not yet attended the Licensing Advisor Annual Conference. As the ALA, he does not meet with students regarding the AXP or ARE, although they are exposed to licensure information in A207d Cultures of Practice.

Faculty are encouraged to pursue professional development outside the college via on-campus startup incubators, startup stipends for research and housing costs (provided to new ladder-ranked faculty in their first 4 years of employment), and the Center for Teaching and Learning for the development of lecture and teaching skills. In addition, they are encouraged to pursue professional practice outside of teaching and research modes.

Staff are encouraged to participate in professional development both through the university and off campus, but they find it difficult to balance additional professional development between the increasing demands posed by shrinking staff, and

budget and time constraints. Annually, advisors are able to participate in university advisor training to increase their awareness of student needs.

Students trust their academic advisors and believe that their curriculum is adequately explained to them. Career guidance is mostly received through faculty in informal connections to opportunities based on availability and annual career fair events set up by both the college and the university.

Actions Taken to Address I.2.1

Dedicated NCARB Advisor

Since the last visit, the department created a position for a dedicated NCARB advisor. This position is currently filled by Keith Plymale, a licensed architect in California and a Continuing Lecturer in Architecture. Prior to the visit, Chair Tom Buresh performed the role. Plymale is a licensed architect in California, Florida, and Kentucky. He was appointed NCARB Licensing Advisor in June of 2017 and was reappointed in 2022 by NCARB. 2023 is Plymale's fifth year as our active NCARB licensing advisor.

Plymale's NCARB advising duties include:

Attending the NCARB Biannual Licensing Advisor Summit

Plymale attended the NCARB Biannual National Summit in 2017 in Chicago, in 2021 in Miami for a three-day remote Zoom session, and in 2023 in Kansas City, Missouri. Conference session notes, agendas, and resource packages are included in the attached PDF demonstrating our NCARB licensing related activities. The PDF can be found here: NCARB Advisor Activity Summary.

Completing NCARB training and keeping up-to-date on the requirements for licensure

Plymale is a member and participant in the NCARB Architect weekly licensing advisors digest blog, semesterly NCARB webinar meetings on regional, national, and international topics. To remain current on changes in NCARB and licensure, Plymale attends fall and spring NCARB-hosted Zoom meetings for academic advisors and is directly engaged with ongoing discussions among accredited programs and the NCARB national office.

Ensures that students have resources to make informed decisions on their path to licensure

The NCARB mentorship program is active at both the graduate (MArch) and undergraduate pre-professional (BA) levels. Plymale regularly holds meetings with graduate students and undergraduate AIAS students in both the fall and spring semesters that cover NCARB updates and paths to licensure. The Department of Architecture informs students about these sessions by email, posters on the studio doors and at the elevator panels, and in-person via studio walk-throughs.

In spring 2023 and fall 2018, the school hosted NCARB, Washington, D.C., and California Board of Architects representatives from Sacramento to present licensure information sessions to our graduate and undergraduate students. Plymale also ensures that the CED website provides links to the NCARB, AIA, and CBA resources to support student information sessions held in the school.

Staff Professional Development

The department meets the campus policy regarding professional development. The department manager encourages staff to attend campus events and conferences such as the NOW conference and adjusts staff workload wherever possible to allow for their attendance. The department pays for staff to engage in external professional development opportunities in accordance with campus policies. While there have been periods of being short-staffed since the last NAAB visit, the department is now fully staffed. Link to campus policy on professional development here: UC Berkeley Professional Development Policy.

B.9 - Building Services Systems

The 2016 VTR report is as follows for B.9:

2004 Criterion 13.22, Building Service Systems: Understanding of the basic principles and appropriate application and performance of plumbing, electrical, vertical transportation, communication, security, and fire protection systems.

Previous Team Report (2010): Understanding of building service systems was not consistently observed in student work. Awareness of building service systems was observed in the studio visits.

2016 Team Assessment: The team was unable to find consistent evidence for the majority of the elements of this criterion, such as student understanding of basic principles and the appropriate application and performance of plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

2004 Criterion 13.23, Building Systems Integration: Ability to assess, select, and conceptually integrate structural systems, building envelope systems, environmental systems, life-safety systems, and building service systems into building design.

Previous Team Report (2010): While there is some evidence of the students understanding of structural and building envelope systems, there is insufficient evidence of the student's ability to integrate these systems, The team did not find consistent evidence of the ability to assess and integrate building service systems.

2016 Team Assessment: In the 2014 NAAB Conditions for Accreditation, this criterion is now separated into two different criteria: C.2 Evaluation and Decision Making and C.3 Integrative Design. The 2016 team found the integration of structural systems, building envelope systems, environmental systems, and life safety in A203 Integrated Design Studio. However, the team did not find sufficient evidence of the integration of building service systems to assess the students' ability in the C.2 or C.3 criteria. The integration of building service systems is now at an understanding level in 8.9, which the team found to be **Not Met**

B.9 Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication. vertical transportation, security, and fire protection systems.

[X] NOT MET

2016 Team Assessment: The team was unable to find evidence of student understanding of the basic principles and appropriate application and performance of plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

Actions Taken to address B.9

Since the last accreditation visit in 2016, the MArch curriculum has been strengthened to fulfill B.9 Building Service Systems.

We consider Criterion 13.22 Building Service Systems to be addressed by SC4 Technical Knowledge and SC6 Building Integration. Criterion 13.23 Building Service Systems Integration is addressed by SC4 - Technical Knowledge, SC5 Design Synthesis, and SC6 Building Integration. The assessment points for SC4 are ARCH 203 - Integrated Design Studio, and technical courses in the Building Science, Technology, and Sustainability (BSTS) area ARCH 240 Advanced Study of Energy and Environment, ARCH 250 Introduction to Building Structures, and ARCH 260 Introduction to Construction and Material. The assessment point for SC5 and SC6 is ARCH 203 Integrated Design Studio.

The following actions have been taken to remediate both Criterion 13.22 and Criterion 13.23 addressed by the last visiting team:

Reorganizing the Technical Course Sequence

The technical courses are now held earlier in the curriculum to better introduce building service systems to students. We have moved ARCH 250 Introduction to Building Structures to the second semester of the MArch three-year program, ARCH 260 Introduction to Construction & Material to the third semester, and ARCH 240 Advanced Study of Energy and Environment to the fourth semester. This ensures that students gain an awareness and understanding of building systems by the end of their second year and are better prepared to integrate them with design in ARCH 203 Integrated Studio in the fifth semester of the three-year program or third semester of the two-year program.

Adding ARCH 207C Professional Practice Colloquium to Run in Parallel with ARCH 203- Integrated Design Studio

ARCH 203 Integrated Design Studio is now paired with Arch 207C Professional Practice Colloquium. The colloquium is structured as a series of lectures by faculty and professionals on topics related to specific building systems including facade, life safety, daylighting, structural engineering, and mechanical engineering. The professionals participate as consultants in the ARCH 203 design studio. Many consultants work closely with students in the form of review sessions and desk critiques. The following is an example of experts invited to lecture in the colloquium in fall 2022:

Week 2: Structural Systems I
Structural engineer Ben Corotis presented an introduction to structural systems, including topics on mass timber, trusses, folding plates, and arches and lateral systems, as well as sub-topics on shear walls, moment frames, and braced frames.

Week 3: Work in the Public Realm
City planner Maia Small (Planner IV Principal Urban Design / Architect at the San Francisco Planning Department, Director of the SF Municipal Transportation Agency)

Week 4: Environmental Design I
Professor of Architecture Luisa Caldas presented fundamental concepts of passive environmental design strategies, including daylighting and natural ventilation with an emphasis on the concepts of sustainability, autonomy, resilience, and health.

Week 5: Life Safety / Fire Safety
Code consultant Jeff Maddox (The Fire Consultants, Inc.) presented fire-related building codes and design strategies; the basis for fire protection measures, design; and implementation of appropriate fire safe design strategies. Topics of discussion included high-rise buildings, atriums, hazardous materials, height and area calculations, mezzanines, occupancy types, fire walls, horizontal building separation, fire rating by types of construction, heavy timber, exterior walls, exterior openings, projections, shafts and floor openings, hidden fire doors, elevator hoistways and lobbies, wildfire exposure protection, interior finishes, fire protection systems, means of egress, number of exits and exit access, common path of travel, exit separation, exit access, corridors and aisles, and accessible egress.

Week 6: Mechanical Systems I
Mechanical engineer Stefan Gracik (Alter Consulting Engineers) presented an introduction to the concepts of building energy, sustainability, and mechanical systems.

Week 7: Facade Systems I
Facade engineer Adrian Betanzos (Apple) presented the basics of building envelopes, organized around the functions of cladding and wall cladding systems.

Week 8: Environmental Design II
Prof. Luisa Caldas presented concepts of shading, glass, and natural ventilation. Analysis of sun-path diagrams set up discussions of various shading techniques (fixed, movable, interior, exterior, translucent, reflective), and methods of controlling lighting and temperature conditions through different types of glazing (fritted glass), ETFE, meshes and perforated metal, and alternative glazing panels.

Week 9: Facade Systems II
Facade consultant David Green (WJE) presented on the topic of facade systems.

Week 10: Structural Systems II
Structural engineer Ben Corotis presented structural systems focusing on structural applications of different material types: steel (typical member profiles and types, connection types, open web joists, trusses), wood (shear transfer connections, moment transfer connections, base connections), and concrete (loading, reinforcement, formwork, precast).

Week 11: Mechanical Systems II
Mechanical engineer Stet Sanborn (SmithGroup) presented mechanical systems with a focus on the integration with building design.

Week 12: Equity & Alternative Modes of Practice
This special session of class was devoted to a conversation with Dark Matter University on questions of equity and representation in the architectural field and alternative modes of practice.

Week 13: Vehicle Electrification & City Projects
Michael Samulon (Director of Vehicle Electrification & City Projects, City of Los Angeles Mayor's Office of Sustainability) presented work to pioneer vehicle electrification in the urban realm, including policy objectives, technical constraints, practical considerations, lessons learned, and future initiatives.

Adding Course Content to Courses in Building Science Technologies and Sustainability (BSTS)

In the last accreditation review, ARCH 260 covered fire protection as well as MEP; ARCH 203 introduced elevators, lighting, communication, and security systems as well as structural and MEP integration; and ARCH 240 Advanced Study of Energy and Environment fulfilled part of this requirement through its teaching of daylighting and natural ventilation as building systems. New additions to these courses include:

- Integration of mechanical, electrical, plumbing, and fire protection systems in ARCH 260 Introduction to Construction & Material.
- Vertical transportation systems in ARCH 250 Introduction to Structures

Improving Course Assignments and/or Subject Matter

Key courses have made improvements to specific assignments and subject matter to better assess students' knowledge of building service systems and their ability to conceptually integrate them with building design. The following is the list of changes and improvements made over the period of the last two academic years (AY 2021–2022 and 2022–2023).

ARCH 203 Integrated Design Studio

- All sections of ARCH 203 now operate under the same syllabus with the same learning objectives, expectations, and evaluation criteria. This studio focuses on the design of a medium-sized building of civic importance. Students are responsible for the urban and building design strategy through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation, regular assignments, and project development culminating in a final project and final review. Students who receive a passing grade must demonstrate their ability to make decisions that synthesize architectural design with user requirements, site conditions, regulatory requirements, accessibility, and structural, facade, and mechanical systems. The projects must also demonstrate consideration of environmental impacts.
- All sections of ARCH 203 now have the requirement of a formatted drawing set to assess students' understanding of the integration of various systems in their building designs. The drawing set is designed as a guideline for all sections and is divided into the following:
    - G-Series (General), organized in the following order:
        - Title Page
        - Project Data, which include (but are not limited to) Building Function, Occupancy Types, Lot Size and Area, Construction Type, Facade Type, Type and Number of Emergency Exits
        - Code Analysis
        - Site Context
        - Site Conditions
        - Precedent Analysis
        - Program and Area Square Footage
        - Life Safety
        - Fire Safety
        - Accessibility
    - A-Series (Architectural)
        - Architectural Site Strategy
        - Site Plan
        - Plans, Elevations, and Sections
        - Wall Section
        - Integrated Section
        - Typical Details
        - Environmental Design Diagram
        - Renderings
        - Model Photographs
    - S-Series (Structural), can be organized in the following order:
        - Structural Systems
        - Structural Axonometric
        - Foundation Plan Diagram
        - Framing Plan Diagrams
    - M-Series (Mechanical)
        - MEP system Concept
        - MEP Systems Axonometric
        - Water Systems

Please see an example of drawing setlist here: Sample Drawing Setlist and review the complete set in ARCH 203 Students Work Folder.

- ARCH 203 has incorporated a fire and life safety consultant to address related technical issues and strengthen this area of building design synthesis.
- In fall 2023, ARCH 203 will add a new mechanical consultant; we hope to increase student access to mechanical and facade consultants.
- In fall 2023, ARCH 203 plans to provide more examples to clarify the "Integrated Building Section" drawing.
- In fall 203, an "Environmental Design Diagram" will be added to the required drawing set to gauge students' conceptual understanding of the dynamic between built and natural environments.

ARCH 207C Professional Practice Colloquium

- ARCH 207C added a fire and life safety consultant who delivers lectures in addition to acting as a consultant to students in the ARCH 203 studio.
- In fall 2023, we plan to strengthen the technical lecture coordination between the specialists within a discipline (when applicable) to better emphasize collaborative practices and to reduce redundancy. The actions taken will be to:
    - Adjust the lecture sequence to better align the technical information with design, starting with big-picture conceptual frameworks and following with more practical implementation strategies.
    - Include a new mechanical consultant who works in the Bay Area with a specialty in buildings of the size and complexity of the studio project.
    - Invite additional guests to provide broader context to the range of expertise required for a successful architectural project, with an anticipated emphasis on sustainability and community-based design.

Please find the ARCH 207C course notebook here: ARCH 207C Course Notebook

ARCH 240 Advanced Study of Energy and Environment

- ARCH 240 expanded the assignment on renewable energies. The original assignment required students to calculate the number of photovoltaic panels needed to meet their building energy needs (after optimizing its passive design). Students are now also required to predict the location for water-heating solar panels if they are compatible with the building program, and/or other renewable energy systems.
- A new assignment asks students to predict the use of energy efficient HVAC solutions, such as water-based radiant systems, and underfloor ventilation, or displacement ventilation.
- Lectures now include more emphasis on other sustainability factors, such as water management, and health-related design aspects like circadian cycles and biophilic design.

Please find the 240 course notebook here: ARCH 240 Course Notebook

ARCH 250 Introduction to Building Structures

- While the general structure of the course remained the same, since spring 2022, more emphasis is placed on linking the individual assignments with course tools. Lab exercises link with software tutorials and the three projects with the lectures. There is more time allotted to class discussion and to team project support.
- Selected media and online pedagogy (e.g., MIRO, lecture recordings, video guides) originally introduced in response to remote learning due to the COVID-19 pandemic were retained with in-person teaching as they are helpful and effective in conveying course material.
- In spring 2023, several aspects of building integration were further emphasized. For Project 1: Case Study Analysis, more in-depth discussions of the projects presented provided opportunities to highlight approaches that combine program requirements and design goals with structural design, construction, and sustainability. For Projects 2 and 3, the previous year's student submissions were used to illustrate and highlight how constraints of program, space, structure, construction, and environmental sustainability can positively enrich design and spark creativity.

Please find the 250 course notebook here: ARCH 250 Course Notebook

ARCH 260 Introduction to Construction & Material

- Two ARCH 260 assignments were adapted to more comprehensively demonstrate how architects successfully find solutions to building integration. These two projects are:
    - Construction Site Reports (through observations and writing)
    - The Tectonic Precedent Project (through modeling and drawing). Additional focus in this project has been given to identify, model, and describe the MEP+FP systems (despite minimal MEP+FP documentation available)

Please find the 260 course notebook here: ARCH 260 Course Notebook

In conclusion, revisions across five courses — ARCH 240, ARCH 250, ARCH 260, ARCH 203, and ARCH 207C — have been designed to teach the synthesis and integration of building service systems with design. The courses emphasize a synthetic design approach and provide students an awareness of how intersections of different systems create successful overall designs. We have revised course sequence, course content, and assignments to not only meet the B.9 (Building Service Systems) in response to Criterion 13.22, Building Service Systems and Criterion 13.23, Building Service Systems Integration based on the 2014 NAAB Conditions for Accreditation, but also to ensure that we meet the Program Criteria and Student Criteria matrix (both in the assessment methods and improvements over time) outlined in the 2020 NAAB Conditions for Accreditation. Please see the Assessment Point Matrix for details.

Program Changes

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

This section is limited to 5 pages, total.

Program Response:

Since the last accreditation visit in 2016, the Conditions changed from the 2014 NAAB Conditions for Accreditation to the 2020 NAAB Conditions for Accreditation. We have identified what we see as key changes summarized here:

- 2014 I.1.1.1 SPC's changed to 2020 3.1, 3.2 PC's and SC's
- 2014 I.1.2.5 changed to 2020 5.1 Structure and Governance to include "The program must describe the administrative and governance processes that provide for organizational continuity, clarity, and fairness and allow for improvement and change."
- 2014 I.1.5, I.1.6 change to 2020 5.2 Planning and Assessment to include 5.2.2 and 5.2.5 language on "continuous improvement in relation to NAAB criteria."
- 2014 I.1.5 B changed to 2020 5.2 Curricular Development to include the language "The program must identify relationships between course assessment and curricular development, including NAAB program and student criteria."

Response to changes from 2014 to 2020 NAAB Conditions:

The MArch program implemented an assessment procedure for each Program Criteria and Student Criteria. In fall 2021, the MArch program director made faculty aware of the PC and SC criteria. The MArch program committee developed a yearly self-assessment survey for all required courses that is distributed to faculty teaching required courses in the MArch program. Faculty are asked to respond to the survey twice a year — at the beginning of the semester when the course is offered, and again at the end of the semester. Faculty align their course content to each PC and/or SC. Each course establishes a benchmark that constitutes achievement, method of evaluation, and potential changes to foster ongoing improvement. In addition, faculty are now asked to notate where PCs and SCs are covered in their course syllabi. More detailed descriptions for how each course fulfills each criterion are in Chapter 3 - Program Criteria and Student Criteria. The MArch program committee collects and reviews the course surveys to assess how Program Criteria and Student Criteria are being met, or how they can be better addressed. Outcomes from MArch program committee meetings are discussed with individual faculty and, if significant changes are requested, the chair. Most improvements are self-identified and implemented by the course instructor.

The NAAB PC/SC Matrix can be found here: PC/SC Matrix.

Link to Instructor Assessment Survey can be found here: Instructor Assessment Survey

NAAB shared an example of an assessment point matrix in the June 2023 NAAB office hours and in a presentation on completing the APR. The MArch program committee developed an Assessment Point Matrix following NAAB's example. This was distributed in early July 2023 to faculty teaching courses that are the primary assessment points for PCs and SCs. Moving forward, the MArch program committee will use this matrix as the primary means to assess how courses fulfill PC and SC goals. In the Assessment Point Matrix, assessments are primarily based on direct assessment (e.g., scoring performance on tests, term papers, projects, etc.). An exception is PC7 Learning & Teaching Culture, for which we use an indirect assessment method. For PC7, The College of Environmental Design now administers a Graduate Student Exit Survey. Informal surveys are also administered to MArch students once a semester by the Graduate Architecture Student Union (GASU). The chair and dean meet with GASU and review the surveys to assess students' impressions of the school and program culture.

A sample of the survey form can be viewed here: Student Learning Assessment Survey

Beginning in fall 2023, the MArch Program Committee will hold one or more meetings with instructors teaching assessment point courses to review the curriculum in relation to NAAB PC and SC criteria on a yearly or biyearly basis. We will begin taking meeting notes for these sessions.

Link to Assessment Point Matrix here: Assessment Point Matrix

Other Changes

The program has evolved since the last NAAB visit. As many of the changes are not based specifically on changes to the 2020 Conditions, they are not listed here. How the program meets shared values in design; environmental stewardship and professional responsibility; equity, diversity, and inclusion; knowledge and innovation; leadership, collaboration, and community engagement; as well as lifelong learning are explained in their respective portions of this document.

NAAB

NARRATIVE TEMPLATE

1-Context and Mission

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

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

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

Program Response:

The Department of Architecture is inspired by and contributes to its rich context. It exists within UC Berkeley, the premier public university in the world. With its land-grant mandate, the university is renowned for its excellence in producing new knowledge and delivering a world-class education. It holds its faculty accountable to its core value of comprehensive excellence by one of the most rigorous and demanding faculty review processes of any university – every architecture faculty member must undergo this review at least every three years. While lengthy and demanding, with checks and balances at department, college, and campus levels, this culture fosters continuous productivity. It can be cited as an important reason why the university has the largest number of highly ranked departments and graduate programs in the country, including architecture. The campus has grown to over 46,000 students — 32,000 undergraduates and 12,000 graduate students — with 1,549 full time ladder-rank faculty and more than 1,558 non ladder-rank faculty.

In line with Berkeley's tradition of social activism, the campus strategic plan calls for "empowering engaged thinkers to change the world, by focusing on innovative solutions for society's great challenges, while embracing a commitment to excellence through diversity, equity and inclusion." It identifies key themes of "inclusive intelligence, environmental sustainability and justice, democracy, equity and health" to be pursued through faculty research, community engagement, and interdisciplinary research and instruction. The college faculty participated in the formulation of the campus strategic plan and its values shape the overall mission of the program and the individual teaching and research/creative production of the program's faculty.

The department exists within the College of Environmental Design (CED), founded in the early 1960s by William Wurster on the principle of interdisciplinary collaboration. CED was the first in the country to bring together departments of architecture, landscape architecture, and city planning. It now also includes the Institute for Urban & Regional Development (IURD), which has graduate programs in Urban Design (MUD) and Real Estate Development and Design (MRED+D) and an undergraduate program in Sustainable Environmental Design (SED). CED also partners with the College of Engineering to offer a Master of Design (MDes) degree through the Jacobs Institute for Design Innovation.

The college is the first in the nation to use "environment"' in its name as a coalescing concept. Remarkably prescient, it positions architecture in a more broadly conceived, interdisciplinary notion of the "'built environment"' and anticipates the program's commitment to addressing the critical challenges facing society and the planet.

In this context, our students are able to advance their understanding of the interdisciplinary nature of design by participating in concurrent master degree programs: the concurrent Master of Architecture/Master of City Planning, Master of Architecture/Master of Landscape Architecture, and the Master of Architecture/Master of Science in Engineering. The program allows students to enroll in elective courses in other college/campus departments and in the courses offered by the Master of Urban Design and the Master of Real Estate Development and Design programs, which are conceived and taught by interdisciplinary faculty from the college's departments.

The MArch program exists within a Department of Architecture that also offers a BA in Architecture, a four-year liberal arts based undergraduate major, a one-year post-professional Master of Advanced Architectural Design degree (MAAD), MS degrees in various areas of concentration, and a PhD program. These degree programs provide an expanded educational framework for faculty to teach and explore their research interests. Our faculty has made major contributions to our scientific understanding of the environmental performance of buildings; architecture's social responsibility; redefined the subject and methods of architectural history/theory to include social, cultural, and non-Western frameworks; developed foundational knowledge in digital fabrication and the use of new materials in construction and building performance; and explored new modes of architectural representation. The creative design/research/teaching productivity of the faculty inspires the pedagogy of the MArch program and is why it consistently ranks as a top public program and among the top 10 nationally. The

department currently has 23 full-time ladder-rank faculty and 38 part-time faculty. It typically awards 115 BA, 65 MArch, 11 MAAD, four MS, and four PhD degrees annually.

The department is structured with three main areas: Design; Building Science, Technology, and Sustainability (BSTS); and History, Theory and Society (HTS). Faculty may teach exclusively in a single area, or bridge among them. All teaching is in-person and on campus except for a small number of courses approved by the campus Committee of Course Instruction (COCI) to be taught in hybrid formats.

Finally, the program and department exist within a region known for its extraordinary intellectual, professional, and technical innovation. The Bay Area, including Silicon Valley, is home to some of the world's most creative and innovative companies. This creates a dynamic context for two-way exchange. Faculty form part of a leading professional community that not only hires and provides internships for Berkeley students, but also provides an outstanding professional talent pool as part-time faculty to the program. Furthermore, while the Bay Area has many outstanding precedents of architecture, landscape architecture, planning and urban design to learn from, it also has multiple environmental contexts with the full range critical environmental challenges facing the planet and profession. Thus, the program recognizes and uses the region as a rich laboratory for architectural exploration and design.

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

Program Response:

The architecture program benefits the college and Berkeley campus on multiple levels. Faculty participate in teaching the liberal arts–based undergraduate major (BA in Architecture) and five undergraduate minors, two aimed at strategic themes of sustainability and social equity. They bring their design and research expertise to the interdisciplinary teaching of concurrent master degrees with landscape architecture (MArch/MLA) and city planning (MArch/MCP) and the IURD degree programs (MUD, MRED+D, SED). They hold joint appointments and co-teach interdisciplinary courses in other departments, while chairing some campus centers. A major contribution is their participation in interdisciplinary sponsored research projects across campus; a further benefit is the faculty participation on PhD committees outside the department. Sixteen faculty recently participated on 78 PhD committees in 19 departments outside of architecture. Program faculty play important roles on multiple college and campus committees that shape governance and strategic directions.

The college and campus benefit the program on multiple levels. Beyond funding state-supported ladder faculty salaries and the maintenance and custodial services of Bauer Wurster Hall, the most important benefit from the university is access to world-class faculty for interdisciplinary teaching and research. The college and campus also provide a rich array of centers, institutes, and shops that provide resources, facilities, and services. A partial list includes the following:

College of Environmental Design Library

The College of Environmental Design Library is a primary resource funded and operated by the university.It is one of the finest in North America and provides primary and secondary resource material for teaching and research.

Institute for Urban and Regional Development (IURD)

The Institute for Urban and Regional Development (IURD) supports and manages funded research projects, many interdisciplinary, from all college departments. It also provides staff support for the Master of Urban Design (MUD), BA in Sustainable Environmental Design (SED), and the Master of Real Estate Development + Design (MRED+D) degree programs, which allows faculty from all three departments to participate.

The Center for Environmental Design Research (CEDR)

Center for Environmental Design Research (CEDR) supports sponsored research projects of the Building Science, Technology and Sustainability (BSTS) architecture faculty. Within CEDR, the Center for the Built Environment (CBE) is a university/industry NSF center, one of two in the country, funded in part by more than 50 industry partners. It provides community and professional feedback on the content and quality of research production.

Environmental Design Archives

The Environmental Design Archives has one of the finest collections of original drawings and documents from renowned architects, landscape architects, and planners in North America, particularly California, providing access to primary sources for scholarship on the history and theory of practice.

Fabrication Shop and the Digital Fabrication Lab

The CED-supported Fabrication Shop and Digital Fabrication Lab are essential for the physical modeling and building of student projects.

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

Program Response:

The department, the college, and the campus provide multiple opportunities that enhance and enrich the learning experience of faculty and students. For MArch students, serving as a teaching or research assistant greatly enhances the learning exchange between students and faculty beyond the traditional classroom. The Architecture Lecture Series, including the AIA East Bay sponsorship of a presentation by a leading practitioner, presents outstanding design work, research, and theory from around the globe. The AIA East Bay also offers a mentorship program for our students. The CED Library exhibition program presents provocative work by artists, authors, book publishers, architects, and faculty that enrich our understanding of the field. The Arcus Social Justice Corps provides tuition relief for students interested in pursuing issues of social justice, introducing them to community empowerment strategies while in school. Room 1000, the publication produced by graduate architecture students, publishes essays and content on critical questions and issues facing the profession and the discipline. In addition, students have a tradition of entering sponsored competitions. For example, each year they participate in an interdisciplinary team that includes students from the college's landscape, planning, and real estate programs that competes in the ULI Hines Student Competition; the college team has been a finalist multiple times and has won twice.

At the campus level, the Berkeley Art Museum and Pacific Film Archive, a top university museum and film archive in the country, has been a venue for collaborative exhibitions, symposia, and panel discussions organized jointly by museum curators and architecture faculty and attended by students and the community. In addition, four centers — the Townsend Center for the Humanities, the Center for New Media, the Arts Research Center, and the Terner Center for Housing Innovation — have architecture faculty participation; have supported collaborative studios, conferences, and symposia; and have jointly sponsored lectures and faculty and student fellowships.

Summary Statement of 1 – Context and Mission

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

Program Response:

Our context and mission stems from UC Berkeley's strategic priorities and builds on the department's hundred-year legacy as an incubator of architectural activism and design excellence. We seek to provide opportunities to students of all backgrounds to create a culture of belonging and to foster discovery and innovation. At the core of our mission is a focus on the transformation of the built environment for social good. Empowering our students to be leaders for change and discovery through design and research are at the heart of department activities. We approach architectural education as a means to intelligently assess the built environment, to foster social and environmental equity, and to design innovative buildings with aesthetic and functional rigor. Informed by intersecting knowledge bases in the humanities, technology, and design, we strive to advance the discipline and expand its influence.

Our teaching and research builds on historic strengths in sustainability, social justice, cultural inclusivity, applied design research, and architectural practice. We promote innovation in architectural practice by critically exploring and questioning its context in a continuum of histories, societies, economies, materials, systems, and scales. Particular areas of emphasis include understanding architecture from diverse historical, theoretical, and social perspectives; designing sustainable and healthy building systems; advancing technologies of fabrication and material development; and encouraging originality and invention in design and representation. By equipping students with the conceptual, analytic, and technical skills required for contemporary innovation, we pursue a transformative vision of the architectural profession and its production of a meaningful built environment.

2—Shared Values of the Discipline and Profession

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

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

Program Response:

Narrative — Design

The architecture program at Berkeley was founded on three main principles. The first is that architectural design should be taught by both academics and practicing architects. This principle has been pursued through the many stages in the program's history until the present day. The second principle is that architectural education should be informed by a broad liberal arts education. This philosophy is embedded in current course and studio offerings and by the flexibility and freedom in selecting electives. The third principle is to bring research and design together to provide, "a synthesis of the fields that deal with the functional and aesthetic quality of our surroundings." Founding Dean William W. Wurster further summed it up by saying, "We design and write and are written about."

The MArch curriculum is designed to prepare our graduates to become leaders in the field and in the transformation of the built environment. We teach them to be critical practitioners, grounded in innovative design with a breadth of historical, social and cultural understanding, enabled by technical knowledge, and empowered with the ability to address a multitude of complex questions and demands that sit at the intersection of environment, society, program, function, and aesthetics. Some key strengths of the MArch program include conceptual and analytic thinking, architectural representation, innovative material and building systems, and designing within urban contexts.

A commitment to the primacy of design as the essential and distinguishing mode of thought and practice that explores and develops new forms of spatial, material, social and environmental performance is central to the program. This can be seen in the creative production of the faculty that has influenced the profession over the years, beginning with the Beaux Arts and Arts and Crafts work of Bernard Maybeck; to the midcentury modernism of Wurster and Ray Kappe; to the regional modernism of Joseph Esherick, Donlyn Lyndon, Charles Moore, William Turnbull, Richard Fernau, and Daniel Solomon; to the millennial modernism of Stanley Saitowitz and Adele Santos, to the more recent work of Mark Anderson, Raveevarn Choksombatchai, Renee Chow, René Davids, Lisa Iwamoto, Andrew Atwood, Neyran Turan, Christopher Calott, and Ron Rael, and to the most recent hires of Yasmin Vobis and Georgios Eftaxiopoulos. This tradition has been greatly enhanced by the endowed visiting professors that bring renowned practitioners to teach in the MArch studios and by the tradition of hiring young emerging professionals as lecturers to teach in the studios.

Opportunities for Students — Design

The department's commitment to the primacy of design can be seen in the pedagogy of the studios, which fosters design thinking, explores design methodologies, and seeks to expand design imaginations. We believe it is important for our students to ask questions as well as answer them. The faculty seek to provide a balance of design experiences that allow students to develop both pragmatically generated designs, but also design explorations that are highly speculative, usually with a focus on a specific theme. Students are introduced to the many classic sources of architectural inspiration, including the analysis of precedents, context, site, program, building tectonics, and environmental performance. The design studios emphasize an understanding of architecture that conceives of a building as more than an object to be described, but as a spatial construct that performs — not just what it is, but what it does and how it works. The concept of performance is an integrating idea across sources of inspiration.

The students' development of their designs can be seen in the conceptual and analytic diagrams that accompany more conventional representations of plans, sections, elevations, perspectives, and large-scale section cuts. These diagrams typically describe generative operations or are conceptual models that reveal an iterative process exploring a formal/spatial proposition. They also often include diagrams of the program distribution, structure system, and the environmental performance of the envelope. The studio pedagogy is committed to learning from exemplary precedents. Most studios begin with a research phase involving careful research into the principles of a specific topic and then a "case study" approach to precedents that illustrate the principles. The studio pedagogy follows an iterative process that expands the scales of

exploration and thematic foci to encourage students to see their designs in new light and is organized into a sequence of assignments with specific requirements for each step in the process.

A variety of teaching/learning formats are used in pursuing studio pedagogy. One-on-one reviews with studio faculty are conceived as reflective inquiry into the students' generative ideas, with the goal of exploring assumptions and imagining potential design directions. Collaborative research on such topics as precedents, site and program analysis, and environmental performance strategies are often conducted with the goal of expanding the shared knowledge of the studio, not just the individual student. Interim pin-ups and reviews encourage discourse among the students about their projects, so they do not just receive feedback from faculty or outside guests. Final reviews typically include outside visiting faculty and professionals and are conceived as a learning opportunity, an exploration of a project's assumptions, design proposition, and development, not a judgment on its efficacy. In the end, students are asked to present a compelling argument for their design proposals, explaining the generative concepts in pragmatic, speculative and theoretical terms.

Studio Content — Design

The MArch curriculum outlines which material is covered in the different levels of design courses: MArch Option 3 Curriculum and MArch Option 2 Curriculum. The curriculum is constantly evolving based on faculty interests and teaching assignments, but it maintains a consistent progression in design pedagogy. These include: foundational design principles in the first semester design studio, ARCH 200A (Option 3); introduction to structural principles in second-semester ARCH 200B; relating building to urban contexts in third-semester ARCH 201; providing a variety of studio topics in fourth-semester option studio ARCH 202; building synthesis and integration in fifth-semester ARCH 203; and connecting design to the larger discipline, knowledge, and innovation in the final semester thesis studio, ARCH 204.

Long-Range Planning and Assessment — Design

Design pedagogy and the studio environment continually undergo evaluation. This evaluation takes place formally, through discussion of the curriculum in the MArch committee and at faculty retreats, and informally through feedback from students and faculty on outcomes from pin-ups and reviews. There is extensive instructor peer-to-peer communication and feedback around studio pedagogy, assignment content and sequencing, and project outcomes. Studio coordinators assess each individual section's instruction, and communicate across sequential studios to address scope gaps and possibilities for continual improvement.

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

Program Response:

Narrative — Environmental Stewardship and Professional Responsibility

Stewardship of the environment has been a core value of the department since the founding of the college, as captured in its name. An unparalleled faculty in Building Science, Technology, and Sustainability (BSTS) (Gail Brager, Luisa Caldas, Paz Guttierez, Stefano Schiavon, Simon Schleicher) delivers the teaching and conducts groundbreaking research through the Center for the Built Environment (Brager, Schiavon). The XR Lab (Caldas) develops novel methods to conduct and navigate environmental simulations within immersive environments (VR/AR), in particular in the field of daylighting. The teaching and research of the BSTS faculty is supported by design faculty in general (Mark Anderson, Raveevarn Choksombatchai, Paz Gutierrez, Ron Rael, and others).

Strengths in BSTS have focused on the performance of buildings across different design stages, from massing to floor planning, through integrating the design of the building envelope and environmental systems with an emphasis on empirical performance of both energy and human satisfaction. This focus on empirical evaluation has led to groundbreaking research at CBE in studies of thermal comfort, dynamic facades, and innovative environmental control systems. The XR Lab focuses its efforts on advanced design methods, including advanced computer simulations, generative design, and IVEs (Immersive Virtual Environments). The latter allows designers to analyze and understand results of environmental simulations while virtually navigating inside the building, reducing the cognitive load of translating building geometry and tectonics into their impact on environmental performance. The integration of building science and human response provides a robust perspective on how to provide measures of sustainability leading to innovative whole systems designs.

Opportunities for Students — Environmental Stewardship and Professional Responsibility

The fundamentals of building environmental performance are introduced to MArch students in ARCH240 Advanced Topics in Energy and Environment. The course is unique in its emphasis on the application of ecological design methods and advanced computer simulations to architecture design. ARCH240's pedagogical structure has evolved over two decades and is continually updated to include new advances in research, simulation, standards, and codes. It progresses from climate analysis and human comfort; to site analysis with solar and wind studies; to massing, spatial, and envelope solutions, considering thermal performance, daylighting and natural ventilation as generative factors for design and material choices. It further involves the understanding of the building geometry and envelope as a dynamic environmental filter that interacts with a building's HVAC systems. Lectures and labs progress in close relation, assuring the integration of fundamental physical and sustainability principles to the design process. Students can further pursue an interest in environmental performance with advanced electives: ARCH243 Natural Ventilation & Cooling, ARCH245 Daylighting, or ARCH299 Special Topics in Physical Performance in Buildings. The environmental performance of buildings is reinforced yet again in ARCH203 Integrated Design Studio. Given the strengths of the faculty in this area and the urgency of global environmental challenges, environmental issues and sustainability are regularly the subject of many thesis proposals.

The research and consulting activities of faculty in environmental performance are broad and deep, representing multiple modes of inquiry and engagement with the profession. For example, the research conducted through CBE is done in consultation with industry and the profession, targeting critical issues of importance to practice. The XR Lab collaborates with Lawrence Berkeley National Laboratory (LBNL), where most of the building simulation software used in the discipline is developed, through faculty and student exchanges. Energy efficient urban structures is another area of interface between the XR Lab and LBNL. On the other hand, Gutierrez's NSF-funded research is more speculative, involving collaboration with faculty in material science. It investigates the potential of activating the molecular behavior of materials and assemblies in delivering integrated whole-systems environmental performance, and on fabrication processes using biomaterials. Both Gutierrez and Schleicher focus on lightweight and material-efficient structures, researching design and fabrication processes that minimize incorporated energy in building materials and construction processes. Schleicher incorporates unused building materials and waste products into automated, robotic manufacturing processes such as large-scale 3D printing. All of these faculty regularly offer required studios and elective seminars on their area of expertise. These research experiences bring unusual depth to coursework and studios, demonstrating the value of a founding principle to bring research and design together.

Long-range Planning and Assessment — Environmental Stewardship and Professional Responsibility

Environmental equity and sustainability are key areas of university, college, and department focus. It involves faculty from multiple courses and discussion and planning occurs with the full faculty at select faculty retreats and meetings, and within the M.Arch committee. Long-range planning is embedded in the department's request for new faculty, and there will be a targeted search in the academic year 2023–2024.

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

Program Response:

Narrative — Diversity, Equity, and Inclusion

Diversity, Equity, Inclusion, Justice, and Belonging is a campus, college, and department priority. The campus principles of Diversity, Equity, Inclusion, and Belonging (DEIB) are embedded in the program's history and frame its evolving responses. At the campus level, these principles include:

- We recognize the intrinsic relationship between diversity and excellence in all our endeavors.
- We embrace open and equitable access to opportunities for learning and development as our obligation and goal.
- Every member of the UC Berkeley community has a role in sustaining a safe, caring and humane environment in which these values can thrive.

More can be found here: Principles of Community | Diversity, Equity, Inclusion, Belonging, & Justice.

As a community, the College of Environmental Design has four core values:

- We prioritize safe and respectful environments
- We honor and support diverse perspectives
- We are optimistic and committed to change

- We welcome all

And at the department level, specific priorities include:

- Increasing faculty diversity by ensuring equitable faculty searches
- Improving Equity, Inclusion, Diversity, and Belonging in graduate education
- Improving Equity, Inclusion and Diversity in undergraduate education

More on each DEIBJ narrative can be found in Section 5.5.

Opportunities for Students —Diversity, Equity and Inclusion

Fellowships

As part of its efforts to create access and opportunity to diverse students, the department participates in the Campus Graduate Opportunity Program – GOP Master's Fellowships. It provides financial assistance to graduate students who meet the campus diversity requirement and demonstrate financial need. The funding support consists of a $10,000 stipend ($5,000 per semester) and in-state fees for one academic year. They can be supplemented from departmental or allocated Block Grant funds. These are used as recruitment awards and the department has received approximately six per year. In addition, the college has provided Leadership Fellowships of $10,000 per year for applicants that have demonstrated leadership qualities. Recently, the department has received approximately six of these per year. Most recently, the college received generous financial support to create the Arcus Social Justice Corps (ASJC), a fellowship program that offers significant funding ($10–45,000 depending on need) for master's students who intend to pursue social justice work after graduation. The program offers professional development opportunities, introduces fellows to community empowerment strategies, and prepares them to effect change, especially in underrepresented, underserved communities. ASJC just welcomed its first cohort of 22 Fellows, including four in architecture. This unprecedented fellowship program is on top of the Graduate Opportunity Program (GOP) and the Architecture Professional First Year Fellowship, which serve the same purpose of diversity recruitment.

Outreach

In order to encourage applications by interested and qualified underrepresented minority students, the department has used available funds to send faculty, students, and staff to present at Historically Black Colleges and Universities (HBCUs), such as Howard University and the University of the District of Columbia. While this practice waned due to COVID, there are discussions to resurrect this form of recruiting. In addition, students regularly receive funding to attend the Design Futures Conferences and participate in discussions and workshops related to social activism, equity, and diversity. The department again plans to send faculty, students, and staff to the national convention of NOMA to make our program more visible to potential students and faculty. Likewise, we continue to fund student participation in the Design Futures Initiative (a Public Interest Design (PID) student leadership forum) to be located in the San Francisco Bay Area next year. Applications by minority students currently represent 7.6% of the applicant pool.

Transfer Access

The department has a long history of providing access to students transferring from local community colleges into the upper division, pre-professional track BA in Architecture. Each year on average, one-third the size of the class, approximately 40 students, are added to the class. The department coordinates with community colleges to make sure the prerequisites for entry are clear and which community college courses meet the requirements. This creates a pipeline of highly motivated students that apply from the BA to the MArch program, many of whom come from low-income families that make up part of the department's large number of Pell Grant recipients. The department is exploring ways to use this pipeline as a means to identify and recruit underrepresented minority and disadvantaged applicants to the MArch program.

Mentoring and Paths to the Profession

The department's commitment to professional experience as a means to motivate and intensify students' architectural education begins with whom we admit to the program. We advise the students in our undergraduate program to take time to work before applying to graduate school and we look for professional experience in students applying from outside the department. As a result, many of our incoming students come with some experience. The department provides additional opportunities through A108 Professional Internship, which provides summer internships for students in Bay Area firms. Approximately 20–25 students take this class each year. In addition, once a year, professional representatives from NCARB are invited to the department to present the IPAL program and encourage early enrollment. It is a meeting for all architecture students and results in a few early enrollments by students looking to register credits earned for their Graduate Student Instructor (GSI) appointments and summer employment. Finally, the department engages leading practitioners from Bay Area firms in many MArch studio reviews. Not only do these professionals provide excellent feedback to students, many also use the reviews as a way to get to know and recruit students for their offices. In addition, many of our professional graduates

act as mentors to our students. While mentoring occurs more frequently with undergraduates, helping students with their portfolio preparation for graduate applications, many professionals continue to engage with our students throughout their early careers.

Long-Range Planning and Assessment — Diversity, Equity, and Inclusion

The department works to create a work/school/life balanced culture that promotes a positive, respectful, and caring learning environment for all stakeholders. Over the last year, at the demand of graduate students and with funding from campus, the department has undertaken a complete assessment of its progress toward its goals of equity, diversity, and inclusion. Led by a special committee, the Architecture Equity Steering Committee, a Department Equity Plan was prepared by faculty member Greg Castillo, the Department of Architecture equity officer. The plan includes a baseline database for future comparison and proposes seven initiatives that are currently underway. The details of the plan, its creation, and progress are reported in section 5.5.

Knowledge and Innovation: Architects create and disseminate knowledge focused on design and the built environment in response to ever-changing conditions. New knowledge advances architecture as a cultural force, drives innovation, and prompts the continuous improvement of the discipline.

Program Response:

Narrative — Knowledge and Innovation

The production of new knowledge and innovation in architecture can be seen in the record of research, creative production, and teaching of the faculty, and the ways in which they bring this into the classroom. This occurs across the three areas of the department: Design; History, Theory and Society (HTS); and Building Science, Technology ,and Sustainability (BSTS). It also occurs within subsets and across these departmental areas. The linkage between the work of faculty/students and the profession is best understood as a two-way exchange. Faculty interests are supported by teaching elective seminars and/or upper level studios on their subject matter. Students also engage with faculty research as paid graduate research assistants (GSRs). A brief summary of each faculty's contribution to innovation and new knowledge is summarized below, but a deeper understanding of their multiple contributions can be found on their individual or practice websites.

Design

Design + Practice

Mark Anderson is a founding partner of the internationally awarded and acclaimed practice Anderson Anderson Architecture. The firm has pioneered in the design potential of innovative project delivery through prototyping and prefabrication, emphasizing design for manufacturing and assembly with contributions to the development of mass timber. Anderson brings these insights from practice to his teaching. Mark Anderson Resume

Andrew Atwood is a licensed architect in California and a partner in the architecture firm First Office. His work centers on tools of architectural representation and practice and how they specifically relate to the production of buildings. He is the author of _Not Interesting: On the Limits of Criticism in Architecture, recently published by Applied Research & Design, which explores the role of criticism in designing buildings. Andrew Atwood Resume

Christopher Calott addresses new and innovative ways infill real estate development can produce more equitable and beautiful urban neighborhoods. Through his research, teaching, and professional practice, as both registered architect and developer, he has produced award-winning housing, mixed-use, and town center projects, transforming communities in the U.S. and abroad. Christopher Calott Resume

Raveevarn Choksombatchai has a small, critically acclaimed and published professional practice, VeeV Design. It is distinguished by projects that explore the performative and embodied basis of architecture with imaginative spatial compositions and an innovative, poetic use of materials that enrich interiors, while also enhancing their urban contexts. Raveevarn Choksombatchai Resume

René Davids, FAIA, is a founding partner of Davids Killory Architecture, a widely published and awarded practice, which has earned three AIA National Honors. . With Killory, he has edited three volumes of *AsBuilt* that gorgeously document how construction materials and details contribute to the form of notable buildings. His funded work with students involves research programs around the globe, for which his students have received multiple design and research awards. René Davids Resume

Georgios Eftaxiopoulos, PhD, is a published scholar and architect with an international practice. His research and teaching investigate historical and contemporary spaces, processes, and networks of extraction and accumulation and have examined

notions of flexibility. He is a member of a collective, The City as Project, and his texts have been published in *Perspecta*, *AAFiles,* and *OASE*. Georgios Eftaxiopoulos Resume

Lisa Iwamoto is a licensed architect, recipient of the Cooper Hewitt/Smithsonian National Design Award, and founding partner of the critically acclaimed, nationally recognized and awarded professional practice IwamotoScott Architecture. She has pioneered in the development of digital fabrication, writing a foundational text on the subject, and creatively incorporates its design potential into projects for leading clients in the Bay Area and beyond. Lisa Iwamoto Resume

Neyran Turan is a founding partner in a highly recognized practice, NEMESTUDIO, which has received awards from the *Architects' Newspaper*, The Architectural League of New York, and the Association of Collegiate Schools of Architecture and is widely exhibited in top national and international venues. Her work focuses on new forms of architectural imagination that explore the collision between architecture and climate change as captured in her recent book, *Architecture as Measure*. Neyran Turan Resume

Yasmin Vobis is founder of the emerging, award-winning firm Ultramoderne. Her research and teaching combines structural invention and innovative material and constructive assemblies in design. Her forthcoming book *Heterogeneous Construction* will be published by Birkhauser. Yasmin Vobis Resume

Design and Technology

Maria Paz Gutierrez, PhD, is an innovator at the intersection of architecture, materials engineering, and science. Her work has been featured in leading scientific and architecture journals and venues. She is the recipient of multiple prestigious awards, including from the Association of Collegiate Schools of Architecture, the National Science Foundation, and the Royal Institute of British Architects. She has been a Fulbright and a Bakar Fellow for her research in engineered lichen blocks and has two provisional patents on 3D printing. Maria Paz Gutierrez Resume

Ronald Rael is a partner in a creative and disruptive practice that has been highly honored with some of the most prestigious national and international awards. His work has been featured in top venues, including The Museum of Modern Art in New York, the Los Angeles County Museum of Art, and the Cooper Hewitt, Smithsonian Design Museum and published widely in leading national media. He is considered a thought leader in 3D printing with traditional materials. He has been honored for his humanitarian initiatives with earthen architecture. Ronald Rael Resume

Simon Schleicher, PhD, is an award-winning architectural designer, researcher, and educator whose work combines architecture, engineering, and biology. It focuses on bio-inspired design, lightweight and material-efficient structures, parametric design, digital fabrication, and robotic construction. His research has recently been recognized with prestigious Bakar and Hellman Fellowships in addition to multiple prestigious national and international awards. Simon Schleicher Resume

Kyle Steinfeld, is noted for his rigorous and innovative exploration of architectural production and representation in its many forms, including technical data, artificial intelligence, machine learning, and advanced computation. His work has been recognized and awarded by leading journals in the field for enriching the design imagination.Kyle Steinfeld Resume

Building Science, Technology, and Sustainability (BSTS)

Luisa Caldas, PhD, founded and directs the XR Lab. The lab's research focuses on the use of immersive, virtual reality environments for building design and simulation. She has been active for more than 20 years in the field of sustainable design. Both as an academic and consultant, she has developed advanced computational tools (GENE_ARCH and SUN_CARVE) to assess sustainability strategies in early design. Luisa Caldas Resume

Gail Brager, PhD, is the founding associate director of the industry-university consortium Center for the Built Environment (CBE). Her work focuses on the operation and assessment of buildings to minimize energy consumption while enhancing indoor environmental quality. She is the author of more than 100 publications and an internationally honored leader in the field. Gail Brager Resume

Stefano Schiavon, PhD, has an extensive record of empirical research focused on finding innovative ways to reduce energy consumption in buildings while improving occupant health, well-being, and performance. His work has been conducted in collaboration with industry partners and published and awarded in the best journals. Schiavon is recognized as a leader in the field of sustainable and healthy buildings. Stefano Schiavon Resume

History, Theory, Society (HTS)

Greg Castillo, PhD, is a widely published historian noted for exposing the subtle and often hidden social and cultural implications of design subjects ranging from "spaces of counter culture" to "trash" to '"the American model home" to "the

architecture of social engagement," expanding our understanding of architecture's cultural reach and impact. Greg Castillo Resume

Margaret Crawford, PhD, is a widely published architectural theorist/historian, known for her contributions to Everyday Urbanism. She has expanded her research into understanding the hidden processes and value of informal Chinese urbanism. Her theoretical perspective brings insights into the important agency of participatory design in an expanded definition of the city. Margaret Crawford Resume

C. Greig Crysler, PhD, is a widely published historian and theorist whose work focuses on two broad areas: the institutions and practices of architectural history within the debates of globalization (*Handbook of Architectural Theory*) and ideas of space, power and identity through case studies that examine the relationship between embodiment, affect, and aesthetics (*Materiality, Performance and Power*). Greig Crysler Resume

Andrew Shanken, PhD, is a leading scholar of memory studies and the built environment. His widely published scholarship, encompassing paper architecture, fairs/expositions, historiography, conservation planning, and themed landscapes, has been supported by prestigious grants (Mellon, Getty, CASVA, and AIA). Andrew Shanken Resume

Opportunities for Students — Knowledge and Innovation

In addition to graduate student research and coursework with the faculty listed above, the following are specific areas of specialization which are regularly offered as a resource for students.

The Digital Fabrication Lab sits at the nexus between teaching, student/faculty research, and faculty professional practices, including those of Anderson, Gutierrez, Iwamoto,, Rael, and Schleicher. Some of the work involves students in the studios and lab, while other innovations are developed in offices, which in turn, are reintroduced and tested in studio projects. Innovative 3D printing strategies with traditional materials are being developed by Ron Rael in his print-FARM Laboratory and in his 3D Printing MAKE-tank. The work is widely published, featured, and awarded and has involved students in studios, labs, and Rael's practice. He is considered a thought leader in the field. Schleicher regularly offers courses in robotic fabrication through his robotics lab and teaches courses on structural form-finding. Further, Gutierrez has pioneered in developing new experimental materials with material scientists on campus and beyond through her interdisciplinary research group BIOM. She has expanded her work to investigate plant and wood composites and new 3D printing techniques with students, for which she has pending patents.

Innovation in augmented and virtual reality is being developed by Louisa Caldas, who directs the XR Lab. The work, in collaboration with students, has demonstrated the value of VR in simulating design strategies and documenting building projects on campus, while enhancing the experience of exhibitions.

The development and evaluation of innovative energy efficiency strategies that improve occupant health and well-being is conducted through the industry-university consortium, The Center for the Built Environment (CBE). The work of faculty (Brager, Schiavon, Caldas) with PhD, MS, and MArch students involves leading architecture firms and industry partners. As members of the consortium, they are involved in setting research agenda, assessing and helping disseminate research results from the faculty/student work.

Long-Range Planning and Assessment — Knowledge and Innovation

The long-range planning for continual growth of knowledge and innovation is linked directly to faculty interests and research, which track alongside innovations in the field. Assessment is based on the rigorous university promotion process, and planning is conducted through ongoing department discussions, particularly with respect to goals for future faculty positions.

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

Program Response:

Narrative — Leadership, Collaboration, and Community Engagement

The department has long been associated with teaching architecture grounded in humanistic principles, leading to research and design that focuses on improving the quality of peoples' everyday lives. The research and design in social factors and ethnography are seen as important forms of advocacy and a catalyst for social change. The department's teaching of architectural history has transformed the discipline by foregrounding a more international and cross-cultural canon and teaching not only the formal/spatial qualities of buildings, but also the cultural, social, and economic contexts and the technical processes which enabled their construction. This tradition provides a more rich and complete range of precedents, from high art to everyday cultural landscapes, western and non-Western buildings and cities. This perspective is a hallmark

of the department's identity going back to the founding of the college. This approach informs both the required history and theory courses, ARCH 270 and ARCH 230. Students are made aware of critical cultural and ethnographic differences in the perception and understanding of the environment and in their roles in shaping methodologies and understanding the findings in Post Occupancy Evaluations (POEs). Just as importantly, the tradition and values of social responsibility continue to be embedded in the studio culture. They can be seen most notably in the subject of many of the A202 Graduate Option Studios. For example, a recent studio taught by Lifchez Professor of Practice and Social Justice Chris Downey, a practicing blind architect, tackled the challenge of truly universal design as a means toward diversity, equity, and inclusion in the prevailing ocularcentrism of the architectural profession. The James R. Boyce Affordable Housing Studio, an interdisciplinary course offered in conjunction with the Department of City & Regional Planning, addresses the problem of creating affordable housing and a more complete community. These examples are not alone. The theme of community and social responsibility has been woven throughout the option studios over the past five years. In addition, most every spring some sections of ARCH 202 travel to a different country to analyze exemplary regional modern architecture while experiencing and interacting with the community within which their projects are situated. Recent examples include a section led by René Davids and Greg Castillo that traveled to Berlin and one led by Luisa Caldas and Raveevarn Choksombatchai that brought students to Portugal.

Opportunities for Students — Leadership, Collaboration, and Community Engagement

Leadership and collaboration begins in the department with the quality and diversity of the students admitted. The admissions process is selective: out of 521 applicants, we send out 150 letters of acceptance in order to enroll 72 students for the two- and three-year programs. Since the department chooses among applicants with strong GPAs, design portfolios, and statements, reviewers look for special indicators of leadership; overcoming difficulties; and concern for social equity, the environment, and the public good. Once in the program, students are given opportunities to hone and develop their skills of collaboration and leadership across the full curriculum, from coursework to studios.

Opportunities in Coursework

In the MArch coursework sequence, collaboration begins in first-year lecture courses. Students form teams to conduct case study and precedent analysis and, in the process, have to reconcile their different perspectives and experiences while analyzing and interpreting projects. Understanding and reconciling cultural, ethnographic, and gender differences is integral to the history and theory sequence. During the second year, teamwork is central to technical structures and construction classes. Students form teams to design and build different structures and to prepare field reports on construction assemblies. The work is presented for review by outside professional consultants. Team projects are also integral to student assignments in A240 Advanced Study of Energy and Environment, A250 Introduction to Structures, and A260 Introduction to Construction and Material. The traditional roles of the architect as team leader and project manager are covered in A207D The Cultures of Practice, which is an assessment point for PC 6 and covers leadership and teamwork issues of architectural practice.

Opportunities in Studio

Collaboration and leadership opportunities are also structured throughout the MArch studio sequence as students are asked to alternate between individual design explorations and teamwork. It begins in the first year with student teams conducting research and analysis of precedent buildings that demonstrate outstanding energy and environmental performance as a basis for their design explorations. It continues as students are asked to explore the relationship between urbanism and architecture through team projects. Many of the Graduate Option Studios involve extensive teamwork with a particular emphasis in ARCH 203 Integrated Design Studio. Students work in pairs to develop and synthesize a building project with the assistance of professional consultants. Mimicking practice, students take the lead to ensure their project retains the design intentions while incorporating numerous real-world constraints.

Graduate Student Instructor Opportunities

Select MArch students apply for and are appointed as Graduate Student Instructors. In this role,they assist faculty members in teaching larger required undergraduate courses in design, representation, history/theory/society, and building science and technology. These teaching opportunities are a hallmark of the Berkeley experience and often provide impetus for our best students to seek careers as educators.

Graduate Student Opportunities in Governance

Architecture students are represented on the CED Graduate Student Council, whose mission is to represent the graduate student body within the college. The council addresses the needs of graduate peers through service, provides representation

on CED committees, and advocates on behalf of the CED graduate student population to faculty and administration. They meet with the dean and department chair typically once per semester. Architecture students have also registered as a student organization, the Graduate Architecture Student Union (GASU), to plan activities and share information among the MArch cohort. Four to six representatives meet with the department chair at least once a semester. Graduate students also rotate on and off the CED Executive Committee, sharing that responsibility with students from the other CED departments.

Extracurricular Activities

MArch students are encouraged to participate in college organizations, including: AIAS (American Institute of Architects Student Group), APX (Alpha Rho Chi), AAAEA (Arab American Association of Engineers and Architects), BANBE (Berkeley African Network for the Built Environment), CED Graduate Student Council, CED International Students, CED SOC (CED Students of Color), CED Wellness Affairs, CASA (Chicano@/Latin@ Architecture Student Association), NOMAS (National Organization for Minority Architects Students), Cal Construction, Design for America, Global Architecture Brigades, PASAE (Filipino Association of Scientists, Architects, and Engineers), and Triangle Fraternity. Although graduate students are welcome to join these groups, they are historically populated largely by undergraduates. One exception is *Room One Thousand*, the publication produced by graduate students from the Department of Architecture.

Certificate Programs

Students can earn one of many graduate certificates. Department faculty teach courses that are part of the Graduate Certificate in Global Urban Humanities and CED participates in the Graduate Certificate in Geographic Information Science and Technology as well as the Interdisciplinary Graduate Certificate in Real Estate. These programs give our students leadership opportunities by exercising the core discipline of design thinking in these endeavors.

Arcus Fellowship Opportunity

Most recently (as reported in 2.3 above), the college received generous financial support to create the Arcus Social Justice Corps (ASJC). The Arcus Fellows in Architecture receive professional development opportunities, learn community empowerment strategies, and engage in community advocacy, all of which prepare them to effect change, especially in underrepresented, underserved communities. The department's tradition of community and social responsibility can be found in the work of graduates who have been instrumental in the movement for a "public architecture" and "storefront architecture" to provide design services for those who cannot afford it. We expect this tradition will be enhanced by the new Arcus Fellows.

Long-Range Planning and Assessment Leadership, Collaboration, and Community Engagement

Assessment is largely based on course evaluations and student participation in the various opportunities to engage with leadership, collaboration and community through coursework, studios, governance, programs, and extracurriculars. Long-range planning, specifically around community engagement, is part of our DEIBJ efforts with Making It Happen (see Section 5.5), and is a factor in our decisions around studio offerings and visiting professorships. For example, in 2024-2025, the yearlong Berkeley Rupp Visiting Professor, Sandthya Janardhan, will be leading a seminar and studio that centers on community engagement processes.

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

Program Response:

Narrative — Lifelong Learning

The goals of life-long learning — broad educational experiences, integration of theory and practice, building curiosity, providing opportunities for interdisciplinary learning — are at the root of our program's legacy and pedagogy based on a strong liberal arts foundation combined with technical and design expertise. As mentioned in Chapter 1, the college and department are founded on the aspiration to deliver a broad interdisciplinary education, as demonstrated by the multiple departments in the college, cross-listed courses, and overall curriculum. Also mentioned in section 2.4 and elsewhere, the faculty is composed of both research-based academics and practitioners whose creative work is through architectural practice. It is a balance that has been maintained since the founding of the department.

Opportunities for Students — Lifelong Learning

The foundation of lifelong learning is embedded in the studio pedagogy, as well as in course material. Some architectural knowledge is evidence based: it can be quantified, especially in areas of building technology, including structural performance, material performance, mechanical performance, envelope performance, etc. This knowledge evolves initially through trial and error and is codified through an incremental process of scientific method. Other knowledge advances through analysis and interpretation of experience — how something appears, not how it is measured. It is much more qualitative, sensory, and human-centered and advances through critical discourse. This form of inquiry is used to generate meaning beyond pure technical performance, to find the more "poetic"moments in life. These forms of inquiry evolve and change over time. The technical courses on energy and environment, structures, and construction teach quantitative knowledge built through empirical and analytic means. The studio pedagogy introduces students to synthetic methods that seek to integrate quantitative forms of knowledge in generating their design proposals within a qualitative framework. In this process, students are encouraged to ask questions as they seek solutions and to see their design proposals as part of a continuous evolution in knowledge creation. In this sense, design pedagogy is an introduction to and model for lifelong learning. It instills design thinking as a way to interrogate and act in the world. In such a culture of inquiry and exploration, students must confront fundamental assumptions about both the theory and the practice of making buildings, as well as the ability of architecture to improve the quality of peoples' everyday lives in both practical and aesthetic terms. This culture of exploration is enriched by the department's founding principles that architecture must be informed by a rich liberal arts education and that it is enhanced by interdisciplinary perspectives and collaboration. Access to interdisciplinary electives and liberal arts courses across campus afford many opportunities for students to pursue such areas of interest and the principles are formalized by the many joint degree programs that are available. The idea that the architectural design process and design thinking are a form of lifelong learning is played out in the juried review process where members of the profession engage in questioning and challenging students' assumptions and the "argument," or case, they make for a design proposal. In addition, students are exposed to and work with faculty who, by being part of a preeminent research university, must contribute to creative knowledge production in their field as a condition of their advancement, and thus are models of lifelong learning. Finally, the production of the student-led scholarly journal, *Room One Thousand*, is evidence that their lifelong learning has already begun.

Long-Range Planning and Assessment — Lifelong Learning

As a key element of the identity and principles of the department, planning and assessment of lifelong learning take place in course development and evaluation, curricular development within the MArch committee, and in faculty planning during faculty meetings and retreats.

3—Program and Student Criteria

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

3.1 Program Criteria (PC)

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

Program Response - General:

Assessment method for all PC criteria:

Program Criteria are assessed by a combination of MArch program committee review and individual instructor assessment. As of fall 2021, instructors of required courses complete surveys distributed by the MArch program committee to demonstrate how their courses address Program Criteria; instructors respond to the survey at the beginning and end of each semester. The survey responses inform the MArch program committee, which evaluates progress towards fulfilling PC goals and determines how to guide ongoing improvement in consultation with the chair. Historically, meeting minutes are not taken at the MArch committee meetings. Beginning in fall 2023, for MArch committee meetings specific to NAAB criteria, graduate student affairs officers will take notes to provide evidence of assessment. In fall 2021, the MArch committee assigned a level of knowledge building to each relevant course. The levels are 1) "awareness" 2) "understanding" and 3) "ability." Based on NAAB's required level of knowledge, the highest level for a particular PC may be "understanding," in other cases, the highest level is "ability." Courses that are the most relevant to a criterion, and where the highest level of knowledge is attained, are program assessment points. Not all courses that meet a level of "understanding" are an assessment point if another course meets the level of "ability" for the criterion. PC assessment point courses are reviewed by the MArch committee together with the instructor to assess benchmarks and find opportunities for ongoing improvement.

In 2021–2022, all courses that touched upon a Program Criterion were reviewed by the MArch committee. In 2022–2023 and moving forward, only those courses that are PC assessment points will be evaluated by the MArch program committee, and the others will be self-assessed by the individual course instructor who has determined they cover topics relevant to the criteria. Courses that are considered an assessment point are shown in BLACK in the PC/SC matrix. Courses that build knowledge, but are not an assessment point, are shown in the PC/SC matrix in GRAY. Link to PC/SC matrix here: PC/SC Matrix.

The PC/SC Instructor Assessment survey begun in fall 2021 is based on an example provided by NAAB in 2020. It includes the following for each required course:

- 2021–2022 Assessment of PC learning outcome
- Changes made to improve learning outcomes for 2022–2023
- 2022–2023 Assessment of PC learning outcome
- Proposed changes to improve learning outcomes for 2023–2024

The Instructor Assessment Survey can be found here: PC-SC Instructor Assessment Surveys

In July 2023, based on an example provided by NAAB in June 2023, the program developed an assessment point matrix for instructors to fill out that includes the following for each course considered a direct assessment point:

- Goal/student learning outcome relative to PC/SC criterion
- Course name and where the course falls in the curriculum
- Assessment method including where and how the PC or SC criteria is covered in the course
- Target benchmark for passing students
- Results of passing students
- Planned improvements
- Links to evidence

The Assessment Point Matrix for all PC and SC criteria can be found here: Assessment Point Matrix_Full. Both results of the Assessment Point Matrix and Instructor Assessment Survey are included for each Program Criteria as shown below.

PC.1 Career Paths—How the program ensures that students understand the paths to becoming licensed as an architect in the United States and the range of available career opportunities that utilize the discipline's skills and knowledge.

Program Response:

The program ensures that students understand the paths to becoming licensed as an architect in the United States and the range of available career opportunities that utilize the discipline's skills and knowledge in the seminar course ARCH 207D Cultures of Practice and the colloquium ARCH 207A Architecture Lectures Colloquium.

PC1 - Career Paths	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC1 Assessment Points

The following courses are program assessment points for PC1 - Career Paths:

- **ARCH 207D Cultures of Practice**

ARCH 207D Cultures of Practice is the professional practice course taken in the fourth semester of the MArch Option 3 program, or second semester of the Option 2 program. This version of the course was offered for the first time in spring 2023. The course had been previously taught by a non-licensed faculty member who retired in summer 2022. The course is now taught by seasoned practitioner and licensed architect Robert Bracamonte. Students understand paths to becoming a licensed architect through lectures by the instructor, invited guest lectures, and subsequent discussion in three class sessions as described in the syllabus. Student attendance and levels of participation are aggregated for grading. Ninety-five percent of students are expected to fulfill PC1 criteria. Based on data from spring 2023, 95% of students passed PC1. Beginning spring 2024, the instructor plans to introduce more quizzes to better assess student learning. In this case, the question "Describe the paths to licensure in the U.S." will be added to an in-class quiz. Students understand career opportunities that utilize the discipline's skills and knowledge through a series of separate assignments that ask them to develop resumes that position their skillset relative to the discipline, research an architectural firm and develop a firm report, create a portfolio, and participate in a discussion session on "Choosing a type of firm or organization" in class #14. Assignments are graded on a point basis (0–100), and the discussion session is graded based on participation and attendance.

Evidence for PC1 Assessment Points

- ARCH 207D
  - ARCH 207D Syllabus
  - ARCH 207D Course Materials
  - ARCH 207D Course Grading Sheet
  - ARCH 207D Discussion Reports
  - ARCH 207D Lecture Slides
  - ARCH 207D Attendance Sheet
  - ARCH 207D Student Work / Class Notebook
  - ARCH 207D Student Work / Student Resumes
  - ARCH 207D_Student Work / Firm Report
  - ARCH 207D_Student Work / Portfolio Storyboard

The Assessment Point Matrix for PC1 may be found here: Assessment Point Matrix_PC1

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC1 are as follows:

PC1 Criteria in ARCH 207D The Cultures of Practice

This course addresses the PC1 goal by introducing students to paths to licensure and career opportunities through lectures, class discussions, assignments, and guest speakers, including visits from various stakeholders such as clients, contractors, and architects in the Bay Area. This course expects students to develop "understanding" in this criteria.

Course Overview
The class is intended to facilitate the transition from education to practice, as an introduction to the world of the Architecture/Engineering/Construction Industry, and the significance of the profession of architecture in leading the design of the built environment, and how the culture of the profession evolves. The course is divided into thematic modules: 1) The Professional Challenge, 2) The Business of Architecture, 3) The Project Experience, and 4) Preparing for Professional Success. Each module offers in-class lectures and related readings or podcasts that address typical issues related to professional practice. Students complete discussion-related weekly assignments, including developing a fee proposal, project budget, and schedule, and participating in a mock-client interview. In addition, students must complete larger assignments such as a firm analysis report, a portfolio mock-up, a resume, and a comprehensive course notebook/journal.

Course Assessment Method
Students' progress toward this goal is understood through three assignments that help to position them on a particular professional path: 1) a well-organized and persuasive resume of their qualifications and achievements, 2) a graphic "outline" of their portfolio, and 3) a comprehensive course notebook / journal. Students compile a document that they can carry forward with them into internships as a reference and guide to navigating practice and professional life.

Evaluation of student performance
A letter or numeric grade

Course Benchmark
A grade of B- or better is satisfactory. Nearly 100% of students are expected to complete each assignment in a satisfactory way.

Supporting Materials
- ARCH 207D Syllabus
- ARCH 207D Course Materials

Instructor Assessment of PC1 Criteria in ARCH 207D			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded expectations. Benchmark met.	Starting in S23, this course was staffed by a new instructor that made several significant changes. Relative to this particular goal, a new assignment was added - the "course notebook / journal" - that is a student-produced repository of all information presented in the course, intended to serve as a continual resource for students as they navigate entry into their career.	In S23, 100% of students met or exceeded expectations.	In future iterations of the course, we suggest a more comprehensive account of career paths through a range of approaches to practice, including both small and large firms.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC1 Criteria in ARCH 207A Architecture Lectures Colloquium

This course addresses the PC1 goal by exposing students to the landscape of professional practice through reading and discussion. This course expects students to develop an "awareness" of this criteria.

Course Overview
Students are exposed to a broad range of topics focused on what architects do, as well as how they arrive at outcomes. Students present and engage in discussions around these topics, Each student presents a selection of subjects that every practicing architect should know, based on class readings, followed by a discussion that frames conversations with visiting lecturers from around the world.

Course Assessment Method
Students lead a discussion based on a class reading about professional architectural practice.

Evaluation of student performance
Satisfactory/unsatisfactory

Course Benchmark
Participation and presentation are the only grading criteria in this one-unit course. Only extreme circumstances warrant anything less than a pass in this course.

Supporting Materials
- ARCH 207A Syllabus

Instructor Assessment of PC1 Criteria in ARCH 207A			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, all proposed benchmarks were far exceeded. 100% of students met the expected standard.	Starting in F22, in order to improve the course creative strategies were incorporated to better engage students in conversation with incoming guest lecturers by framing questions around the topics we are covering in the course material, particularly related to issues surrounding diversity, equality and inclusion.	In F22, 100% of students met the expected standard.	No changes are projected for F23 for this course relative to this goal.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC.2 Design—How the program instills in students the role of the design process in shaping the built environment and conveys the methods by which design processes integrate multiple factors, in different settings and scales of development, from buildings to cities.

Program Response:
The critical examination of the built environment through design is central to a Berkeley education in architecture. The department's history is based on understanding architecture as a cultural artifact — one that synthesizes multiple factors for human benefit. In service of fostering this understanding, students develop capacities to process observations of the built environment across scales and to articulate a critical design position through drawn, modeled, written, and oral arguments. This process is reinforced across the design curriculum and architecture design faculty ascribe these objectives to every one of their studio courses. The program instills in students the role of the design process in shaping the built environment and conveys the methods by which design processes integrate multiple factors in different settings and scales of development in all studio courses – ARCH 200A, ARCH 200B, ARCH 201, ARCH 202, ARCH 203, and in thesis seminar and studio, ARCH 204A/B. Particular emphasis on design processes that integrate multiple factors and projects sited in more complex contexts occurs in ARCH 201 Architecture + Urbanism studio and ARCH 203 Integrated Design Studio.

PC2 - Design	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC2 Assessment Points

The following courses are program assessment points for PC2 - Design:

- **ARCH 201 Architecture + Urbanism studio**
- **ARCH 203 Integrated Design Studio**

Students demonstrate their understanding of how the architectural design process shapes the built environment in the first project of ARCH 201. The project asks for a precedent study of a housing project based on a particular typology — perimeter block, single aspect, urban infill, free-standing, etc. Students make diagrams analyzing their precedent at multiple scales, from site response to facade detail. The work is assessed in the Project 1 final review at the one-third point of the semester (benchmark: 95% of students are expected to present and fulfill this portion of the criteria; 92% met the benchmark). In the ARCH 201 final project, students convey how the design process includes different settings and scales of development

in the design of a multifamily housing project of 30 to 60 units. The project begins with a site analysis and the subsequent designs respond to the urban context and neighborhood characteristics and are developed at the site, building, and unit scales. Students are assessed on the consistency of their design process throughout the semester, as demonstrated by incremental improvement in the projects, and by the quality and clarity of the final project, and on representations and verbal communication at the final review (benchmark: 95% of the students are expected to achieve a B+ or higher, 93% met the benchmark). ARCH 203 instills in students the role of the design process in shaping the built environment and conveys the methods by which the design process integrates multiple factors in different settings and scales. Students work throughout the semester on the design of a mid-sized building of civic or community importance. The semester begins with an urban analysis and culminates in a final design project and comprehensive drawing set. The PC-2 Design criteria can be found in the following Sheets of this set: G011, G012, G030, A000, A010, A110, A200, A201, A300, A301, A302, A400, A500, A600, A601, A900, A901, S000, S001, S100, S101, S102, and S103. Each sheet is scored and weighted for the PC-2 Criteria and averaged into a composite score (benchmark: 85% of students expected to receive 87/100 or more points; 88% met the benchmark. The MArch program committee will consider adding ARCH 200B, Option Three second semester design studio as a PC2 assessment point. In review of the overall studio sequence, both students and faculty have expressed interest in a 200B project taking on greater site responsiveness.

Evidence for PC2 Assessment Points

- ARCH 201
  - ARCH 201 Syllabus
  - ARCH 201 Course Materials
  - ARCH 201_Assignment 1
  - ARCH 201_Assignment 1 Rubric 2023
  - ARCH 201_Assignment 1 Rubric 2022
  - ARCH 201_Assignment 1 Grading Sheet
- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 203_Drawing Set Guidelines
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work

The Assessment Point Matrix for PC2 may be found here: Assessment Point Matrix_PC2

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC2 are as follows:

PC2 Criteria in ARCH 201 Architecture & Urbanism Design Studio

This course addresses the PC2 goal with a focus on buildings in an urban context, and by expanding both the scope and depth of investigation in terms of urban form, architectural research, analysis, program, space, and context. Two short projects and one long housing project serve as the framework for moving from a conceptual strategy toward resolved building. This course expects students to develop “ability” in this criteria.

Course Overview

This is the third required studio in architectural design, building upon foundations established in previous studios. The projects focus on a housing project of medium complexity within an urban context and expand both the scope and depth of investigation in terms of urban form, architectural research, site analysis, program, space, and context. Students produce work every week that is reviewed in class in a group pin-up setting. In addition, students are assessed at three key points: 1) a review for an initial short project, 2) a mid-review for the larger housing project, and 3) a final review for the larger housing project. Students are required to produce and present models, plans, sections, and site drawings. In this course, an “A” is defined as excellence in every way, with a high level of competence demonstrated in the work and process., superior graphic and verbal presentation skills, and active participation in studio activities. A “B” is defined as good quality work touched by some inconsistencies in design, inadequate presentation, or limited understanding of design issues; good studio performance and/or in assignments.

Course Assessment Method

Students are assessed on: their understanding of scale, program, structure, spatial organization, site strategy, light and ventilation, and construction assembly.

Evaluation of student performance

Qualitative feedback (e.g., written feedback or in-person critique)

Course Benchmark
A grade of "B" or higher is satisfactory. It is expected that 95% of students achieve satisfactory or higher.

Supporting Materials
- ARCH 201 Syllabus
- ARCH 201 Course Materials

Instructor Assessment of PC2 Criteria in ARCH 201			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, all students met the baseline standard and 93% of the students exceeded the baseline standard.	Starting in F22, two major changes were implemented. First, the precedents/case studies were updated and modified to include some more contemporary exemplary housing projects. Second, the larger housing project assignment was pushed forward by two weeks to give students more time to develop circulation and site strategies.	In F22, all students met the baseline standard and 93% of the students exceeded the baseline standard.	Students sometimes struggle with translating from smaller scale to the scale of housing. I am planning on adding a short exercise that helps provide parameters and methodology for ways to jump scale from unit to building.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC2 Criteria in ARCH 203 Integrated Design Studio

This course addresses the PC2 goal by asking students to consider questions of site, community context, climate, program, environmental performance, structural and mechanical systems, and material tectonics. This course expects students to develop "ability" in this criteria.

Course Overview
This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, and commercial and educational buildings.. In this Integrated Studio, students are tasked with the design of a 20–30,000-square-foot building on a specific site in the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:
The process adopted by the studio simulates the workflow of a professional setting — including stages of pre-design, schematic design, design development, and documentation — and provides students the opportunity to present and receive wide-ranging feedback on their work. In this way, students understand the role of the design process in shaping the built environment and the methods by which design processes integrate multiple factors. The multiple factors at play in the design process is reinforced through the weekly engagement of specialist consultants who also lecture in ARCH 207C.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project and final review. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A letter or numeric grade

Course Benchmark:
A B+ or higher is considered successful. Eighty percent of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of PC2 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 80-90% met or exceeded expectations.	Starting in F22, we introduced a formal drawing set in order to better document the design process, research, analysis, individual systems, and integration.	In F22, around 95% of students met the benchmark.	In F23, we suggest the incorporation of multiple iterations of physical massing models early in the design process.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC2 Criteria in ARCH 200A Introduction to Architecture Studio 1

This course addresses the PC2 goal by introducing the tools, skills, and principles of design by applying a basic thinking-through-making methodology that intimately connects craft and form-making to the processes of critical thinking and representation. Design exercises deal with modes of dwelling with varying approaches towards program, place, and the relationship toward history and dweller's needs, from conceptual and critical approaches to the processes of formation and their subsequent critical representation. This course expects students to develop "awareness" in this criteria.

Course Overview
In this first studio in the MArch Option 3 sequence, students are introduced to architecture beginning from the most intrinsic within the discipline — form, space, structure, and material — which define the language and syntax of architecture. Following this, students continue toward exploring architecture's social, intellectual, and cultural contexts through engagement of site, programs, and users. Students experience firsthand the tension and complexity of design, while gaining a broad understanding of the constraints and representation techniques that shape architecture.

Course Assessment Method
Student performance is understood through the completion of design projects. Through the development of design and its representation through conventional orthographic representation (eg. plan, section, and 3D projection) and 3D visualizations with digital modeling (eg. perspective, conceptual diagramming, projection), students explore theoretical, practical, and philosophical issues pertinent to the design process. Its consequences are discussed in class and are essential to the development of the work. For a satisfactory or highly satisfactory grade, students must demonstrate a level of work in craft and communication by established academic and professional standards. The work must demonstrate the process and the development of each iteration and the project must evolve to a higher level of complexity, correctness in regard to architectural representation conventions, and refinement.

Evaluation of student performance
Satisfactory/unsatisfactory

Course Benchmark
It is expected that 95% of students achieve satisfactory or higher.

Supporting Materials
- ARCH 200A Syllabus

Instructor Assessment of PC2 Criteria in ARCH 200A			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 100% of students met or exceeded expectations. Benchmark exceeded. However, about 10% marginally passed the course. For this group, we recommended more work to be done during the break to further improve their design skills and sharpen their visualization techniques.	Starting F22, adjustments were made to the assignments to focus more on drawings and human scale, and on developing a sense of scale in relation to program. Lectures were added and discussion time expanded, thereby allowing more time for each project to develop through more iterative processes.	Students performed well and 100% of students met the benchmark.	Existing exercises address formal & spatial syntax incrementally from abstraction to the program of a dwelling. In the future, we plan to include more analysis of add site and environmental context. We may also consider changing the program of dwelling to a public program as multi-famiy housing is now taught in ARCH 201.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC2 Criteria in ARCH 200B Introduction to Architecture Studio 2

This course addresses the PC2 goal by building on previous studios, and further focusing on the integration of additional factors into the design process, with specific emphasis on issues of site, program, and structure. In this way, it's precisely positioned to address the way "design processes integrate multiple factors in different settings." This course expects students to develop "awareness" in this criteria.

Course Overview

This second studio in the MArch Option 3 sequence aims to nurture essential design competencies for burgeoning architects. This curriculum picks up from ARCH 200A, where students were introduced to drawing and modeling techniques with an emphasis on spatial and formal aspects of architectural design. ARCH 200B endeavors to broaden students' architectural knowledge base by engaging in a diverse array of architectural considerations, with a focus on the interplay between form and space, as dictated by site conditions, program requirements, structure and circulation patterns. The course sets off with a conceptual prompt encapsulated in the formula: Form = Structure + Shape. This formula serves as an avenue to examine the transformative potential of architecture in terms of "shaping" a site (Project 1), "structuring" a program (Project 2), and "forming" circulation (Project 3). Each project's theme is designed to build on the previous, with each project serving as a standalone design challenge. Students are not required to maintain formal, spatial, or conceptual consistency across these exercises. The themes inevitably resonate with preceding projects — for instance, Project 1 incorporating elements of program, and Project 2 addressing circulation. Therefore, these themes are merely suggested starting points. The themes were chosen primarily because they encapsulate ubiquitous formal constraints found in architectural practice. Consequently, students are encouraged to adopt a positive approach to these constraints, utilizing them progressively (as opposed to iteratively) as stepping stones towards innovative solutions to site, program, structure, and circulation.

Course Assessment Method:

Issues of site, program, and structure, as well as student performance surrounding these issues, are understood through the completion of a design project. The final assignment of a three-part sequence asks students to integrate all the additional factors focused on over the course of the studio — site, program, and structure. Success is determined by a combination of the above mentioned criteria, in addition to multiple productive conversations with a student over the course of a semester.

Evaluation of student performance:

Both a letter grade and qualitative feedback.

Course Benchmark:

A grade of B+ or higher on the assignment is considered successful. It is expected that 80% of students meet this benchmark.

Supporting Materials:

- ARCH 200B Syllabus

Instructor Assessment of PC2 Criteria in ARCH 200B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 90% of students met or exceeded expectations.	In S23, we added an additional lecture on drawing technique, included presentations by faculty on in-progress work from practice in order to highlight the role design process around a conceptual framework, added an office visit to SOM to incorporate dialogue between abstract design processes and practice.	in S23, 90% of students met or exceeded expectations.	In future iterations of the course we plan to provide increased faculty guidance for site visits, provide lectures for site analysis and representation of site conditions, and to limit model making materials in order to control complexity and cost.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC2 Criteria in ARCH 202 Graduate Option Studio

This course addresses the PC2 goal with a focus on building design that reflects complexity of contemporary design practice. This option studio changes every year, however, it consistently integrates multiple considerations into the design process. The architectural projects are mostly mid-size public programs or housing projects in an urban environment. ARCH 202 also fulfills the PC2 criteria by expanding the complexity of both the scope and depth of investigation in regard to issues brought about by the instructor in each studio. This studio is often taught by endowed visiting professors who are leading architects in the field.

Due to the nature of ARCH 202, which is an option studio, the architecture inquiry set up by each leading faculty can range from critical design thinking on architectural representation and practice to an analysis of urban form, and from materials and sustainability issues to issues of social equity and justice. This course expects students to develop "understanding" in this criteria.

<u>*Course Overview*</u>

This class is a design-based option studio. Depending on the size of the cohort, each year we offer between four and five distinct options from which students choose. In the past three to four years, the options studios have offered diverse and invaluable experiences primarily through two types of studios: 1) An interdisciplinary studio, which is led by two faculty, one from the area of design and the other from the sub area, such as history and society, building science technology, etc. and2) A studio led by endowed visiting professors who are renowned in the field and have critical or unique design practices.

ARCH 202 Option Studio offers students opportunities to work closely with these visiting faculty and collaborate with faculty in different areas of the discipline. This pedagogical approach at this point in the curriculum brings diverse viewpoints in design to bear on students' learning experience.

Recent visiting faculty include:

- Rossana Hu and Lyndon Neri of Neri&Hu Design and Research Office, an interdisciplinary architectural design practice based in Shanghai, were spring 2023 Friedman Visiting Professors of Practice. Neri and Hu brought to their teaching an approach to design that stems from cultural, urban, and historic contexts, and from anethos based on the dynamic interaction of experience, material details, form, and light.
- Weijen Wang, the design dDirector of the Hong Kong–based design firm Wang Weijen Architecture and a professor of architecture at the University of Hong Kong, was another 2023 Friedman Visiting Professor of Practice. He is renowned for integrating design practice and research, and for his cultural advocacy promoting social architecture, urban fabric, public space, and practices for a sustainable environment.
- Alan Ricks and Jeffrey Mansfield of MASS Design Group were our Spring 2023 Lifchez Visiting Professors of Practice in Social Justice with the mission to research, build, and advocate for architecture that promotes justice and human dignity.
- Christopher Downey, an architect and a California Commissioner on Disability Access, was our Lifchez Professor of Practice in Social Justice in spring 2022. Downey is an architect who promotes universal design,specializing in spaces for blind and low-vision individuals. Downey brings decades of experience to teaching students justice, advocacy. and accessibility as it relates to the built environment.

Course Assessment Method
Given the nature of the course, we do not conduct instructional assessment surveys for ARCH 202, as the faculty and topics change each year. Yet we believe it is noteworthy to address this course in the context of our MArch program, since the studio marks a significant moment in students' experience.

Students are assessed based on the quality of design and presentation, timely and energetic completion of work throughout the semester, as well as how well they respond to the set of inquiry established by the leading faculty and feedback they received in all reviews and pin-ups throughout the semester.

Evaluation of student performance:
A letter or numeric grade

Course Benchmark:
A B+ or higher is considered successful. A grade lower than B- is considered unsuccessful.

PC2 Criteria in ARCH 204A Thesis Seminar

This course addresses the PC2 goal by asking each student to outline: a thesis focus, an architectural proposition of that focus as a design project, and the anticipated material consequences of that design project as deliverables. This course expects students to develop "understanding" in this criteria.

Course Overview
The work in this class is focused on the development of a clear thesis ambition and proposal with respect to a specific architectural issue. This work is reflected in the weekly presentations, as well as the final student project which is presented in the form of a thesis book. The class presentations all work towards being the actual pages of each student's thesis book. The Thesis Book is comprised of: (1) Thesis Background provides a story and background to the thesis proposal. (2) Written content presented in one of the following ways: an annotated set of images of precedents and original work, a manifesto for an architectural publication, a mission statement for architectural design work, an editorial introduction for an edited publication, an interview with a journalist, etc. (3) Preliminary Drawings of the final thesis proposal. The final thesis proposal needs to: Articulate a strong intellectual and design position; Include a genealogy of historical and recent architectural production that situates the ambition with respect to the discipline; Include a short bibliography of at least five essays or book chapters; Assert the ambition's disciplinary and extra-disciplinary relevance (social, cultural, political, technological, economic, aesthetic, etc.); Include initial design thoughts that give some indication of the architectural implications; Include initial elaboration on projected design and representational techniques.

Course Assessment Method
The development of a thesis proposal, as described in the final thesis book, includes an articulation of a design process in relationship to the built environment. Assessments are described in the course overview above.

Evaluation of student performance
Qualitative Feedback

Course Benchmark
Anything greater than a B+ on the final project indicates a student was successful. 70% of students are expected to achieve a B+ or higher.

Supporting Materials
- ARCH 204A Syllabi

Instructor Assessment of PC2 Criteria in ARCH 204A			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, a majority of students met the benchmark proposed.	In F22, no changes were made in direct relation to this criteria.	In F22, student performance was above the targeted benchmark. More than 90% of students' performance was higher than the established benchmark relative to this goal.	As evident in the F22 students' overall performance and feedback in this course, the current course structure and content work very well, where students describe their learning experience relative to all aspects and goals of the course as rewarding. Relative to the Design goal, students were asked to deal with questions in relation to design strategy and technique earlier compared to other semesters, and the results were successful. In the next iteration of the course, there will not be major changes, but if the number of students continues to rise per each thesis section, the format will need to be tweaked to have fewer student presentations throughout the semester to be able to dedicate more time for research feedback and discussion.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC2 Criteria in ARCH 204B Thesis Studio

This course addresses the PC2 goal by building on the related thesis seminar in the preceding fall semester, and by developing a thesis project and cultivating a particular position that each student takes in the field. At the end of the studio, each student is expected to outline a thesis focus, put forward an architectural proposition of that focus as a design project, and produce detailed drawings and models of that project, which are coordinated into a final review presentation. This course expects students to develop "understanding" in this criteria.

Course Overview

The thesis seminar + studio sequence marks the culmination of the Master of Architecture curriculum. Assessments across all criteria in this course are based on 1) originality, 2) intellectual ambition and clarity, 3) refined articulation (precision and communication of ideas), 4) skillful production of the projects (quality in technique and craft), 5) progress over the semester, 6) attendance, and 7) timely completion of exercises, all based on the challenges provided in the studio brief. Students are expected to develop a conceptually sophisticated and technically advanced design proposal with thoroughly articulated architectural considerations. This requires an intense level of investigation and independent thinking with the support and guidance of the instructor. Students are provided a guideline for self-evaluation, through which the final evaluation of work is made by the instructor. These guidelines include: Thesis: How clearly are you articulating your conceptual intentions? Positioning of Thesis; Translation of Thesis; Representation - Appropriateness; Representation - Quality; Oral Presentation Skills; Breadth; Participation in Discussion; Response to Criticism; Self-Directed Work/Independence.

Course Assessment Method

The execution of the thesis project, as initially proposed in the thesis book developed in the previous semester, must actualize a design process in relation to the built environment. Assessments are described in the course overview above.

Evaluation of student performance

A letter or numeric grade

Course Benchmark:

Anything greater than a B+ on the final project indicates a student's success. Seventy percent of students are expected to achieve a B+ or higher.

Supporting Materials:

- ARCH 204B Syllabi

Instructor Assessment of PC2 Criteria in ARCH 204B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, student performance was above the targeted benchmark. More than 85% of students' performance was higher than the established benchmark relative to this goal.	In S23, weekly student meetings were more diversified to accommodate the variety of feedback and discussion. The students signed up to meet for one longer and one shorter meeting every week so that weekly progress expectations were even more precise and incremental development of projects was more encouraged.	In S22, nearly 90% of students' performance met or exceeded the established benchmark.	As evident in the S23 students' overall performance, the current course structure, content, and design pedagogy work very well, where students describe their learning experience relative to all aspects and goals of the course as rewarding. Relative to the Design goal, since students were asked to submit an image and a short description of their project for the thesis booklet earlier this year, it allowed them to think about the final version of their projects earlier than usual. This was very helpful and something we are planning to continue and develop for next year. There was an emphasis on larger physical models in some sections, which was very helpful for the design emphasis of the thesis projects. We will think about this aspect more next year.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC.3 Ecological Knowledge and Responsibility—How the program instills in students a holistic understanding of the dynamic between built and natural environments, enabling future architects to mitigate climate change responsibly by leveraging ecological, advanced building performance, adaptation, and resilience principles in their work and advocacy activities.

Program Response:

The program instills in students a holistic understanding of the dynamic between built and natural environments and helps enable them to leverage ecological, advanced building performance, adaptation, and resilience principles in their work in ARCH 240 Advanced Study, Energy and Environment, and ARCH 203 Integrated Design Studio. ARCH 240 equips students with quantitative and qualitative methods for evaluating environmental performance. Students undertake a project encompassing climate analysis, site analysis, daylighting, energy analysis, and renewable energies, using computer simulations for decision-making. ARCH 203 underscores the integration of sustainable mechanical systems for thermal comfort, facade systems for optimal thermal performance and natural lighting, and site strategies that consider climate, topography, and context. It culminates in a holistic and integrated building design. In addition, two additional courses touch upon ecological knowledge and responsibility, ARCH 201 Architecture + Urbanism Studio and ARCH 207B Architecture Research Colloquium. These courses address ecological implications of building in densely populated urban areas; urban design principles, including walkability and public transportation; and environmental impacts associated with regional watersheds, adaptive reuse, and material economies.

PC3 - Ecological Knowledge	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC3 Assessment Points

The following courses are program assessment points for PC3 - Ecological Knowledge and Responsibility:

- **ARCH 240 Advanced Study, Energy and Environment**
- **ARCH 203 Integrated Design Studio**

Students holistically understand the dynamic between built and natural environments through a series of team assignments in ARCH 240. In Assignment 2 - Weather Analysis, they analyze weather variables using specialized software to understand how climate characteristics impact passive design solutions. Assignment 3 - Site Analysis employs similar visualizations for students to analyze solar and wind exposure of building sites in relation to massing and orientation. Assignment 4 - Daylighting asks students to evaluate access to natural light in buildings using computer simulations. The assignment progresses from an initial design proposal to an optimized design based on daylighting characteristics. In Assignment 5 - Thermal and Energy Performance, students create whole building energy models that include building geometry, material assemblies, and HVAC systems. They run simulations on heating, cooling, ventilation, and artificial lighting to gauge performance and efficiency. The assignment progresses from the initial proposal to a design optimized for building performance. In Assignment 6 - Final Project, student teams use simulations to further optimize and synthesize conflicting agendas between daylighting, natural ventilation, HVAC loads, and artificial lighting. Students propose a renewable energy system to meet final energy demands to achieve a net zero building solution. Each assignment is based on a letter grade, and 90% of students are expected to receive a B+ or above for the assignment, and 85% a B+ or above for participation. One hundred percent of students received a B+ or above for the assignment, and between 72 and 100% received a B+ or above for participation. As the two scores are weighted and averaged, all students met the benchmark.

ARCH 203 asks students to leverage their understanding of ecological advanced building performance, adaptation, and resilience principles gained in ARCH 240 in the design of their project. Students work throughout the semester in teams of two on the design of an architectural project and are evaluated on the quality of the Ecological Knowledge and Responsibility components of their work in the Final Drawing Set submitted at the conclusion of the semester. These projects grapple with the ecological impacts of vehicle infrastructure (converting gas to electric), as well as the impacts on the environment on our building systems, material assemblies, siting decisions, and landscape context. PC3 can be found in the following sheets of the final drawing set: G001, G011, G012, G020, A000, A010, A100, A101, A102, A400, A401, A600, A601, M001, M002, & M003. Each sheet is scored and weighted for PC3 goals and averaged into a composite score (benchmark: 85% of students expected to receive 87/100 points or better; 67% met the benchmark). Planned improvements include emphasizing this criteria earlier in the semester to allow students to better integrate sustainable practices in the design process.

ARCH 240 also ensures students understand how architects can responsibly mitigate climate change by leveraging ecological, advanced building performance, adaptation, and resilience principles in Assignment 1 - Green Building Case Study. Students analyze recent projects awarded by the AIA Committee on the Environment (COTE) to understand how they mitigate climate change. Assessment is based on the inclusion of those criteria in a slideshow presentation of the building to the class. This portion of the SC 3 goal is also covered in Assignments #2, 3, 4, 5 and 6.

Evidence for PC3 Assessment Points

- ARCH 240
  - ARCH 240 Syllabus
  - ARCH 240 Course Materials
  - ARCH 240_Course Grading Sheet
  - ARCH 240_Assignment 01_Green Building Case Study
  - ARCH 240_Assignment 02_Climate Analysis
  - ARCH 240_Assignment 03_Site Analysis
  - ARCH 240_Assignment 04_Daylight Analysis
  - ARCH 240_Assignment 05_Thermal and WBE
  - ARCH 240_Assignment 06_Final Project
  - ARCH 240_Assignment 6 Grading Sheet
  - ARCH 240 Student Work / Assignment 1
  - ARCH 240 Student Work / Assignment 2
  - ARCH 240 Student Work / Assignment 3
  - ARCH 240 Student Work / Assignment 4
  - ARCH 240 Student Work / Assignment 5
  - ARCH 240 Student Work / Assignment 6
- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials

- ARCH 203_Integrated Studio Handbook
- ARCH 203_Grading Sheet
- ARCH 203_Drawing Set Guidelines
- ARCH 203_Daylighting Calculation Spreadsheet
- ARCH 203_Drawing Set A600 Environmental Design Instructions
- ARCH 203_Natural Ventilation Calculation Spreadsheet
- ARCH 203_Student Work

The Assessment Point Matrix for PC3 may be found here: Assessment Point Matrix_PC3

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC3 are as follows:

PC3 Criteria in ARCH 240 Advanced Study of Energy and Environment

ARCH 240 is the core Energy and Environment course of the MArch program. A carefully coordinated deployment of lectures, labs, assignments, and readings is dedicated to training students in environmental stewardship. Core to the course foundation is the understanding of the added value that a curated relationship between the natural and built environments brings to the environment, the human dimension, and architectural quality. Maximizing architectural autonomy in relation to mechanical systems, and promoting resilience to climate change, are central principles to the concepts and methods addressed in this course. Particular attention is given to the integration with the broader discourse of the discipline, so that the adoption of ecological and user-centric factors is not achieved at the expense of design excellence, but instead adds to it. This course expects students to develop "ability" in the Ecological Knowledge and Responsibility criteria.

Course Overview

Arch 240 is the core Energy and Environment course of the MArch program. Course goals include training on design processes that increase the autonomy and resilience of the built environment, conserve resources, and promote health and well-being for occupants. Architecture is seen as a mediator between the departing conditions of site and climate, and a final built artifact calibrated for users' needs and health. Students become aware that the path to Net Zero architecture starts with passive and climate-responsive design, generating less energy demand. This opens the door to streamlined, energy-efficient, and healthy MEP systems, with reduced energy needs that can be offset by renewable on-site energy generation. All three steps need to be addressed to achieve carbon neutrality, since they work as a system. Climate change mitigation can also not be achieved at the expense of human health and comfort. These goals create a holistic approach to design that starts with massing and building shape, progresses to spatial layout, and culminates with tectonics, envelope design and operability, and integration with MEP systems.

Course Assessment Method

ARCH 240 presents quantitative and qualitative methods for assessing environmental performance during the design process. After an initial case study assignment based on recent AIA COTE awards, students work on a single project all semester. The project is divided into five assignments: climate analysis; site analysis; daylighting; thermal and energy analysis (heating and cooling simulated with MEP systems and natural ventilation); and a final project that resolves inconsistencies between conflicting criteria, refines the final design solution, and includes renewable energies. Each assignment may be further divided into weekly deliverables to ensure continuous student engagement in the biweekly labs. Students are asked to design a sustainable building, progressing from massing, to spatial design, to materiality and tectonics. Computer simulations are used in all assignments to evaluate and support design decisions, using state-of-the-art software for energy, daylighting, and others, applying evaluation metrics well-recognized in the field. The final project is a compilation and reconciliation of all the semester assignments into a final building design where contradictions are resolved, and compromises created to address the complex and often conflicting requirements of sustainable design.

Evaluation of student performance:

A letter or numeric grade

Course Benchmark:

Anything greater than a B+ on the final project indicates a student was successful; 90% of students are expected to achieve a B+ or higher.

Supporting Materials:

- ARCH 240 Syllabus
- ARCH 240 Course Materials
- ARCH 240 Student Work

Instructor Assessment of PC3 Criteria in ARCH 240			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded the benchmark.	Deployment to studio practice is now a priority for ARCH 240. We have introduced innovations to better articulate it with the requirements of ARCH 203 – Integrated Studio, taught the following semester. Daylighting representation was used as an obvious entry point between architecture design and ecological knowledge. A new requirement for a sustainable strategies section or annotated diagram prepares students for the production of similar elements the following semester. Results learned from this pilot will help introduce similar approaches to other fields of sustainable design in studio. Additional content added on rainwater collection using landscaping and urban scale strategies.	In S23 100% of students met or exceeded the benchmark.	We will continue to emphasize and refine the production of a sustainable strategies section or annotated diagram, and the representation of lighting conditions in space, as a key factor to integrate with studio production. We will add more content on adaptation of existing buildings for climate resilience.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC3 Criteria in ARCH 203 Integrated Design Studio

This course addresses the PC3 goal by tasking students with the design and integration of 1) mechanical systems in order to achieve efficient, sustainable thermal comfort within their building designs; 2) facade systems that responsibly control thermal performance, natural lighting conditions, and passive ventilation; 3) site strategies that respond to climate, topography, and context with sustainability in mind; 4) materials systems that conscientiously and responsibly consume resources with sustainability in mind; and 5) a program requirement that students design for the transition from gas to electric vehicle infrastructure on their sites and plan for whole-building systems electrification. This course expects students to develop "ability" in this criteria.

Course Overview

This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, and commercial and educational buildings. In this Integrated Studio, students are tasked with the design of a 20–30,000-square-foot building on a specific site in the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method

Most of the specialist consultants who engage weekly in this course (and also lecture in ARCH 207C), raise, discuss, and assess issues of ecology, building performance, and climate adaptation principles in direct relationship to student projects. Student understanding of these issues is assessed in drawing deliverables, such as: MEP system concept drawing and/or axonometric, a water systems drawing, a site and context analysis drawing, detail / integrated section drawing, and an environmental diagram.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project and final review. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance

Qualitative feedback

Course Benchmark

A B+ or higher is considered successful; 80% of students are expected to receive a B+ or higher.

Supporting Materials:

- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of PC3 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 80% of students met or exceeded this benchmark.	Starting in F22, the course foregrounded ecological concerns in the primary program prompt, and introduced a drawing set deliverable to document ecological strategies.	In F22, 80% of students met or exceeded this benchmark.	Starting in F23, the course will incorporate a specific sheet in the required drawing set dedicated to the project's ecological strategy.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC3 Criteria in ARCH 201 - Architecture & Urbanism Design Studio

This course addresses the PC3 goal by providing students with an understanding of the importance of housing density with regards to sustainability. The course looks at proximity to public transportation, walkability, and the need to create density in urban conditions away from wildland regions. This course expects students to develop an "awareness" of this criteria.

Course Overview

This is the third required studio in architectural design, building upon foundations established in previous studios. The projects focus on a housing project of medium complexity within an urban context and expand both the scope and depth of investigation in terms of urban form, architectural research, site analysis, program, space, and context. Students produce work every week that is reviewed in class in a group pin-up setting. In addition, students are assessed at three key points: 1) a review for an initial short project, 2) a mid-review for the larger housing project, and 3) a final review for the larger housing project. Students are required to produce and present models, plans, sections, and site drawings. In this course, an "A" is defined as excellence in every way, with a high level of competence demonstrated in the work and process. Superior graphic and verbal presentation skills. Active participation in studio activities. A "B" is defined as good quality work touched by some inconsistencies in design, inadequate presentation, or limited understanding of design issues; good studio performance and/or in assignments.

Course Assessment Method

Students are assessed on: their understanding of site context, density, proximity to transit, and optimal light and ventilation conditions.

Evaluation of student performance

Qualitative Feedback

Course Benchmark

A grade of "B" or higher is satisfactory. It is expected that 95% of students achieve satisfactory or higher.

Supporting Materials:

- ARCH 201 Syllabus
- ARCH 201 Course Materials

Instructor Assessment of PC3 Criteria in ARCH 201			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, the benchmark was met by 95% of students.	Starting in F22, the course includes some case studies of exemplary housing projects that address urban mid-rise density more specifically, helping students understand the ecological ramifications of architectural strategies to increase housing.	In F22, the benchmark was met by 93% of students.	Moving forward, the course should ensure that students spend more time looking at case studies that look at alternative low carbon emission materials for housing.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC3 Criteria in ARCH 207B Architecture Research Colloquium

This course addresses the PC3 goal through the readings and speakers in this course, which: 1) advance knowledge about the relationship of rural to urban settlement in relationship to regional watersheds; 2) problematize "ecology" in relation to architectural objects (this includes reuse of materials and circular economy design methodologies), as well as nergy, particularly decarbonization policy for urban design. This course expects students to develop an "awareness" of this criteria.

Course Overview
This course accompanies the second year of the required architecture and urbanism design studio, and is the second in a series of three one-unit colloquia, scheduled consecutively in the fall for the first three years of the program. Students are asked to prepare questions for each week's speaker based on readings, and submit these questions to a common spreadsheet. These questions are reviewed by the instructor ahead of a visit by a speaker, and reviewed for originality and specificity.

Course Assessment Method:
Subjects related to this NAAB goal are introduced in week 2 (on ecology) and week 9 (on energy). Readings for these weeks are related to the subject, and students are evaluated based on 1) their engagement with the speaker and 2) upon how well their questions address these subjects. Attendance, participation in Q+A, and quality of questions are the thresholds to pass.

Evaluation of student performance:
Satisfactory/unsatisfactory

Course Benchmark:
A passing grade is considered satisfactory; 99% of students are expected to meet this benchmark.

Supporting Materials:
- ARCH 207B Syllabus
- ARCH 207B Course Materials

Instructor Assessment of PC3 Criteria in ARCH 207B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 100% of students received a grade of "satisfactory".	Starting in F22, together with those speakers that address "Ecological Knowledge and Responsibility", the course also focuses on "Energy" rather than "Watersheds" to frame a broader discussion on energy policy and urbanization. It is this talk that will act as a pivoting moment in between the first part of the Colloquium (that focuses on broader urban concepts, many in relation to the Bay Area) and the second part (more focused on dwelling).	In F22, 100% of students received a grade of "satisfactory".	Moving forward, we aim to better inform and inspire students that design can impact large ecological problems. A focus on design when reflecting on ecological knowledge is fundamental. It seems to me that students have a skeptical approach towards the role of the architect, shown in persistent questions along the talks about what they can do as architects to address the climate crises. We also aim to provide a foundational knowledge of urban housing precedents and urban design principles..

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC.4 History and Theory—How the program ensures that students understand the histories and theories of architecture and urbanism, framed by diverse social, cultural, economic, and political forces, nationally and globally.

Program Response:

The program ensures that students understand the histories and theories of architecture and urbanism framed by diverse social, cultural, economic, and political forces nationally and globally through ARCH 230 Advanced Architectural Design Theory and Criticism, and ARCH 270 History of Modern Architecture. ARCH 230 underscores the importance of history and theory in modern architectural practice. It exposes students to key debates in architectural thought since 1945 and the interplay between theory and practice. ARCH 270 offers a broad historical and theoretical perspective on architectural design practice from 1650 to the present across different societies and cultures. It employs a comprehensive approach that delves into the specifics of individual buildings while also exploring broader social and economic factors critical to their design and realization. ARCH 201 Architecture + Urbanism studio also addresses PC4 by bringing awareness to sociocultural issues of urban housing and urban space through readings and design projects. The companion class, ARCH 207B Architecture Research Colloquium, introduces the history and theory of urban planning and policies that have influenced the development of American and European cities. It delves into theories surrounding public spaces as determined by different cultural practices and explores various concepts that have shaped contemporary urban understanding. ARCH 204A and 204B, Thesis Seminar and Thesis Studio, respectively, address this criterion by encouraging students to develop their thesis research and final project around an architectural question grounded in architectural history and theory.

PC4 - History & Theory	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC4 Assessment Points

The following courses are program assessment points for PC4 - History and Theory:

- **ARCH 230 Advanced Architectural Design Theory and Criticism**
- **ARCH 270 History of Modern Architecture**

Students demonstrate their understanding the importance of the theories of architecture and urbanism, framed by diverse social, cultural, economic, and political forces, nationally and globally in ARCH 230 Advanced Architectural Design Theory and Criticism and ARCH 270 History of Modern Architecture. Students in ARCH 230 demonstrate their understanding in

250–250-word weekly written response papers on assigned readings and a 2,500-word final paper. Knowledge building is supported by class lectures, student presentations, and discussions. Weekly topics include subjects such as "Environment: Architecture beyond Buildings", "The Archipelago: Architecture and the City", "Architecture and Race", "Post-Carbon", and "Architecture and Care." Assessment is based on participation in class discussions (benchmark: 75% to receive B+ or higher, 75% of students met the benchmark), weekly written response papers (benchmark: 85% to receive a B+ or higher, 70% of students met the benchmark), and the final paper (benchmark: 85% to receive a B+ or higher, 85% met the benchmark). The MArch committee is satisfied with ARCH 230 as an assessment point and instructor planned improvements include including weekly papers in class discussions, addition of more reading workshops, and an in-progress submission of the final paper. In ARCH 270, students are assessed through the final exam. This architectural survey course covers topics from the 17th century to the present. Architectural history at Berkeley has foregrounded sociocultural aspects of western and non-Western architecture for the past four decades. Lectures and discussion sections cover architecture's interaction with diverse societies, cultures, and economies in multiple national and geographic settings including Asia and the Global South. The final exam requires students to write a short essay discussing a set of buildings to compare and contrast across trends in professional practice, political and economic context, building technology and materials, and culture and values (benchmark: 100% of students to receive a 90/100 or above, 90% of students met the benchmark). As students who did not meet the benchmark were all non-native English speakers, efforts will be made to identify those with language barriers early in the semester and direct them to ESL resources on campus.

Evidence for PC4 Assessment Points

- ARCH 230
  - ARCH 230 Syllabus
  - ARCH 230 Course Materials
  - ARCH 230_Grading Sheet
- ARCH 270
  - ARCH 270 Syllabus
  - ARCH 270 Course Materials
  - ARCH 270_Final Exam
  - ARCH 270_Grading Sheet

The Assessment Point Matrix for PC4 may be found here: Assessment Point Matrix_PC4

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC4 are as follows:

PC4 Criteria in ARCH 230 Advanced Architectural Design Theory and Criticism

This course addresses the PC4 goal insofar as the main premise of the course is to understand the role of history and theory in contemporary architectural practice and future transformations of architectural production. This course expects students to develop "understanding" in this criteria.

Course Overview

This course exposes students to key discussions in architectural thought from 1945 to the present. Each week, students explore debates that have driven architects and theorists in relation to the production and use of buildings, urban space, and their metropolitan contexts. Organized around particular themes and case studies that engage recurring major questions within architectural discourse, the course explores various architectural projects and debates within their historical, disciplinary, and cultural contexts. The course aims to expose students to exchanges and debates that have driven architects and theorists for the last five decades and provoke students to develop their own architectural positions. By understanding the multiple relations that constitute architecture, the course prompts students to rethink the connections between theory and practice or between the design studio and the seminar. The course presents how historical approaches and debates continue to influence present trajectories and asks how possible futures can be informed by a critical understanding of the past and the present. The class meets weekly and consists of lectures, student presentations, and class discussions. All students are expected to prepare for each week by completing the assigned reading before the lectures and by participating actively in discussions with relevant questions.

Course Assessment Method

The role of history and theory in contemporary architectural practice is communicated through lectures, required readings, and the following assignments: 1) one reading response paper each week 2) a requirement to act as session moderator in a weekly discussion and 3) a final semester project that consists of a 2,500-word essay about a case study. In completing these assignments, the following criteria are used for student work evaluation: 1) Ability to formulate an independent and critical approach to a specific topic; 2) Ability to sufficiently grasp the material to be addressed, 3) Ability to go beyond a satisfactory grasp of the material to speculations that creatively engage the material; 4) Ability to communicate those speculations verbally in weekly discussions and class presentations, and in writing through

reading responses and the final semester project; 5) Ability to situate an approach with respect to the arguments of others.

Evaluation of student performance:
A letter or numeric grade

Course Benchmark:
Anything greater than a B+ on the final project indicates a student's success; 70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 230 Syllabus

Instructor Assessment of PC4 Criteria in ARCH 230			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, student performance exceeded the established benchmark. 90% of students met the established standard.	To support student learning, in S23, we will be coordinating new workshops throughout the semester for reading sessions and writing.	In S23, student performance was above the targeted benchmark. More than 80% of students' performance was higher than the established benchmark relative to this goal.	With the help of more developed campus guidelines, I plan to do more research on various AI tools, such as ChatGPT, and develop innovative and critical ways to incorporate the tool into the course's pedagogy. Topics of race, queer theory, climate change, and feminist theory were developed further for this course iteration, and the students received these changes very well. We will keep developing these sections further for the next iteration.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC4 Criteria in ARCH 270 History of Modern Architecture

This course addresses the PC4 goal through lecture and small-group discussion of the histories, theories, and economic realities of architectural design practice from 1650 to the present among a diverse collection of societies and cultures sampled across the northern, southern, eastern, and western hemispheres. This course expects students to develop "understanding" in this criteria.

Course Overview
This course examines developments in design history, theory, graphic representation, construction technology, and interior programming through case studies of individual buildings. The survey technique adopted by the course is both focused and panoptic. Each lecture delves deeply into one or two buildings to examine program, spatial organization, graphic representation, critical building details, and construction technology. The course then surveys the relationship of the case study building to other parallel works and the architect's overall body of work. From this nucleus of built objects the course spirals outward to consider how the case study is embedded within a constellation of social and economic factors crucial to its design and physical realization.

Course Assessment Method:
Student performance in relation to the PC4 goal is evaluated through a midterm and final exam, class participation and assignment performance in student discussion sections, and a final project to write an architectural manifesto and illustrate its canon of exemplary objects.

Evaluation of student performance
Letter grade plus qualitative feedback

Course Benchmark:
Anything greater than a B+ average across all assignments indicates that a student is successful and we expect 90% of students to achieve a B+ or higher.

Supporting Materials:
- ARCH 270 Syllabus

Instructor Assessment of PC4 Criteria in ARCH 270			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, more than 90% of students met the standard established for course success.	Starting in F22, in response to greatly increased student interest in racial and economic justice and architecture of the global south, lectures were reorganized to create two entirely new lectures: one on federal influence in housing from the Depression through the postwar era, focusing on the split between FHA support for the private housing market and the incursion of redlining vs. public housing as urban renewal; the other examining self-built housing in postwar Latin America vs. modernist urbanism (Brasilia).	Student performance in F22 exceeded the earlier benchmark: 100% of students achieved the standard established for course success.	For 2022, new lecture material compared the development of modern public housing in Europe and the US (including the legacies of redlining, disinvestment, and systemic racism on economic inequity), as well as informal self-built housing in the Global South. For 2023, new section readings will explore Berkeley as the epicenter of disability rights activism, its impact on Berkeley design studios in the 1980s, and the emergence of universal design practices.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC4 Criteria in ARCH 201 Architecture + Urbanism Design Studio

This course addresses the PC4 goal through two short projects that focus on analysis of housing precedents as well as readings on housing and urban space by prominent architectural theoreticians bolster the course. This course expects students to develop an "awareness" of this criteria.

Course Overview
This is the third required studio in architectural design, building upon foundations established in previous studios. The projects focus on a housing project of medium complexity within an urban context and expand both the scope and depth of investigation in terms of urban form, architectural research, site analysis, program, space, and context. Students produce work every week that is reviewed in class in a group pin-up setting. In addition, students are assessed at three key points: 1) a review for an initial short project, 2) a mid-review for the larger housing project, and 3) a final review for the larger housing project. Students are required to produce and present models, plans, sections, and site drawings. In this course, an "A" is defined as excellence in every way, with a high level of competence demonstrated in the work and process. Superior graphic and verbal presentation skills. Active participation in studio activities. A "B" is defined as good quality work touched by some inconsistencies in design, inadequate presentation, or limited understanding of design issues; good studio performance and/or in assignments.

Course Assessment Method:
Students are assessed on: their drawings and analyses of historic housing precedents, including projects by Le Corbusier, Georges-Eugène Haussmann, Kazuyo Sejima, Aires Mateus, and David Adjaye as well as readings by Nina Cooke John, Aldo Rossi, Kevin Lynch, and Margaret Crawford.

Evaluation of student performance:
Qualitative feedback

Course Benchmark:
A grade of "B" or higher is satisfactory. It is expected that 95% of students will achieve satisfactory or higher.

Supporting Materials:
- ARCH 201 Syllabus
- ARCH 201 Course Materials

Instructor Assessment of PC4 Criteria in ARCH 201			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 95% of students met the benchmark.	Starting in F22, case studies were modified to include more contemporary housing projects, and some readings were added to show varying theoretical perspectives.	In F22, 93% of students met the benchmark.	Case studies should expand the examination of exemplary housing projects within the last 75 years.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC4 Criteria in ARCH 207B Architecture Research Colloquium

This course addresses the PC4 goal by broadly introducing the history and theory of planning and policies that have shaped the settlement of cities in the U.S., particularly Oakland, the site for the corresponding multifamiy housing projects in ARCH 201, including the racial inequities that have emerged from historical practices. It introduces the theories around the use of "public" as framed by different cultural practices, and also addresses a series of concepts, such as "Counterculture" or "Micro-Utopia," that have played a role in shaping our contemporary understanding of the city. This course expects students to develop an "awareness" of this criteria.

Course Overview
This course accompanies the second year of the required architecture and urbanism design studio, and is the second in a series of three one-unit colloquia, scheduled consecutively in the fall for the first three years of the program. Students are asked to prepare questions for each week's speaker based on readings, and submit these questions to a common spreadsheet. These questions are reviewed by the instructor ahead of a visit by a speaker, and reviewed for originality and specificity.

Course Assessment Method
Subjects related to this NAAB goal are introduced across the entire speaker series, weeks 2–15 as each speaker addresses the history and theory of architecture and urbanism. Readings for these weeks are related to the subject, and students are evaluated based on 1) their engagement with the speaker and 2) how well their questions address these subjects. Attendance, participation in Q+A, and quality of questions are the thresholds to pass.

Evaluation of student performance:
Satisfactory/unsatisfactory

Course Benchmark:
A passing grade is considered satisfactory; 99% of students are expected to meet this benchmark.

Supporting Materials:
- ARCH 207B Syllabus
- ARCH 207B Course Materials

Instructor Assessment of PC4 Criteria in ARCH 207B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 100% of students received a grade of "satisfactory".	Starting in F22, each talk in the Colloquium has been framed through a 'word' or 'concept' that does not only provide students with a particular history in relation to a place, but aims to provide them with a theoretical agenda. Each speaker historically and theoretically problematizes contemporary urban issues. The introduction of this framework has helped to expand the discussions during the Q&A, in which students not only address the technical specificity of the talk (i.e. GIS) but problematize the subject to pose questions that address the discipline at large (i.e. the impact of 'code' on the architectural project or the redefinition of the role of the architect).	In F22, 100% of students received a grade of "satisfactory".	In F23, we suggest that we clarify the application of theoretical questions to the design studio, in particular by discussing such concepts via concrete case studies. On the one hand, the theoretical framework of the course was useful and successful. and students (when explained in a clear way) seemed to enjoy the history and theory and find it relevant for their design studios. Further, students engaged with historical talks, particularly when addressing specific problems through specific cities (i.e. the urban development of Athens and the question of informality as a political project). On the other hand, not all the talks were as successful, as students did not engage that much, when the theoretical problem was not discussed through a concrete example. We will also include an additional foundational lecture in American urbanism.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC4 Criteria in ARCH 204A Thesis Seminar

This course addresses the PC4 goal through the development of a thesis proposal based on research architectural history and theory relevant to the thesis topic. A thesis is a claim and proposition put forward. It is a statement and a position supported by an argument. Each thesis project sets up an important question for architecture and provides one answer to that question. Rather than being the expression of innate genius, the originality of a thesis is achieved via inventive/subversive repetition within a particular architectural lineage. A compelling architectural thesis is motivated by the concurrence of a specific disciplinary lineage and a particular sociocultural investigation, and unprecedented encounters between these attributes stimulate an original contribution to architectural knowledge. This course expects students to develop "understanding" in this criteria.

Course Overview

The work in this class is focused on the development of a clear thesis ambition and proposal with respect to a specific architectural issue. This work is reflected in the weekly presentations, as well as the final student project, which is presented in the form of a thesis book. The class presentations all work towards being the actual pages of each student's thesis book. The Thesis Book comprises: 1) a thesis background that provides a story and background to the thesis proposal, 2) written content presented in one of the following ways: an annotated set of images of precedents and original work, a manifesto for an architectural publication, a mission statement for architectural design work, an editorial introduction for an edited publication, an interview with a journalist, etc., 3) Preliminary drawings of the final thesis proposal. The final thesis proposal needs to: articulate a strong intellectual and design position; include a genealogy of historical and recent architectural production that situates the ambition with respect to the discipline; include a short bibliography of at least five essays or book chapters; assert the ambition's disciplinary and extra-disciplinary relevance (social, cultural, political, technological, economic, aesthetic, etc.); include initial design thoughts that give some indication of the architectural implications; and include initial elaboration on projected design and representational techniques.

Course Assessment Method

This thesis seminar is about situating, proposing, and refining encounters between a specific disciplinary lineage and a particular socio-cultural investigation, towards the development of a thesis project and cultivating a particular position that each student takes in the field. Assessments are described in the course overview above.

Evaluation of student performance:
Qualitative feedback (e.g, written feedback or in-person critique)

Course Benchmark:
Anything greater than a B+ on the final project indicates a student was successful;70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 204A Syllabi

Instructor Assessment of PC4 Criteria in ARCH 204A			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 85% of the students met the proposed benchmark.	In the F22 iteration of the course, specific topic-related readings were suggested to students earlier in the semester. Also, the students were asked to bring their short thesis statements more frequently to class to allow for thinking about the thesis question more directly in written form.	In S22, student performance was above the targeted benchmark. More than 85% of students' performance was higher than the established benchmark relative to this goal.	As evident in the F22 students' overall performance and feedback in this course, the current course structure and content work very well, where students describe their learning experience relative to all aspects and goals of the course as rewarding. In the next iteration of the course, there will not be major changes, but if the number of students continues to rise per each thesis section, the format will need to be tweaked to have fewer student presentations throughout the semester to be able to dedicate more time for research feedback and discussion.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC4 Criteria in ARCH 204B Thesis Studio

This course addresses the PC4 goal by asking students to develop a clear and well-articulated design project that declares their interests with respect to the field and establishes a firm basis upon which they will navigate their early work. The course cultivates the idea that a compelling architectural thesis is motivated by the concurrence of a specific historical disciplinary lineage and a particular socio-cultural investigation and that unprecedented encounters between these attributes stimulate an original contribution to architectural knowledge. Hence, history and theory both play an important role for students in the conceptual framing of their projects. This course expects students to develop an "understanding" of issues related to this criteria.

Course Overview
The thesis seminar and studio sequence marks the culmination of the Master of Architecture curriculum. Assessments across all criteria in this course are based on 1) originality, 2) intellectual ambition and clarity, 3) refined articulation (precision and communication of ideas), 4) skillful production of the projects (quality in technique and craft), 5) progress over the semester, 6) attendance, and 7) timely completion of exercises, all based on the challenges provided in the studio brief. Students are expected to develop a conceptually sophisticated and technically advanced design proposal with thoroughly articulated architectural considerations. This requires an intense level of investigation and independent thinking with the support and guidance of the instructor. Students are provided guidelines for self-evaluation, through which the final evaluation of work is made by the instructor. These guidelines include: clarity of conceptual intentions; positioning of thesis; translation of thesis; representational appropriateness and quality; oral presentation skills; breadth; participation in discussion; response to criticism; self-directed work / independence.

Course Assessment Method:
The thesis project required by this course is about researching, situating, proposing, and refining encounters between a specific disciplinary lineage and a particular socio-cultural investigation, towards the development of a thesis project and cultivating a particular position that each student takes in the field. Assessments are described in the course overview above.

Evaluation of student performance:
A letter or numeric grade

Course Benchmark:
Anything greater than a B+ on the final project indicates a student's success; 70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 204B Syllabi

Instructor Assessment of PC4 Criteria in ARCH 204B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, student performance was above the targeted benchmark. More than 80% of students' performance was higher than the established benchmark relative to this goal.	Starting in S23, students were given even more frequent feedback throughout the semester in relation to the conceptual framing of their projects and their historical and theoretical positioning in the discipline. Other than that, no major changes were made in relation to this goal in S23.	In S23, 90% of students met or exceeded expectations for this goal.	No particular change is considered for this goal.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC.5 Research and Innovation—How the program prepares students to engage and participate in architectural research to test and evaluate innovations in the field.

Program Response:
The program prepares students to engage and participate in architectural research and to test and explore innovations in the field in ARCH 204A Thesis Seminar and ARCH 204B Thesis Studio. These courses are offered in the last year of the program. ARCH 204A encourages independent research, preparing students for their final thesis studio. Students are empowered to identify and delve into a contemporary topic grounded in history, theory, and socio-cultural issues. The class fosters innovation and research by asking students to translate their research into a unique architectural thesis topic, one that pushes the discipline forward. ARCH 204B continues this trajectory in the design of a final thesis design project. It underscores the reciprocal relationship between research and design, enabling students to examine the potential of their research through innovative design work.

In addition, students engage and participate in architectural research from a technical perspective via the required Building Science Technology and Sustainability (BSTS) courses ARCH 240 Advanced Study of Energy and Environment and ARCH 250 Introduction to Structures, and from a humanistic perspective via the required History, Theory and Society (HTS) courses ARCH 230 Advanced Architectural Design Theory and Criticism and ARCH 270 History of Modern Architecture. In ARCH 240, taken in the first semester, students utilize computer simulations and advanced software to evaluate design decisions in the context of sustainable design. This hands-on approach equips students with the most current methods and metrics used in professional practice. ARCH 250 focuses on case study analysis in teams. Here, students investigate innovative projects, enhancing their understanding of design drivers and structural concepts. ARCH 270, taken in the first semester, stimulates research on historical design manifestos and canons. This leads to students crafting their own manifestos, helping to articulate and communicate their personal architectural perspectives. In their second semester, students take ARCH 230, which culminates in a research paper focused on a single case study. Guidance and feedback are provided throughout the semester, facilitating the development of research, reading, and writing skills. Lastly, there are a number of graduate seminars on advanced topics in design, BSTS and HTS. These are not included here as topics vary in any given semester.

PC5 - Research & Innovation	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC5 Assessment Points

The following courses are program assessment points for PC5 - Research and Innovation:

- **ARCH 204A Thesis Seminar**
- **ARCH 204B Thesis Studio**

Students are assessed on their ability to perform architectural research in ARCH 204A Thesis Seminar and ARCH 204B Thesis Studio. In ARCH 204A, students prepare a final thesis seminar book at the end of the semester. The thesis book outlines their research ambitions through the articulation of a thesis statement, written text, and proposal for a design project. All work in this class including the weekly presentations is focused on developing a clear thesis ambition and a thesis proposal presented in the form of the book. Students are expected to articulate a strong intellectual and design position focused on specific architectural aspects and techniques. It includes a short bibliography of the essays or book chapters most relevant to the ambition. It asserts the thesis ambition's disciplinary and extra-disciplinary relevance (social, cultural, political, technological, economic, aesthetic, etc.). It includes a design thesis project proposal that indicates the student's thesis ambition's potential architectural design implications and an initial elaboration on projected design and representational techniques. Assessment is based on the grade received for the final thesis book (benchmark: 90% to receive a B+ or higher, 90% of students met this benchmark).

Students are assessed on their ability to test and explore innovations in the field in ARCH 204B Thesis Studio. Following research completed in the previous semester thesis seminar, students focus on developing a thesis design project. Each student is expected to create a unique design proposal that incorporates one or more innovative ideas and builds upon the discipline's formal, spatial, material, technological, environmental, contextual, representational, socio-cultural, etc. practices. At the end of the semester, each student is expected to have a refined thesis focus, an architectural proposition of that focus as a project, and produce detailed drawings and models of that project which are coordinated into a final review presentation and final thesis book. Grading is based on consistency of work throughout the semester and quality of the final thesis project. Grading is determined by the thesis studio section instructor who acts as the primary thesis advisor in consultation with the thesis studio coordinator and each student's secondary thesis advisor (benchmark - 90% of students to receive a B+ or higher, 90% met the benchmark).

Evidence for PC5 Assessment Points

- ARCH 204A
  - ARCH 204A Syllabus
  - ARCH 204A Course Materials
  - ARCH 204A_Grading Sheet
- ARCH 204B
  - ARCH 204B Syllabus
  - ARCH 204B Course Materials
  - ARCH 204B_Grading Sheet

The Assessment Point Matrix for PC5 may be found here: Assessment Point Matrix_PC5

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC5 are as follows:

PC5 Criteria in ARCH 204A - Thesis Seminar

Taken in the fifth semester, this course prepares students for their final thesis studio. This course addresses the PC5 goal by asking each student to take on independent research on a topic of their interest. This course expects students to develop "understanding" in this criteria.

Course Overview:
The work in this class is focused on the development of a clear thesis ambition and proposal with respect to a specific architectural issue. This work is reflected in the weekly presentations, as well as the final student project which is presented in the form of a thesis book. The class presentations all work towards being the actual pages of each student's thesis book. The Thesis Book comprises: (1) Thesis Background provides a story and background to the thesis proposal. (2) Written content presented in one of the following ways: an annotated set of images of precedents and original work, a manifesto for an architectural publication, a mission statement for architectural design work, an editorial introduction for an edited publication, an interview with a journalist, etc. (3) Preliminary Drawings of the final thesis proposal. The final thesis proposal needs to: Articulate a strong intellectual and design position; Include a genealogy of historical and recent architectural production that situates the ambition with respect to the discipline; Include a short bibliography of at least five essays or book chapters; Assert the ambition's disciplinary and extra-disciplinary relevance (social, cultural, political, technological, economic, aesthetic, etc.); Include initial design thoughts that give some indication of the architectural implications; Include initial elaboration on projected design and representational techniques.

Course Assessment Method:
Weekly assignments include presentations in which students are asked to critically evaluate developments in the field as it relates to their research project. Assessments are described in the course overview above.

Evaluation of student performance:
Qualitative Feedback (e.g. written feedback or in-person critique)

Course Benchmark:
Anything greater than a B+ on the final project indicates a student was successful. 70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 204A Syllabus

Instructor Assessment of PC5 Criteria in ARCH 204A			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, most of the students met the benchmark proposed in the area of Research and Innovation.	In F22, no changes were made in direct relation to this criteria.	In S22, student performance was above the targeted benchmark. More than 80% of students' performance was higher than the established benchmark relative to this goal.	As evident in the F22 students' overall performance and feedback in this course, the current course structure and content work very well, where students describe their learning experience relative to all aspects and goals of the course as rewarding. In the next iteration of the course, there will not be major changes, but if the number of students continues to rise per each thesis section, the format will need to be tweaked to have fewer student presentations throughout the semester to be able to dedicate more time for research feedback and discussion.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC5 Criteria in ARCH 204B - Thesis Studio

Taken in the sixth semester, ARCH 204B marks the final course to address this criteria. This course addresses the PC5 goal by continuing the research trajectory of each student in parallel to their investigations in the ARCH 204A Thesis Seminar by testing the potential of that research through design work and innovation. The reciprocal relationship between research and design continues throughout the semester. This course expects students to develop "ability" in this criteria.

Course Overview:
The thesis seminar + studio sequence marks the culmination of the Master of Architecture curriculum. Assessments across all criteria in this course are based on 1) originality, 2) intellectual ambition and clarity, 3) refined articulation

(precision and communication of ideas), 4) skillful production of the projects (quality in technique and craft), 5) progress over the semester, 6) attendance, and 7) timely completion of exercises, all based on the challenges provided in the studio brief. Students are expected to develop a conceptually sophisticated and technically advanced design proposal with thoroughly articulated architectural considerations. This requires an intense level of investigation and independent thinking with the support and guidance of the instructor. Students are provided a guideline for self-evaluation, through which the final evaluation of work is made by the instructor. These guidelines include: Thesis: How clearly are you articulating your conceptual intentions? Positioning of Thesis; Translation of Thesis; Representation - Appropriateness; Representation - Quality; Oral Presentation Skills; Breadth; Participation in Discussion; Response to Criticism; Self-Directed Work/Independence.

Course Assessment Method:
Through regular public reviews of design work with faculty and guest critics, projects are evaluated in terms of how they critically evaluate recent developments in the field. Assessments are described in the course overview above.

Evaluation of student performance:
A Letter or Numeric Grade

Course Benchmark:
Anything greater than a B+ on the final project indicates a student's success. 70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 204B Syllabus

Instructor Assessment of PC5 Criteria in ARCH 204B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, student performance was above the targeted benchmark. More than 90% of students' performance was higher than the established benchmark relative to this goal.	Starting S23, no major changes were made relative to this goal.	In S23, student performance was above the targeted benchmark. More than 90% of students' performance was higher than the established benchmark relative to this goal.	No particular change is considered for this goal.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC5 Criteria in ARCH 240 - Advanced Study of Energy and Environment

ARCH 240 is taken in the fourth semester of the 3-year sequence. This course addresses the PC5 goal through a number of avenues. Initial case studies of recent AIA COTE Awards (Committee on the Environment) ensure that students research and analyze some of the most advanced examples of sustainable design. Computer simulations are used in all assignments to evaluate and support design decisions, using state-of-the-art software for energy, daylighting, climate analysis and other aspects, most of them based on simulation engines developed at Lawrence Berkeley National Laboratory (LBNL), where the instructor is a faculty scientist. Design decision-making is supported by evaluation metrics either imposed by regulatory context or well recognized in the field. We often adapt those metrics to the most recent standards or rating systems. Several students who enter high-end firms in sustainable design write back noting how ARCH 240 has prepared them for work at the office since we use the most current methods and metrics. This course expects students to develop an "understanding" of issues related to this criteria.

Course Overview:
Arch 240 is the core Energy and Environment course of the MArch program. Course goals include training on design processes that increase the autonomy and resilience of the built environment, conserve resources, and promote health and well-being for occupants. Architecture is seen as a mediator between the departing conditions of site and climate, and a final built artifact calibrated for users' needs and health. Students become aware that the path to Net Zero architecture starts with passive and climate responsive design, generating less energy demands. This opens the door to streamlined, energy efficient and healthy MEP systems, with reduced energy needs that can be offset by renewable on site energy generation. All three steps need to be addressed to achieve carbon neutrality, since they work as a system. Climate change mitigation can also not be achieved at the expense of human health and comfort. These goals create a holistic approach to design that starts with massing and building shape, progresses to spatial layout, and culminates with tectonics, envelope design & operability, and integration with MEP systems.

Course Assessment Method:
ARCH 240 responds to PC5 by preparing students to apply novel design processes, and use advanced computational simulations to test them. This includes innovation both in materials, systems, metrics and processes. Assignment 1 requires students to analyze some of the most recent achievements in sustainable design as recognized by AIA COTE. For assignments 3, 4, 5 and 6, ARCH 240 applies innovative pedagogical methods based on performance-driven design. Many of these methods were developed in unique ways by the ARCH 240 team, exploring new possibilities made available through the integration of advanced modeling software such as Rhino, with state-of-the-art simulation engines developed at LBNL. Students analyze and evolve their design solutions using the latest tools available, guided by design methods that integrate qualitative and quantitative aspects at different design phases, from conceptual stage to materials choices. In particular, the field of daylighting has witnessed important advances in the last decade, with new metrics created and computational methods developed that can significantly impact early design and building geometry. In assignments 4 and 6, students use the most advanced metrics and processes in the field and become prepared to implement them in professional practice.

Evaluation of student performance:
A Letter or Numeric Grade.

Course Benchmark:
Anything greater than a B+ on the final project indicates a student's success. 70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 240 Syllabus
- ARCH 240 Course Materials
- ARCH 240 Student Work

Instructor Assessment of PC5 Criteria in ARCH 240			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met the established benchmark.	To teach students the difference between a research method and a design method, assignment 5 starts with a sensitivity analysis study. Students simulate the effect of certain building characteristics by systematically varying them from very poor to very good. If results are not significantly altered, that signals a 'do-not-care' parameter. This year, to better integrate with NAAB SC3, we have changed the lower boundaries in the base case to match the minimum permitted by standard ASHRAE 90.1 for a specific climate zone.	In S23, 100% of students met the established benchmark.	For assignments 5 and 6, we will continue to integrate with standard ASHRAE 90.1. The sensitivity analysis study will use lower boundaries based on ASHRAE 90.1 and upper boundaries derived from best practice. This will train students to compare the impact of building according to minimum legal standards (code) as opposed to best practice and innovation.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC5 Criteria in ARCH 250 - Introduction to Structures

Among the courses in their second semester that address this criteria is ARCH 250, which is taken in the second semester of the 3-year sequence. This course addresses the PC5 goal through the analysis of case studies that students work on in teams of 3-4. In particular, in Project 1, "Case Study Analysis", students investigate a case study from a list of projects that exemplify certain innovations of their time, and present and discuss the underlying design drivers and structural concepts. This course expects students to develop an "awareness" of issues related to this criteria.

Course Overview:
This class focuses on the fundamental principles that affect the structural behavior of buildings. Lectures introduce the fundamental principles that influence the structural behavior of buildings and discuss various structural systems and materials relevant to their design. The spectrum of lectures ranges from loads, forces, and stresses in static equilibrium systems to general material properties and section-, vector-, surface-, and form-active structures. In lab

sessions, students learn both manual and digital techniques for evaluating the flow of forces through structural systems and for evaluating the stresses that occur. In five lab exercises, students apply their acquired knowledge to predict and calculate stresses in structural members and to design structures with adequate dimensions. This is achieved through both manual calculations and digital analysis tools. Students are evaluated using qualitative feedback by the instructor, classmates, and invited guests who are experts in the field of structural design. Furthermore, the student teams will receive a letter grade for each of the three assignments.

Course Assessment Method:
Student performance is assessed through three semester assignments (case study analysis, midterm project, and final project). For each of these assignments, students work in teams of 3 to 4 and must present their final results in the form of a 15-minute presentation, a discussion with classmates, and a written project report that includes the data collected, a project description, a structural concept statement, photographs and illustrations, as well as structural calculations and digital simulations.

Evaluation of student performance:
Qualitative feedback and a letter grade.

Course Benchmark:
An A- or above indicates a successful assignment. 80% of students are expected to achieve an A- or higher.

Supporting Materials:
- ARCH 250 Syllabus
- ARCH 250 Course Materials
- ARCH 250 Student Work

Instructor Assessment of PC5 Criteria in ARCH 250			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, students met the proposed grade standard for this criteria. The 51 students in this class formed 14 teams that worked on Project 1 - Case Study Analysis. 84% of the students scored an A- or better.	Starting in S23, we expanded the list of case studies from which students can choose. We also provided them with starting links and references to accelerate their research into the details of their chosen project. Because the number of participants was slightly smaller than last year, we were able to allow more time for group discussions and questions following the students' presentations, which helped enormously in understanding the projects better.	In S23, 85% of the students scored an A- or better.	The expansion of case studies from which students can choose and the support with links and references to speed up research for underlying structural design strategies and connection details was helpful. There are still some projects in the list where students seem to have a difficult time finding good documentation or understanding the complex structural/material behavior (e.g., projects built with bamboo structures); we will remove these from the list. Furthermore, we aim to update this list each year to include newer projects that students may have seen on social media and are particularly excited about.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC5 Criteria in ARCH 230 - Advanced Architectural Design Theory and Criticism

Among the courses in their second semester that address this criteria is ARCH 230, which is taken in the second semester of the 3-year sequence. This course addresses the PC5 goal through the final semester project, which asks students to focus on one case study (building, project, drawing, or book) and present a coherent research paper for that case study. Throughout the semester, students receive feedback and guidance for their research project through midterm submission and class presentation. Through independent research on a specific case study, students develop their research, reading, and writing skills with the guidance of the instructor and the Graduate Student Instructors. This course expects students to develop "understanding" in this criteria.

Course Overview:
This course exposes students to key discussions in architectural thought from 1945 to the present. Each week explores debates that have driven architects and theorists in relation to the production and use of buildings, urban space, and

their metropolitan contexts. Organized around particular themes and case studies that have recurred major questions within architectural discourse, the course explores various architectural projects and debates within their historical, disciplinary and cultural contexts. The course aims to expose students to such exchanges and debates that have driven architects and theorists for the last five decades and provoke students to develop their own architectural positions. By understanding the multiple relations that constitute architecture, the course prompts students to rethink the connections between theory and practice or between the design studio and the seminar. The course presents how historical approaches and debates continue to influence present trajectories and asks how possible futures can be informed by a critical understanding of the past and the present. The class meets weekly and consists of lectures, student presentations, and class discussions. All students are expected to prepare for each week by completing the assigned reading before the lectures and by participating actively in discussions with relevant questions.

Course Assessment Method:
The second half of the course focuses on contemporary topics relevant to current architectural research and advancing students' capacity for critically evaluating developments in the field. Topics in the section of the course include: race, representation, software, labor, domesticity, queer space, climate change and post-carbon futures, feminism. In completing the assignments, the following criteria are used for student work evaluation: 1) Ability to formulate an independent and critical approach to a specific topic; 2) Ability to sufficiently grasp the material to be addressed, 3) Ability to go beyond a satisfactory grasp of the material to speculations that creatively engage the material; 4) Ability to communicate those speculations verbally in weekly discussions and class presentations, and in writing through reading responses and the final semester project; 5) Ability to situate their approach with respect to the arguments of others.

Evaluation of student performance:
A Letter or Numeric Grade

Course Benchmark:
Anything greater than a B+ on the final project indicates a student's success. 70% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 230 Syllabus

Instructor Assessment of PC5 Criteria in ARCH 230			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, student performance exceeded the established benchmark. More than 80% of students were successful relative to this goal.	Starting S23, the instructors will organize an informal feedback session for the final research project before spring break to encourage incremental growth of the projects. This will be in addition to the feedback the students will receive after the break and during the final class symposium.	In S23, student performance was above the targeted benchmark. More than 80% of students' performance was higher than the established benchmark relative to this goal.	No specific changes are planned in relation to this goal.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC5 Criteria in ARCH 270 - History of Modern Architecture

The first course students encounter that addresses this criteria is ARCH 270, which is taken in the first semester of the 3-year sequence. This course addresses the PC5 goal through lectures and small group discussions of the role of the manifesto and the canon in professional practice and architectural innovation. Students research historical examples of design manifestos and canons and discuss the mechanics and genre qualities of each in order to create their own as a means of communicating their own architectural perspective. This course expects students to develop an "awareness" of issues related to this criteria.

Course Overview:
This course examines developments in design history, theory, graphic representation, construction technology and interior programming through case studies of individual buildings. The survey technique adopted by the course is both focused and panoptic. Each lecture delves deeply into one or two buildings to examine program, spatial organization, graphic representation, critical building details, and construction technology. The course then surveys the relationship of the case study building to other parallel works and the architect's overall body of work. From this nucleus of built

objects the course spirals outward to consider how the case study is embedded within a constellation of social and economic factors crucial to its design and physical realization.

Course Assessment Method:
Student performance of the NAAB PC5 Research and Innovation goal is evaluated through a semester (term project) assignment to write their own architectural manifesto and to illustrate its canon of exemplary objects presented in "book form" (widely defined) as the project deliverable.

Evaluation of student performance:
Qualitative feedback on first drafts and a letter grade.

Course Benchmark:
An A- or above indicates a successful canon/manifesto assignment, by our standards, and we expect 75% of the students to achieve an A- or higher.

Supporting Materials:
- ARCH 270 Syllabus

Instructor Assessment of PC5 Criteria in ARCH 270			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, fewer students met the grade standard than proposed.	Starting in F22, more time is spent in lectures pointing out how the architects whose works are covered used manifestos to advance their development. Lectures now include prompts asking students what kinds of buildings, objects, or other precedents they might imagine were used by architects to generate specific buildings under examination.	In F22, the benchmark was met with more than 85% of students receiving a final project grade of A- or higher.	In F22, students (particularly those with English as a second language) received more intensive individual coaching on writing skills from the Graduate Student Instructor. For F23, I plan to have students generate a "nonsense manifesto" (i.e. the prompt "write a manifesto for modern architecture built with concrete and kittens") as a group exercise using Chat GPT as a case study in capturing the dynamic rhetorical tone of a manifesto, which AI does more persuasively than many students.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC.6 Leadership and Collaboration—How the program ensures that students understand approaches to leadership in multidisciplinary teams, diverse stakeholder constituents, and dynamic physical and social contexts, and learn how to apply effective collaboration skills to solve complex problems.

Program Response:
The program ensures students understand approaches to leadership in multidisciplinary teams, diverse stakeholder constituents, and dynamic physical and social contexts, and learn how to apply effective collaboration skills to solve complex problems in ARCH 207D - Cultures of Practice and ARCH 203 - Integrated Design Studio. ARCH 207D covers key topics such as teamwork in design, relationships with related disciplines, leadership in teams, client communication, and the economics of good design. Throughout the course, students work collaboratively on presentations related to professional topics, while class discussions explore various professional career paths. In ARCH 203, students are paired in teams to design an integrated building design for the duration of the semester. This course simulates aspects of professional practice where the student team leads the design and incorporates consultant feedback on aspects of structures, code and life safely, daylighting, and facade and mechanical systems. In addition, ARCH 260 - Introduction to Construction addresses the PC6 goal by teaching students how architects make integrated decisions across multiple systems and variables in a design project, and understand the relationships between key stakeholders—client, contractor, architect—in the design process. It focuses on how design decisions involve collaboration across various integrated systems and diverse stakeholders.

PC6 - Leadership & Collab.	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC6 Assessment Points

The following courses are program assessment points for PC6 - Leadership and Collaboration:

- **ARCH 207D - Cultures of Practice**
- **ARCH 203 - Integrated Design Studio**

Students are assessed in their understanding of leadership of multidisciplinary teams and diverse stakeholder constituents in ARCH 207D, the professional practice course. Leadership and collaboration tips are covered in the "The Project Experience" series of classes including: Class #25 on the design team, MEP and trade partners, and consultants and their roles; Class #26 on architect as design team leader, the client relationship, communication, and presentation; Class #27 on the role of the general contractor and project delivery methods; and Class #28 on the design approvals process. Students are graded on class participation, leading class discussions, participation in mock-interviews, and role-playing exercises simulating typical collaboration scenarios (Benchmark - 95% of students expected to participate and receive a pass from peer evaluations on role-play and collaboration, 97%** **met the benchmark).

Students are assessed on their ability to apply effective collaboration skills to solve complex problems in ARCH 203 - Integrated Design Studio. Student teams of two lead and execute the evolution of their building design in a collaborative environment with professional consultants and the design instructors. The student team is responsible for solving complex issues of design synthesis and integration while weighing instructor feedback on concept, design, contextual response, programming, etc., and consultant feedback on structures, mechanical, life safety, environmental impacts, and life safety in their project. Assessment is based on consistent effort throughout the semester, quality of the final design project, and successful completion of the final drawing set (benchmark - 85% of students expected to receive 87/100 points or better on sheets related to PC6 in the final drawing set; 96% met the benchmark).

Evidence for PC6 Assessment Points

- ARCH 207D
  - ARCH 207D Syllabus
  - ARCH 207D Course Materials
  - ARCH 207D_Attendance Sheet
  - ARCH 207D Discussion Reports
- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 207C_Schedule
  - ARCH 207C_Readings
  - ARCH 207C_Summaries of Lectures
  - ARCH 207C & ARCH 203 Lecture Slides
  - ARCH 203_Drawing Set Guidelines
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work

The Assessment Point Matrix for PC6 may be found here: Assessment Point Matrix_PC6

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC6 are as follows:

PC6 Criteria in ARCH 207D - The Cultures of Practice

This course addresses the PC6 goal through lectures included in the "Project Experience" series, which covers topics in leadership and collaboration, including: working in design teams, relationships with allied disciplines, team

leadership, client relationships, communication skills, the role of the general contractor, the economics of good design. This course expects students to develop "understanding" in this criteria.

Course Overview:
The class is intended to facilitate the transition from education to practice, as an introduction to the world of the AEC Industry, and the significance of the profession of Architecture in leading the design of the built environment, and how the culture of the profession evolves. The course is divided into thematic modules: 1) "The Professional Challenge", 2) "The Business of Architecture", 3) "The Project Experience", and 4) "Preparing for Professional Success". Each module offers in-class lectures, and related readings or podcasts that address typical issues related to professional practice. Students complete discussion-related weekly assignments including developing a fee proposal, project budget and schedule, and participating in a mock-client interview, in addition larger assignments that include: a "Firm Analysis Report", a "Portfolio Mockup", a resume, and a comprehensive course notebook / journal.

Course Assessment Method:
Topics in leadership in collaboration in practice are specifically addressed in lectures late in the semester - specifically classes 26 and 27. Across the course, students collaborate on preparing presentations related to professional topics. In discussion, students look at traditional and non-conventional career paths in the profession, and consider the value of networks like AIA and NOMA. Students demonstrate communication and leadership skills through leading class discussion, mock interviews (in class 16) and through "role play" exercises in which students perform a given role (e.g. client, contractor, etc) in a typical collaborative scenario in practice. Further, communication skills are directly assessed through a small class assignment in which students are asked to compose an email to a client.

Evaluation of student performance:
Satisfactory / Unsatisfactory

Course Benchmark:
Nearly 100% of students are expected to complete each assignment in a satisfactory way.

Supporting Materials:
- ARCH 207D Syllabus
- ARCH 207D Course Materials

Instructor Assessment of PC6 Criteria in ARCH 207D			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded expectations. Benchmark met	Starting in S23, this course was staffed by a new instructor that made several significant changes. Relative to this particular goal, the course moved away from the study of the perspectives of various constituencies in the abstract, and introduced more scenario-based approaches that reflect real-world collaboration situations via peer-to-peer learning and role-play.	In S23, 100% of students met or exceeded expectations. Benchmark met	In future iterations of the course, we envision taking more steps that better tie collaboration exercises in with other aspects of the course, such as projects, guest speakers, and readings.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC6 Criteria in ARCH 203 - Integrated Design Studio

ARCH 203 students develop an ability to collaborate and lead in the development of a mid-size architectural project through the integration of building systems and material assemblies with design. The projects consider questions of site, community context, climate, program, environmental performance, life safety, structural and mechanical systems, and material tectonics. Students are responsible for the integration of their urban strategy all the way through to selected building construction details.

This course addresses the PC6 goal by requiring students to work in teams together with another classmate and professional consultants. They are responsible for demonstrating effective collaboration with their final synthesized design drawings and models, and leadership by leading the communication with consultants as to their design intents,

and effectively integrating feedback with a series of design iterations. This course expects students to develop "ability" in this criteria.

Course Overview:
This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, commercial and educational buildings, etc. In this Integrated Studio, students are tasked with the design of a 20,000 - 30,000sf building on a specific site within the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:
This course promotes the integration of building systems through the engagement of specialist consultants that are present in the studio and that engage with students iteratively across the development of design projects. These specialist consultants are at the service of students, and engage weekly in this course (and also lecture in ARCH 207C). This includes a structural consultant, two dedicated facade consultants, a fire and life safety consultant, two dedicated mechanical systems consultants, and a single instructor dedicated to environmental design. While the first half of the course proceeds through the development of a design schematic, the second half is dedicated to the development of this design as it integrates with a range of building systems, all of which leads to the production of an integrated drawing set. Student understanding of building integration is then assessed through this drawing set, and building integration issues are infused throughout the entire set. The integrated section is perhaps the best example of integration, but we see the synthesis of design concerns and building systems in every drawing.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project, final review, and final drawing set. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A B+ or higher is considered successful. 90% of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of SC6 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21 90% of students met or exceeded the benchmark.	Starting in F22, the introduction of a formal drawing set helped students understand the integration of various systems in a design.	In F22 95% of students met or exceeded the benchmark.	Starting in F23, we suggest that the course provide more examples and clarify the intentions of the "Integrated Building Section" drawing. Further, the environmental systems documentation examples could be improved.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC6 Criteria in ARCH 260 - Introduction to Construction

This course addresses the PC6 goal through lectures that include topics that cover: 1) understanding of how architects demonstrate the skills associated with making integrated decisions across multiple systems and variables in the completion of a design project, 2) understanding of the relationships among key stakeholders in the design process—client, contractor, architect—and the architect's role to reconcile stakeholder needs. This course expects students to develop "understanding" in this criteria.

Course Overview:
This course introduces the materials, components, and processes of construction. Here, students become familiar with each of these elements, understand the role of both labor and available skilled trades, the location of on- and off-site work, and the impact of codes and regulations on design professionals. Lectures communicate: a) the basic principles of structural systems and their ability to withstand forces, b)the basic principles used in the selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse, c) the basic principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems. The "Tectonic Precedent" projects aims to develop capacity for: a) technically clear drawings and models illustrating the assembly of materials, systems, and components appropriate for a building design; b) applying the principles of structural systems; c) the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse. The "Construction Site Report" exercises develop understanding of: a) the basic principles of structural systems; b) the principles used in selecting construction materials; c) the principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems.

Course Assessment Method:
This course addresses issues of collaboration and multidisciplinary teamwork through lectures that discuss how design decisions are made across multiple integrated systems and diverse stakeholders, and through the team-based precedent project. As for other criteria, student performance related to this criteria is assessed through quizzes, construction site reports, and tectonic precedent drawings and models.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
Anything greater than a B+ on quizzes and final grade indicates a student was successful. 80% of students are expected to achieve a B+ or higher

Supporting Materials:
- ARCH 260 Syllabus
- ARCH 260 Course Materials
- ARCH 260 Student Work

Instructor Assessment of PC6 Criteria in ARCH 260

AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	Changes AY 21-22 -> AY 22-23 *changes made to improve student performance / better meet this goal*	AY 22-23 Assessment *did students in AY 22-23 achieve at the level expected?*	Changes AY 22-23 -> AY 23-24 *changes made to improve student performance / better meet this goal*
In F21, 90% of students met or exceeded the B+ benchmark.	Starting in F22, based on student reviews, additional text on lecture slides was added. While this appears to most aid ESL students, I expect most will benefit, as well.	In F22, 100% of students met or exceeded a B+ average in the class.	Moving into F23, no changes in direct relation to this criteria are envisioned.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC.7 Learning and Teaching Culture—How the program fosters and ensures a positive and respectful environment that encourages optimism, respect, sharing, engagement, and innovation among its faculty, students, administration, and staff.

Program Response:
For PC7 - Learning and Teaching Culture, The department strives to create a positive learning and teaching culture through supporting students, faculty, and staff in multiple ways. We have taken a holistic approach in how our learning and teaching culture is instilled in students' knowledge acquisition, understanding, and experience. PC7 has been addressed by administrative, curricular and non-curricular community building activities, although not all students have the exact same experience. More information on faculty, staff and student support can be found in section 5.4.3 and 5.4.4. Some items directly affecting our learning and teaching culture for students are summarized below.

We provide student opportunities for teaching, governance, and socializing, as well as a well-structured curriculum that allows flexibility. Our M.Arch Program has a strong reputation in fostering graduate students who aspire to teach through Graduate Student Instructor positions. SInce Fall 2013, the Department of Architecture, together with the City & Regional

Planning, and the Department of Landscape & Environmental Planning have established a course ARCH375- A Seminar in the Teaching of Architecture (The Berkeley GSI Seminar on Pedagogy). This course is required for all new GSIs in the College of Environmental Design. The University at large is also strongly committed to fostering a positive learning and teaching culture. Each year at the beginning of the Fall Semester, there is an orientation for all new Graduate Student Instructors. More information about this coming Fall Teaching Conference for the First-Time Graduate Student Instructors can be found on the Graduate Student Instructor Teaching and Resource website.

Students share in the governance and shaping of the department and college as described in section 5.1.2. Student representatives meet on a regular basis with the chair and dean and are involved in important department processes such as faculty searches. Student opinion also weighs heavily in course content and structure as each class has a rigorous course evaluation process.

The department supports community building events such as the Graduate Student Union happy hours and the recent graduation prom. We also host several receptions, lunches and other social events each year. In general, we understand that the department of architecture has one of the more collegial and collaborative student bodies in the country. We hear anecdotally that this is sometimes a factor for students choosing to study at Berkeley.

PC7 Assessment Points

The following is the assessment point for PC7 - Learning and Teaching Culture:

- **Graduate Student Exit Survey**

We apply an indirect assessment method using the Graduate Student Exit Survey administered by the CED. Informal surveys are also administered to students once a semester by the Graduate Architecture Student Union (GASU). GASU regularly meets with the Chair, Dean, and GSAOs to communicate positive and negative feedback gathered from the graduate student population. Students also have access to faculty who hold office hours and are open to meeting with students on a one to one basis outside of class.

From the redacted version of CED Graduate Exit Survey 2022 we received responses from 74 out of 78 M.Arch. graduates from Option Two and Option Three combined. The results of this assessment reveal students' overall positive experience. As seen in Question 14.1, 95% of students confirm that their overall academic experience in CED (courses, studio,lectures,curriculum,faculty, etc.) has been positive (36.49% strongly agree with the statement, 50% agree, and 9.46% somewhat agree). Ninety-three percent of our graduates responded positively that CED Faculty are genuinely concerned about their welfare (Question 15.1) The survey also shows that a large majority of the M.Arch graduates were satisfied with issues that influence aspects of teaching and culture such as: the availability of courses needed for graduation, the quality of faculty instruction, and the ability to access the faculty outside of class.

In the aspect of faculty advising and mentoring, about 84% of the graduates are satisfied with the advising and mentoring received from faculty in academic matters (Question 13.1) and 78% are satisfied with the advising and mentoring received from faculty on career and professional matters (Question 13.2). We will continue to improve on creating an even more comfortable environment for students to speak with the faculty on career and professional matters. Because of a shortage of ladder faculty and the inability to ask lecturers to do additional service, we do not currently have faculty assigned as mentors to graduate students as we had in the past. As we build our faculty numbers, we hope to revive this tradition.

We are doing well when it comes to the climate within the College. Eighty-six percent of our graduates believe the CED environment encourages free and open discussion of difficult topics (Question 15.2), 87% feel that our school offers effective classroom opportunities to explore issues of diversity and the built environment (Question 15.4), and 91% believe that we have achieved a positive climate for equity and inclusion (Question 15.5).

The exit survey also addresses community and belonging at CED, with 91% of students responding that they had a positive experience with clubs, community events, social activities, student-led activities, leadership opportunities, the sense of camaraderie among students, etc., and 93% saying that they feel they belong at CED (Question 16.9).

Evidence for PC7 Assessment Points

- CED Graduate Exit Survey 2022

The Assessment Point Matrix for PC7 may be found here: Assessment Point Matrix_PC7

PC.8 Social Equity and Inclusion—How the program furthers and deepens students' understanding of diverse cultural and social contexts and helps them translate that understanding into built environments that equitably support and include people of different backgrounds, resources, and abilities.

Program Response:

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

abilities in ARCH 230 - Advanced Architectural Design and Criticism, ARCH 201 - Architecture & Urbanism Design Studio and its companion colloquium ARCH 207B - Architecture Research Colloquium. ARCH 230 provides a broad overview of architectural theory, particularly its relation to larger social, cultural, historical, and political events. Specific weeks are dedicated to topics like “Architecture and Race”, “Queer Space”, and “Architecture and Care”, aiding students to translate their understanding into built environments that equitably support diverse individuals. A pair of courses taken in the third semester address this criteria in tandem. ARCH 201 achieves PC8 goals by conducting an intensive study of a site in Oakland and focuses on programs and sites that promote inclusivity within typically underserved communities. ARCH 207B prompts a crucial question about how architects translate various aspects of a locale into forms that reveal the characteristics of a place. Concepts such as othering, inequality, race, and gender permeate multiple lectures with subjects directly related to social equity and inclusion introduced and evaluated throughout the course. In addition, ARCH 270 - History of Modern Architecture examines built environments across different eras and cultures, emphasizing the role of architecture in structuring spaces of social encounter and the ethical responsibility of design professionals to promote diversity, equity, and inclusion. Weekly meetings encourage students to reflect on modernist practice and regional building cultures in their cultural and social contexts.

PC8 - Social Equity & Incl.	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

PC8 Assessment Points

The following courses are program assessment points for PC8 - Social Equity and Inclusion:

- **ARCH 201 - Architecture and Urbanism Design Studio**
- **ARCH 230 - Advanced Architectural Design and Criticism**

Students are assessed on their understanding of diverse cultural and social contexts in ARCH 230. Weekly topics pertaining specifically to PC8 goals include: Week 2 (Theory); Week 3 (Ruin), Week 4 (Politics of disability); Week 8 (Architecture, race, and indigenous agency); Week 9 (Queer space); Week 13 (Architecture and environmental justice); and Week 14 (architecture and care). All students are expected to formulate a 200-250 words response paper for each topic which addresses central issues encountered in the readings for that week. Each response is due before each class and submitted online at the course website discussion forum. Each student can see their classmates’ responses only once they have added their response to the forum (benchmark - 85% to receive a B+ or better, 70% met the benchmark). To improve learning outcomes, students will be asked in the future to verbally summarize their weekly papers in the discussion sessions for feedback. Students are also assessed on their understanding in the final ARCH 230 paper. This 2,500 paper focuses on a particular case study and asks students to elaborate on the social and political context of the architectural work - building writing, exhibition, project (Benchmark - 85% to receive a B+ or higher, 85% met the benchmark).

Students are assessed on how they translate their understanding of diverse social and cultural contexts into the built environment in ARCH 201. The studio projects are sited in Oakland, California; Oakland is adjacent to Berkeley with rich cultural, social, economic and racial diversity. The corridor on which the projects are sited straddles neighborhoods of different character. The program is multifamily housing. Assessment is based on the final studio project and the manner it addresses issues of social equity and inclusion in the design including: access to open space, site responsiveness, access to natural light, range of unit types, etc. (benchmark - 95% expected to receive a B+ or better, 93% met the benchmark).

Evidence for PC8 Assessment Points

- ARCH 201
  - ARCH 201 Syllabus
  - ARCH 201 Course Materials
  - ARCH 201_Course Grading Sheet
- ARCH 230
  - ARCH 230 Syllabus
  - ARCH 230 Course Materials
  - ARCH 230_Grading Sheet

The Assessment Point Matrix for PC8 may be found here: Assessment Point Matrix_PC8

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to PC8 are as follows:

PC8 Criteria in ARCH 230 - Advanced Architectural Design Theory and Criticism

This course addresses the PC8 goal by providing a broad overview of architectural theory, especially in relation to larger social, cultural, historical, and political events. Weekly readings and discussions are organized around case studies that allow students to explore how architectural theories and practices shape and are shaped by their interaction with constellations of socio-political, cultural, and economic conditions. By emphasizing how architecture is enmeshed in disciplinary and cultural contestations that start long before a building is constructed and continue after it is built, the course deepens students' understanding of diverse cultural and social contexts and helps them translate that understanding into built environments that equitably support and include people of different backgrounds, resources, and abilities. This course expects students to develop "understanding" in this criteria.

Course Overview:

This course exposes students to key discussions in architectural thought from 1945 to the present. Each week explores debates that have driven architects and theorists in relation to the production and use of buildings, urban space, and their metropolitan contexts. Organized around particular themes and case studies that have recurred major questions within architectural discourse, the course explores various architectural projects and debates within their historical, disciplinary and cultural contexts. The course aims to expose students to such exchanges and debates that have driven architects and theorists for the last five decades and provoke students to develop their own architectural positions. By understanding the multiple relations that constitute architecture, the course prompts students to rethink the connections between theory and practice or between the design studio and the seminar. The course presents how historical approaches and debates continue to influence present trajectories and asks how possible futures can be informed by a critical understanding of the past and the present. The class meets weekly and consists of lectures, student presentations, and class discussions. All students are expected to prepare for each week by completing the assigned reading before the lectures and by participating actively in discussions with relevant questions.

Course Assessment Method:

Weekly readings and discussions are organized around case studies that allow students to explore how architectural theories and practices shape and are shaped by their interaction with constellations of socio-political, cultural, and economic conditions. While subjects related to social equity permeate the entire course, certain weeks are particularly relevant. For example, week 8 on "Architecture and Race", week 9 on "Queer Space", week 15 on "Architecture and Care". In completing the assignments, the following criteria are used for student work evaluation: 1) Ability to formulate an independent and critical approach to a specific topic; 2) Ability to sufficiently grasp the material to be addressed, 3) Ability to go beyond a satisfactory grasp of the material to speculations that creatively engage the material; 4) Ability to communicate those speculations verbally in weekly discussions and class presentations, and in writing through reading responses and the final semester project; 5) Ability to situate their approach with respect to the arguments of others.

Evaluation of student performance:

A Letter or Numeric Grade

Course Benchmark:

Anything greater than a B+ on the final project indicates a student's success. 70% of students are expected to achieve a B+ or higher.

Supporting Materials:

- ARCH 230 Syllabus

Instructor Assessment of PC8 Criteria in ARCH 230			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
Student performance met the standards set relative to the benchmark of this goal. More than 70% of students were successful relative to this goal.	Starting S23, class content covered race, queer space, environmental justice, and disability were expanded to include more examples. Another - perhaps small yet important - change is that for the first class meeting, a new meeting survey titled "Where do you know from?" was implemented, which embraces the various disciplinary, cultural, and personal backgrounds each student brings to class, welcomes diversity and promotes student growth.	In S23, student performance was above the targeted benchmark. More than 80% of students' performance was higher than the established benchmark relative to this goal.	This year more content was added on the topics of race, indigenous architecture, extractivism, feminism, and queer theory to the class. The students received all this new content very well, and I will develop these sections further for next year.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC8 Criteria in ARCH 201 - Architecture & Urbanism Design Studio

This course addresses the PC8 goal through an intensive study of sites in Oakland and focus on programs and sites that promote inclusive and thoughtful spaces in typically underserved communities. This course expects students to develop "understanding" in this criteria.

Course Overview:
This is the third required studio in architectural design, building upon foundations established in previous studios. The projects focus on a housing project of medium complexity within an urban context and expand both the scope and depth of investigation in terms of urban form, architectural research, site analysis, program, space and context. Students produce work every week that is reviewed in class in a group "pin-up" setting. In addition, students are assessed at three key points: 1) a review for an initial short project, 2) a mid-review for the larger housing project, and 3) a final review for the larger housing project. Students are required to produce and present models, plans, sections, and site drawings. In this course, an "A" is defined as excellence in every way, with a high level of competence demonstrated in the work and process. Superior graphic and verbal presentation skills. Active participation in studio activities. A "B" is defined as good quality work touched by some inconsistencies in design, inadequate presentation, or limited understanding of design issues; good studio performance and/or in assignments.

Course Assessment Method:
At desk crits, pinups, and reviews, students are assessed on their understanding of site context, programmatic inclusivity and accessibility.

Evaluation of student performance:
Qualitative Feedback (e.g. written feedback or in-person critique)

Course Benchmark:
A grade of ""B"" or higher is satisfactory. It is expected that 95% of students achieve satisfactory or higher.

Supporting Materials:
- ARCH 201 Syllabus
- ARCH 201 Course Materials

Instructor Assessment of PC8 Criteria in ARCH 201			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 95% of students met the benchmark.	In F22, no changes were made in direct relation to this criteria.	In F22, 93% of students met the benchmark.	In the next iteration of the course, I plan to include readings on how to improve accessibility to housing by increasing density.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC8 Criteria in ARCH 207B - Architecture Research Colloquium

This course addresses the PC8 goal by asking: "How do architects translate the physical, the social, the political, the cultural, and the data of locales in which we work into forms that reveal something about the characteristics of a place?" Along with the different concepts that constitute the theoretical framework of this course, concepts such as othering, inequality, race, gender, participation, etc. permeate every lecture. This course expects students to develop an "understanding" of issues related to this criteria.

Course Overview:
This course accompanies the second year of the required architecture and urbanism design studio, and is the second in a series of three one-unit colloquia, scheduled consecutively in the Fall for the first three years of the program. Students are asked to prepare questions for each week's speaker based on readings, and submit these questions to a common spreadsheet. These questions are reviewed by the instructor ahead of a visit by a speaker, and reviewed for originality and specificity.

Course Assessment Method:
Subjects related to this NAAB goal are introduced in Week 5 (on Infrastructure) and Week 6 (on Planning). Readings for these weeks are related to the PC8 criteria, and students are evaluated based on 1) their engagement with the speaker and 2) how well their questions address these subjects. As with other criteria, attendance, participation in Q+A and quality of questions are the thresholds to pass the course.

Evaluation of student performance:
Satisfactory / Unsatisfactory

Course Benchmark:
A passing grade is considered satisfactory. 99% of students are expected to meet this benchmark.

Supporting Materials:
- ARCH 207B Syllabus
- ARCH 207B Course Materials

Instructor Assessment of PC8 Criteria in ARCH 207B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 100% of students received a grade of "satisfactory".	Starting in F22, keeping in mind that this colloquium runs in parallel to the Design Studio ARCH 201, "Social Equity & Inclusion" has emerged as a key aspect. In every lecture students are presented with specific case studies that address many of these questions and discuss them as design problems (i.e. planning, othering and the need for density; infrastructure, inequality, and short-term urban solutions, etc.). This way, students are provided with specific design strategies that address Social Equity and Inclusion for them to investigate them further into their design proposals.	In F22, 100% of students met the benchmark. Students really engaged in the course talks, and found diversity as a crucial aspect to our profession."	Starting in F23, we envision the involvement of a designer / architect / activist that is engaged in community projects that directly deal with diversity and inclusion in our cities. Currently, this aspect is addressed from a theoretical point of view (as we invited Stephen Menendian from the Othering & Belonging Institute) and from a policy making point of view (as we invited Warren Logan, who worked from different public agencies in Berkeley and Oakland).

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

PC8 Criteria in ARCH 270 - History of Modern Architecture

This course addresses the PC8 goal through lecture content that examines built environments across a spectrum of historical eras and cultures as a crucible of social structure and a catalyst for selfhood constructs. Assigned section readings and peer-to-peer discussions facilitated by a Graduate Student Instructor allows course participants to explore ideas about architecture's role in structuring spaces of social and cultural encounter and the ethical responsibility of design professionals to nurture diversity, equity, inclusion, and belonging among all inhabitants of the built environment. This course expects students to develop an "awareness" of issues related to this criteria.

Course Overview:
This course examines developments in design history, theory, graphic representation, construction technology and interior programming through case studies of individual buildings. The survey technique adopted by the course is both focused and panoptic. Each lecture delves deeply into one or two buildings to examine program, spatial organization, graphic representation, critical building details, and construction technology. The course then surveys the relationship of the case study building to other parallel works and the architect's overall body of work. From this nucleus of built objects the course spirals outward to consider how the case study is embedded within a constellation of social and economic factors crucial to its design and physical realization.

Course Assessment Method:
Section assignments range from short essays and submission of questions for discussion to the creation of memes encapsulating responses to readings. In tracing the trajectory of design over the course of three centuries, ARCH 270 lecture and reading content reviews the impact of cultural difference in architectural form-making, with a recurring emphasis on issues of social equity: section assignments permit students to develop personal reflections and graphic interpretations of these issues. For example, the Week 10 section meeting, focused on the case study of modern Scandinavian welfare state housing and its use in indigenous settings, invites students to reflect upon modernist practice in the context of their own cultural and social context. The Week 11 section meeting, which follows lectures on the transmission of modernism to the Global South (as well as 20th century informal housing settlements) provides an opportunity for students to reflect upon regional building cultures and their responses to climatic differences.

Evaluation of student performance:
Satisfactory / Unsatisfactory

Course Benchmark:
A satisfactory evaluation of student performance in discussion sections, made by the GSI, is the standard of success for this facet of ARCH 270. I expect 90% of all students to achieve a satisfactory evaluation.

Supporting Materials:
- ARCH 270 Syllabus

Instructor Assessment of PC8 Criteria in ARCH 270			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, International students achieved a lower standard of understanding of social and environmental justice issues than US students due to differences in background and prior education.	Starting in F22, new lectures have been added which address the split in federal policy and subsidy between private and public housing from the depression through the New Deal and beyond. The social and racial injustices of redlining are now more extensively covered. Informal settlements in the global south are the subject of a new lecture.	According to the 270 GSI in charge of discussion sections, during the Fall 2022 semester, 100% of students achieved an incisive understanding of social equity and inclusion issues through group discussion of new course readings and the inclusion of new lecture material on: 1) Catherine Bauer's introduction of European Interwar social housing policy and practices to the US and the failures of New Deal public housing policy to emulate these precedents, 2) New Deal FHA housing policy as the nation's private-sector mass housing program and its legacy of racial exclusion (through redlining) as a carry-over of racist real estate industry practices, and 3) a new lecture on "informal" housing in the Global South focusing on the Brazilian favela (shanty town) and its symbiotic relationship to urban development in the for-profit "formal" sector through the use of shantytown residents as a cheap, flexible source of construction labor.	In F23, I would like to expand the discussion of informal housing in the Global South to consideration of homelessness in the Global North through an additional case study of downtown Berkeley's pathbreaking Berkeley Way Apartments and Hope Center, a new complex containing below-market rate units for low-income residents and a permanent housing with supportive services for formerly homeless citizens.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

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

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

Program Response - General:

Assessment method for all SC criteria:

Student Criteria are assessed by a combination of MArch program committee review and individual instructor assessment. Beginning Fall 2021, instructors of required courses complete surveys distributed by the MArch program committee to demonstrate how their courses address Student Criterion. Each year, instructors respond to the survey at the beginning and end of each semester. The survey responses inform the MArch program committee who evaluate progress towards fulfilling PC goals and determine how to guide ongoing improvement in consultation with the chair. Historically, meeting minutes are not taken at the MArch committee meetings. Beginning Fall 2023, MArch committee meetings specific to NAAB criteria will be noted by the Graduate Student Affairs Officer to provide evidence of assessment.

In Fall 2021, the MArch committee assigned a level of knowledge building for each relevant course. The levels are 1) "awareness" 2) "understanding" and 3) "ability". Based on NAAB's required level of knowledge, the highest level for a particular SC may be "understanding", in other cases, the highest level is "ability". Courses that are the most relevant to a criterion, and where the highest level of knowledge is attained are program assessment points. Not all courses that meet a level of "understanding" are an assessment point if another course meets the level of "ability" for the criterion. SC assessment point courses are reviewed by the MArch committee together with the instructor to assess benchmarks and find opportunities for ongoing improvement.

In 2021-2022, all courses that touched upon a Student Criteria were reviewed by the MArch committee. In 2022-23 and moving forward, only those courses that are SC assessment points will be evaluated by the MArch program committee, and the others will be self-assessed by the individual course instructor who have determined they cover topics relevant to the criteria.

Courses that are considered an assessment point are shown in the PC/SC matrix in BLACK. Courses that build knowledge, but are not an assessment point are shown in the PC/SC matrix in GRAY.

Link to PC/SC matrix here: PC/SC Matrix.

The PC/SC Instructor Assessment survey begun Fall 2021 is based on an example provided by NAAB in 2020. It includes the following for each required course:

- 2021-22 Assessment of PC learning outcome
- Changes made to improve learning outcomes for 2022-23
- 2022-23 Assessment of PC learning outcome
- Proposed changed to improve learning outcomes for 2023-24

The Instructor Assessment Survey can be found here: PC-SC Instructor Assessment Surveys

In July 2023, based on an example provided by NAAB in June 2023, the program developed an assessment point matrix for instructors to fill out that includes the following for each course considered a direct assessment point:

- Goal/Student Learning Outcome relative to PC/SC criterion
- Course Name and where the course falls in the curriculum
- Assessment Method including where and how the PC or SC criteria is covered in the course
- Target Benchmark for passing students
- Results of passing students
- Planned improvements
- Links to Evidence

The Assessment Point Matrix for all PC and SC criteria can be found here: Assessment Point Matrix_Full.

Both results of the Assessment Point Matrix and Instructor Assessment Survey are included for each Student Criteria as shown below.

SC.1 Health, Safety and Welfare in the Built Environment—How the program ensures that students understand the impact of the built environment on human health, safety, and welfare at multiple scales, from buildings to cities.

Program Response:

The program ensures that students understand the impact of the built environment on human health, safety, welfare for both buildings and urban contexts in ARCH 203 - Integrated Design Studio. ARCH 203 includes the design and development of a mid-sized building in an urban context. Students conduct a site analysis to relate the building to the larger environs with respect to multiple factors including health and safety. Projects address issues of natural light, passive ventilation, and mechanical systems and integrate life safety systems, egress, fall protection systems, and fire protection measures into the design process. The integrated design studio is supplemented with the companion course ARCH 207C - Professional Practice. ARCH 207B introduces students to SC1 goals with lectures on planning principles, natural ventilation, daylighting, life safety, accessibility, structural systems, and mechanical systems. A focus of ARCH 201 - Architecture & Urbanism Design studio is on housing in an urban context which includes emphasis on light, ventilation, and access to the outdoors for the dwelling units. ARCH 240 - Advanced Study of Energy and Environment includes topics on indoor air quality, daylighting, and natural ventilation. ARCH 250 - Introduction to Structures addresses building stability, structural performance, and the impact of earthquakes on buildings.

SC1 - HSW in the Built Environ.	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

SC1 Assessment Points

The following courses are program assessment points for SC1 - Health, Safety, and Welfare in the Built Environment

- **ARCH 203 - Integrated Design Studio**

Students are assessed on their understanding of health, safety and welfare through the final drawing set of ARCH 203. These drawings include: site plan analysis, fire egress/life safety, MEP system concept diagram, water systems diagram, structural diagram, detail/integrated section drawings, and facade drawings that detail operability as a mediator of light and air (benchmark - 85% to receive 87/100 points or better on an average of scoring for relevant sheets; 83% met the benchmark). The department will hold a search for a 'Structural Design and Building Technology" faculty position in 2023-24. The expectation is that the new faculty member would be a full-time consultant to ARCH 203 to round out the professional consultant group.

Evidence for SC1 Assessment Points

- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 207C_Readings
  - ARCH 203_Drawing Set Guidelines
  - ARCH 207C_Schedule
  - ARCH 207C_Summaries of Lectures
  - ARCH 207C & ARCH 203 Lecture Slides
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work

The Assessment Point Matrix for SC1 may be found here: Assessment Point Matrix_SC1

In addition, course descriptions and the Instructor Assessment Survey for all courses that correspond to SC1 are as follows:

SC1 Criteria in ARCH 203 - Integrated Design Studio

This course addresses the SC1 goal by tasking students with the design and integration of life safety systems, egress, fall protection systems, and fire protection measures within their building designs. This course expects students to develop "ability" in this criteria.

Course Overview:
This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, commercial and educational buildings, etc. In this Integrated Studio, students are tasked with the design of a 20,000 - 30,000sf building on a specific site within the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:
Many of the specialist consultants who engage weekly in this course (and also lecture in ARCH 207C), raise, discuss, and assess issues of health, safety, and welfare in direct relationship to student projects. For SC1, this includes issues of life safety, natural light, passive ventilation, and mechanical systems, which are addressed by: a dedicated fire and life safety consultant, two dedicated mechanical systems consultants, two dedicated facade consultants,a structural engineering consultant, and an instructor dedicated to environmental design. Student understanding of these issues is assessed in drawing deliverables, such as: a fire egress / life safety drawing, MEP system concept drawing and/or axonometric, a water systems drawing, a detail / integrated section drawing, and a facade drawing that details the operability of the facade as a mediator of light and air, and in dialog with mechanical systems.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project, final review, and final drawing set. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A B+ or higher is considered successful. 80%-90% of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials

- ARCH 203 Student Work

Instructor Assessment of SC1 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 90% of students met or exceeded the benchmark.	In F22, we changed our fire and life safety consultant, incorporated an additional round of desk crit / workshops for each student group, and moved the fire and life safety lecture and crits up earlier in the semester so that students could better develop these concepts into their projects. Students developed and produced dedicated drawings sheets for egress and fire safety. The program of the project was revised to focus on the electrification of the vehicle fleet at an urban and building scale in order to reduce the local and global health impacts of combustion engines.	In F22, 90% of students met or exceeded the benchmark.	Starting in F23, we suggest that the course provide information on consequences and sources of poor air quality in the built environment.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC1 Criteria in ARCH 207C - Professional Practice Colloquium

This course addresses the SC1 goal through lectures by leaders in the field on planning guidelines, mechanical systems, façade systems, structural systems, environmental design, and life safety systems. Students gain knowledge to be implemented into the design studio projects in ARCH 203. This course expects students to develop "understanding" in this criteria.

Course Overview:
This one-unit colloquium accompanies the required ARCH 203 Integrated Design Studio in the three-year option of the Master of Architecture program.

Course Assessment Method:
Student understanding of SC1 is achieved by attending and participating during the live lectures, or submitting written summaries and responses to the lecture content following the lecture. Written responses include a synopsis of material presented in class and specific questions or reflections about how it relates to the student's ongoing studio project work. Each week, a rotating group of students are responsible for researching the speaker in advance, developing questions for the speaker, and moderating the Q&A session at the end of each lecture. Students engage with lectures on subjects such as: structural systems, environmental design, mechanical systems, facade systems, fire and life safety systems. Lectures are coordinated with ARCH 203, such that the lecturers also serve as consultants for the studio projects.

Evaluation of student performance:
Satisfactory / Unsatisfactory

Course Benchmark:
The expectation is that 95% of students or greater will receive a passing grade.

Supporting Materials:
- ARCH 207C Syllabus
- ARCH 207C Course Materials

Instructor Assessment of SC1 Criteria in ARCH 207C			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 95% of students met or exceeded the benchmark.	Starting in F22, the course added a new fire & life safety consultant to improve student understanding of these issues.	In F22, 100% of students met or exceeded the benchmark.	Starting in F23, we hope to better coordinate technical lectures between the two specialists within a discipline (when applicable) in order to reduce redundancy.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC1 Criteria in ARCH 201 - Architecture & Urbanism Design Studio

This course addresses the SC1 goal by focusing on light and ventilation for dwelling as well as access to outdoors. This course expects students to develop an "understanding" of issues related to this criteria.

Course Overview:
This is the third required studio in architectural design, building upon foundations established in previous studios. The projects focus on a housing project of medium complexity within an urban context and expand both the scope and depth of investigation in terms of urban form, architectural research, site analysis, program, space and context. Students produce work every week that is reviewed in class in a group "pin-up" setting. In addition, students are assessed at three key points: 1) a review for an initial short project, 2) a mid-review for the larger housing project, and 3) a final review for the larger housing project. Students are required to produce and present models, plans, sections, and site drawings. In this course, an "A" is defined as excellence in every way, with a high level of competence demonstrated in the work and process. Superior graphic and verbal presentation skills. Active participation in studio activities. A "B" is defined as good quality work touched by some inconsistencies in design, inadequate presentation, or limited understanding of design issues; good studio performance and/or in assignments.

Course Assessment Method:
For this criteria, students are assessed on the following at each of the three reviews described above: scale, program, structure, spatial organization, site strategy, light and ventilation, and construction assembly. For SC1, particular attention is paid to how projects incorporate daylight and outdoor space.

Evaluation of student performance:
Qualitative Feedback (e.g. written feedback or in-person critique)

Course Benchmark:
A grade of "B" or higher is satisfactory. It is expected that 95% of students to achieve satisfactory or higher.

Supporting Materials:
- ARCH 201 Syllabus
- ARCH 201 Course Materials

Instructor Assessment of SC1 Criteria in ARCH 201			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 95% of students met the benchmark.	Starting in F22, two weeks have been added to the housing assignment to allow for further development of the architectural strategies in relation to HSW issues.	In F22, 93% of students met the benchmark.	No changes in direct relation to this criteria are required.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC1 Criteria in ARCH 240 - Advanced Study of Energy and Environment

This course addresses the SC1 goal by highlighting the role of architecture design in promoting a healthy environment for occupants at several points during the semester. This effort starts with massing and building shape, creating narrow buildings that can benefit from significant amounts of natural light and natural ventilation. Students are exposed to the emergence of the Sick Building Syndrome in the 1970's, connected to deep floor plans and sealed envelopes, and learn how research partially developed at CED developed the Adaptive Comfort model, now included in ASHRAE Standard 55 - Thermal Environmental Conditions for Human Occupancy. CBE research data also demonstrates that users are more tolerant of fluctuating temperature conditions in buildings that are not sealed and only HVAC-operated, and instead include the option for natural ventilation. Students are encouraged to adopt mixed-mode operation in their buildings (combined passive and active ventilation) where health benefits simultaneously lead to significant energy savings. As for architecture design strategies, an overall exposure to the concepts and practice of biophilic design provides a higher-level approach to healthy buildings, including the analysis of relevant case studies. Students learn design rules-of-thumb and site analysis strategies to create narrow, health-promoting footprints and massing, including porosity and carvings. At the building envelope level, students learn that operability for access and control of light & air are critical aspects for creating a healthy building. The A240 Daylighting unit covers in detail the health benefits of daylighting in modulating the human circadian system and the biological consequences of reduced exposure to daylighting in buildings, including a plethora of physical and mental diseases. Different artificial lighting sources are analyzed in terms of the frequencies they emit and the health consequences of long-time exposure to those artificial sources, as compared to the biological need for the entire range of light frequencies included in natural light. Different HVAC systems are analyzed in terms of mixing systems (that spread germs around the building) and displacement ventilation or underfloor air distribution systems, which remove the pollutants associated with each individual without promoting mixing. Finally, the recent example of the Covid pandemic is used to exemplify how buildings with HVAC mixing systems were prevented from operating, while buildings with natural cross ventilation were often the first to reopen for many institutions. The impact of building materials on Indoor Air quality is also addressed, and the Pharos system is briefly introduced as a method to reduce the use of toxic indoor materials that have a negative impact on IAQ and occupants' health. This course expects students to develop an "understanding" of issues related to this criteria.

Course Overview:

Arch 240 is the core Energy and Environment course of the MArch program. Course goals include training on design processes that increase the autonomy and resilience of the built environment, conserve resources, and promote health and well-being for occupants. Architecture is seen as a mediator between the departing conditions of site and climate, and a final built artifact calibrated for users' needs and health. Students become aware that the path to Net Zero architecture starts with passive and climate responsive design, generating less energy demands. This opens the door to streamlined, energy efficient and healthy MEP systems, with reduced energy needs that can be offset by renewable on site energy generation. All three steps need to be addressed to achieve carbon neutrality, since they work as a system. Climate change mitigation can also not be achieved at the expense of human health and comfort. These goals create a holistic approach to design that starts with massing and building shape, progresses to spatial layout, and culminates with tectonics, envelope design & operability, and integration with MEP systems.

Course Assessment Method:

The overall adoption of adequate massing and building shape/proportions is checked in the design project developed in A240. Assignment 4 (Daylighting) and Assignment 6 (final project) require extensive natural light simulations to ensure that adequate daylighting levels are provided throughout the building, for circadian health regulation. In Assignment 5 (Termal) and Assignment 6 (final project), students are required to design a natural ventilation scheme and indicate operability of the building envelope to implement it. Students are encouraged to use displacement ventilation or underfloor air distribution systems in their HVAC design.

Evaluation of student performance:

A Letter or numerical Grade.

Course Benchmark:

Anything greater than a B+ on the final project indicates a student was successful. 90% of students are expected to achieve a B+ or higher.

Supporting Materials:

- ARCH 240 Syllabus
- ARCH 240 Course Materials

Instructor Assessment of SC1 Criteria in ARCH 240			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded the benchmark.	Starting in F22, we introduced the Pharos system for assessing materials toxicity and impact on Indoor Air Quality. An overall presentation on biophilic design was also added.	In S23, 100% of students met or exceeded the benchmark.	We will introduce a more detailed analysis of the Pharos system for assessing materials toxicity and impact on Indoor Air Quality

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC1 Criteria in ARCH 250 - Introduction to Structures

This course addresses the SC1 objective by looking at the stability of buildings, discussing typical material and structural failures, and pointing to their indicators. Special attention is given to earthquake-resistant construction and how to behave during and after an earthquake. This course expects students to develop an "awareness" of issues related to this criteria.

Course Overview:
This class focuses on the fundamental principles that affect the structural behavior of buildings. Lectures introduce the fundamental principles that influence the structural behavior of buildings and discuss various structural systems and materials relevant to their design. The spectrum of lectures ranges from loads, forces, and stresses in static equilibrium systems to general material properties and section-, vector-, surface-, and form-active structures. In lab sessions, students learn both manual and digital techniques for evaluating the flow of forces through structural systems and for evaluating the stresses that occur. In five lab exercises, students apply their acquired knowledge to predict and calculate stresses in structural members and to design structures with adequate dimensions. This is achieved through both manual calculations and digital analysis tools. Students are evaluated using qualitative feedback by the instructor, classmates, and invited guests who are experts in the field of structural design. Furthermore, the student teams will receive a letter grade for each of the three assignments.

Course Assessment Method:
For this criteria, students are assessed verbally during the lectures and in their groups during the lab sessions and presentations of their three projects. For SC1, special attention is given to how student teams incorporate anticipated hazards and potential failures of their structures and address these issues early in the design process to ensure the safety of their buildings.

Evaluation of student performance:
Qualitative Feedback (e.g. in-person critique)

Course Benchmark:
A grade of "B" or higher is satisfactory. It is expected that 95% of students achieve satisfactory or higher.

Supporting Materials:
- ARCH 250 Syllabus
- ARCH 250 Course Materials

Below is a summary of the instructor's assessment of student learning objectives and outcomes for this course in AY 21-22 and AY 22-23, and the related curricular modifications that have been made over this time.

Instructor Assessment of SC1 Criteria in ARCH 250			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 90% met or exceeded the benchmark.	To address the SC1 criteria in this class for S23, additional building safety slides were added to the lectures that specifically address typical structural and material failures and strategies for earthquake-resistant construction.	In S23, 95% of students met the benchmark.	No changes are required with regard to this criteria. However, it was observed that discussions about health and safety require additional class time, which is another argument for keeping the size of this course small and manageable.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC.2 Professional Practice—How the program ensures that students understand professional ethics, the regulatory requirements, the fundamental business processes relevant to architecture practice in the United States, and the forces influencing change in these subjects.

Program Response:

The program ensures students understand professional ethics, regulatory requirements, fundamental business processes relevant to architectural practice in the United States, and the forces influencing these topics in ARCH 207D - Cultures of Practice. The course structure is well aligned with SC2 goals, arranged into four thematic modules: "The Professional Challenge", "The Business of Architecture", "The Project Experience", and "Preparing for Professional Success". The "Professional Challenge" series dives into architects' ethical responsibilities both in professional and societal contexts, firm organization and power distribution, and legal structures linking architects with clients and contractors using an assortment of architectural drawing packages and other business-related documents and exhibits.

SC2 - Professional Practice	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

SC2 Assessment Points

The following courses are program assessment points for SC2 - Professional Practice

- **ARCH 207D - Cultures of Practice**

ARCH 207D - Cultures of Practice is the professional practice course taken in the fourth semester of the MArch Option 3 program, or second semester or the Option 2 program. This rendition of the course was offered for the first time in Spring 2023. The course had been previously taught by a non-licensed faculty member who retired in Summer 2022. The course is now taught by seasoned practitioner and licensed architect, Robert Bracamonte. Students are assessed on their understanding of professional ethics, regulatory environments and fundamental business practices in the United States and how they are influenced in the "Ethics and the Law" and "Business of Architecture" segments of the class. Class #3 covers state laws, registration, and the Architect's Practice Act, class #4 covers the AIA code of ethics, and class #5 and #6 cover practice and business models. Class #7 through #12 cover aspects of the business of architecture including developing a proposal, work planning and scheduling, architectural fees, project phases, scope of work durations, and the AIA Owner-Architect Agreement. Assessment is based on participation in discussion sessions, and the "Course Notebook" assignment in which they compile their course notes and add additional data on each class topic. The notebook is submitted at the end of the semester. All students are expected to participate in the discussion sessions (benchmark - 100% for participation; 96–98% met the benchmark across the discussion sessions). The benchmark for the Course Notebook assignment is 90% of students are expected to receive 90/100 points; 75% met the benchmark. Moving forward, the instructor plans to have intermittent quizzes on SC2 subject matter at the end of class when the material is fresh in students' minds.

Evidence for SC2 Assessment Points

- ARCH 207D
  - ARCH 207D Syllabus
  - ARCH 207D Course Materials
  - ARCH 207D Lecture Slides
  - ARCH 207D_Course Grading Sheet
  - ARCH 207D_Attendance Sheet
  - ARCH 207D_Agreement Between Owner & Architect
  - ARCH 207D_RFP Challenge
  - ARCH 207D Discussion Reports
  - ARCH 207D_Student Work / Class Notebook

The Assessment Point Matrix for SC2 may be found here: Assessment Point Matrix_SC2

In addition, the course description and the Instructor Assessment Survey for all courses that correspond to SC1 is as follows:

SC2 Criteria in ARCH 207D - The Cultures of Practice

This course is tightly aligned with the NAAB SC2 goal, which is reflected in each of the four thematic modules that drive the course: 1) "The Professional Challenge", 2) "The Business of Architecture", 3) "The Project Experience", and 4) "Preparing for Professional Success." Lectures included in the "Professional Challenge" series are particularly relevant. Here, the course discusses: architects' ethical responsibilities, both in the office and to society; the ways firms are organized and how power and opportunities are distributed; the legal structures connecting architects to clients and contractors; various types of actual architectural drawing packages, as well as other types of documents and exhibits that represent the business of the practice. This course expects students to develop "understanding" in this criteria.

Course Overview:
The class is intended to facilitate the transition from education to practice, as an introduction to the world of the AEC Industry, and the significance of the profession of Architecture in leading the design of the built environment, and how the culture of the profession evolves. The course is divided into thematic modules: 1) "The Professional Challenge", 2) "The Business of Architecture", 3) "The Project Experience", and 4) "Preparing for Professional Success". Each module offers in-class lectures, and related readings or podcasts that address typical issues related to professional practice. Students complete discussion-related weekly assignments including developing a fee proposal, project budget and schedule, and participating in a mock-client interview, in addition larger assignments that include: a "Firm Analysis Report", a "Portfolio Mockup", a resume, and a comprehensive course notebook / journal.

Course Assessment Method:
While the NAAB SC2 goal is expressed throughout the course, one assignment in particular directly addresses this goal. In the "Firm Report" project, students research an existing architectural firm and develop a report concerning specific characteristics of that firm. Further, the thorough preparation of the comprehensive course notebook / journal, students compile a document that serves as a reference guide to navigating practice and professional life.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A grade of B- or better is satisfactory. Nearly 100% of students are expected to complete each assignment in a satisfactory way.

Supporting Materials:

- ARCH 207D Syllabus
- ARCH 207D Course Materials

Instructor Assessment of SC2 Criteria in ARCH 207D			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
100% of students met or exceeded expectations. Benchmark met	Starting in S23, this course was staffed by a new instructor that made several significant changes. Relative to this particular goal, the study of regulatory systems, such as California state law, was greatly emphasized. Further, the development of business processes was enhanced and the subject of contracts was introduced as an area of emphasis.	In F21, 100% of students met or exceeded expectations. Benchmark met	In future iterations of the course, we recommend that the course more effectively address the needs and interests of students across divergent interests. For example, some students plan to enter the workforce by joining a large firm, while others envision entering practice by starting their own firm. Each path introduces a unique set of business processes and challenges as well as individual personal challenges / ethical dilemmas.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC.3 Regulatory Context—How the program ensures that students understand the fundamental principles of life safety, land use, and current laws and regulations that apply to buildings and sites in the United States, and the evaluative process architects use to comply with those laws and regulations as part of a project.

Program Response:

The program ensures students understand the fundamental principles of life safety, land use, and current laws and regulations that apply to buildings and sites in the United States, and the process architects use to comply with those laws and regulations as part of a project in ARCH 203 - Integrated Design Studio. ARCH 203 tasks students with designing an integrated building project for real sites within specific regulatory contexts. Building and zoning codes guide project development with the involvement of specialist consultants who raise, discuss, and consult on issues related to planning and building codes. The studio distributes a course handbook with information on relevant codes to all students to which they can refer throughout the semester.

ARCH 201 - Architecture + Urbanism Studio serves as an introduction to the SC3 goal by exposing students to code and regulatory frameworks related to housing - particularly concerning light and ventilation, egress, open space, and zoning. It helps students grasp the effects of zoning guidelines, open space requirements, scale, program, structure, spatial organization, site strategy, light and ventilation with building design. Its companion course ARCH 207B - Architecture Research Colloquium introduces students to land use and planning regulations as part of the required reading. Lectures discuss land use and planning both locally and internationally, expanding students' understanding of regulatory contexts in different environments. Regulatory contexts are explored in cities like London, Athens, and rural China. ARCH 240 - Advanced Study of Energy and Environment employs standard references such as ASHRAE 90.1, LEED v4.1 daylighting credit procedures, and ASHRAE 62 to teach students about the regulatory aspects of architectural design. ARCH 260 - Introduction to Construction includes lectures on codes and regulations, life-safety principles, and accessibility standards. Students become familiar with the materials, components, and processes of construction, learning about labor and skilled trades, location of work, and the impacts of codes and regulations on design professionals.

SC3 - Regulatory Context	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

SC3 Assessment Points

The following courses are program assessment points for SC3 - Regulatory Context

- **ARCH 203 - Integrated Design Studio**

Student understanding of fundamental principles of life safety, land use, and building and zoning regulations and compliance of relevant laws and regulations is assessed in ARCH 203 through the final drawing set. Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the understanding of the regulatory components of their work in the Final Drawing Set submitted at the conclusion of the semester. Each student team of two works closely with a consultant specializing in Fire & Life Safety, and will have attended a presentation by a member of the San Francisco Planning Department in A207C. Students are also provided with an Integrated Studio Handbook, which outlines several key building code elements they should be familiar with and implement within their projects. SC-3 goals can be found in the following sheets of the drawing set: G001, G003, G011, G012, G040, & G043. Each of these sheets are scored and weighted for the SC-3 Criteria and averaged into a composite score (benchmark - 85% of students to receive 87/100 points or better; 51% met the benchmark). The relatively low success rate for SC3 will be addressed by requesting students explicitly note relevant code references in their drawing set. The information in many cases appears to be present, but is not called out. In addition, the 203 Student Handbook will be updated.

Evidence for SC3 Assessment Points

- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 207C_Readings
  - ARCH 203_Drawing Set Guidelines
  - ARCH 207C_Schedule
  - ARCH 207C_Summaries of Lectures
  - ARCH 207C & ARCH 203 Lecture Slides
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work

The Assessment Point Matrix for SC3 may be found here: Assessment Point Matrix_SC3

In addition, the course descriptions and the Instructor Assessment Surveys for all courses that correspond to SC3 is as follows:

SC3 Criteria in ARCH 203 - Integrated Design Studio

This course addresses the SC3 goal by tasking students with designing integrated building projects for real sites within specific regulatory contexts. The relevant building and zoning codes (abridged or edited for pedagogical intent) guide the development of the projects. An supplemental handbook of pertinent codes is provided to the students in order to introduce topics of building code applications as related to the program brief. This course expects students to develop "ability" in this criteria.

Course Overview:

This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, commercial and educational buildings, etc. In this Integrated Studio, students are tasked with the design of a 20,000 - 30,000sf building on a specific site within the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:

The specialist consultants who engage weekly in this course (and also lecture in ARCH 207C), raise, discuss, and assess issues that touch on regulatory context in direct relationship to student projects. This includes consultants that directly focus on issues of regulations, such as the dedicated fire and life safety consultant, as well as a number of consultants whose work intersects heavily with regulatory issues, such as a structural engineering consultant, two dedicated mechanical systems consultants, two dedicated facade consultants, and a single instructor dedicated to environmental design. In addition, external experts are brought in to engage with students, such as a dedicated lecture on "design and the public realm" by a senior professional from a relevant planning department. To supplement consultant engagement, students are provided with an "integrated studio handbook", which includes a compilation of codes and regulations that students should take into account in their design work. Student understanding of these issues is assessed in drawing deliverables, such as: a project data sheet that articulates factors such as building type, structural system type, egress strategies; a drawing that shows zoning analysis, a code analysis sheet that shows factors such as occupancy loads; and a site context analysis.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project, final review, and final drawing set. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A B+ or higher is considered successful. 80%-90% of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of SC3 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 80-90% of students met or exceeded the benchmark.	Starting in F22, a formal drawing set was introduced to enhance documentation, including code analysis requirements. Added working sessions with a code consultant for all students.	In F22, 90% of students met the benchmark.	In the next iteration of this course, we envision an update to the handbook to new building code standards.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC3 Criteria in ARCH 201 - Architecture & Urbanism Design Studio

This course addresses the SC3 goal through the communication of important code and regulatory frameworks with regards to housing, particularly with regards to light and ventilation, egress, open space, and zoning. This course expects students to develop an "awareness" of this criteria.

Course Overview:
This is the third required studio in architectural design, building upon foundations established in previous studios. The projects focus on a housing project of medium complexity within an urban context and expand both the scope and depth of investigation in terms of urban form, architectural research, site analysis, program, space and context. Students produce work every week that is reviewed in class in a group "pin-up" setting. In addition, students are assessed at three key points: 1) a review for an initial short project, 2) a mid-review for the larger housing project, and 3) a final review for the larger housing project. Students are required to produce and present models, plans, sections, and site drawings. In this course, an "A" is defined as excellence in every way, with a high level of competence demonstrated in the work and process. Superior graphic and verbal presentation skills. Active participation in studio activities. A "B" is defined as good quality work touched by some inconsistencies in design, inadequate presentation, or limited understanding of design issues; good studio performance and/or in assignments.

Course Assessment Method:
For this criteria, students are assessed on the following at each of the three reviews described above: their understanding of scale, program, structure, spatial organization, site strategy, light and ventilation, and construction assembly, as well as general bulk and height and other zoning guidelines, egress, and open space.

Evaluation of student performance:
Qualitative Feedback (e.g. written feedback or in-person critique)

Course Benchmark:
A grade of "B+" or higher is satisfactory. It is expected that 95% of students achieve satisfactory or higher.

Supporting Materials:
- ARCH 201 Syllabus
- ARCH 201 Course Materials

Instructor Assessment of SC3 Criteria in ARCH 201			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 95% of students met the benchmark.	Starting in F22, case studies have been amended to include projects from different countries so as to discuss success of regulatory constraints in increasing density.	In F22, 93% of students met the benchmark.	One change that will be made in the next iteration of this class is studying egress strategies and how they affect quality of housing/quality of living.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC3 Criteria in ARCH 207B - Architecture Research Colloquium

This course addresses the SC3 criteria by introducing students to land use and planning regulations as part of the required reading. In addition, lectures discuss land use and planning in relation to the Bay Area but it also approaches land use and planning on a global scale by discussing it through particular cities (e.g. London and the privatization of land, Athens and non-planning, and land use in rural China). This course expects students to develop an "awareness" of this criteria.

Course Overview:
This course accompanies the second year of the required architecture and urbanism design studio, and is the second in a series of three one-unit colloquia, scheduled consecutively in the Fall for the first three years of the program. Students are asked to prepare questions for each week's speaker based on readings, and submit these questions to a common spreadsheet. These questions are reviewed by the instructor ahead of a visit by a speaker, and reviewed for originality and specificity.

Course Assessment Method:
Topics related to land use and regulations are communicated through weekly readings and a repository of materials that includes maps, photographs, historical links, etc. that concern the city of Oakland and that relate to the concurrent design studio taken by students. The colloquium expands these subjects beyond the Bay Area to a range of international sites. For example, in week 11, these subjects are discussed relative to Athens, and in week 13 in relation to Santiago de Chile. Readings for these weeks are related to the subject, and students are evaluated based on 1) their engagement with the speaker and 2) upon how well their questions address these subjects. Attendance, participation in Q+A and quality of questions are the thresholds to pass.

Evaluation of student performance:
Satisfactory / Unsatisfactory

Course Benchmark:
A passing grade is considered successful. 99% of students are expected to meet this benchmark.

Supporting Materials:
- ARCH 207B Syllabus
- ARCH 207B Course Materials

Instructor Assessment of SC3 Criteria in ARCH 207B			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 100% of students received a grade of "satisfactory".	Starting in F22, the Colloquium expands discussion of regulatory context beyond the Bay Area and the US. By discussing urbanization, urban policies, and land use in places like Athens, London, Santiago de Chile or rural China, it intends to provide the students with an overview on the complexities of regulatory contexts at the same time it addresses the different students' backgrounds in order to help them engage and relate to this NAAB's goal.	In F22, 100% of students received a grade of "satisfactory".	Students expressed that they found value in presentations of different cultural contexts and their comparison to the US context. The repository on Oakland prepared in F21 was extremely helpful for the students and their design studios. In the future, in case the design studio decides to address a different city, it would be important to build another repository of information that aid students for the development of those projects.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC3 Criteria in ARCH 240 - Advanced Study of Energy and Environment

This course addresses the SC3 goal in that Standard ASHRAE 90.1 is used as a reference for several assignments. According to ASHRAE, "Standard 90.1 has been a benchmark for commercial building energy codes in the United States and a key basis for codes and standards around the world for more than 35 years." For daylighting, LEED v4.1 daylighting credit procedures are applied, as defined in standard IES LM-83-12 (Illuminating Engineering Society). For ventilation and thermal comfort some aspects of standard ASHRAE 62 and ASHRAE 55 are used. This course expects students to develop "understanding" in this criteria.

Course Overview:
Course objectives include training on design processes that increase the autonomy and resilience of the built environment, conserve energy and resources, and promote health and well-being for occupants. Architecture is presented as a mediator between site, climate, and a final built artifact calibrated for users' needs and comfort. The course emphasizes a road to carbon neutral buildings that starts with passive, climate-responsive design, generating low energy demands while promoting architectural quality and human health. As a design process, we use daylighting as an initial form generator, given its ability to bridge between architectural intentions and ecological concerns and its impact on the user's health. Reduced energy loads for heating, cooling, lighting and ventilation are seen as crucial factors for the viability of state-of-the-art, streamlined and healthy MEP systems, with low consumption levels that can now be offset by renewable on-site energy generation. This system of climate-responsive goals creates a holistic approach to design that departs from massing and building geometry, progresses to spatial layout, and culminates with tectonics, envelope design and operability. Integration with mechanical systems in a mixed-mode approach between active and passive systems is emphasized. Other sustainability factors included in ARCH 240 interface with water systems, landscaping and architectural acoustics.

Course Assessment Method:
In assignments 5 and 6, the base case evaluation of the proposed building thermal and energy performance is performed according to standard ASHRAE 90.1. All students are thus confronted with its requirements for the climate zone where their site is located. In assignments 4 and 6, the metrics used to study daylighting performance of the building are according to standard IES LM-83-12, requiring students to understand these complex metrics in detail.

Evaluation of student performance:
A Letter or Numeric Grade

Course Benchmark:
Anything greater than a B+ on the final project indicates a student was successful. 90% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 240 Syllabus
- ARCH 240 Course Materials
- ARCH 240 Student Work

Instructor Assessment of SC3 Criteria in ARCH 240			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded the benchmark.	Starting in S23, we updated to Standard ASHRAE 90.1 version 2022 to keep up with the latest regulatory context. For thermal comfort some aspects of standard ASHRAE 55 are used, based on the CBE Thermal Comfort Tool developed at UC Berkeley's Center for Environmental Design Research/Center for the Built Environment, by Department of Architecture instructors. In the climate analysis lecture, we show students how they can use the Annexes to Standard ASHRAE 90.1 version 2022 to adapt proposed metrics and strategies developed in the USA for the development of this Standard, to any of countries/cities/locations listed around the world, by matching their climate zones.	In S23, 100% of students met or exceeded the benchmark.	Expand Assignment 2 (Weather Analysis) to address Standard ASHRAE 90.1 in higher detail, demonstrating how different construction assemblies are required to meet ASHRAE 90.1 in different areas of the country, according to their climatic characteristics. Continue to update all the assignments to new versions of the standards used that may be meanwhile published by the relevant entities.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC3 Criteria in ARCH 260 - Introduction to Construction

This course addresses the SC3 goal through lecture topics that include the understanding of relevant codes and regulations, and that cover the principles of life-safety and accessibility standards (construction types, fire-protection, egress, and occupancy). This course expects students to develop an "awareness" of issues related to this criteria.

Course Overview:
This course introduces the materials, components, and processes of construction. Here, students become familiar with each of these elements, understand the role of both labor and available skilled trades, the location of on- and off-site work, and the impact of codes and regulations on design professionals. Lectures communicate: a) the basic principles of structural systems and their ability to withstand forces, b)the basic principles used in the selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse, c) the basic principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems. The "Tectonic Precedent" projects aims to develop capacity for: a) technically clear drawings and models illustrating the assembly of materials, systems, and components appropriate for a building design; b) applying the principles of structural systems; c) the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse. The "Construction Site Report" exercises develop understanding of: a) the basic principles of structural systems; b) the principles used in selecting construction materials; c) the principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems.

Course Assessment Method:
Student performance related to this criteria is assessed through quizzes, construction site reports, and tectonic precedent drawings and models.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
Anything greater than a B+ on quizzes and final grade indicates a student was successful. 80% of students are expected to achieve a B+ or higher

Supporting Materials:
- ARCH 260 Syllabus
- ARCH 260 Course Materials

- ARCH 260 Student Work

Instructor Assessment of SC3 Criteria in ARCH 260			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 90% of students met or exceeded the B+ benchmark.	Starting in F22, life safety principles are now covered in greater depth in lectures.	100% of students met or exceeded the B+ benchmark	Moving into F23, no changes in direct relation to this criteria are envisioned.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC.4 Technical Knowledge—How the program ensures that students understand the established and emerging systems, technologies, and assemblies of building construction, and the methods and criteria architects use to assess those technologies against the design, economics, and performance objectives of projects.

Program Response:

The program ensures that students understand the established and emerging systems, technologies, and assemblies of building construction, and the methods and criteria architects use to assess those technologies against design, economies and performance in ARCH 203 - Integrated Design Studio. They also gain understanding of SC4 goals in ARCH 207C - Professional Practice Colloquium, ARCH 240 - Advanced Study of Energy and Environment, ARCH 250 - Introduction to Structures, and ARCH 260 - Introduction to Construction. ARCH 203 focuses on the integration of technical knowledge with the design process. This is achieved by students creating a preliminary concept design for a building, and then developing technical systems for structural design, façade design, environmental design, and mechanical design. The course involves weekly engagement with specialist consultants who discuss and assess issues related to structures and building construction technologies and systems. The companion colloquium ARCH 207C - Professional Practice Colloquium supports ARCH 203 with lectures by professionals experts on systems of building performance and construction. The professionals serve as consultants to students on the design of their studio projects. ARCH 240 - Advanced Study of Energy and Environment provides technical knowledge on sustainable construction and the use of computer simulations for quantitative assessment of performance. Students simulate and evaluate the performance of building components by selecting construction materials and dimensioning them, and also designing shading systems and other solar control devices. ARCH 250 - Introduction to Structures conducts exercises, case study analyses, a mid-term project, and a final project to address the SC4 goal. These projects involve designing structures capable of supporting specific loads, investigating case studies that exemplify innovations, and designing resource and environmentally-friendly buildings. ARCH 260 covers the SC4 goal through specific projects like the "Tectonic Precedent" and "Construction Site Reports". These projects develop understanding of basic principles of structural systems, selection of construction materials, and performance of building service systems. They also enhance the students' capacity for technically clear drawings and models, application of structural systems principles, and appropriate selection of construction materials based on performance and environmental impact.

SC4 - Technical Knowledge	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

SC4 Assessment Points

The following courses are program assessment points for SC4 - Technical Knowledge

- **ARCH 203 - Integrated Design Studio**
- **ARCH 240 - Advanced Study of Energy and Environment**
- **ARCH 250 - Introduction to Structures**
- **ARCH 260 - Introduction to Construction**

Students are assessed in their understanding of established and emerging systems, technologies, and assemblies of building construction in ARCH 203, ARCH 250, and ARCH 260. In ARCH 203 - Integrated Design Studio, the assessment point is the final drawing set. Each student team works closely with consultants specializing in Mechanical, Structural, Environmental, and Facade Design. Students are expected to identify these systems within their projects at multiple scales, from overall design concept to a construction detail. SC-4 can be found in the following sheets: G020, G043, G050, A100, A101, A102, A110, A200, A201, A300, A301, A302, A400, A401, A500, A600, A601, S000, S001, S100, S101, S102, S103, M001, M002, &M003.. Each of these sheets are scored and weighted for the SC-4 Criteria and averaged into a composite score (benchmark - 85% of students receive 87/100; 83% met this benchmark). In ARCH 250 - Introduction to Structures, lab exercises one through five involve calculating stresses in structural members both manually and with structural analysis programs. The exercises are graded “Satisfactory” or “Unsatisfactory” (benchmark - 85% of students to receive “Satisfactory”, 77% of students met the benchmark). In the ARCH 250 Case Study Analysis assignment, students are asked to in-class presentations of existing buildings and explain the structural and construction systems including advantages and disadvantages and suggestions for improvement (benchmark - 85% of students receive 90/100 or better; 84% met the benchmark). In ARCH 260 - Introduction to Construction there are five quizzes with questions on PC4 (benchmark - 85% of students received 90/100 or better; 85% met the benchmark). The “Construction Site Report” in ARCH 260 demonstrates students understand construction principles based on on-site observations and resulting sketches and photographs with annotated descriptions (benchmark - 80% of students receive a 90/100 or better; 98% met the benchmark).

Students are able to demonstrate an understanding of established methods and criteria used to assess building technologies against the design, economics, and performance objectives of projects in ARCH 240, 250, and 260. In ARCH 240 students work in teams throughout the lab component of the course. In Assignment #4, student teams employ Radiance/Climate Studio simulations to study daylight in buildings. Simulations are performed for different metrics including diffuse and direct light and visual comfort. In Assignment #5, students create a whole building energy model using Climate Studio/EnergyPlus and evaluate the model with respect to energy efficiency. Assignment #6, the final project measures how well students are able to synthesize the competing demands of daylighting, natural ventilation, HVAC loads, and artificial lighting. Each assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from computer simulation results. Student groups are assessed on how well they meet certain levels for each metric. Students for all assignments are graded as a team (benchmark for each of the Assignments - 90% of students received a B+ or better; 100% met the benchmark). In ARCH 250, Project 2, student teams design a pedestrian bridge that is evaluated on the basis of 1) concept and geometry, 2) structural design and analysis, and 3) proposed changes and design improvements based on the results of the analysis (benchmark - 85% of students expected to receive a B+ or higher; 93% met the benchmark). In Project 3 student teams design a sports pavilion that is evaluated in terms of 1) concept and geometry, 2) structural design and analysis, and 3) proposed changes and design improvements based on the results of the analysis (benchmark - 85% of students expected to receive a B+ or higher; 77% met the benchmark). Grading is based on the work of each student team. In ARCH 260, students are assessed in the “Tectonic Precedent” assignment. Students work in teams to research and study a contemporary building precedent and illustrate how it developed from concept to construct. Part One focuses on written research and a technical drawing of a given precedent. In Part Two, the teams construct a detailed physical model of their precedent and revise both written and drawn elements from Part One. Students outline the principles used to determine exterior/interior materials and related performance through technical drawings and digital models that illustrate and identify the assembly of materials, systems, and components from the given precedent (benchmark - 85% of student teams expected to receive 90/100 or better; 95% met the benchmark).

Evidence for SC4 Assessment Points

- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 207C_Readings
  - ARCH 203_Drawing Set Guidelines
  - ARCH 207C_Schedule
  - ARCH 207C_Summaries of Lectures
  - ARCH 207C & ARCH 203 Lecture Slides
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work
- ARCH 240
  - ARCH 240 Syllabus
  - ARCH 240 Course Materials
  - ARCH 240_Course Grading Sheet
  - ARCH 240_Assignment 04_Daylight Analysis
  - ARCH 240_Assignment 05_Thermal and WBE

- ARCH 240_Assignment 06_Final Project
- ARCH 240_Assignment 6 Grading Sheet
- ARCH 240 Student Work / Assignment 4
- ARCH 240 Student Work / Assignment 5
- ARCH 240 Student Work / Assignment 6

- ARCH 250
  - ARCH 250 Syllabus
  - ARCH 250 Course Materials
  - ARCH 250_Summaries of Lectures and Tutorials
  - ARCH 250 Lecture Slides
  - ARCH 250_Grading Sheet
  - ARCH 250_Project 1 Description
  - ARCH 250_Project 2 Description
  - ARCH 250_Project 3 Description
  - ARCH 250 Exercises & Solutions
  - ARCH 250_Student Work / Exercise 1
  - ARCH 250_Student Work / Exercise 2
  - ARCH 250_Student Work / Exercise 3
  - ARCH 250_Student Work / Exercise 4
  - ARCH 250_Student Work / Exercise 5
  - ARCH 250_Student Work / Project 1
  - ARCH 250_Student Work / Project 2
  - ARCH 250_Student Work / Project 3
- ARCH 260
  - ARCH 260 Syllabus
  - ARCH 260 Course Materials
  - ARCH 260_Construction Site Report Assignment
  - ARCH 260_Construction Site Report Grading Rubric
  - ARCH 260_Grading Sheet
  - ARCH 260_Tectonic Precedent Assignment
  - ARCH 260_Quiz 01
  - ARCH 260_Quiz 02
  - ARCH 260_Quiz 03
  - ARCH 260_Quiz 04
  - ARCH 260_Quiz 05
  - ARCH 260_Student Work / Construction Site Report
  - ARCH 260_Student Work / Tectonic Precedent

The Assessment Point Matrix for SC4 may be found here: Assessment Point Matrix_SC4

In addition, the course descriptions and the Instructor Assessment Surveys for all courses that correspond to SC4 is as follows:

SC4 Criteria in ARCH 203 - Integrated Design Studio

The integration of technical knowledge with design that enhances and enriches design concepts is central to this course. This course addresses the SC4 goal by tasking students with producing a conceptual design for a building on a specific design, and then exploring and developing (up to the detail level) technical systems for structural design, façade design, environmental design, and mechanical design. This results in systems and assemblies that bridge technologies and coordinate between building performance and design intent. This course expects students to develop “ability” in this criteria.

Course Overview:
This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, commercial and educational buildings, etc. In this Integrated Studio, students are tasked with the design of a 20,000 - 30,000sf building on a specific site within the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:
The specialist consultants who engage weekly in this course (and also lecture in ARCH 207C), raise, discuss, and assess issues that touch on systems, technologies, and assemblies of building construction. This includes a structural consultant, two dedicated facade consultants, a fire and life safety consultant, two dedicated mechanical systems consultants, and a single instructor dedicated to environmental design. These specialists offer lectures across the semester that detail these issues. Student understanding of these issues is assessed through drawing deliverables, such as: systems diagrams, the integration of plan and section, and detailed drawings of building assemblies that are critical to the building design.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project, final review, and final drawing set. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A B+ or higher is considered successful. 80%-90% of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of SC4 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 80-90% of students met or exceeded the benchmark.	Starting in F22, the studio added a fire & life safety consultant to address related technical issues.	In F22, more than 90% of students met or exceeded the benchmark.	Starting in F23, we suggest the introduction of a new mechanical consultant, and hope to increase student access to mechanical and facade consultants.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC4 Criteria in ARCH 240 - Advanced Study of Energy and Environment

This course addresses the SC4 goal by providing students with solid technical knowledge on sustainable construction and on the use of computer simulations for quantitative assessment of performance. In the energy simulation assignments, students simulate and evaluate the performance of building components such as exterior walls, roofs, and other material assemblies, by selecting each construction material and inputting their proper dimensions. Students also study the effect of specifying different real-world glazing assemblies, including technical characteristics such as U-value, Solar Heat Gain Coefficient, and Visual Transmissivity, and design and dimension shading systems and other solar control devices. This course expects students to develop an "understanding" in this criteria.

Course Overview:
Arch 240 is the core Energy and Environment course of the MArch program. Course goals include training on design processes that increase the autonomy and resilience of the built environment, conserve resources, and promote health and well-being for occupants. Architecture is seen as a mediator between the departing conditions of site and climate, and a final built artifact calibrated for users' needs and health. Students become aware that the path to Net Zero architecture starts with passive and climate responsive design, generating less energy demands. This opens the door to streamlined, energy efficient and healthy MEP systems, with reduced energy needs that can be offset by renewable on site energy generation. All three steps need to be addressed to achieve carbon neutrality, since they work as a system. Climate change mitigation can also not be achieved at the expense of human health and comfort. These goals create a holistic approach to design that starts with massing and building shape, progresses to spatial layout, and culminates with tectonics, envelope design & operability, and integration with MEP systems.

Course Assessment Method:
In Assignment 1, students acquire technical knowledge by the study of best practice precedents, the AIA Committee on the Environment (COTE) awards. In assignments 2 and 3, students learn how to assess climate and site conditions using computational tools, and to select building forms and passive design strategies adapted to their site and responsive to human needs and comfort. In assignments 4, 5 and 6, students are required to progress from building form to space layout, materials selection, envelope design and operability, and integration in MEP and renewable energy systems. Design decisions are always iterative and supported by computer simulations of daylighting, heating, cooling and ventilation. The selection of building materials and construction systems is approached in high level of detail, from exact characteristics of glazing systems (U-Value, SHGC, VT), to surface reflections of interior materials for lighting performance, to the layering and thickness of materials composing solid elements such as wall, roofs and floors.

Evaluation of student performance:
A Letter or Numeric Grade

Course Benchmark:
"Anything greater than a B+ on the final project indicates a student was successful. 90% of students are expected to achieve a B+ or higher.

Supporting Materials:
- ARCH 240 Syllabus
- ARCH 240 Course Materials
- ARCH 240 Student Work

Instructor Assessment of SC4 Criteria in ARCH 240			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded the benchmark.	We have been emphasizing a more detailed understanding of the translucent areas of a building envelope, from minimum requirements from Standard ASHRAE 90.1 to the best practice material solutions offered by the construction industry. This includes factors such as SHGC, VT and U-Value. For opaque construction elements, students are required to select, specify and dimensions exact materials from available libraries of construction solutions. For daylighting, more detailed and refined geometries are consistently encouraged. Natural ventilation systems are specified not only spatially/geometrically, but also in terms of specific operability solutions, including specific dimensions and mechanical resolution.	In S23, 100% of students met or exceeded the benchmark.	We plan to include more information in advanced materials, including innovative thermal insulation solutions. We will also address novel light control systems, namely lighting redirecting materials that can be added to the building envelope to capture and redirect light in more efficient ways deeper into the building.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC4 Criteria in ARCH 250 - Introduction to Structures

This course addresses the SC4 goal through exercises, a case study analysis, a mid-term project and a final project. Project 1 – Case Study Analysis: students investigate a case study from a list of projects that exemplify certain innovations of their time, and present and discuss the underlying design drivers and structural concepts. Project 2 – Trusses: students design and detail a truss structure (e.g. tower, cantilever, bridge) capable of supporting a specific load. Calculations disclose the anticipated load-bearing behavior and the resulting design of structural elements. Projects are tested for: weight, deformation under a given load, and quantifying the stresses. By comparing results, students become more aware of their project's structural performance and material efficiency. Project 3 – Pavilion Design: Students design a resource- and environmentally-friendly building: a single, column-free space that is covered by a

lightweight roof structure. Students develop conceptual studies, structural analysis, detailed drawings, and a physical model. Designs are digitally weighed and loaded to determine their structural behavior, and are evaluated in terms of structural efficiency and material performance. This course expects students to develop an “understanding” in this criteria.

Course Overview:
This class focuses on the fundamental principles that affect the structural behavior of buildings. Lectures introduce the fundamental principles that influence the structural behavior of buildings and discuss various structural systems and materials relevant to their design. The spectrum of lectures ranges from loads, forces, and stresses in static equilibrium systems to general material properties and section-, vector-, surface-, and form-active structures. In lab sessions, students learn both manual and digital techniques for evaluating the flow of forces through structural systems and for evaluating the stresses that occur. In five lab exercises, students apply their acquired knowledge to predict and calculate stresses in structural members and to design structures with adequate dimensions. This is achieved through both manual calculations and digital analysis tools. Students are evaluated using qualitative feedback by the instructor, classmates, and invited guests who are experts in the field of structural design. Furthermore, the student teams will receive a letter grade for each of the three assignments.

Course Assessment Method:
Student performance is assessed through lectures, lab sessions, 5 lab exercises, a case study analysis, a mid-term project and a final project. For the five lab exercises, which involve manual calculations and a basic understanding of digital structural simulation software, students work individually. Students apply their gained knowledge to predict and calculate stresses in structural members and to design structures with adequate dimensions. This is achieved both through manual calculations as well as through digital tools such as Karamba3D - a parametric structural analysis tool in the Rhinoceros/Grasshopper design environment enables accurate analysis of spatial trusses, frames and shells. The exercises are evaluated by the instructor and GSI and discussed in the following lab session. For the subsequent case study analysis, midterm project, and final project, students work in teams of 3-4. For each of these three projects, students have to present their final results in the form of a 15-minute presentation, a discussion with classmates, and a written project report that includes the data collected, a project description, a structural concept statement, photographs and illustrations, as well as structural calculations and digital simulations.

Evaluation of student performance:
Qualitative feedback and a letter grade.

Course Benchmark:
An A- or above indicates a successful assignment. 80% of students are expected to achieve an A- or higher.

Supporting Materials:
- ARCH 250 Syllabus
- ARCH 250 Course Materials
- ARCH 250 Student Work

Instructor Assessment of SC4 Criteria in ARCH 250			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 90% met or exceeded the benchmark when considering submissions for all three projects in this class combined. Students benefited from working in teams and being graded together. This format gave students the opportunity to learn from each other and help each other with technical issues. However, some teams had difficulty working together as a team, which was addressed in these cases by grading team members individually.	In S23, while the general structure of the course remained the same, more emphasis was placed on better linking the individual elements. Lab exercises with software tutorials and the three projects with the lectures. The slightly smaller class size also allowed for more discussion during class time and provided a little more room to support each team. Some of the media (e.g. MIRO, lecture recordings, video guides) that were originally introduced in response to the switch to remote learning during the pandemic were kept as they were found to be helpful and effective, despite the fact that this course was again taught entirely in person.	In S23, 85% met or exceeded the benchmark when considering submissions for all three projects in this class combined. Students benefited from working in teams and being graded together. This format gave students the opportunity to learn from each other and help each other with technical issues. However, as in previous years, some teams had difficulty working together or had team members who did not submit all of the required exercises, which was addressed in these cases by grading team members individually.	Some of the changes made this semester, such as improving the connections between elements and building on the tools introduced during the pandemic, have proven helpful and will remain part of this course. A particular challenge this time was the late location of spring break in the semester, which forced me to move the Project 2 due date before spring break, while also inviting studio instructors to move their studio midterm reviews back to the same week. This created unnecessary time conflicts and pressure for students and needs to be better organized in the future.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC4 Criteria in ARCH 260 - Introduction to Construction

This course addresses the SC4 goal through a range of topics addressed in course lectures, as well as the "Tectonic Precedent" and "Construction Site Reports" projects. This course expects students to develop an "understanding" in this criteria.

Course Overview:
This course introduces the materials, components, and processes of construction. Here, students become familiar with each of these elements, understand the role of both labor and available skilled trades, the location of on- and off-site work, and the impact of codes and regulations on design professionals. Lectures communicate: a) the basic principles of structural systems and their ability to withstand forces, b)the basic principles used in the selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse, c) the basic principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems. The "Tectonic Precedent" projects aims to develop capacity for: a) technically clear drawings and models illustrating the assembly of materials, systems, and components appropriate for a building design; b) applying the principles of structural systems; c) the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse. The "Construction Site Report" exercises develop understanding of: a) the basic principles of structural systems; b) the principles used in selecting construction materials; c) the principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems.

Course Assessment Method:
As for other criteria, student performance related to this criteria is assessed through quizzes, construction site reports, and tectonic precedent drawings and models.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
Anything greater than a B+ on quizzes and final grade indicates a student was successful. 80% of students are expected to achieve a B+ or higher

Supporting Materials:
- ARCH 260 Syllabus
- ARCH 260 Course Materials
- ARCH 260 Student Work

Instructor Assessment of SC4 Criteria in ARCH 260			
AY 21-22 Assessment	**Changes AY 21-22 -> AY 22-23**	**AY 22-23 Assessment**	**Changes AY 22-23 -> AY 23-24**
did students in AY 21-22 achieve at the level expected?	*changes made to improve student performance / better meet this goal*	*did students in AY 22-23 achieve at the level expected?*	*changes made to improve student performance / better meet this goal*
In F21, 90% of students met or exceeded the B+ benchmark.	In F22, no changes in direct relation to this criteria were implemented.	In F22, 100% of students met or exceeded the B+ benchmark	Moving into F23, no changes in direct relation to this criteria are envisioned.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC4 Criteria in ARCH 207C - Professional Practice Colloquium

This course addresses the SC4 goal through lectures by leaders in the field on Mechanical Systems, Façade Systems, Structural Systems, Environmental Design, and Life Safety Systems, gaining knowledge to be implemented into the design studio projects in ARCH 203. This course expects students to develop "awareness" in this criteria.

Course Overview:
This one-unit colloquium accompanies the required ARCH 203 Integrated Design Studio in the three-year option of the Master of Architecture program.

Course Assessment Method:
Student understanding of SC4 is achieved by attending and participating during the live lectures, or submitting written summaries and responses to the lecture content following the lecture. Written responses include a synopsis of material presented in class and specific questions or reflections about how it relates to the student's ongoing studio project work. Each week, a rotating group of students are responsible for researching the speaker in advance, developing questions for the speaker, and moderating the Q&A session at the end of each lecture. Students engage with lectures on subjects such as: structural systems, environmental design, mechanical systems, facade systems, fire and life safety systems. Lectures are coordinated with ARCH 203, such that the lecturers also serve as consultants for the studio projects.

Evaluation of student performance:
Satisfactory / Unsatisfactory

Course Benchmark:
The expectation is that 95% of students or greater will receive a passing grade.

Supporting Materials:
- ARCH 207C Syllabus
- ARCH 207C Course Materials

Instructor Assessment of SC4 Criteria in ARCH 207C			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 95% of students met or exceeded the benchmark.	Starting in F22, the course added new fire & life safety consultant to improve student understanding of these issues.	In F22, 100% of students met or exceeded the benchmark.	Starting in F23, we hope to better coordinate technical lectures between the two specialists within a discipline (when applicable) in order to reduce redundancy.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC.5 Design Synthesis—How the program ensures that students develop the ability to make design decisions within architectural projects while demonstrating synthesis of user requirements, regulatory requirements, site conditions, and accessible design, and consideration of the measurable environmental impacts of their design decisions.

Program Response:
The program ensures students develop the ability to make decisions in the design of architectural projects while synthesizing user requirements, regulatory requirements, site conditions, accessibility, and environmental impacts in ARCH 203 - Integrated Design Studio. ARCH 203 meets the SC5 goal by synthesizing considerations of site, zoning regulations, building codes, community context, climate, program, and accessibility into the design process. Design decisions are facilitated by specialist consultants in areas of structures, façade, fire and life safety, mechanical systems, and environmental daylighting design. Consultants provide weekly guidance to students and offer lectures on related subjects in a companion colloquium. Design synthesis is assessed through various drawing deliverables that capture user requirements, regulatory requirements, site conditions, and accessible design considerations.

SC5 - Design Synthesis	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

SC5 Assessment Points

The following courses are program assessment points for SC5 - Design Synthesis

- **ARCH 203 - Integrated Design Studio**

Students are assessed on their ability to make thoughtful decisions regarding the design of their projects that synthesize user, regulatory, site, accessibility and environmental constraints in ARCH 203. Students work in pairs throughout the semester on the design of an architectural project and are evaluated on design synthesis in the Final Drawing Set. Each student team works closely with consultants specializing in Fire & Life Safety, Mechanical Design, Structural Design, Environmental Design, and Facade Design. Students are tasked with understanding the requirements of the program, the needs of the users, and opportunities and constraints of an appropriate site strategy. They are expected to identify these systems and requirements within their projects at multiple scales, from overall design concept to a construction detail and are evaluated on the degree to which they synthesize these various components into a coherent, singular design proposal. SC-5 goals can be found in the following Sheets of the final drawing set: G001, A000, A010, A100, A101, A102, A110, A200, A201, A300, A301, A302, A400, A401, A500, A600, A601, A900, A901, S000, S001, S100, S101, S102, S103, M001, M002, & M003. Each of these sheets are scored and weighted for the SC-5 Criteria and averaged into a composite score. Grading is compiled per project (not by individual student) (benchmark - 85% of students expected to receive an aggregate score of 87/100 or better for SC5; 92% of students met the benchmark).

Evidence for SC5 Assessment Points

- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 207C_Readings
  - ARCH 203_Drawing Set Guidelines
  - ARCH 207C_Schedule
  - ARCH 207C_Summaries of Lectures
  - ARCH 207C & ARCH 203 Lecture Slides
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work

The Assessment Point Matrix for SC5 may be found here: Assessment Point Matrix_SC5

In addition, the course description and the Instructor Assessment Survey for all courses that correspond to SC5 is as follows:

SC5 Criteria in ARCH 203 - Integrated Design Studio

This course addresses the SC5 goal by asking students to synthetically consider questions of site, zoning regulations, building codes, community context, climate, program, and accessibility. This course expects students to develop "ability" in this criteria.

Course Overview:

This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, commercial and educational buildings, etc. In this Integrated Studio, students are tasked with the design of a 20,000 - 30,000sf building on a specific site within the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:

This course promotes the synthesis of factors in a design process through the engagement of specialist consultants that present in the studio and that engage with students iteratively across the development of design projects. These specialist consultants are at the service of students, and engage weekly in this course (and also lecture in ARCH 207C). This includes a structural consultant, two dedicated facade consultants, a fire and life safety consultant, two dedicated mechanical systems consultants, and a single instructor dedicated to environmental design. Student understanding of design synthesis is assessed through drawing deliverables. User requirements are captured in a program diagram and a occupancy chart that relates to user needs; Regulatory requirements are captured in a project data sheet that articulates factors such as building type, structural system type, egress strategies; a drawing that shows zoning analysis, a code analysis sheet that shows factors such as occupancy loads; and a site context analysis; Site conditions are captured in the architectural site strategy drawing and the environmental design diagram; Issues in accessible design is captured in the accessibility drawing.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project, final review, and final drawing set. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work

throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A B+ or higher is considered successful. 90% of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of SC5 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 80-90% of students met or exceeded the benchmark.	Starting in F22, the introduction of a formal drawing set to document individual systems helped to support the synthesis of these systems within a design.	In F22, 95% of students met or exceeded the benchmark.	Starting in F23, the course will introduce a mid-semester review of a working drawing set in order to accelerate student understanding of design synthesis.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC.6 Building Integration—How the program ensures that students develop the ability to make design decisions within architectural projects while demonstrating integration of building envelope systems and assemblies, structural systems, environmental control systems, life safety systems, and the measurable outcomes of building performance.

Program Response:

The program ensures students develop the ability to make design decisions within architectural projects while demonstrating integration of building envelope systems and assemblies, structures, environmental control systems, life safety, and building performance in ARCH 203 - Integrated Design Studio. In ARCH 203, students develop architectural projects that integrate each SC6 criteria. Professional experts in facades, structures, environmental control systems and building performance, and code and life safety provide lectures in the companion colloquium and act as consultants to students. Students are paired in teams for the duration of the semester and act in a similar manner to the profession to ensure integration of building systems while retaining design intents. Courses that build SC6 knowledge to equip students with skills to make informed decisions include ARCH 240 - Advanced Study of Energy and Environment, ARCH 250 - Introduction to Structures, and ARCH 260 - Introduction to Construction. ARCH 240 educates students on integrated design processes fostering resilience and energy conservation in the built environment. The course advocates for a climate-responsive design approach, stressing the use of daylighting as a form generator to align architectural intentions with ecological concerns, and emphasizes a pathway towards carbon-neutral buildings, from architectural massing to envelope design, integrating mechanical systems in a balanced active and passive approach. In ARCH 250, students discuss the integration of various building systems in design projects using case study analyses. Students also apply their knowledge to their own designs as part of the course assignments, which are assessed for the integration of building systems, enhancing their competence in making informed design decisions in ARCH 203. ARCH 260 introduces students to constructional integration through lectures and construction site reports. Here, students gain an understanding of the materials, components, and processes of construction, including an appreciation of the role of labor, skilled trades, and the impact of codes and regulations. The course particularly highlights the principles of structural systems, selection of construction materials, and performance of building service systems.

SC6 - Building Integration	F	S	F	S	F	S
studios	200A	200B	201	202	203	204B
seminars	207A		207B	207D	204A	207C
BSTS		250	260	240		
HTS	270	230				
methods	200C	250				

SC6 Assessment Points

The following courses are program assessment points for SC6 - Building Integration

- **ARCH 203 - Integrated Design Studio**
- **ARCH 240 - Advanced Study of Energy and Environment**

Students are assessed on their ability to make design decisions regarding the integration of building envelope systems and assemblies, structure, environmental control systems, and life safety in a building project in ARCH 203. Students work in pairs throughout the semester on the design of an architectural project and are evaluated on building integration in the Final Drawing Set submitted at the conclusion of the semester. The student team works closely with consultants specializing in Fire & Life Safety, Mechanical Design, Structural Design, Environmental Design, and Facade Design. Students are tasked with understanding the requirements of the program, the needs of the users, and opportunities and constraints of an appropriate site strategy. Students are expected to identify these systems and requirements within their projects at multiple scales, from overall design concept to a construction detail and are evaluated on the degree to which the building design integrates these various components into a coherent, singular design proposal. SC-5 can be found in the following Sheets of the final set: G001, A000, A010, A100, A101, A102, A110, A200, A201, A300, A301, A302, A400, A401, A500, A600, A601, A900, A901, S000, S001, S100, S101, S102, S103, M001, M002, & M003. Each of these sheets are scored and weighted for the SC-5 Criteria and averaged into a composite score. Grades are assigned per team (benchmark - 85% of students expected to receive 87/100 or better; 92% met the benchmark).

Students are assessed on their ability to make design decisions and integrate the measurable outcomes of building performance in the final project of ARCH 240. The final project is a culmination of two previous assignments on daylighting and thermal energy performance. The last project asks students to use their knowledge to optimize a schematic building design to reconcile conflicting objectives between daylighting, natural ventilation, heating+cooling+ventilation HVAC loads, and artificial lighting use. Computer simulations are used to fine tune the final design iteration. Students design a renewable energy system to meet the final energy demands of the building to achieve a Net Zero energy solution. Students also produce an environmental section displaying ecological design strategies in general. Students work in teams on this project and are graded on the quality of project development based on four weekly assignments; they also receive a grade for participation (benchmark - 90% of student teams expected to receive a B+ or above on weekly assignments and 75% of student teams expected to receive a B+ or above for participation with 90% receiving a B+ or better for the final project grade; 100% of student teams met the assignment grading benchmark and 64% met the participation benchmark with 100% meeting the benchmark for the final project grade).

Evidence for SC6 Assessment Points

- ARCH 203
  - ARCH 203 Syllabus
  - ARCH 203 Course Materials
  - ARCH 207C_Readings
  - ARCH 203_Drawing Set Guidelines
  - ARCH 207C_Schedule
  - ARCH 207C_Summaries of Lectures
  - ARCH 207C & ARCH 203 Lecture Slides
  - ARCH 203_Grading Sheet
  - ARCH 203_Student Work
- ARCH 240
  - ARCH 240 Syllabus
  - ARCH 240 Course Materials
  - ARCH 240_Course Grading Sheet

- ARCH 240_Assignment 04_Daylight Analysis
- ARCH 240_Assignment 05_Thermal and WBE
- ARCH 240_Assignment 06_Final Project
- ARCH 240_Assignment 6 Grading Sheet
- ARCH 240 Student Work / Assignment 4
- ARCH 240 Student Work / Assignment 5
- ARCH 240 Student Work / Assignment 6

The Assessment Point Matrix for SC6 may be found here: Assessment Point Matrix_SC6

In addition, the course description and the Instructor Assessment Survey for all courses that correspond to SC5 is as follows:

SC6 Criteria in ARCH 203 - Integrated Design Studio

ARCH 203 addresses the moment of building integration where architecture is developed, synthesized, and integrated with building systems. Students develop a mid-size architectural design project while demonstrating an ability to synthesize and integrate essential building systems and material assemblies. Taking into consideration questions of site, community context, climate, program, environmental performance, structural and mechanical systems, and material tectonics. Students are responsible for the integration of urban strategy all the way through to selected construction details. This course addresses the SC6 goal by asking students to consider questions of site, community context, climate, program, environmental performance, structural and mechanical systems, and material tectonics into fully integrated building design proposals, strengthening their designs through multiple layers of coordinated systems. This course expects students to develop “ability” in this criteria.

Course Overview:
This class is a design-based studio that focuses on the integration of architectural, structural, technical, detailing, zoning, and code-related issues with respect to the design of a medium-sized building of civic importance. Such building types are (but not limited to) libraries, theaters, city halls, judicial buildings, commercial and educational buildings, etc. In this Integrated Studio, students are tasked with the design of a 20,000 - 30,000sf building on a specific site within the Bay Area. Students are responsible for the integration of urban and building strategy all the way through to selected construction details. Across all NAAB criteria, students are evaluated through a combination of course participation in regular assignments, culminating in a final project and final review.

Course Assessment Method:
This course promotes the integration of building systems through the engagement of specialist consultants that are present in the studio and that engage with students iteratively across the development of design projects. These specialist consultants are at the service of students, and engage weekly in this course (and also lecture in ARCH 207C). This includes a structural consultant, two dedicated facade consultants, a fire and life safety consultant, two dedicated mechanical systems consultants, and a single instructor dedicated to environmental design. While the first half of the course proceeds through the development of a design schematic, the second half is dedicated to the development of this design as it integrates with a range of building systems, all of which leads to the production of an integrated drawing set. Student understanding of building integration is then assessed through this drawing set, and building integration issues are infused throughout the entire set. The integrated section is perhaps the best example of integration, but we see the synthesis of design concerns and building systems in every drawing.

To address this criteria, students are evaluated through a combination of regular assignments, culminating in a final project, final review, and final drawing set. As for other criteria, student learning is assessed based on quality of design and presentation, iterative and comprehensive development of the project, timely and energetic completion of work throughout the semester, adherence to guidelines defined in the course documents, improvement over the course of the semester, collaborative effort, and active contribution to the intellectual climate of the studio.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
A B+ or higher is considered successful. 90% of students are expected to receive a B+ or higher.

Supporting Materials:
- ARCH 203 Syllabus
- ARCH 203 Course Materials
- ARCH 203 Student Work

Instructor Assessment of SC6 Criteria in ARCH 203			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21 90% of students met or exceeded the benchmark.	Starting in F22, the introduction of a formal drawing set helped students understand the integration of various systems in a design.	In F22 95% of students met or exceeded the benchmark.	Starting in F23, we suggest that the course provide more examples and clarify the intentions of the "Integrated Building Section" drawing. Further, the environmental systems documentation examples could be improved.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC6 Criteria in ARCH 240 - Advanced Study of Energy and Environment

The concept of Building Integration is at the core of ARCH 240. The fundamental premise of the course is the integration of climate-responsive passive design strategies with MEP and renewable energies systems, towards carbon-neutral buildings. Decision making at architecture design level is supported by computational analysis and simulation data, and includes diverse performance factors such as daylighting, heating, cooling and ventilation. The progression from massing and building form to envelope design and operability is guided by a consistent set of design objectives that span resource efficiency and human-centric aspects. This course expects students to develop an "awareness" of issues related to this criteria.

Course Overview:

Arch 240 is the core Energy and Environment course of the MArch program. Course goals include training on design processes that increase the autonomy and resilience of the built environment, conserve resources, and promote health and well-being for occupants. Architecture is seen as a mediator between the departing conditions of site and climate, and a final built artifact calibrated for users' needs and health. Students become aware that the path to Net Zero architecture starts with passive and climate responsive design, generating less energy demands. This opens the door to streamlined, energy efficient and healthy MEP systems, with reduced energy needs that can be offset by renewable on site energy generation. All three steps need to be addressed to achieve carbon neutrality, since they work as a system. Climate change mitigation can also not be achieved at the expense of human health and comfort. These goals create a holistic approach to design that starts with massing and building shape, progresses to spatial layout, and culminates with tectonics, envelope design & operability, and integration with MEP systems.

Course Assessment Method:

In assignments 4, 5 and 6, students are required to progress from building form to space layout, materials selection, envelope design and operability, and integration in MEP and renewable energy systems. Design decisions are always iterative and supported by computer simulations of daylighting, heating, cooling and ventilation. The selection of building materials and construction systems is approached in high level of detail, from exact characteristics of glazing systems (U-Value, SHGC, VT), to surface reflections of interior materials for lighting performance, to the layering and thickness of materials composing solid elements such as wall, roofs and floors.

Evaluation of student performance:

A Letter or Numeric Grade

Course Benchmark:

Anything greater than a B+ on the final project indicates a student was successful. 90% of students are expected to achieve a B+ or higher.

Supporting Materials:

- ARCH 240 Syllabus
- ARCH 240 Course Materials
- ARCH 240 Student Work

Instructor Assessment of SC6 Criteria in ARCH 240			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 100% of students met or exceeded the benchmark.	Renewable energies were included until now in assignment 6 (final project) by asking students to calculate the number of photovoltaic panels needed to meet their building energy needs, after optimizing its passive design. Students are now also expected to predict other renewable energy systems, if they are compatible with the program and site. Students are asked to select energy efficient HVAC solutions such as water-based radiant systems, and underfloor ventilation/displacement ventilation. Lectures include more emphasis on other sustainability factors like water management and health-related design aspects, like circadian-cycle and biophilic design.	In S23, 100% of students met or exceeded the benchmark.	In assignments 5 (thermal performance) and 6 (final project), we will provide students with more alternatives and detailed guidance on ways to simulate different HVAC system characteristics, such as COP and set points. We will further emphasize the way that other simulation parameters, such as people density or lighting density, affect the overall energy performance of the building. We will train the students in higher detail regarding artificial lighting control strategies and their relationship with daylighting performance.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC6 Criteria in ARCH 250 - Introduction to Structures

This course addresses the SC6 goal through lectures by the instructor, and through case study analyses presented by students in which the class discusses how these projects successfully address the need to integrate structural systems, building envelope systems, and assemblies into building design. In addition, students are given the opportunity to apply their newly acquired knowledge in this area to their own design as part of their mid-term and final projects in the course. This course expects students to develop "awareness" in this criteria.

Course Overview:
This class focuses on the fundamental principles that affect the structural behavior of buildings. Lectures introduce the fundamental principles that influence the structural behavior of buildings and discuss various structural systems and materials relevant to their design. The spectrum of lectures ranges from loads, forces, and stresses in static equilibrium systems to general material properties and section-, vector-, surface-, and form-active structures. In lab sessions, students learn both manual and digital techniques for evaluating the flow of forces through structural systems and for evaluating the stresses that occur. In five lab exercises, students apply their acquired knowledge to predict and calculate stresses in structural members and to design structures with adequate dimensions. This is achieved through both manual calculations and digital analysis tools. Students are evaluated using qualitative feedback by the instructor, classmates, and invited guests who are experts in the field of structural design. Furthermore, the student teams will receive a letter grade for each of the three assignments.

Course Assessment Method:
Student performance on the NAAB Building Integration goal is assessed through three semester assignments (case study analysis, midterm project, and final project). For each of these assignments, students work in teams of 3 to 4 and must present their final results in the form of a 15-minutes presentation, a discussion with classmates, and a written project report that includes the data collected, a project description, a structural concept statement, photographs and illustrations, as well as structural calculations and digital simulations.

Evaluation of student performance:
Qualitative feedback and a letter grade.

Course Benchmark:
An A- or above indicates a successful assignment. 80% of students are expected to achieve an A- or higher.

Supporting Materials:
- ARCH 250 Syllabus
- ARCH 250 Course Materials
- ARCH 250 Student Work

Instructor Assessment of SC6 Criteria in ARCH 250			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In S22, 90% met or exceeded the benchmark when considering submissions for all three projects in this class combined. Students benefited from working in teams and being graded together. This format gave students the opportunity to learn from each other and help each other with technical issues. However, some teams had difficulty working together as a team, which was addressed in these cases by grading team members individually.	In S23, the general structure of the course remained the same, however some aspects of building integration was emphasized a little more. For Project 1 - Case Study Analysis, the slightly smaller class size and resulting longer time per team this year allowed for more in-depth discussion of the projects presented. This provided an opportunity to highlight some projects' approaches that combined program requirements and design goals with relevant aspects such as structural design, construction, and sustainability. For Projects 2 and 3, we showed the previous year's submissions so that this cohort could learn from their work. For the students, an important lesson learned from the past year's work was that more constraints in the areas of program, space, structure, construction, and environmental sustainability do not necessarily limit the architect's design freedom; on the contrary, they can positively enrich it and spark creativity. Finally, for Project 3, we asked students to build a physical model of their building that explained the structural system. This was possible because our model workshop was working normally again after the years of the pandemic.	In S23, 84% of students met the course expectations of A- or higher. Students benefited from working in teams and being graded together. This format gave students the opportunity to learn from each other and help each other with technical issues. However, some teams had difficulty working together as a team, which was addressed by asking students to complete a self-assessment form for each team member and, if the feedback supported it, to grade team members individually.	The changes made from the previous year have proven successful and valuable. In particular, showing previous student work for Projects 1-3 has been instrumental in clarifying expectations and establishing a standard for the work. Giving students tighter constraints on program, space, structure, construction, and environmental sustainability also helped them contextualize their ideas and improve their designs. Especially toward the end of the semester (Projects 2-3), the direct deskcrits between the teams and the course instructor and GSI were enormously important. This is where the teams' ideas were given a reality check and important design decisions were made or anticipated problems were discussed.Requesting a physical model for Project 3 has also proven invaluable in giving students a hands-on feel for the structural performance of their building and identifying potential problems at the interfaces between the facade, foundation, and program.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

SC6 Criteria in ARCH 260 - Introduction to Construction

This course addresses the SC6 goal by exposing students to building integration topics through lectures and construction site reports. Students are not expected to apply this knowledge in this course through a design project. In the most recent incarnation of the course, additional focus was given to identify, model, and describe the MEP+FP (Mechanical, Electrical,and Plumbing + Fire Protection systems) in the tectonic precedent projects (despite minimal MEP+FP documentation available). This course expects students to develop "awareness" in this criteria.

<u>*Course Overview:*</u>

This course introduces the materials, components, and processes of construction. Here, students become familiar with each of these elements, understand the role of both labor and available skilled trades, the location of on- and off-site work, and the impact of codes and regulations on design professionals. Lectures communicate: a) the basic principles of structural systems and their ability to withstand forces, b)the basic principles used in the selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse, c) the basic principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems. The "Tectonic Precedent" projects aims to develop capacity for: a) technically clear drawings and models illustrating the assembly of materials, systems, and components appropriate for a building design; b) applying the principles of structural systems; c) the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse. The "Construction Site Report" exercises develop understanding of: a) the basic principles of structural systems; b) the principles used in selecting construction materials; c) the principles, integration, and performance of building service systems, including lighting, mechanical, plumbing, electrical, vertical transportation, and fire protection systems.

Course Assessment Method:
As for other criteria, student performance related to this criteria is assessed through quizzes, construction site reports, and tectonic precedent drawings and models.

Evaluation of student performance:
A Letter or Numeric Grade (e.g. A-F, 95%)

Course Benchmark:
Anything greater than a B+ on quizzes and final grade indicates a student was successful. 80% of students are expected to achieve a B+ or higher

Supporting Materials:
- ARCH 260 Syllabus
- ARCH 260 Course Materials
- ARCH 260 Student Work

Instructor Assessment of SC6 Criteria in ARCH 260			
AY 21-22 Assessment *did students in AY 21-22 achieve at the level expected?*	**Changes AY 21-22 -> AY 22-23** *changes made to improve student performance / better meet this goal*	**AY 22-23 Assessment** *did students in AY 22-23 achieve at the level expected?*	**Changes AY 22-23 -> AY 23-24** *changes made to improve student performance / better meet this goal*
In F21, 90% of students met or exceeded the B+ benchmark.	Starting in F22, two projects were adapted to better investigate and interrogate projects by established architects, and how they found solutions to building integration: Construction Site Reports (through observations and writing) and the Tectonic Precedent project (through modeling and drawing). Additional focus was given to identify, model, and describe the MEP+FP systems in the tectonic precedent projects (despite minimal MEP+FP documentation available)	In F22, all students met or exceeded the B+ benchmark	Moving into F23, no changes in direct relation to this criteria are envisioned.

A summary of the instructor's assessment of learning objectives and outcomes for this course in AY 21–23, and the related curricular modifications made over this time.

4—Curricular Framework

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

4.1 Institutional Accreditation

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

Program Response:

Our most recent letter from our regional accrediting commission, WASC Accrediting Commission for Schools, can be found here:

Commission Action Letter 2015

4.2 Professional Degrees and Curriculum

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

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

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

Program Response:

The Master of Architecture (MArch) at the University of California Berkeley is a NAAB accredited professional degree program. The curricular requirements for awarding the degree include professional studies, general studies, and optional studies. Candidates must receive a BA or BS degree in any field (including a nonprofessional degree in architecture) to be able to apply to the MArch program. Candidates' undergraduate general education units are counted toward the total units for the MArch Accredited Program Requirement. As a result, our MArch program offers:

- MArch Option 3: Three-year program (for non-pre-professional degree candidates with 120 units of general preparatory education), which requires 72 units and a minimum of 13 elective units.
- MArch Option 2 (Advanced Standing): Two-year program (for pre-professional degree candidates with 120 units of both general and professional preparatory education), which requires 48 units and a minimum of 5 elective units.

	Master of Architecture (Option 3 – Three Year Program)			
Year 1	**Required Professional Courses**	**units**	**Optional Studies**	**Units**
Fall	Arch 200A Introduction to Architecture Studio 1	5		
	Arch 200C Representational Practices as tools for Design 1	3		
	Arch 207A CED Lectures Colloquium	1		
	Arch 270 History of Modern Architecture	3		
Spring	Arch 200B Introduction to Architecture Studio 2	5		
	Arch 200D Representational Practices as tools for Design 2	2		
	Arch 230 Architectural Design Theory & Criticism*	3		
	Arch 250 Introduction to Structures*	3		
Year 2	**Required Professional Courses**	**units**	**Optional Studies**	**units**
Fall	Arch 201 Architecture & Urbanism Studio (Housing)	5	Professional or General Elective(s)	3+
	Arch 207B Architecture + Urbanism Colloquium	1		
	Arch 260 Introduction to Construction & Material*	3		
Spring	Arch 202 Graduate Option Studio	5		
	Arch 207D The Cultures of Practice*	3		
	Arch 240 Advanced Study Energy & Environment*	3		
Year 3	**Required Professional Courses**	**units**	**Optional Studies**	**Units**
Fall	Arch 203 Integrated Studio	5	Professional or General Elective(s)	3+
	Arch 204A Thesis Seminar	3		
	Arch 207C Professional Practice Colloquium	1		
Spring	Arch 204B Thesis Studio	5	Professional or General Elective(s)	7+
	Total Required Professional	**48**	**Total Minimum Optional Studies**	**13**
	TOTAL # OF UNITS MINIMUM (72 required w/ maximum 13 elective units)			**72**

NOTES:
Students can choose to take either professional or general electives. Please see the samples of electives in the recent past two academic years in 4.2.3 Optional Studies.
The minimum units each semester is 12. Only course numbers in 100s and 200s count toward the degree.
* Waivers for this requirement must be submitted at the beginning of the Fall of students' first year of enrollment or they must take the class. If a required course is waived, students must still take an advanced course in the same area.

	Master of Architecture (Option 2 – Two Year Program)			
Year 1	**Required Professional Courses**	**units**	**Optional Studies**	**Units**
Fall	Arch 201 Architecture & Urbanism Studio (Housing)	5		
	Arch 207B Architecture & Urbanism Colloquium	1		
	Arch 260 Introduction to Construction & Material*	3		
	Arch 270 History of Modern Architecture*	3		
Spring	Arch 202 Graduate Option Studio	5		
	Arch 240 Advanced Study Energy & Environment*	3		
	Arch 207D The Cultures of Practice *	3		
	Arch 230 Architectural Design Theory & Criticism*	3		
	Arch 250 Introduction to Structures*	3		
Year 2	**Required Professional Courses**	**units**	**Optional Studies**	**units**
Fall	Arch 203 Integrated Studio	5	Professional or General Elective(s)	3+
	Arch 207C Professional Practice Colloquium	1		
	Arch 204A Thesis Seminar	3		
Spring	Arch 204B Thesis Studio	5	Professional or General Elective(s)	7+
	Total Required Professional	**33**	**Total Minimum Optional Studies**	**5**
	TOTAL # OF MINIMUM UNITS (48 required w/ minimum 5 elective units)			**48**

NOTES:
Students can choose to take either professional or general electives. Please see the samples of electives in the recent past two academic years in 4.2.3 Optional Studies.
The minimum units each semester is 12. Only course numbers in 100s and 200s count toward the degree.
* Waivers for this requirement must be submitted at the beginning of the Fall of students' first year of enrollment or they must take the class. If a required course is waived, students must still take an advanced course in the same area.

During the admissions process, the Graduate Student Affairs Officers (GSAOs) review all applications and sort the candidates based on whether or not they meet the minimum requirements to be considered for Option 2 by the admissions committee. Candidates who have no background in architecture or have less than five weighted studios in architectural design are considered for the MArch Option 3, the three-year graduate program. Candidates who received a BA or BS in architecture with at least five weighted studios in architectural design and whose portfolios exhibit strong standing in design are considered for the two-year, Option 2 program. This advanced standing is not an automatic placement—it is at the discretion of the admissions committee. Incoming Option 2 students join the Option 3 students in their second year.

Since the last NAAB review, the MArch curriculum at UC Berkeley has continued to improve in order to meet the objective of producing well-prepared professionals. The curricula for the MArch Option 2 and Option 3 programs have been restructured with a clear professional studies sequence as seen in the two tables above. The changes are:

- Architecture design studios are sequenced from foundational content to that of increasing complexity.
  - ARCH 200A (first semester of Option 3) begins with an introduction to architectural design with a focus on the basic syntax of form, space, and tectonics. Students learn to comprehend human scales and explore contemporary social and cultural constructs as agencies of design. Accompanying the design studio are ARCH 200C and 200D Representational

Practices, which concentrate on the techniques of architectural representation and the context surrounding them. ARCH 200A syllabus, ARCH 200C syllabus, ARCH 200D syllabus
  - ARCH 200B (second semester of Option 3) increases complexity by integrating a preliminary understanding of structures and introducing a more involved program and site. ARCH 200B syllabus
  - ARCH 201 (third semester of Option 3/first semester of Option 2) studios build upon 200A and 200B with the design for a multifamily housing project in an urban context. ARCH 201 studios introduce students to sociocultural aspects of architectural design as well as strategies for building in an urban context. ARCH 201 syllabus, ARCH 201 course materials
  - ARCH 202 (fourth semester of Option 3/second semester of Option 2) studios are option studios which are frequently taught by endowed visiting professors. They vary in topic of inquiry and tend to include complex building sites and programs. ARCH 202 syllabus
  - ARCH 203 (fifth semester of Option 3/third semester of Option 2) studio is the integrated design studio. Students learn to develop a building proposal that synthesizes technical aspects of construction, structure and materials, heating and ventilation, health and safety, and other building systems. ARCH 203 syllabus, ARCH 203 course materials
  - ARCH 204 (final semester for both Option 3 and Option 2) is a yearlong thesis, composed of Arch 204A: Thesis Preparation Seminar in the fall semester, and Arch 204B: Thesis Studio in the spring semester. Students establish their own design questions and inquiries based on individual interests. ARCH 204A syllabi, ARCH 204B syllabi

- The following studios are designed to be paired with one unit of an architecture colloquium or professional practice course:
  - The ARCH 200A Introduction to Architecture Studio is paired with ARCH 207A CED Lectures Colloquium, which introduces contemporary works from leading and emerging architects both in the U.S. and abroad. Topics discussed for each lecture but include design, professional practices, labor, diversity, social equity, etc. ARCH 207A syllabus
  - The ARCH 201 Architecture + Urbanism studio is paired with ARCH 207B Architecture + Urbanism Colloquium. ARCH 207B syllabus
  - The ARCH 202 Graduate Option studio is paired with ARCH 207D The Cultures of Practice, a three-unit course on professional practice. ARCH 207D syllabus,
  - ARCH 203 Integrated Design Studio in the final year is paired with Arch 207C Professional Practice Colloquium. This colloquium is structured as a series of lectures and discussions with faculty and professional visitors who are experts in specific building systems. ARCH 207C syllabus
- Technical courses—Energy and Environment, Structures, and Construction—and humanities courses—History of Modern Architecture and Architectural Design Theory & Criticism—are now offered prior to the ARCH 203 Integrated Design Studio, which is taken in the fall of their last year, in order for students to have a more in-depth understanding of the synthesis of design with the concepts those courses introduce. As shown in the above tables, the order in which these courses are taken varies slightly between the two programs. These courses fulfill the curricular requirements for professional studies.
  - ARCH 230 Architectural Design Theory & Criticism introduces students to key discussions in architectural thought from 1945 to the present by exploring the debates that have driven architects and theorists in relation to the production and use of buildings, urban space, and their metropolitan contexts. ARCH 230 syllabus
  - ARCH 240 Energy & Environment focuses on training students on design processes that increase the autonomy and resilience of the built environment, conserve resources, and promote health and well-being for occupants. ARCH 240 syllabus
  - ARCH 250 Introduction to Structures introduces the fundamental principles that influence the structural behavior of buildings and discusses various structural systems and materials relevant to their design. ARCH 250 syllabus
  - ARCH 260 Introduction to Construction & Materials familiarizes students with the materials, components, and processes of construction and helps them understand the role of both labor and available skilled trades, the location of on- and off-site work, and the impact of codes and regulations on design professionals. ARCH 260 syllabus
  - ARCH 270 History of Modern Architecture examines developments in design history, theory, graphic representation, construction technology, and interior programming through case studies of individual buildings. ARCH 270 syllabus

See program course list here: UC Berkeley Architecture Course List

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

In most cases, the general studies requirement can be satisfied by the general education program of an institution's baccalaureate degree. Graduate programs must describe and document the criteria and process used to evaluate applicants' prior academic experience relative to this requirement. Programs accepting transfers from other institutions must document the criteria and process used to ensure that the general education requirement was covered at another institution.

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

Program Response:

The MArch program at UC Berkeley acknowledges the importance of general studies that provide basic knowledge and methodologies of humanities, fine arts, mathematics, natural sciences, and social sciences. All students admitted into the MArch program receive a preparatory education in general studies from their undergraduate institution. The criteria used to evaluate an applicant's prior academic experience in general studies is that they must hold a bachelor's degree from an accredited institution or a recognized equivalent in order to be admitted to the university. We trust that this requirement ensures sufficient general education based on the language in our regional accreditor's handbook requiring undergraduate programs to "engage students in an integrated course of study of sufficient breadth and depth to prepare them for work, citizenship, and life-long learning." and "ensure breadth for all students in cultural and aesthetic, social and political, and scientific and technical knowledge expected of educated persons." Please see Section 4.3 Evaluation of Preparatory Education for details. Though they are classified as professional studies, the following required courses within our program also include humanities-based subjects:

- ARCH 207A CED Lectures Colloquium introduces works of contemporary architecture from leading and emerging architects, both from the U.S. and abroad. Lecture topics may include design, professional practices, labor, diversity, social equity, etc.
- ARCH 207B Architecture + Urbanism Colloquium is paired with the housing design studio, Arch 201 Architecture + Urbanism, and includes lectures on a range of urban design strategies and theories.
- ARCH 270 History of Modern Architecture. This course examines developments in design, theory, graphic representation, construction technology, and interior programming through case studies of individual buildings. The survey technique is both focused and panoptic. Each lecture delves deeply into one or two buildings to examine program, spatial organization, graphic representation, critical building details, and construction technology. Then the survey is conducted in regards to the relationship of the case study building to other parallel works and the architect's overall body of work. From this nucleus of built objects, we spiral outward to consider how the case study is embedded within a constellation of social and economic factors crucial to its design and physical realization.
- ARCH 230 Architectural Design Theory & Criticism. This three-unit seminar focuses on the analysis and discussion of contemporary and historical issues in architectural design theory and criticism. This course exposes students to critical discussions in architectural thought from 1945 to the present. Each week the class explores debates that have driven architects and theorists concerning the production and use of buildings and urban space. The main objective of the course is to provide opportunities for students to develop their own positions and refine their ability to make their own arguments while opening up new trajectories between critical thinking and speculative work in architecture.

4.2.3 Optional Studies. All professional degree programs must provide sufficient flexibility in the curriculum to allow students to develop additional expertise, either by taking additional courses offered in other academic units or departments, or by taking courses offered within the department offering the accredited program but outside the required professional studies curriculum. These courses may be configured in a variety of curricular structures, including elective offerings, concentrations, certificate programs, and minors.

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

Program Response:

In order to provide curricular flexibility within the department, there are a range of electives offered in both fall and spring semesters. Students can take courses offered by the other CED departments: Landscape Architecture & Environmental Planning, City & Regional Planning, and the Institute of Urban & Regional Development. Students can also pursue optional studies outside the college by taking graduate electives offered by other colleges on campus or by completing one of the three interdisciplinary certificates open to our graduate students.

The Department of Architecture offers elective courses in these areas of specialization:

- History/Theory/Society (HTS): ARCH 272 and ARCH 279 (1–3 units)
- Architectural Representation & Theory: ARCH 222 and ARCH 229 (1–3 units)
- Architectural Methods & Theory: ARCH 232 and ARCH 239 (1–3 units)
- Advanced Studies in Building Science Technology: ARCH 242 andARCH 249 (1–3 units)
- Advanced Structures : ARCH 252 and ARCH 259 (1–3 units)
- Advanced Studies in Construction & Materials: ARCH 262 and ARCH 269 (1–3 units)

These electives were offered in the Department of Architecture in the past two academic years (2021–2022 and 2022–2023):

Fall 2021:

- ARCH 209 Special Topics in Architectural Design: Housing as a Design Generator - 3 units - R. Davids
- ARCH 229 (1) - Digital Design Theory Methods: Across Sections - 3 units - P. Gutierrez
- ARCH 229 (2)- Digital Design Theory Methods: Drawing Water - 3 units - R. Choksombatchai
- ARCH 239 - Special Topics in Architecture Design Theory and Criticism: Spaces of Queer Theory - 4 units - G. Crysler
- ARCH 242 - Sustainability Colloquium - 1 or 2 units - G. Brager
- ARCH 246 - Building Energy Simulations - 3 units - S. Schiavon
- ARCH 249 (1) - Special Topics in the Physical Environment in Buildings: Introduction to Acoustics - 5 week 1 unit - C. Salter
- ARCH 249 (1) - Special Topics in the Physical Environment in Buildings: The Architecture of Light: An Analytical Journey - 3 units - L. Caldas
- ARCH 252 - Form and Structure - 3 units - S. Schleicher
- ARCH 264 - Off-Site Fabrication - 3 units - D. Buntrock
- ARCH 269 - Special Topics in Construction and Materials - 3 units - M. Anderson
- ARCH 279 (1) - Special Topics in the History of Architecture: Yesterday's Tomorrows. Past Visions of the Future - 4 units - A. Shanken
- ARCH 279 (2) - Special Topics in the History of Architecture: Contemporary Urban Dynamics - 3 units - M. Crawford

Spring 2022:

- ARCH 209 (1) - Special Topics in Architecture Design: Ulrich's Window - 1 unit - M. Zinni
- ARCH 209 (2) - Special Topics in Architecture Design: Architecture, Landscape - Architecture - 3 units - R. Davids
- ARCH 229 - Digital Design Theory Methods: Social Housing Seminar - 3 units - J. Ellis
- ARCH 249 - Special Topics in the Physical Environment in Buildings offered as three modules
  - Introduction to Building Energy Codes and Standards - 1 unit - B. Taube
  - Mechanical Systems Design for Sustainable Buildings - 1 unit - J. Feng
  - Using R for building science - 1 unit - S. Schiavon
- ARCH 258 - Robotic Fabrication - 3 units - S. Schleicher
- ARCH 259- Special Topics in Building Structures: Low Carbon Structural Design - 3 units - P. Mayencourt
- ARCH 269 - Special Topics in Construction and Materials: Plant Fibers: Assemblage Origins and Projections - 3 units - P. Gutierrez
- ARCH 279 (1) - Special Topics in the History of Architecture: Contentious Heritage: Adaptive Reuse in Theory and Practice - 1 unit - N. V. Keere
- ARCH 279 (2) - Special Topics in the History of Architecture: Urban Preservation, Urban Disruption - 3 units - C. Covey

Fall 2022

- ARCH 229 (1) - Digital Design Theory Methods: Space and Media in Immersive Environments - 3 units - L. Caldas
- ARCH 229 (2) - Digital Design Theory Methods: Across Sections - 3 units - P. Gutierrez
- ARCH 241 - Research Methods in Building Sciences - 3 units - S. Schiavon
- ARCH 242 - Sustainability Colloquium - 1 or 2 units - G. Brager
- ARCH 249 (1) - Special Topics in the Physical Environment in Buildings - 1 unit - B. Taube
- ARCH 249 (2) - Special Topics in the Physical Environment in Buildings: Introduction to Acoustics - 3 units - C. Salter
- ARCH 252 - Form and Structure - 3 units - S. Schleicher
- ARCH 279 (1) - Special Topics in the History of Architecture: Publics and Their Spaces - 3 units - M. Crawford
- ARCH 279 (2) - Special Topics in the History of Architecture: Design Radicals - 3 units - G. Castillo
- ARCH 279 (3) - Special Topics in the History of Architecture: Contemporary Urban Design - 3 units - M. Crawford

Spring 2023

- ARCH 229 - Digital Design Theory Methods: Flexibility and its Discontents - 3 units - G. Eftaxiopoulos
- ARCH 239 - Special Topics in Architecture Design Theory and Criticism: Spaces of Queer Theory - 4 units - G. Crysler
- ARCH 245 - Daylighting - 3 units - L. Caldas
- ARCH 249 - Special Topics in the Physical Environment in Buildings: Sensory Space - 2 units - G. Brager
- ARCH 258 - Robotic Fabrication - 3 units - S. Schleicher
- ARCH 259- Special Topics in Building Structures: Low-Carbon Structures - 3 units - I. Hens
- ARCH 269 (1) - Special Topics in Construction and Materials: Drawing Seminar: Timber Frame and Mass Timber Construction - 3 units - M. Anderson
- ARCH 269 (2) - Special Topics in Construction and Materials: Social Justice in Design: An Introduction to Disability Culture, A.D.A. + Inclusive Design - 3 units - C. Downey
- ARCH 279 (1) - Special Topics in the History of Architecture: Architecture and Memory - 3-4 units - A. Shanken
- ARCH 279 (2) - Special Topics in the History of Architecture: New Formations: Recent Research in Architecture, Urbanism and the Built Environment - 3 units - G. Crysler

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

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

Program Response:

The list of the non-accredited degree programs we offer are:

- Bachelor of Arts in Architecture, BA
- Master of Advanced Architectural Design, M.AAD
- Master of Science, M.S.
- PhD

Below are further details on these degree programs:

Bachelor of Arts in Architecture

BA in Architecture: This is a four year Bachelor of Arts non-professional degree with a major in architecture. All undergraduates follow the same path through their junior year. In the first two years, students take a breadth of lower-division courses and the introductory environmental design courses. During the spring semester of the junior year, students choose either a design research track (a non-professional liberal arts degree) or a studio track (a pre-professional degree) for the senior year. The studio track option is a pre-professional degree program with an additional two design studios and three technical courses required. Studio track includes courses in structures, energy and environment, and construction. The research track includes a three unit capstone seminar and a five unit writing course in lieu of studio and electives in lieu of the technical courses. Students are required to complete a minimum of 120 units to graduate and receive a BA in Architecture. However, most students exceed the minimum unit requirement. Please see the chart and link below for the required units in each semester.

Each student's course plan may vary, depending on interests. Students may pursue a minor or second major during their time at UCB. Please note that there are grade requirements for graduation, A 2.0 UC GPA is required for graduation and A 2.0 GPA within the major is required at time of graduation.

The detailed course requirements for the pre-professional degree (studio track) can be found here: BA Arch Pre-Professional Course Requirements

Additional information about the undergraduate program in architecture can be found on our website:

Bachelor of Arts in Architecture - UC Berkeley College of Environmental Design

The undergraduate BA degree requirements can be found in the Architecture Major Handbook found here: Architecture Major Handbook 2022

The BA Degree Program also admits transfer students from community colleges in the junior year. The CED and Department of Architecture have been building articulation agreements with a number of Community Colleges throughout the State which offer pre-approved courses. See the list of colleges and transferring course requirements outlined in the articulation agreements on the link here: Articulation Agreements

Each year, our goal is to admit 40 transfer students, 33% of the junior class, though we do not always meet this target due to the number of UC students entering the program as freshmen. Please refer to the link below for transfer eligibility requirements: Transfer Eligibility Requirements

Beginning in academic year 2023-2024, UC Berkeley undergraduate students who are in their last year of the BA in Architecture Program (Pre-Professional Degree Track) will be highly encouraged to apply to our MArch program to be considered by our Admissions Committee for our Option 2 (Two-Year) Program. One important prerequisite for admission into Option 2 is that students must receive a minimum overall and average GPA in Architecture Design studios (Arch 100A, 100B, 100C, Arch 100D). Details on this process are currently being worked out in the BA and MArch committees.

Master of Advanced Architectural Design

The MAAD (Master of Advanced Architectural Design) is a one year post professional degree program. All candidates must hold a B.Arch or M.Arch degree. The program requires candidates to take 24 required units and a maximum of 16 elective units.

Please find a link to MAAD information on our website here: M.AAD Program

Please find a link to the MAAD Handbook with course requirements here: M.AAD Handbook

Master of Science in Architecture

The M.S (Master of Science) is a two year research-based academic, nonprofessional degree program. It offers the opportunity for advanced research in the ever-broadening and increasingly complex subfields within architecture. The degree emphasizes coursework and supervised independent research in one of the following areas of study: *Building Science, Technology, and Sustainability* (BSTS) or *History, Theory, and Society* (HTS). Some students enter with a degree in architecture, and occasionally will acquire an M. Arch degree while attending, but neither is required. The undergraduate degrees of our entering M.S. students are diverse. Students must complete a minimum of 36 units, regardless of the degree they have coming into the program, with a minimum of 6 units being Architecture breadth courses. The culmination of the student's program is a research thesis.

Please find a link to M.S information on our website here: M.S Program

Please find a link to the M.S Handbook with course requirements here:M.S Handbook

PhD in Architecture

The Ph.D. in architecture is a research degree appropriate for those seeking careers in teaching and scholarship in architecture and its related areas, or in roles in government or professional consultation that require depth in specialization and experience in research. Berkeley's Ph.D. program in architecture is interdisciplinary in outlook, reaching into the various disciplines related to architecture and incorporating substantial knowledge from outside fields. Students admitted to this program carry out a program of advanced study and research, both on the basis of formal class work and of individual investigation. Work centers on three related fields of study, the major field (the basis for the dissertation), and one-to-two minor fields, at least one of which must be from a discipline outside architecture.

The Ph.D. degree emphasizes course work and supervised independent research in one of the following areas of study:

- Building Science, Technology and Sustainability (BSTS)
- History, Theory and Society (HTS)

Major fields outside these fields or combinations thereof may also be proposed at the time of admission.

Course work is individually developed through consultation with an academic adviser. Outside fields of study may take advantage of the University's varied resources. Recent graduates have completed outside fields in anthropology, art history, business administration, city and regional planning, computer science, various engineering fields, psychology, women's studies, geograph, and sociology.

Please find a link to PhD in Architecture information on our website here: PhD Program

Please find a link to the PhD in Architecture Handbook with course requirements here: PhD Handbook for History, Theory, and Society and PhD Handbook for Building Science, Technology and Sustainability

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

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

Program Response:

The Department does not offer a B.Arch degree. We offer a BA degree in Architecture as described above. Please find the degree requirements here: BA in Architecture Degree Requirements

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

Program Response:

The Master of Architecture (MArch) at the University of California Berkeley is a NAAB accredited professional degree program. The curricular requirements for awarding the degree include professional studies, general studies, and optional studies. Candidates must receive a BA or BS degree in any field (including a nonprofessional degree in architecture) to be able to apply to the MArch program. Candidates' undergraduate general education units are counted toward the total units for the MArch Accredited Program Requirement. As a result, our MArch program offers:

- MArch Option 3: Three-year program (for non-pre-professional degree candidates with 120 units of general preparatory education), which requires 72 units and a minimum of 13 elective units.
- MArch Option 2 (Advanced Standing): Two-year program (for pre-professional degree candidates with 120 units of both general and professional preparatory education), which requires 48 units and a minimum of 5 elective units.

During the admission process, candidates who have no background in architecture, or have fewer than five weighted studios in architectural design are placed in MArch Option 3, the three year graduate program. Candidates who received a BA in Architecture with at least five weighted studios in architectural design, and whose portfolios exhibit strong standing in design, are placed in Option 2, the two-year program. This advanced standing is not an automatic placement, and it is at the discretion of the Admissions Committee based on the strength of the application materials. The incoming Option 2 students join the Option 3 students in their second year of the program.

MArch Degree - Option 3 - Three-Year Program

The MArch Option 3 is for non-pre-professional degree candidates with a minimum number of 120 units of general preparatory education in their undergraduate degree program. The process used to evaluate applicant's prior academic experience is based on the following criteria:

- Bachelor's degree or recognized equivalent from an accredited institution. Applicant's transcripts will be reviewed to confirm the degree (the minimum requirement is 120 units).
- Grade point average (GPA) of 3.0 or better (on a four-point scale) in the last two years of undergraduate study (also known as an advanced GPA). For those applicants whose undergraduate university does NOT use a four-point scale, the calculation of an advanced GPA is NOT required.

- Evidence of English language proficiency (IELTS or TOEFL) (for applicants from countries in which the official language is not English).
- For those who do not have an undergraduate degree in architecture, completion of college-level or equivalent calculus and introductory physics, including mechanics (by the time of admission).
    - Must pass each course with a grade of at least C minus.
    - For those who have taken Advanced Placement (AP) Calculus or Physics in high school, the following scores will satisfy the prerequisites: 5 on the AP Calculus AB exam or at least a 3 on the AP Calculus BC exam; at least a 3 on the AP Physics B exam.

MArch Option 3 requires 72 graduate units and a minimum of 13 elective units. Please see the Table Below.

	Master of Architecture (Option 3 – Three Year Program)			
Year 1	**Required Professional Courses**	**units**	**Optional Studies**	**Units**
Fall	Arch 200A Introduction to Architecture Studio 1	5		
	Arch 200C Representational Practices as tools for Design 1	3		
	Arch 207A CED Lectures Colloquium	1		
	Arch 270 History of Modern Architecture	3		
Spring	Arch 200B Introduction to Architecture Studio 2	5		
	Arch 200D Representational Practices as tools for Design 2	2		
	Arch 230 Architectural Design Theory & Criticism*	3		
	Arch 250 Introduction to Structures*	3		
Year 2	**Required Professional Courses**	**units**	**Optional Studies**	**units**
Fall	Arch 201 Architecture & Urbanism Studio (Housing)	5	Professional or General Elective(s)	3+
	Arch 207B Architecture + Urbanism Colloquium	1		
	Arch 260 Introduction to Construction & Material*	3		
Spring	Arch 202 Graduate Option Studio	5		
	Arch 207D The Cultures of Practice*	3		
	Arch 240 Advanced Study Energy & Environment*	3		
Year 3	**Required Professional Courses**	**units**	**Optional Studies**	**Units**
Fall	Arch 203 Integrated Studio	5	Professional or General Elective(s)	3+
	Arch 204A Thesis Seminar	3		
	Arch 207C Professional Practice Colloquium	1		
Spring	Arch 204B Thesis Studio	5	Professional or General Elective(s)	7+
	Total Required Professional	**48**	**Total Minimum Optional Studies**	**13**
	TOTAL # OF UNITS MINIMUM (72 required w/ maximum 13 elective units)			**72**

NOTES:
Students can choose to take either professional or general electives. Please see the samples of electives in the recent past two academic years in 4.2.3 Optional Studies.
The minimum units each semester is 12. Only course numbers in 100s and 200s count toward the degree.
* Waivers for this requirement must be submitted at the beginning of the Fall of students' first year of enrollment or they must take the class. If a required course is waived, students must still take an advanced course in the same area.

MArch Degree - Option 2 - Two-Year Program

MArch Option 2 is for pre-professional degree candidates with the minimum number of 120 units of combined general preparatory education and pre-professional education in their undergraduate degree program (BA or BS in architecture). The process used to evaluate applicants' prior academic experience is based on the following criteria:

- Bachelor's degree or recognized equivalent from an accredited institution with at least five weighted studios in architectural design and portfolios exhibiting strong standing in design. Applicants' transcripts will be reviewed to confirm the degree (the minimum requirement is 120 units).
- This advanced standing is not an automatic placement; it is at the discretion of the admissions committee to determine whether the candidate is best suited for Option 2 or 3.
- Grade Point Average (G.P.A.) of 3.0 or better (on a 4-point scale) in the last two years of undergraduate study (also known as an advanced G.P.A.) For those applicants whose undergraduate university does NOT use a 4-point scale, the calculation of an advanced GPA is NOT required.
- Evidence of English Language Proficiency (IELTS or TOEFL) (for applicants from countries in which the official language is not English).
- For those who do not have an undergraduate degree in architecture, completion of college-level or equivalent calculus and introductory physics, including mechanics (by the time of admission).
    - Must pass each course with a grade of at least C minus.
    - For those who have taken Advanced Placement (AP) Calculus or Physics in high school, the following scores will satisfy the prerequisites: 5 on the AP Calculus AB exam or at least a 3 on the AP Calculus BC exam; at least a 3 on the AP Physics B exam.

New incoming Option 2 students join the Option 3 cohorts in their second year of the program. MArch Option 2 requires 48 units and a minimum of 5 elective units. Please see the Table below.

	Master of Architecture (Option 2 – Two Year Program)			
Year 1	**Required Professional Courses**	**units**	**Optional Studies**	**Units**
Fall	Arch 201 Architecture & Urbanism Studio (Housing)	5		
	Arch 207B Architecture & Urbanism Colloquium	1		
	Arch 260 Introduction to Construction & Material*	3		
	Arch 270 History of Modern Architecture*	3		
Spring	Arch 202 Graduate Option Studio	5		
	Arch 240 Advanced Study Energy & Environment*	3		
	Arch 207D The Cultures of Practice *	3		
	Arch 230 Architectural Design Theory & Criticism*	3		
	Arch 250 Introduction to Structures*	3		
Year 2	**Required Professional Courses**	**units**	**Optional Studies**	**units**
Fall	Arch 203 Integrated Studio	5	Professional or General Elective(s)	3+
	Arch 207C Professional Practice Colloquium	1		
	Arch 204A Thesis Seminar	3		
Spring	Arch 204B Thesis Studio	5	Professional or General Elective(s)	7+
	Total Required Professional	**33**	**Total Minimum Optional Studies**	**5**
	TOTAL # OF MINIMUM UNITS (48 required w/ minimum 5 elective units)			**48**

NOTES:
Students can choose to take either professional or general electives. Please see the samples of electives in the recent past two academic years in 4.2.3 Optional Studies.
The minimum units each semester is 12. Only course numbers in 100s and 200s count toward the degree.
* Waivers for this requirement must be submitted at the beginning of the Fall of students' first year of enrollment or they must take the class. If a required course is waived, students must still take an advanced course in the same area.

Please find a link to the Master of Architecture Handbook with course requirements here: MArch Handbook

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

Program Response:
We do not offer a DArch degree. We offer a PhD in Architecture as described in the section above.

4.3 Evaluation of Preparatory Education

The NAAB recognizes that students transferring to an undergraduate accredited program or entering a graduate accredited program come from different types of programs and have different needs, aptitudes, and knowledge bases. In this condition, a program must demonstrate that it utilizes a thorough and equitable process to evaluate incoming students and that it documents the accreditation criteria it expects students to have met in their education experiences in non-accredited programs.
4.3.1 A program must document its process for evaluating a student's prior academic coursework related to satisfying NAAB accreditation criteria when it admits a student to the professional degree program.

See also Condition 6.5

Program Response:
Evaluation of prior academic coursework required for admittance to our MArch program occurs during the admissions process. During admissions, the Graduate Student Affairs Officers (GSAOs) review applicant transcripts to verify that all applicants will have completed the minimum of 120 units of preparatory education and received a bachelor's degree or recognized equivalent from an accredited institution by the time of enrollment in the MArch Program.

Applicants who have taken between one and four weighted architecture studios are reviewed by the MArch admissions committee for the Option 3 (MArch three-year) program. Applicants who have taken the minimum of five weighted architecture studios are reviewed by the MArch admissions committee for the Option 3 (MArch two-year) program and may be given advanced standing. In order to be placed with advanced standing, applicants must also have portfolios that demonstrate strong design skills, comprehensive understanding of architectural drawing conventions, and advanced knowledge of the discipline. Those admitted into Option 2 waive two fundamental architecture studios (ARCH 200A and

200B), two architectural representation courses (ARCH 200C and 200D) and one CED Lectures Colloquium (ARCH 207A). In order for students to waive other required courses, they must submit a substitution request form at the beginning of their first year of enrollment. These required courses are:

- Arch 230 Architectural Design Theory & Criticism
- Arch 240 Advanced Study of Energy & Environment
- Arch 250 Introduction to Structures
- Arch 260 Introduction to Construction
- Arch 270 History of Modern Architecture (Option 2 Only)

The waiver process begins with the submission of a substitution form for each course, which requires students to attach a syllabus for each course they have taken as part of preparatory education along with a record of the grade received. All substitution requests are reviewed for approval by the faculty who teach those required courses. Once the faculty have conducted a thorough review, they communicate their approval or denial of the waiver to the GSAOs, who then notify the students. If a required course is waived, students must still take an advanced course in the same area. In AY 2022-23, 74% of waivers were approved.

In conclusion, prior to entering the MArch program, all students are required to have a minimum of 120 units of general education. In addition to those units from preparatory education, our MArch Option 3 curriculum requires a minimum of 72 units (59 units of professional studies + 13 units of optional studies). For the Option 2 program, the curriculum requires a minimum of 48 units (43 units of professional studies + 5 units of optional studies).

This information is publicly available to applicants and can be found here: MArch Program

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

Program Response:
The MArch program at UC Berkeley considers all the preparatory education experience to be general studies for the Option 3 program. This program does not rely on the preparatory education experience in professional studies to ensure that admitted students have met professional accreditation criteria. For the Option 2 program, exceptions are made in the case of applicants who have received a pre-professional degree (BA with a major in architecture). These candidates must have taken the minimum of five weighted architecture studios, and their portfolio must demonstrate strong design skills, comprehensive understanding of architectural drawing conventions, and advanced knowledge of the discipline. These applicants may be given advanced standing to be admitted to the two-year Option 2 program. These Option 2 students are waived out of the first year that includes two fundamental architecture studios and the CED Lectures Colloquium. In order for students to waive any other required professional and general studies, they are required to submit a course substitution form along with the syllabus of those courses that students have taken as part of preparatory education, and a record of the grade received. All waiver requests are reviewed for approval by the faculty who teach those required courses. If a required course is waived, students must still take an advanced course in the same area.

This information is publicly available to applicants and can be found here: Required course waiver process

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

Program Response:
The University Graduate Admissions Office, the Department of Architecture graduate student affairs officers (GSAOS), and the MArch Admissions Committee, which is composed of faculty appointed by the chair, are responsible for the evaluation of both baccalaureate degree and associate degree content in the admissions process. The transcript of each admitted applicant is reviewed by the University Graduate Admissions Office to check for authenticity and appropriate accreditation of the awarding university. The process used to evaluate an applicant's prior academic experience is clearly publicized on the program website and can be found here: MARCH admission process with detailed information of prerequisites and evaluation process. It is based on the following criteria:

- Bachelor's degree or recognized equivalent from an accredited institution. Applicants' transcripts will be reviewed to confirm the degree (the minimum requirement is 120 units). Applicants who received a bachelor's degree or recognized equivalent from an accredited institution with at least five weighted studios in architecture design and whose portfolios exhibit strong standing in design may be placed in advanced standing for the Option 2 program. This advanced standing is not an automatic placement — it is at the discretion of the Admissions Committee.

- Grade point average (GPA) of 3.0 or better (on a four-point scale) in the last two years of undergraduate study (also known as an advanced GPA). For those applicants whose undergraduate university does NOT use a four-point scale, the calculation of an advanced GPA is NOT required.
- Evidence of English language proficiency (IELTS or TOEFL) (for applicants from countries in which the official language is not English).
- For those who do not have an undergraduate degree in architecture, completion of college-level or equivalent calculus and introductory physics, including mechanics (by the time of admission).
    - Must pass the course with a grade of at least C minus.
    - For those who have taken Advanced Placement (AP) Calculus or Physics in high school, the following scores will satisfy the prerequisites: 5 on the AP Calculus AB exam or at least a 3 on the AP Calculus BC exam; at least a 3 on the AP Physics B exam.

The applicants are informed of the length of the professional degree in the program description on the department website, Master of Architecture (MArch) - UC Berkeley College of Environmental Design. This explains that the decision about program assignment is up to the discretion of the Admissions Committee. The MArch Admissions Committee evaluates the entire pool of applicants, and the Admission Committee's comments and recommendations are recorded in writing.

5—Resources

5.1 Structure and Governance

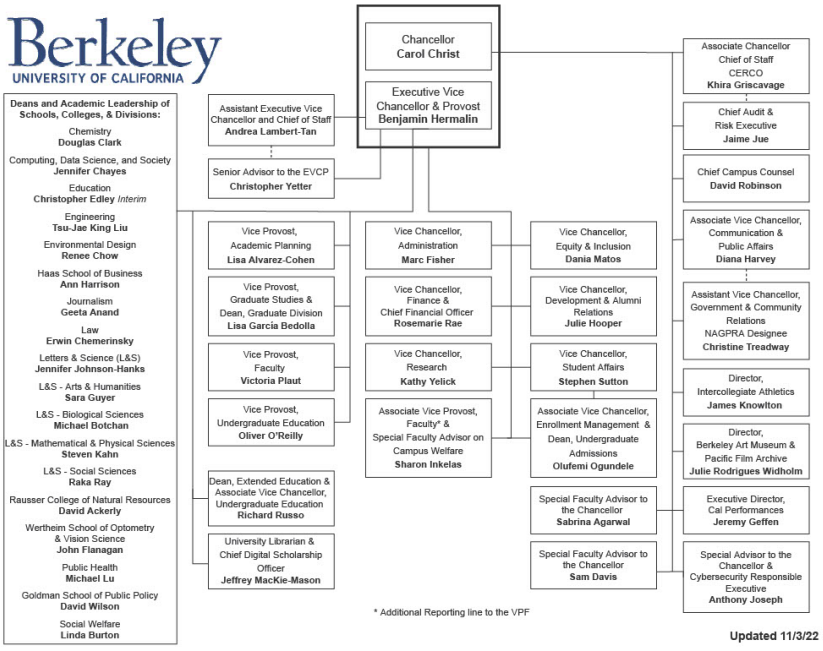
The program must describe the administrative and governance processes that provide for organizational continuity, clarity, and fairness and allow for improvement and change.

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

Program Response:
The Department of Architecture sits within the College of Environmental Design, which is the smallest college in the University of California Berkeley. The tiered administrative structure of Campus, College and Department is described below.

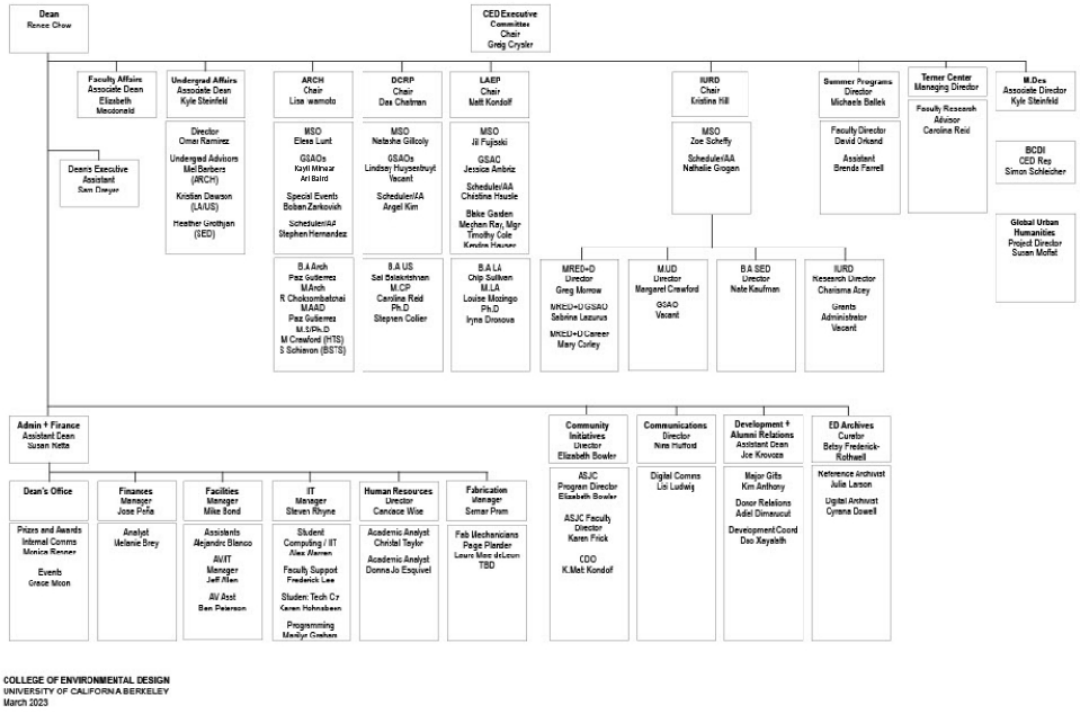
University of California, Berkeley

The campus, while diverse and complex, is structured to afford direct interface with each academic unit. Deans and chairs have access to regular meetings and open communication with the executive vice chancellor and provost, vice provost for academic planning, vice provost for graduate studies & dean of the graduate division, vice provost for the faculty, and the vice provost for undergraduate education. In addition, the UC Berkeley campus transitioned from a highly distributed administrative structure to a "shared services" model. Our shared services team is called ERSO and is housed in the College of Engineering. They provide services such as information technology support and transactional support for human resources, payroll, purchasing, and other business and finance functions.



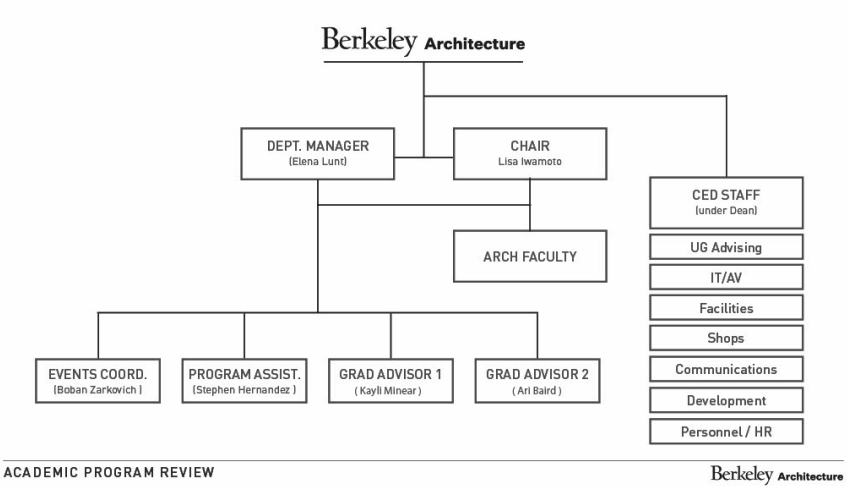
College of Environmental Design (CED)

The college structure remains largely intact since the last visit by the NAAB visiting team in 2017. Prior to this time, a number of support positions shifted from the department to the administrative supervision of the CED Dean's Office in an effort to consolidate staff resources. This includes human resources, academic personnel advisors, IT, AV, the fabrication shops, and the financial analysis unit. The organization chart for the college is below:



Department of Architecture

The department is run by a very able staff of five. The group is led by a department manager who oversees the operation of the department as well as its financial aspects under the supervision of the assistant dean for finance and administration in the College of Environmental Design. The department has two graduate student affairs officers, one of whom focuses on departmental fellowships, graduate advising, event planning, and MS / PhD admissions and affairs; the other focuses on MArch advising, admissions, outreach, and retention. The program assistant manages courses and curricula as well as scheduling and enrollment. The events and special projects coordinator helps with all the social events, lecture series, reviews, exhibitions, and any other events that make a department an exciting hub. Undergraduate advising is centrally administered by CED undergraduate advising. All the undergraduate advisors are cross-trained for all majors and minors, and one is the dedicated liaison with the department. Work-study students manage the front desk, receive phone calls, and help direct walk-in questions, as well as provide other assistance as needed. The organization chart for the department is below:



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

Program Response:

The department is governed largely by faculty and administered by the chair. The chair reports to the dean of the college. The chair is typically selected by the dean in consultation with the faculty from among the full professors to serve for a term of three to five years. Since the visit in 2017, the following professors have served in the position: Tom Buresh (2010–2018), Renee Chow (2018–2019 and 2020–2121), Ronald Rael and Andrew Shanken as acting chair and acting vice-chair for faculty affairs, respectively (2019–2020), and Lisa Iwamoto (December2021–present). The shorter and acting terms were due to the unexpected departure of Vishaan Charabarti, who served as dean of the college from 2020 to 2021.

Faculty Role in Governance

Architecture faculty members have many opportunities to be involved in the governance of the Department of Architecture and of the College of Environmental Design (CED). At the department level faculty serve on the following:

Faculty Cabinet

A faculty cabinet that advises the chair. The cabinet consists of the BA director, MArch director, MAAD director, MS/PhD - History, Theory and Society committee chair, M/SPhD - Building Science Technology and Sustainability committee chair, and the faculty equity advisor.

Standing Committees and Appointments

Faculty serve on multiple departmental committees, including the BA Committee , MArch Committee, MAAD Committee, MS/PhD Committee, Graduate Division Equity Committee, Grievance Committee, and Awards Committee. There are also appointments for Faculty Equity Advisor, GSI Advisor, Licensing Advisor, ACSA Liaison,and MRED+D Representative. Department committee assignments are made by the chair. The BA, MArch, MAAD, and MS/PhD committees are charged with curriculum development, admissions and scholarships, and prizes and awards for their given programs. Curricular development is guided by extensive student evaluations of coursework, public reviews, and exhibitions of student work.

Ad Hoc Committees

Faculty members routinely rotate through ad hoc committees for promotion and tenure for faculty, excellence reviews for lecturers, faculty searches, and other merit and promotion reviews as needed.

Faculty governance

All major decisions are transparent and confirmed by a vote or informal polling after extensive discussion among ladder rank faculty members at architecture faculty meetings. These include decisions for promotion to associate professor with tenure and full professor, and for new faculty hires.

At the college level, faculty participate in governance through CED positions and committees. These include:

Rotating Positions

Faculty members from each department rotate through CED positions, including the associate dean for undergraduate affairs, associate dean for the graduate division, director for the Sustainable Environmental Design program, and director of the Master of Urban Design program.

Standing Committees

At least one architecture faculty regularly serves on the CED Executive Committee in addition to the department chair. Currently, the chair of the Executive Committee is Greig Crysler, and in 2023–2024 the department representative will be Neyran Turan. There is also an architecture representative on the Master of Real Estate Development + Design program committee.

Rotating Committees

Faculty from each department regularly serve on rotating committees, including the Undergraduate Affairs Committee, Equity Steering Committee, Diversity Platform, and Berkeley Certificate in Design Innovation Committee.

Staff Role in Governance

Under the direction of the department manager, architecture staff are responsible for the smooth and efficient operation of the department. This includes oversight and administration of finances, campus course approval, course enrollments, scheduling, admissions, events, and student advising. Staff meet weekly with the chair to discuss and advise on pertinent issues related to each of these responsibilities. Staff also serve on the BA, MArch, MAAD and MS/PhD curricular committees and admissions committees.

Student Role in Governance:

Students at all levels participate in the department's governance. At the undergraduate level, the Undergraduate Student Council (UgSC) meets with the chair at least once each semester. The UgSC typically consists of at least one student at each level of the program — first year, sophomore, junior, senior, and transfer students. UgSC conducts "pulse" surveys with their student cohort at the end of each semester that cover key student life and coursework issues; the survey results guide initiatives within the department.

For the accredited graduate degree program, MArch students participate in governance of the department in the following ways:

Graduate Architecture Student Union (GASU)

The Graduate Architecture Student Union (GASU) meets with the chair at least once per semester to discuss pertinent issues such as advising, class size, class organization, course subjects, infrastructure, technology, alumni relations, and student life. Based on these meetings, some requests, such as a graduate student social happy hour and other cohort-building events are now funded by the department. A request for individual faculty advisors is in process and was presented to the faculty at the fall 2022 retreat. It was agreed that this would be implemented once faculty numbers increase and is expected to start spring 2024.

Pulse Surveys

There are two forms of Pulse surveys. The campus Graduate Division sends out Pulse surveys each semester to all graduate students. A different set of Pulse surveys are also created and distributed by GASU to all students in the MArch and MAAD programs. Questions pertain to such topics as faculty advising, program structure, physical environment, and technology. Pulse surveys inform GASU of issues to raise with the chair.

Exit Surveys

Each year, CED conducts exit surveys with graduating students. These surveys include questions about the Department of Architecture's class variety, availability, and size; quality and access to faculty; opportunities for research; and

library and shop resources. At the college level, the survey asks students to evaluate their overall academic experience, progress toward goals, sense of belonging, engagement with faculty, financial aid, sense of social equity, ability to work, and time management issues. Exit surveys influence curricular offerings, funding goals, and operations and are used to improve the ways we teach and support students on an ongoing basis.

Faculty Searches

The ladder rank faculty search process includes convening an ad hoc committee composed of ladder rank faculty who, together with faculty, develop a short list of candidates. Students at all levels are invited to join candidate talks, and professional program student representatives meet with candidates during the campus visit. The ad hoc committee solicits their feedback, which is used alongside faculty feedback to develop the committee recommendation.

Graduate Student Instruction (GSIs)

Graduate students regularly teach sections and labs in our undergraduate program. On occasion, MArch students with prior experience and expertise will teach the lab portion of a technical graduate course. In these cases, graduate students are in direct consultation with faculty for the course and have an impact on the syllabus and lesson plans.

Course Evaluations

The campus and department have a robust course evaluation process. Each class offers anonymous student course evaluations towards the end of the semester. This is now an online process and faculty are encouraged to set aside time during the class period for students to complete evaluations. Course evaluations cover topics related to both instructor effectiveness and course worth. These are compared against department averages and provided to each instructor prior to biannual merit reviews or upon request. Student evaluations are taken very seriously by the department, college, and campus administration and are tied directly to merit reviews and promotions. This encourages, and sometimes mandates, faculty to revise and improve their curricula and teaching techniques.

5.2 Planning and Assessment

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

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

Program Response:

The program's multi-year strategic objectives are shaped UC Berkeley's Strategic Plan and 2019 Signature Initiatives, the CED Strategic Plan, and department priorities. Excerpts from university signature initiatives that directly engage the architecture program include:

Inclusive Intelligence

Pioneering an inclusive approach to technical innovation, artificial intelligence, and big data to ensure their ethical and responsible use and to enable meaningful work lives.

Environmental Change, Sustainability and Justice

Designs for transforming our communities (e.g., buildings, streets, and open spaces) and strategies for the physical and social infrastructure systems that provide them with critical services (e.g., water, energy, emergency services, health care, mobility, and recreation) are? to be resilient in the face of extreme environmental events, with an emphasis on climate readiness, environmental sustainability, equity, and access.

Equality, Equity, and Opportunity

Designing society for inclusive growth and fair housing and healthy neighborhoods.

Links to UC Berkeley Strategic Plan and Signature Initiatives:

- Strategic Plan | Office of the Chancellor
- Signature Initiatives | Berkeley Research

At the college level, architecture faculty were central to the CED strategic planning process conducted in 2013. Until this spring 2023, the department built on the 2013 strategic vision and values established by former Dean Jennifer Wolch.

2013 CED Vision Statement

The College of Environmental Design provides leadership to address the world's most pressing urban challenges through rigorous research and scholarship, design excellence, innovative pedagogy, open debate, craft and skill-building, critical and theoretical practice, and insights from both the academy and professional practice.

2013 CED Initiatives

Extending the Reach of Research and Creative Practice

- Research Impact
- Design and Technology Lab

Creative Inclusive and Cross-Disciplinary Pedagogy

- Diversity Platforms
- Curriculum Crossroads

Building Community Spaces and Common Ground

- Flex Studios
- Networked Spaces

The 2013 CED Initiatives were tied to capital improvements and fundraising priorities. Research Impact underscored the need for more funding for individual faculty members and groups. Design and Technology Lab focused on the critical need for space and equipment for faculty to pursue their research. Diversity Platforms aimed at seeking, supporting, and engaging diversity among faculty, students, and staff with regard to teaching and learning. Curriculum Crossroads examined the potential of interdisciplinary education, fulfilling the long-term promise of the College of Environmental Design. Flex Studios and Networked Spaces underlined the need for well-equipped and healthy teaching environments, as well as spaces for more informal collaboration and sharing among students in all departments. While all of these initiatives are important and fully supported by the Department of Architecture, Research Impact, Design and Technology Lab, Flex Studios and Networked Spaces initiatives were seen as the most critical.

Dean Jennifer Wolch accomplished many of the infrastructural improvements, including the construction of the Digital Fabrication Lab, the creation of a new flex studio space on the seventh floor of the North Tower, and the installation of Rice and Bones cafe on the first floor.

Dean Renee Chow updated the plan in spring 2023 based on a listening tour with the CED faculty and community, as follows:

2023 CED Vision

Avoiding environmental calamity requires multipronged, cross-disciplinary approaches that are unafraid to weave interdependent systems. Our vision is to advance environmental design as a vehicle for resilient and equitable futures.

2023 CED Mission

Our mission is to empower future generations to build better buildings, places, and metropolises; to inspire and lead their professions; and to serve communities. Every generation seeks to make its mark, defining excellence anew. We are here to advance this.

2023 CED Initiatives

Guided by our vision, we have identified six strategic initiatives that will set us on a path to achieve our mission. These initiatives are designed to support our pedagogy, creative work, and community service.

1. Accelerate the reach of environmental design
2. Educate tomorrow's environmental design leaders
3. Build an inclusive community
4. Improve the student experience
5. Foster experimentation in emerging technologies
6. Ensure financial stability

Links to the CED Strategic Plans:

- CED 2013–2014 Strategic Plan Summary
- CED 2023 Strategic Plan

The Department of Architecture has not had an opportunity to reflect and act on the 2023 plan, but our vision, mission, and initiatives are broadly aligned with both the 2013 and 2023 plans. Priorities are determined through self-assessments instigated by the decennial campus academic program review process, yearly faculty retreats, and regular faculty meetings. They are also shaped by faculty retirements and resignations, new hires, and budgetary changes. Our current mission, vision, and strategic priorities were articulated in spring 2023 as part of the APR process and are as follows:

Department Mission

The mission of the Department of Architecture is to provide opportunity to students of all backgrounds to create a culture of belonging and to foster discovery and innovation for social good. At the core of our mission is a focus on the transformation of the built environment for public benefit. Empowering our students to be leaders for change, and discovery through design and research are at the heart of department activities. We approach architectural education as a means to intelligently assess the built environment; to foster inclusion, social equity, and environmental sustainability; and to design innovative buildings with aesthetic and functional rigor. Informed by intersecting knowledge bases in the humanities, technology, and design, we strive to advance the discipline of architecture and to expand its influence.

Department Vision

Our vision is to build on the department's hundred-year legacy as an incubator of architectural activism and design excellence applied toward improving the quality of everyday life. Historic strengths in sustainability, social justice, cultural inclusivity, applied design research, and architectural practice frame our conception of architecture and its role in the 21st century. Our teaching and research promotes innovation in architectural practice by critically exploring and questioning its context in a continuum of histories, societies, economies, materials, systems, and scales. Particular areas of emphasis include understanding architecture from diverse historical, theoretical, and social perspectives; designing sustainable and healthy building systems; advancing technologies of fabrication and material development; and encouraging originality and invention in design and representation. By pedagogically instilling the breadth and depth of history, critical theories, and sustainable practices, and equipping students with the conceptual, analytic, and technical skills required for contemporary innovation, we pursue a transformative vision of the architectural profession and its production of a meaningful built environment.

Department Strategic Priorities

1. Maintain distinction in architectural education that foregrounds architecture as a humanistic as well as professional discipline.
2. Further research and extend knowledge of building technology and sustainability and its integration with architectural design.
3. Maintain and build design excellence in the BA and MArch programs.
4. Support the student experience.

Meeting and improving the ways in which we meet NAAB requirements pertains to all four points. Point one relates to PC4 - History and Theory. Our strategic hiring plan includes a new History, Theory, and Society (HTS) FTE whose research focuses on the Global South or other non-Western perspectives.

Point two relates to PC3 - Ecological Knowledge, PC5 - Innovation and Knowledge, SC1 - Health, Safety and Welfare in the Built Environment, SC4 - Technical Knowledge, and SC5 - Design Synthesis, and SC6 - Building Integration. We have submitted a request to the dean for a new FTE in Building Science, Technology and Sustainability (BSTS). This priority influenced changes to ARCH 203 Integrated Studio and we now assign a BSTS faculty with specialty in daylighting to co-teach the studio. ARCH 203 also brings in professional mechanical, structural, and facade engineers to act as consultants for the studio projects and lecture on their respective topics in ARCH 207B. There is also a plan under review by the MArch Committee to start an interdisciplinary capstone studio that would be co-taught by a Design and BSTS or HTS faculty. This capstone studio would be in lieu of taking the independent architecture thesis studio.

Point three relates to most of all NAAB criteria. In addition to requesting a new BSTS faculty, the strategic hiring plan also includes hiring faculty who excel in design synthesis in the teaching of foundational design studios (this search is underway in 2022–2023), who foreground social equity, and who focus on creative research through practice. There is also a priority to support faculty research in material research, making, and construction with a 1:1 prototyping space. This is further described in section 5.6.2.

Point four relates to PC6 - Leadership and Collaboration, PC7 - Learning & Teaching Culture, and PC8 - Social Equity and Inclusion. Much of this priority is captured in the Making It Happen initiative, which is supported by a grant from the Graduate Division and was implemented in 2019. Making It Happen is a pilot pedagogy program to assess and improve course content to better reflect the department's commitment to diversity, equity, and inclusion. Making It Happen includes the following initiatives:

Making It Happen Initiatives

1. Increase representation of minoritized identities
2. Support the student experience
3. Facilitate engagement with social justice movements
4. Improve the ways we teach
5. Revise the department equity plan
6. Assessments
7. Communication

A more robust explanation of Making It Happen and other efforts in creating a culture of belonging can be found in Section 5.5.4 and in the department Equity Plan. More on Making It Happen can be found here: Making It Happen - UC Berkeley College of Environmental Design

The Department DEIB plan can be found here:

Department of Architecture Equity Plan 2023

5.2.2 Key performance indicators used by the unit and the institution

Program Response:

The department and its faculty have key performance indicators and undergo self-assessment both internally and with campus. Following are the processes by which the program evaluates its performance:

Architecture Faculty

The department supports intellectual freedom for faculty to shape courses around their expertise and interests. This is a long-standing tradition. Faculty teaching key required courses independently include, or are asked to meet NAAB and other criteria by the MArch director and/or the chair based on assessment by the MArch committee. Improvements to course content based on student evaluations and instructor assessment are not vetted by the program, but are up to the faculty teaching the course. Faculty are assessed by the department chair, dean, and university for promotion or merit increases based, in part, on course evaluations and teaching effectiveness.

Department of Architecture MArch Committee

The MArch Committee reviews the structure and content of the curriculum and makes recommendations to the faculty for changes in structure, emphasis, new courses and new faculty FTE. Convened and appointed by the chair, the MArch Committee consists of a faculty director, faculty members, and a graduate student affairs officer. Recommendations for significant curriculum changes are brought to faculty meetings for discussion and decisions under the leadership of the chair. To date, most curricular revisions in the MArch program have been incremental in nature, having to do with sequence in the program or particular interests or expertise of the faculty member(s). Changes to courses based on NAAB criteria are discussed with individual instructors. Recent developments here are revisions to the ARCH 201 Architecture + Urbanism studio, which now includes the program of housing, and ARCH 203 Integrated Studio, which added professional consultants and new course requirements. The MArch Committee also oversees and participates in admissions.

Architecture Studio Reviews

Final studio reviews typically include local professionals and external critics from academic institutions as jury members. They provide feedback to the students in review format, and feedback to faculty on the course and studio work.

CED Berkeley Circus

The Berkeley Circus is an event planned and organized at the college level. Each year, prominent alumni from each department are invited back to review student work. Students make presentations to alumni in the form of a review. Alumni give feedback to students, as well as award prizes to their choices of the best work. More importantly, alumni

give direct feedback to the chairs on the content and quality of the curriculum. The Circus was suspended due to the COVID-19 pandemic, and is currently on hiatus while the new dean determines how best to involve alumni.

CED Student Exit Survey

The exit survey was initiated by the college to help departments in their continuing assessment and improvement. To see the range of types of feedback see a copy of the 2022 exit survey: Graduate Architecture Exit Survey 2022

Campus FTE Process

Each year, the campus requests proposals for new FTE from all departments in the context of a target size, determined by the department's teaching loads and student/faculty ratio. The process requires a careful justification of requested positions in relation to the target size and the mission and teaching needs of the department. It involves a detailed job description and advertisement. Faculty discuss which FTE positions to request, the justification, job description, and advertisement at faculty meetings.. Discussion and decisions are made in the context of the mission, vision, and strategic priorities of the department.

Campus Promotion and Tenure Process

UC Berkeley's promotion and tenure process is among the most thorough and consultative evaluations of faculty performance in the country. It is known as one of the main reasons for Berkeley's excellence. Faculty are evaluated at least every three years for merit reviews which follow a ladder rank system with salary ranges at each step on the ladder. For threshold/promotion cases, faculty cannot be promoted to a new step in any rank, including full professors, without demonstrating distinction and productivity in teaching, research/creative production, and service. It is a multitiered process: each faculty member prepares case material that includes a statement and a CV; the department solicits external letters of reference and evaluation; a report and recommendation is prepared by peer faculty in the department, which is reviewed by the faculty member; the chair adds his/her assessment and recommendation; the Dean reviews it for further comment and recommendation; and finally, it is to the campus Budget Committee for review by faculty outside the department who make a recommendation to the provost, who makes the final decision. During the process, student evaluations are taken very seriously in assessing teaching performance. It has produced a culture of unparalleled productivity and gives the chair detailed knowledge about the performance and productivity of each faculty member.

Campus Academic Program Review (APR)

The campus conducts external reviews of every department on a regular basis, approximately once every 10 years. It is conducted by the Campus Program Review Oversight Committee (PROC). Each department prepares an Academic Program Self-Study Report and is visited by an External Review Committee that prepares an assessment report. The report is reviewed by PROC and specific recommendations are made to each department for improvement. More detail on the latest, 2023 APR can be found in section 5.2.6 below.

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

Program Response:

Progressing toward our mission is a continuous process. Having just concluded the campus APR in spring 2023, in the 2023–2024 academic year, the department will engage in developing a strategic plan, revisiting our mission and vision, and forming our strategic hiring plan. Progress on the stated strategic priorities mentioned above is well underway.

1. Maintain distinction in architectural education that foregrounds architecture as a humanistic as well as professional discipline. This has been addressed in the following ways:
   - In addition to the pre-professional undergraduate degree, we offer a liberal arts based BA. A year-long undergraduate capstone in history, theory, and society was formed for students who seek a less studio-based degree. Roughly 12 to14 of 120 students choose this option. There are two clear pathways, pre-professional (studio track) and liberal arts (research track), through the undergraduate program.
   - A faculty search for a historian/theorist whose research focuses on the Global South is in the current faculty hiring plan. This search will be requested in 2025–2026.
2. Further research and extend knowledge of building technology and sustainability and its integration with architectural design:

- Integrated studio was restructured to include BSTS faculty and professional consultants on a practice-based model. This includes a full-time faculty devoted to daylighting and passive strategies as well a professional MEP, life safety, facade and structural consultants.
- A faculty search for a position in Architectural Design and Building Performance was conducted in 2018–2019, resulting in the hire of Giovanni Betti. Betti, unfortunately, resigned due to personal circumstances in 2022.
- A faculty search for a position in Architectural Design and Building Technologies was conducted in 2021–2022,resulting in the hire of Yasmin Vobis. Vobis began in January 2023 and teaches design studio and the graduate construction class.
- A faculty search for Structures + Building Technologies has been requested for the 2023–2024 academic year.
- Plans for a graduate capstone studio that combines different forms of expertise, including design and building technology. is being planned for the 2024–2025 academic year.

3. Maintain and build design excellence in the BA and MArch programs:

- A search for two Design faculty with a focus on foundational studio teaching was conducted in 2022–2023. The search yielded two excellent candidates, Liz Galvez and Ajay Manthiprigada, who will begin in fall 2023 and fFall 2024, respectively.
- Two new awards programs for Design Excellence and Design Process were established through a generous donation in fall 2022. The awards honor excellent student projects in both graduate and undergraduate studios. There are two Design Excellence and three Design Process awards in each studio, ARCH 100A, 100B, 100C, 100D, 200A, 200B, 201, 202, and 203.
- Ongoing efforts are being made to find space to support faculty whose creative work focuses on material research and making. This is a slow but steady effort.

4. Support the student experience:

- A faculty search in Design + Equity is in the current faculty hiring plan and will be requested in 2023–2024.
- CED has raised funds for technology access that covers the cost for computing resources for undergraduate students. These funds have covered 100% of undergraduate student fees for computing in fall 2022 and spring 2023.
- The department supports social events and informal gatherings for students in all programs. These are hosted by the Undergraduate Student Council, the Graduate Architecture Student Union, and the MS/PhD cohort.
- In 2019, the department was awarded a $175,000 grant from the Graduate Division for Making It Happen, a program to address issues of diversity, equity, inclusion, justice, and belonging. More on Making It Happen can be found in Section 5.5.4.

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

Program Response:

Strengths

Our strengths are many. They include the department's strong legacy and current capabilities in all three focus areas — Design; History, Theory, Society (HTS); and Building Science, Technology, and Sustainability (BSTS); an excellent and productive senate and non-Senate faculty; an intelligent and active student body; an able staff; and transparent administration. Strengths also include the department's relationship to the college and its multidisciplinary approach, and to the university, whose strengths are too numerous to mention here but include being the premier public research university in the world with well-developed, fair and clear policies and procedures for students, staff, and faculty.

Challenges

The department's main challenges are:

Reduction in Faculty and Increased Workload

In the last decade, Senate faculty numbers have decreased from an average of 30 to 20.5 FTE. With the successful hires of two new assistant professors in Architectural Design, we will have 22.5 FTE in Fall 2023. The campus assigns a guaranteed minima of state-funded full-time faculty (FTE) for each unit; the Department of Architecture's guaranteed minima is 24.5. While we will certainly meet this minimum FTE with searches in the next few years, it is incredibly challenging to meet our curricular needs and innovate our programs with this limit. In addition, in any given year, course release for administrative roles, sabbaticals, and other leaves result in an operational FTE closer to 15. At

the same time, the MArch enrollment has increased by nearly 20%. The higher enrollment ensures financial stability, but strains class sizes, pedagogy, advising, and other student services. Faculty are obliged to take on additional committee work and service, resulting in overtaxation, fatigue, and less time for creative work and research.

Faculty have suggested a course load of three, rather than four courses per year which would be more in line with other STEM disciplines, as well as other departments in the College of Environmental Design such as City & Regional Planning i. This proposal is widely supported in the department, but would require additional faculty to teach the number of required and elective courses we offer to meet our curricular goals.

Budget Constraints and Unfunded Mandates

Ten years ago, campus funded 83% of the department's overall budget. Today campus funds 72%, more than a 10% decrease. The department has been able to accommodate this shortfall through PDST - Professional Degree Supplemental Tuition and increasing MArch enrollment. This, however, is not ideal because, as mentioned above, this increases some class sizes and course pedagogy, which can only be solved with additional FTE. One-third of the PDST funds are used for MArch student financial aid, including teaching assistantships. The remainder is used to cover computing and shop access for MArch students, lecturer appointments for those teaching in the MArch program, some staff salaries and benefits, and other department expenses.

Several new unfunded mandates are dramatically affecting the department and campus as a whole. They are:

UC-AFT Contract, Effective July 2022

The new contract between the lecturer's union, the American Federation of Teachers (AFT), and UC Berkeley mandates new rules for hiring and retaining lecturers. This adds a substantial amount of chair, and staff time. In addition, the contract comes with these mandated pay increases:

Average of 30% increases across the life of the contract, a $1500 bonus for every member upon ratification, 9.5% raises for our lowest paid members 60 days after ratification, and cost of living wage increases on the following schedule:

- February 1, 2022 (to be received in the March 1 paycheck): 7%
- July 1, 2022: 3%
- July 1, 2023: 3%
- July 1, 2024: 3%
- July 1, 2025: 4%

While the department supports most of the rationale for the increases, this cost burden is carried by the department, further stretching our finances. A summary of the UC-AFT agreement can be found here: 2021-2026 Teaching Faculty Contract Summary | University Council-AFT. The full contract can be found here: Unit 18 MOU | University Council-AFT.

UC-UAW Contract, Effective January 2023

Graduate Student Instructors (GSIs) and Graduate Student Researchers (GSRs) belong to the United Auto Workers Union (UAW). In fall 2022 they went on strike to negotiate a new UC-UAW contract. The details of the new contract are not yet fully known, but campus advises that GSI and student researcher salaries will increase by at least 25%. This directly affects our operations, as it is an unfunded mandate without additional funds to the department. Starting fall 2023, we will have a reduced number of GSI's. Most of the cuts came from positions typically held by MArch students. This affects our ability to recruit students and their ability to afford the program. More information on the new UAW-UC contract can be found here: Information about UC-UAW negotiations and a UAW strike | University of California.

Space and Infrastructure

The Department of Architecture shares Bauer Wurster Hall with other CED departments, the Department of Art Practice, and the Center for Environmental Design Research (CEDR). The building accommodates most of our program requirements very well with a few outstanding gaps. A pervasive issue is that the building can be cold and uncomfortable for students in studios in the North Tower and throughout the building. This can only be remedied by replacing all the single-pane windows and upgrading the mechanical system. The classroom spaces at the end of each studio floor, the "tube rooms," need to be upgraded to better serve studio pin-ups. The Digital Fabrication Lab is adequate and smoothly run, but more equipment is needed to allow for greater student access. Lastly, the department would greatly benefit from a high-bay space for faculty labs, one-to-one scale prototyping, and faculty-led design-build projects. Students are eager to have more large-scale design-build options, but the facilities cannot currently support this. The dean has been working with campus to see if we can access space allocated to the Department Art Practice, such as the Ceramics Lab, or Art Practice classrooms, or at the satellite campus site at Richmond Field

Station, and the chair has consulted with the director of CEDR, Gail Brager, regarding the CEDR high-bay space, but these conversations are only in preliminary stages.

Opportunities

With every challenge comes an opportunity. Campus has asked all departments to "do less with less" and the department has worked to adapt. We see our opportunities as the following:

Opportunity to clarify identity and synthesize strengths

Budget cuts and fewer faculty compel us to reconsider how we deliver curriculum and define what we feel is most important. There is wide general agreement that we want to honor our legacy as the one of the first schools to continually address environmental and social justice through design research and creative practice. This means strengthening the three areas of Design, BSTS, and HTS and continuing to build bridges among them. The department will hold a series of focus meetings beginning in fall 2023 to develop a strategic plan and strategic hiring plan. While faculty regularly review and discuss the faculty hiring plan, we are nearing the end of the last three to five year cycle and it is time to look toward the future with new goals, curricular agendas, and strategic priorities that take into account the new reality of university resources.

Increase multidisciplinarity: In an effort to bridge across department areas, the MArch Committee is currently working to form a capstone studio in the terminal year of the MArch program. This studio would be in lieu of independent thesis, with the intention of being team taught by architecture faculty from different curricular areas. The challenge is that this would demand increased faculty resources, but it could also afford an option for students to work in teams and gain specialized experience. Possible options for capstone studio topics include further integration of building performance and technologies, design-build, or community-based projects.

Increase student recruitment: To build the number, quality, and diversity of MArch applicants, the department aims to better communicate its identity and embark on a recruitment strategy. This is an ongoing effort that will include visiting other campuses, exchanging online presentations with other undergraduate programs, and engaging alumni at Cal Day and other events.

Grow alumni outreach and networks: The college and department do not historically have an alumni database. As the need for fundraising grows, the college and department are working to create an alumni database for both BA and MArch programs. This database will not only serve as a potential donor pool, it will help us better connect students with mentorships, paid internships, and future employment.

5.2.5 Ongoing outside input from others, including practitioners.

Program Response:

The primary ways in which the program receives ongoing outside input are:

Lecturers

Many of the department's part-time instructors are accomplished or emerging local practitioners. They teach predominantly with studio faculty coordinators, but also serve as coordinators themselves, and teach professional practice and technical courses. Lecturers provide regular feedback on course content and structure as well as how their courses fit into the overall curriculum. There are seven continuing lecturers, and roughly 30 lecturers per academic year, teaching across the BA and MArch programs.

Visiting Professors

The department has several endowed visiting professorships. Endowed professors are nationally and internationally recognized architects who typically teach an option studio in the BA or MArch program. Endowed professorships include:

Friedman Visiting Professor of Practice

Two per year. Friedman Professors contribute to increased understanding of the building delivery system and its relationship to design, function, technology, time, money, and cultural and social responsibility. Past Friedman Professors include Lyndon Neri and Rossana Hu; Tatiana Bilbao; Frida Escobedo; and Henry Siegel and Larry Strain. More here: Friedman Visiting Professorship - UC Berkeley College of Environmental Design

Esherick Visiting Professor of Practice

One per year. Esherick Professors are architects with a distinguished background in practice and significant contributions to the making of buildings that integrate the influences of building technology with their design outcomes. Past Esherick Professors include Michael Young, Young+Ayata; Fernando Marti and Prescott Reavis; Allision Williams; Fred Schwartz; and Mary-Ann Ray. More here: Esherick Endowed Professorship - UC Berkeley College of Environmental Design.

Lifchez Visiting Professor of Practice in Social Justice

Rotates every two years among the college's three departments. The Lifchez Professor of Practice in Social Justice honors the importance of design education around accessibility and disability justice. The inaugural Lifchez Professors were Chris Downey (Architecture for the Blind), and Alan Ricks and Jeffrey Mansfield (MASS Design Group). More here: Lifchez Professor of Practice in Social Justice - UC Berkeley College of Environmental Design

Berkeley Rupp Prize Visiting Professor

One per year. The Rupp Prize is given to a distinguished female practitioner or academic who has made a significant contribution to the areas of gender equity, environmentally sensitive use of resources, community; Diversity, Equity and Inclusion (DEI); and/or innovation in their body of work. The Rupp Professor teaches either studios or seminars in the Department of Architecture. Past winners include Deborah Berke, Carme Pinos, Sheila Kennedy, and Deanna van Buren. More here: Berkeley Rupp Prize.

Visiting Professors teach in-person for four to five weeks of the semester, and either conduct the remaining classes online or are paired with an on-site lecturer. Each studio course is independently formulated, and the chair provides guidance on how best to structure the course for success. Considerations include course schedule, project complexity, and types of deliverables. These considerations evolve based on feedback from visiting critics and students, and quality of student work produced.

Studio Reviews

Each semester concludes with studio reviews with a panel of external critics. External reviewers are both academics and local practitioners. The department supports travel and lodging for two to four external critics per studio to be shared among the different sections. In addition, each section instructor is responsible for inviting additional critics, typically local practitioners and academic colleagues. The mix of reviewers is usually quite diverse, as instructors draw from their various networks, and there are numerous well-regarded architecture firms and architects in the San Francisco Bay Area. Individual instructors receive immediate feedback from their guest critics. This information is shared with the teaching cohort and studio coordinators and can be used to make improvements in subsequent years.

Integrated Studio Consultants

ARCH 203 Integrated Studio was substantially reformed and improved since the last NAAB visit. The course is now structured to incorporate a number of professional consultants, including experts in code and life safety, mechanical engineering, structural engineering, facade, and daylighting, as an integral part of the class. The consultants conduct lectures in the companion colloquium ARCH 270C and meet individually with students in desk reviews at least twice per semester. The consultants provide feedback to section instructors and coordinators, who in turn gauge the effectiveness of the consultations in the final student work. Adjustments to timing, frequency, and content can be made based on this information.

Professional Partnerships

The college is exploring partnerships with architecture firms whose staff includes CED alums. This program is in a nascent state, but the goal is to increase ties to the professional community and raise alumni donations through the various firms. CED would provide annual or biannual updates to each department and solicit feedback from the firms. This would provide a new, robust form of gaining insights and feedback from our professional alumni base beyond the local community.

NAAB and UC Berkeley Academic Program Reviews

These reviews are infrequent, but regular and ongoing, and have great impact on the development of the MArch program. Both NAAB and the campus APR review as described in section 5.2.6 below include assessment and feedback from external reviewers.

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

Program Response:
The department conducts a decennial Academic Program Review (APR) as part of campus practices. The program review is directed by the office of the Vice Provost for Academic Planning (VPAP) and the Program Review Oversight Committee (PROC), and it is reviewed by an External Review Committee (ERC) assembled from a list of recommended reviewers provided by the department. The ERC typically consists of three leading academics from peer institutions around the country and strives to achieve a balance of diversity. The campus, department, and Program Oversight Review Committee (PROC) host the ERC for a three-day visit that includes meetings with campus, college, and department administrators; full- and part-time faculty; staff; and students. Prior to the visit, the ERC receives a Department of Architecture Self Assessment which is cowritten by faculty and the chair. The PROC develops a charge letter which is shared with the ERC and department. The charge letter asks specific questions of the ERC around issues of academic excellence, climate and DEIB, faculty, lecturers, mentoring, teaching and service, department programs, and facilities and equipment. Results from the visit are compiled into an ERC report that includes summaries of findings and recommendations. The last APR self-study was submitted in fall 2022, and the ERC visit occurred in spring 2023.

Links to documents that explain the APR process, visit, and self-study can be found here:

- Academic Program Review Timeline
- Academic Program Review, Campus Guidelines
- Academic Program Review, Slides for Staff
- Department of Architecture Academic Program Review Self-Study
- Department of Architecture Overview (slide deck)
- Academic Program Review Data Summary
- Program Review Oversight Committee
- Program Review Oversight Committee External Review Committee Charge Letter
- Program Review Oversight Committee Academic Senate Liaison Charge Letter
- External Review Committee Visit Itinerary
- External Review Committee Report

Once received, the department carefully reviews the ERC report and results of the self-assessments to develop a list of strategic priorities and initiatives. Strategic priorities are revisited at the fall faculty retreat held at the beginning of each academic year, and adjustments and revisions are made based on faculty consensus.

5.3 Curricular Development

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

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

Program Response:
Course offerings are primarily shaped by a combination of faculty expertise/research interests, anticipated changes in the discipline, and the needs of the profession as outlined by NAAB and other review processes. Of these, perhaps the first is the most critical, as faculty searches are the direct result of multiple conversations about emerging areas of research and practice and existing gaps in current faculty expertise. .

Curricular assessment and development is addressed in four distinct yet critical ways:

First, students evaluate, in detail, every course they take. This evaluation asks for students' input regarding 12 specific questions with particular focus on the effectiveness of the instructor and course content. The evaluation provides space for written comments. At the end of each semester, the evaluations are compiled and scores are averaged for each class and instructor. The evaluations and the summary are then made available for the individual faculty member and to the chair of the department. The chair uses these evaluations to understand the effectiveness of both the instructor and the course from the students' point of view. In the event that a course's evaluation signals a significant deficiency in either content or teaching effectiveness, the chair meets with the individual faculty member to discuss possible modifications. On rare occasions, faculty members are encouraged to enlist the aid of UC Berkeley'sCenter for Teaching and Learning to improve their teaching skills. Department faculty are on the whole exceptional teachers who care deeply about their subject matter and are attentive to student concerns; they often take the initiative to make changes to their courses in response to student concerns. Evaluations are routinely cited in the promotion and merit reviews of ladder rank faculty members (every two to three years) and the rehiring process for part-time lecturers.

Second, MArch students take three types of surveys during their time in the department: Pulse surveys distributed by the campus Graduate Division, intermittent Pulse surveys given by the Graduate Architecture Student Union, and an exit survey upon graduation. The exit survey and campus Pulse surveys measure satisfaction around different aspects of the students' experiences at Berkeley. These surveys help the department pinpoint areas of concerns within the curriculum, student services, and the building environment. The in-house Pulse survey gauges departmental issues, such as course structure, time management, building infrastructure, and any other issues related to student satisfaction with the program. The results of both surveys are shared with the staff and chair. Issues of concern are brought to the faculty in the yearly faculty retreat.

Third, there is a very robust studio and thesis review culture in which all faculty are requested to participate. All faculty serve as either primary or secondary thesis advisors for students and are directly engaged with the work. End-of-term studio reviews are compressed into a single week and coordinated to allow students and faculty from throughout the department to participate. This allows for a focused assessment of studio work for faculty and students alike.

Fourth, every fall faculty discuss departmental needs and desires for future faculty based on curricular or disciplinary needs. These requests are forwarded each year, based on priority, to the dean of the college and then to the university for approval. Since the last NAAB review, we have hired six new faculty with diverse areas of expertise. More detail on recent hires can be found in Section 5.5.2.

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

Program Response:

Curricular changes are motivated by changes in the discipline and challenges and opportunities presented by students, faculty, and alumni, as well as external or accreditation review bodies. These changes are formulated by the MArch Committee, which consists of the MArch director, a minimum of four faculty members, and a graduate student advising officer (GSAO) staff member. In consultation with the department chair, curricular changes are discussed and voted upon at a meeting of the Department of Architecture faculty.

Student course evaluations play a key role in course development. Every instructor must participate in end-of-year student course evaluations consisting of written feedback and numeric scoring. Questions address course expectations, lecture and class formats, course materials, subject matter, and inclusion and well-being. Instructors use feedback from evaluations to improve and evolve their classes. This is a university expectation, as key numeric course data for Overall Teaching Effectiveness (OTE) and Course Worth (CW) are reviewed by the chair and included in all faculty promotion and merit cases and lecturer assessments and excellence reviews.

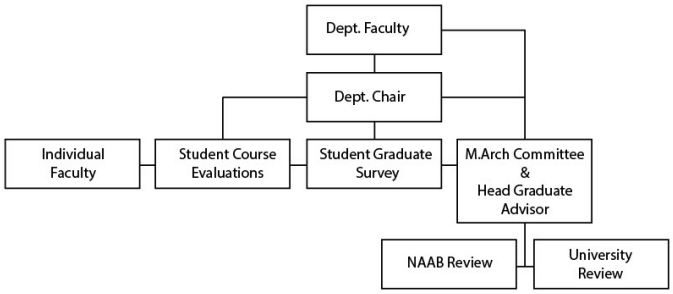
Another avenue for student feedback are meetings between the chair and representatives from both the Undergraduate Student Council and the Graduate Architecture Student Union, which occur at least once a semester. They communicate the result of pulse surveys with the chair. Feedback that is related to curriculum and curricular logistics can be addressed by the MArch Committee as directed by the chair.

Outcomes from, and planning for, NAAB reviews weigh in curricular decisions and course structure. The MArch program director, MArch program committee, the chair, and faculty responsible for fulfilling NAAB criteria complete surveys, provide course information and feedback, and write the accreditation report. Each faculty member is well aware of PC and SC criteria for their courses, and include these in the design of their classes. More details can be found in Chapter 3. We plan to add NAAB-related questions specifically addressing PC and SC criteria to the CED exit survey for graduating MArch students. This indirect assessment will add another data point and assist instructors in refining course content to ensure we are adequately addressing NAAB criteria.

In addition to NAAB accreditation, the Department of Architecture performs a self-assessment and undergoes a university-mandated Academic Program Review (APR) every 10 years. Due to COVID, our 2019 APR was delayed until spring 2023. We have just concluded the department portion of the review, which includes the self-study and three-day visit by the External Review Committee (ERC). The ERC consists of three faculty or administrators at peer institutions who represent different areas of the department. The ERC provides recommendations to campus on all aspects of the program, including curriculum. More information on the campus APR process can be found in section 5.2.6.

UC Berkeley is accredited by WASC, the Western Association of Schools and Colleges; the last accreditation was in February 2015 for a 10-year term. WASC will return for a full assessment in 2024.

Curricular Assessment Process Diagram:



Changing the curriculum is an involved and lengthy process and occurs roughly every eight to ten years, typically in the years following a campus Academic Program Review or NAAB review. Assessment and incremental improvements to course content are typically handled by faculty leading the course and occur on a regular basis, every one to three years. Course development related to NAAB criteria is directed by the MArch director and managed by the MArch Committee in consultation with the chair. As of academic year 2021–2022, assessments of the curriculum related to NAAB PC and SC criteria occur on an annual or biannual basis.

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

Program Response:
Curricular agendas are ultimately determined by faculty consensus under the leadership of: department chair, faculty cabinet, and program committees. Program committees for BA, MArch and MS/PhD are each led by a faculty program director and staffed with faculty and an undergraduate or graduate student affairs officer. The program committees set curricular agendas and initiatives both independently and under the direction of the chair. The faculty cabinet is composed of program dDirectors and the lead faculty equity advisor. The cabinet acts as an advisory group on curricular and other matters to the chair and meets two to three times each semester. All curricular changes are brought to the full faculty for approval. BA and MArch program directors serve on a rotating basis and receive a one-course release for their service.

Faculty have considerable intellectual freedom and plan their course content within curricular frameworks. Coordinated courses, such as architectural studios, each have a studio coordinator who either creates a single syllabus for the whole class (ARCH 200A, 200B, 203) or reviews syllabi of the different studio sections (ARCH 201). The chair reviews the syllabi of visiting professors for the options studio ARCH 202. All courses must be approved by the campus Committee on Course Instruction (COCI).

5.4 Human Resources and Human Resource Development

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

Program Response:
In addition to full-time ladder rank faculty, the department has a number of part-time faculty, including seven continuing lecturers, 28 to 30 lecturers, and two associate adjunct professors. The department relies on part-time faculty to supplement instruction in the pre-professional and professional programs. We are fortunate to be in a region with excellent professional architects. Most lecturers are practicing architects from the San Francisco Bay Area.

NAAB-formatted resumes of each full- and part-time member of the instructional faculty who teach in the professional degree program can be found here: Faculty Resumes

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

Program Response:
The typical teaching load for ladder faculty is four courses per year. This includes two studio and two non-studio courses for design faculty, one lecture course and three seminars for History, Theory and Society (HTS) and Building Science, Technology and Sustainability (BSTS) faculty. Faculty with administrative positions come with course releases that

include: four courses for chair or dean; and one course for BA and MArch program directors and large undergraduate studio coordinators. Time commitments for in-person student contact hours for faculty are as follows:

Studio
- ARCH 200A, 200B, 201, 202, 203, 204: Two 4-hour studios two days per week

Colloquia
- ARCH 207A, B, C: One 1-½-hour lecture per week

Technical Courses
- ARCH 240: Two 1½-hour lectures per week + 1 3-hour lab
- ARCH 250: Two 1½-hour lectures per week + 11½-hour lab
- ARCH 260: Two 1½-hour lectures per week

Humanities Course:
- ARCH 230: One 3-hour lecture per week
- ARCH 270: Two 1-½-hour lectures per week + 1 1-hour section per week

Seminars
- ARCH 200C, 200D: One 3-hour class per week
- ARCH 207D: Two 1½-hour classes per week
- Elective seminars: Varies, but typically one 3-hour class per week

This schedule provides a high level of student contact hours and allows sufficient time for faculty development. All ladder faculty are required to pursue research and creative work in order to meet university merit, promotion, and tenure requirements. More information on the process can be found here: BMAP Advancement. Non-ladder faculty are required to meet criteria outlined by the UC-AFT agreement between the University of California and the American Federation of Teachers. Assessments occur after the first, third, and sixth years and lecturers must have demonstrated "competence in the field", "ability in teaching", and "academic responsibility." Information about the contract and assessment process can be found here: UC-AFT. Faculty whose area is in design synthesis and design integration keep abreast of the changing demands of the profession largely through creative practice. These faculty typically run their own architectural firms and remain current with changes in professional practice, the building industry, and licensure. Faculty who are licensed and/or members of the AIA take continuing education courses.

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

Program Response:

Continuing Lecturer Keith Plymale has served as the architect licensing advisor since the previous NAAB visit. Prior to the visit, Chair Tom Buresh performed the role. Plymale is a licensed architect in California, Florida, and Kentucky. He was appointed NCARB licensing advisor in June of 2017 and was reappointed in 2022 by NCARB. 2023 is Plymale's fifth year as our active NCARB licensing advisor.

NCARB advisor duties include:

Attending the NCARB Biannual Licensing Advisor Summit

Plymale attended the NCARB Biannual National Summit in 2017 in Chicago, in 2021 in Miami for a three-day remote Zoom session, and in 2023 in Kansas City, Missouri. Conference session notes, agendas, and resource packages are included in the attached PDF demonstrating our NCARB licensing related activities. The PDF can be found here: NCARB Advisor Activity Summary

Completing NCARB training and keeping up-to-date on the requirements for licensure

Plymale is a member and participant in the NCARB Architect weekly licensing advisors digest blog, semesterly NCARB webinar meetings on regional, national, and international topics. To remain current on changes in NCARB and licensure, Plymale attends fall and spring NCARB-hosted Zoom meetings for academic advisors and is directly engaged with ongoing discussions among accredited programs and the NCARB national office.

Ensures that students have resources to make informed decisions on their path to licensure

The NCARB mentorship program is active at both the graduate (MArch) and undergraduate pre-professional (BA) levels. Plymale regularly holds meetings with graduate students and undergraduate AIAS students in both the fall and spring semesters that covers NCARB updates and paths to licensure. The Department of Architecture informs students about these sessions by email, posters on the studio doors and at the elevator panels, and in-person via studio walk-throughs.

In spring 2023 and fall 2018, the school hosted NCARB, Washington D.C. and California Board of Architects representatives from Sacramento to present licensure information sessions to our graduate and undergraduate students. Plymale also ensures that the CED website provides links to the NCARB, AIA, and CBA resources to support student information sessions held in the school.

A full report of the NCARB advisor activities can be found here: NCARB Licensing Advisor Report 2017-2023

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

Program Response:

The university, the college and the department provide multiple professional development resources for faculty and staff. Faculty are empowered to pursue these resources throughout their career at Berkeley. Below is a brief description of resources which include funding and other valuable services.

Teaching Resources for Faculty

- Center for Teaching & Learning: The Center for Teaching & Learning provides a wealth of resources for both Academic Senate and non-senate faculty at UC Berkeley. Its mission is to "enrich, promote, and support teaching and learning effectiveness in the areas of pedagogy, curriculum, and assessment." More information is available here: Center for Teaching & Learning
- Educational Technology Services: Provides technology services to the academic enterprise, including bCourses (course website system), audiovisual services, instructional computer facilities, instructional equipment checkout, etc. More information about its services is available at: Research, Teaching, and Learning

Professional & Research Resources for Faculty

Faculty are encouraged to pursue professional development aligned with their research interests and area of teaching responsibility. Faculty are provided with various forms of funding to enable such pursuits that include:

Start-Up Funding

Newly hired ladder-rank faculty are given start-up packages that may be spent during the first five years of their appointment. The packages generally include the following:

- A Faculty Recruitment Allowance (FRA) from the central campus that is available for payout to the faculty member. FRA amounts are typically $75,000. The primary purpose of this funding is to assist with faculty research and start-up costs such as computers, equipment, and research assistance. Recently, the FRA can also be applied instead in the form of a zero-interest loan (ZIP Loan) to help with the down payment on a residence. This is a forgivable "loan" not to exceed $60,000 of the FRA amount. FRA may also be used to support expenses related to childcare, education or tuition assistance, or similar purposes.
- Research funding is provided by campus and the department as part of the start-up package. This funding is for research purposes, office furniture, computers, etc. The current amount provided per faculty varies and is typically around $75,000.

BEAR Funding

In 2014 the Berkeley campus implemented a new research funding program for ladder faculty that replaces a long-standing funding program from the Academic Senate's Committee on Research (COR). This new funding is called BEAR, for Berkeley Excellence Accounts for Research. Full-time ladder faculty are given $2,000 per semester for the previous year's active service ($4,000/year). Ladder faculty who are appointed to endowed chairs with an annual payout of $10,000 or more are not eligible for BEAR funding.

Department Grants

The department offers several grants to faculty and MS/PhD students on a competitive basis.

Joan Draper Architectural History Endowment

The Joan Draper Architectural History endowment supports teaching, research, and creative activities of faculty and scholars in the area of architectural and urban history and conservation of history records and images. Each fall the department chair sends out a call letter to architecture faculty, graduate students, and the director of the Environmental Design Archives asking for proposals for Draper funding. Awards are then distributed, with at least 20% being directed to the archives, per the donor's wishes.

Charles Moore Endowment for the Study of Place
The Moore endowment yields approximately $20,000 of income per year and its purpose is to "support programs that address humanistic value as a basis for place-making, learning principles from the history of many cultures, and from the close study of existing places." Therefore, the department sends out a call letter to faculty each year asking for proposals for course travel supported by the Moore fund. Proposal(s) are awarded each year to support travel expenses for faculty member(s) and participating students.

Endowed Chairs

There are several endowed chairs in the college. The dean's office puts out a call for nominations, including self-nominations, to all faculty as the positions become vacant. Chairs are selected by a committee assigned by the dean.

The endowed chair funds are as follows:

Eva Li Chair
- Current Chair Holder: Professor Ron Rael
- Annual Revenue (FY2022–2023): $27,000
- Established: 2003
- Purpose: As stated in the fund terms, to "advance the study of architecture with a preference for investigations that examine the ethical consequences of design processes and decisions in personal, cultural, and ecological terms." Income may be used for program support, graduate student staff, support of visiting lecturers, publications, etc.

David Woo Chair
- Current Chair Holder: Professor and Chair Lisa Iwamoto
- Annual Revenue (FY2022–2023): $49,000
- Established: 2011
- Purpose: As stated in the fund terms, to "support the work of an eminent faculty member in the College of Environmental Design…to support faculty compensation, and the remainder used to support graduate students and to provide discretionary research funds for the chair holder."

Staff Resources

Career and professional development is a self-initiated process with support and resources provided by managers and the organization. UC Berkeley staff have access to both campus and UC systemwide professional development opportunities. Berkeley People & Culture offers a series of Assessments for Growth, where staff can plan, implement, and track their professional development.

- Career Growth: Grow Your Career | People & Culture
- Career Development Workshops: Career Development | People & Culture
- Conferences: NOW Conference | People & Culture
- External Resources: UC Systemwide and External Resources | People & Culture

Work-Life Balance

In addition to the campuswide benefits listed below, the department offers a hybrid work environment, with three days in the office and two remote. In-person meetings are scheduled on Mondays and Wednesdays when all staff are in the office. The staff then work remotely during two of the remaining three days, ensuring that there is always administrative presence in the office.

- Retirement Benefits and Planning Resources
- Catastrophic Leave Sharing Program
- Family and Medical Leave
- Flexible Work Arrangements
- Work/life balance
- Be Well at Work
- Employee Assistance

Benefits

The University of California offers a wide array of high quality benefit plans from which to choose. These include comprehensive health and welfare insurance plans, a generous pension plan, and optional retirement savings opportunities. Benefits packages for faculty and staff are based on job classification, the nature of employment and the number of hours worked. Eligibility requirements can be found here: UCnet Eligibility Requirements. UC offers a valuable Total Rewards package. To see the value of your total compensation, use the Total Compensation Calculator.

Important Benefits Information:

- Health Plans
- Retirement Benefits
- Disability, Life, & Accident Insurance
- Other Benefits
- Using your Benefits

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

Program Response:
The graduate student affairs officers (GSAOs) provide MArch students with support in navigating the department, college, and university at large. The Graduate Office acts as a mediator between the student and the various offices on campus regarding admissions, registration, enrollment, financial aid, student employment, international student issues, and contact with other departments. The GSAOs also maintain students' files and can provide updates on their academic progress and the processes and regulations they need to follow to complete their degrees. If students want to make any changes to their schedules, do research in a specific area, add another program, or do anything out of the ordinary, the GSAO advises and assists with the process. The main purpose of the GSAOs is to help students deal with any administrative challenges they face.

The college has a dedicated career counselor, Dinorah Meyer, at the UC Berkeley Career Center. Meyer offers career counseling to students at the Career Center and at CED. She also provides opportunities through programs and workshops highlighting local employers and alumni. She also coordinates a yearly CED Career Fair and a wide variety of professional-development workshops on topics including licensure and internships.

The department also offers a summer "internship" class, ARCH 108, that pairs students with Bay Area architecture firms for paid summer internships; stipends range from minimum wage (roughly $16/hour) to $25/hour. The class typically has 20 to 25 students from the BA and MArch programs. Students work full time Mondays through Thursdays. On Fridays, the class meets to discuss issues related to practice and review assignments, which include a case study and interviews with professionals in their firm.

The college partners with and Psychological Services at the University Health Services (UHS) Tang Center to support students. UHS offers graduate and undergraduate students with free confidential consultations about personal, professional, or academic concerns. Professional consultation is also available for CED faculty and staff regarding student issues and concerns. Link here: Counseling and Psychological Services

Until recently, CED had a licensed, on-site psychologist from Counseling and Psychological Services. This professional assisted students with any number of issues and was particularly skilled in helping students address and overcome stress and anxiety; depressed moods and low self-esteem; procrastination, time management and decision-making; family conflicts and pressures; and challenges faced by ethnic minority students, first-generation college students, and/or undocumented students. Due to budget cuts and staff restructuring, this position no longer exists, but the department requested at the most recent decennial academic program review that it be reinstated.

5.5 Social Equity, Diversity, and Inclusion

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

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

Program Response:
The college and the department are committed to the ongoing mission of introducing students to a practice of environmental design that respects difference and confronts injustice and inequity in the making of buildings, communities, and urban landscapes. This is reflected in our distribution of resources. Primary contributions are fellowships provided to underrepresented minority (URM) students. These include:

- Chancellor's Fellowships: CED receives $34,000 from campus to support a URM PhD student for two years. This award is provided at the time of admission. More here: Fellowships for Entering Students - Berkeley Graduate Division
- Department Fellowships: Department fellowships are funded largely by Professional Development Supplemental Tuition (PDST). Fellowships cover tuition and fees for incoming students for one, two, or three years. Offers depend on the strength of the candidate. In terms of fellowships to URM students, 100% of URM admits received a fellowship offer.

Applications by URMstudents comprised 6.5% of the last applicant pool; 53% were admitted and 17% of those accepted our offer of admission.

- Arcus Social Justice Corp Fellowships (ASJC): The ASJC fellowships, offered by CED, fund for master's students who intend to do social justice work after graduation. Applicants must apply for the fellowship to be considered. While we do not consider ethnicity/race or gender when assessing the applicant pool in compliance with California Proposition 209, 57% of current Arcus fellows and program alums come from underrepresented minorities; this is compared to 14.7% of CED graduate students and 15.5% of UC Berkeley graduate students. Since its inception, CED has matriculated 37 Arcus fellows in two cohorts who have benefited from need-based fellowships, seminars, career-planning support, and mentoring from social justice practitioners in the Bay Area. The enduring impact of the ASJC is allowing the college and the department to advance its goals of:
    - Eliminating financial barriers to a graduate education
    - Curating community-building opportunities through a suite of programs focused on community engagement best practices
    - Increasing the number CED alums in public service and social justice careers
    - Increasing the number of historically underrepresented minority (URM) graduate students enrolling and graduating from CED across all design and planning disciplines
    - More on ASJC here: Arcus Social Justice Corps (ASJC) Fellowship
- The campus provides financial assistance to graduate students who meet the campus diversity requirement and demonstrate financial need through the Graduate Opportunity Program – GOP Master's Fellowships (See Section 4 – Supplemental Material for the detailed description). The funding support consists of a $10,000 stipend ($5,000 per semester) and in-state fees for one academic year. They can be supplemented from departmental or allocated Block Grant funds. These are used as recruitment awards and the department has received approximately three per year. The department provides professional degree supplemental tuition (PDST) and any non-resident tuition for recipients of the GOP Master's Fellowships.
- The department provides $25,000 from PDST to one incoming MArch student. The First Year M.Arch Student Fellowship, combined with other department funds, covers fees and tuition for an underrepresented minority student in the first year of their MArch program.
- Tech Access Waivers: Undergraduate students can apply to CED for support to pay fees for shop and digital fabrication lab access based on financial need. MArch students are provided access through PDST. On average, more than 400 waivers are provided each year. In addition, the college has fully funded computing access for all undergraduates in the last two semesters.
- Faculty Resources: There are two equity advisors, Greg Castillo and Neyran Turan. The equity advisors ensure our faculty searches are in compliance with the Office of Faculty Equity and Welfare, and that each candidate meets DEIBJ objectives.
- Staff Resources: The department HR analyst works together with the CED personnel director to ensure hiring, promotion, and personnel cases comply with campus policies and standards.
- Making It Happen: In 2019, the Berkeley Graduate Division announced a Graduate Diversity Pilot Program directed toward combating racism and fostering diversity, equity, and inclusion. The college received a four-year grant of $175,000 to fund Making It Happen, a program assisting staff, students, and faculty in pursuit of systemic change. In addition to over 75% of the annual budget going toward student support, the department contributed additional financial, physical, and administrative resources.

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

Program Response:

The department is committed to a faculty and student body that seek disciplinary excellence, innovative research, and social equity. Increasing faculty diversity is an ongoing effort and governed by a strict set of university policies and standards. Searches for ladder-rank faculty require approval from the college and the university. Architecture faculty members annually discuss the need for new faculty and approve a ranked list based on perceived need.

Each search is conducted by an ad hoc committee composed by the chair and includes oversight by the department equity advisor. We ask that each candidate submit a Diversity, Equity, Inclusion, Belonging and Justice (DEIBJ) statement that is reviewed by the committee and approved by the equity advisor. In addition, the long list, short list and final search report and recommendation are submitted for review and approval by the campus Office of Faculty Equity and Welfare (OFEW). More information on OFEW's Senate faculty search guide can be found here: Senate Search Guide | Office for Faculty Equity & Welfare. Once approved by OFEW, the search committee recommendation is voted on by ladder-rank faculty.

Our search descriptions contain the following language:

> "We are committed to addressing the family needs of faculty, including dual career couples and single parents. We are also interested in candidates who have had nontraditional career paths or who have taken time off for family reasons, or who have achieved excellence in careers outside academia. For information about potential relocation to Berkeley, or career needs of accompanying partners and spouses, please visit: New Faculty".
>
> "Diversity, equity, inclusion, and belonging are core values at UC Berkeley. Our excellence can only be fully realized by faculty, students, and academic and non-academic staff who share our commitment to these values. Successful candidates for our academic positions will demonstrate evidence of a commitment to advancing equity, inclusion, and belonging."
>
> "The University of California, Berkeley is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, or protected veteran status. For the complete University of California nondiscrimination and affirmative action policy see: UC Policy on Discrimination, Harassment, and Affirmative Action in the Workplace

The department casts a wide net by routinely posting faculty searches in the following venues:

- ACSA (Association of Collegiate Schools of Architecture)
- Archinect
- NOMA (National Organization of Minority Architects)
- AIA (American Institute of Architects)
- ACADIA (Association for Computer Aided Design in Architecture)
- Women in Higher Education
- Latinos in Higher Education
- Urban Affairs Association
- Dezeen Jobs
- e-flux Announcements
- ACADIA (Association for Computer Aided Design in Architecture)
- AP Recruit
- Northern California Higher Education Recruitment Consortium(Norcal HERC)
- Higher Ed Jobs
- Inside Higher Ed
- Academic Keys
- America's Job Exchange (AJE)
- AJE Veterans Exchange
- AJE Disability Exchange
- AJE State Exchange for California
- Job Opportunities for Disabled American Veterans (JOFDAV)
- Disabled Person
- Diversity Working
- The California State Workforce Site (CalJobs)
- Bay Area Career One Stop Center Representatives
- Community Outreach Organizations

Faculty searches since the last NAAB review were intended to span the different areas of the department — Design; History, Theory and Society; and Building Science, Technology & Sustainability. While focused on building bridges among faculty cohorts, the search descriptions were intentionally broad to cast a wide net and attract a large number of applicants. Each search attracted upwards of 100 candidates. Recent hires for these hybrid positions include:

- 2016–2017: Architectural Design + Diversity - Marcel Sanchez Prieto
- 2018–2019: Architectural Design + Building Performance - Giovanni Betti
- 2021–2022: Architectural Design + Building Technologies - Yasmin Vobis
- Architectural Design + Urbanism - Georgios Eftaxiopoulos

In 2022–2023, the department shifted its focus to search in areas that fulfill specific curricular needs and rebuild areas of excellence in design and social and environmental equity. These positions include:

- 2022–2023: Architectural Design - Liz Galvez
- 2022–2023: Architectural Design - Ajay Manthipigada
- 2023–2024: Structures + Building Technology
- 2024–2025: Architectural Design + Equity
- 2024–2025: Architectural History/Theory of the Global South

Benchmarks for diversity faculty hires is not a number, but a continual effort to improve. With the exception of the Structures + Building Technologies, these searches are specifically targeted toward increasing faculty diversity. The Architecture + Equity position is focused on community-based or other social equity practices and will replace Marcel Sanchez Prieto, who resigned in 2022 due to personal reasons. The position in Structures + Building Technologies will replace Giovanni Betti, who resigned in 2022, also for personal reasons. The Architectural History/Theory position is focused on non-Western architectures and urbanisms.

Since the last NAAB visit, the following ladder ranked faculty have retired or resigned:

- 2018: Professor Galen Cranz (HTS)
- 2020: Professor Susan Ubbelohde (Design + BSTS)
- 2021: Professor Nicholas de Monchaux (Design)
- 2021: Professor and Chair Tom Buresh (Design)
- 2022: Professor Dana Buntrock (BSTS)
- 2022: Associate Professor Marcel Sanchez Prieto (Design)
- 2022: Assistant Professor Giovanni Betti (Design + BSTS)

Data culled from the central campus database include ladder faculty demographics for five years preceding 2021.

Faculty Demographics

Ladder-Rank Faculty Demographics by Gender and Race/Ethnicity, Spring 2017-2021

	Headcount					Percent									
						Architecture					CED				
Group	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
White	23	22	19	18	16	74%	73%	76%	75%	64%	74%	71%	74%	73%	67%
Asian	4	4	3	3	4	13%	13%	12%	13%	16%	9%	9%	8%	8%	10%
URM	3	3	3	3	4	10%	10%	12%	13%	16%	15%	18%	18%	19%	20%
Chicano / Latino	3	3	3	3	4	10%	10%	12%	13%	16%	9%	13%	14%	15%	16%
African American / Black	0	0	0	0	0	0%	0%	0%	0%	0%	6%	5%	4%	4%	4%
Native American / Alaska Native	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 or More Races - URM	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pacific Islander	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Unknown/Decline to State	1	1	0	0	1	3%	3%	0%	0%	4%	2%	2%	0%	0%	4%
2 or More Races - Non-URM	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
International	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Women	12	11	10	10	9	39%	37%	40%	42%	36%	43%	45%	48%	48%	43%
Men	19	19	15	14	15	61%	63%	60%	58%	60%	57%	55%	52%	46%	41%
Transgender/Gender Non-Conforming	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Unknown	0	0	0	0	1	0%	0%	0%	0%	4%	0%	0%	0%	6%	16%
Total	31	30	25	24	25	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Faculty diversity has incrementally improved since the last accreditation visit in 2017. The department currently has 21 ladder faculty with the following demographic breakdown: 57% male , 38% female , 66.7% white, 19% Asian, 14.3% URM. With the recently concluded search for two positions in Architectural Design, by fall 2023 we will have one additional URM and one additional Asian faculty member. For the nine continuing lecturers (those with over 12 semesters of teaching experience and who have passed an excellence review), the breakdown is: 86% male , 14% female, 86% white, 14% URM. And for our 29 lecturers, the breakdown is: 55% male, 45% female, 65% white, 21% Asian, 14% URM.

Plans to improve diversity at the lecturer level are ongoing. Each year, provided there is a teaching opening, the chair reviews lecturer applications, conducts interviews, and requests to hire new teachers. The lecturer position is strictly governed by a contract between the lecturers union, the American Federation of Teachers (AFT), and the University of California. Information regarding contracts, advancement, promotion, and more are contained in this document: Current Contract | UCnet. A summary of the contract can be found here: 2021-2026 Teaching Faculty Contract Summary | University Council-AFT. Since ratification of the new contract in 2022, demographic breakdown of new lecturers is: 8 male, 8 female, 7 white, 3 Asian, 4 URM, 2 undeclared.

The majority of staff are managed by the college and hiring is not under the purview of the department. The department staff is an able group of five. The demographic breakdown is: 40% male, 40% female, 20% non-binary, 80% white, 20% URM. Similar to faculty searches, hiring staff follows a stringent set of university guidelines. They can be found here: Hiring Process Checklist | People & Culture. The department and college are mindful of hiring staff who increase our diversity and reflect the students we serve.

Overall, the faculty is not as diverse as the undergraduate student population. It is slightly more diverse than the graduate student population, but this metric is skewed due to the large percentage of international students. The vast majority of our international students are from Asia, but are listed only as “international” and not by race or ethnicity. The department

is actively seeking to increase faculty diversity, and the two most recent hires as of July 1, 2023, Liz Galvez and Ajay Manthiprigada, work towards this goal.

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

Program Response:

The Department of Architecture has the highest percentage of underrepresented minority (URM) students at UC Berkeley. The campus target is 25%. The vast majority of URM students are in our undergraduate architecture program, where nearly 30% self-identify as URM. In addition, 49% are the first in their family to attend a four-year college, 47% are Pell Grant recipients with an average annual family income of $27,750, and 62% have English as a second language.

The percentage of URM students in the M.Arch program has been steady over the years, but low. Enrollment trends show that the majority of our students are now international, largely from China, and we are making concerted efforts to increase our domestic and URM student population. The MArch program has between 500 and 750 applicants per year, of which we admit roughly 150; of these, 40 to 50% accept our offer of admission. In the last admission cycle, we had 521 applicants. We admitted 81 international and 69 domestic students, of which 29 are URM. The acceptance rate was 44 international (54%), 29 domestic (42%), and 5 URM (17%). We struggle to match funding offers to our URM candidates from private institutions. We aim to increase the quantity and quality of our applicant pool with new outreach efforts to schools with strong undergraduate programs and those with large URM populations.

Efforts to increase our URM students in the MArch program during this next accreditation cycle include the following:

- Targeted Admission Process: We will continue to admit a high percentage of qualified, and even marginally qualified, domestic and URM applicants in the hopes of diversifying our MArch student body. We feel confident in our ability to teach less-prepared students in our three-year program. We are planning to increase funding offers with multiyear fellowships to URM candidates. That said, we are unable to offer stipends to students, and only have financial resources to offer a limited number of multiyear fellowships.
- Arcus Social Justice Corps (ASJC): The ASJC, housed in CED, is an endowed program that provides fellowships to incoming master's students in all departments who intend to do social justice work after graduation. It is frequently provided to URM candidates. More information on the program can be found here: Arcus Social Justice Corps (ASJC) Fellowship
- Priority Admissions: In fall 2022 we began planning a priority admissions process for Berkeley undergraduates who successfully complete a BA in Architecture. The goal is to provide a clear path to an accredited MArch degree for students in our pre-professional and liberal arts–based undergraduate program. We have some of the strongest undergraduates in the country, and a large percentage are domestic and underrepresented minorities. We are currently setting requirements for priority admissions, which include minimum overall and studio GPAs and a timeframe for applying after graduation.
- Outreach and Recruiting: Our graduate student affairs officers (GSAOs) regularly attend the annual National Organization of Minority Architecture Students (NOMAS) conference in an effort to encourage URM candidates to apply. Next year, the department will fund our local NOMAS chapter so student members can also attend. In fall 2022, the MArch director began holding online MArch informational sessions for prospective candidates. We plan to continue this effort. Due to budget constraints, the department does not have a history of outreach to schools that require travel. Our plan in the next several years is to form exchanges with other schools with strong undergraduate programs to present our MArch program in online, and budget permitting, in-person formats.

Undergraduate Student Demographics

Undergraduate Student Demographics by Gender and Race/Ethnicity, Spring 2017-2021															
	Headcount					Percent									
						Architecture					CED				
Group	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
White	74	79	74	70	64	20%	20%	20%	19%	18%	24%	24%	22%	22%	21%
Asian	118	109	115	126	120	31%	28%	31%	34%	33%	29%	27%	29%	31%	33%
URM	76	73	69	87	106	20%	19%	18%	24%	29%	21%	23%	23%	26%	28%
Chicano/Latino	66	62	57	75	96	18%	16%	15%	20%	26%	18%	18%	18%	21%	25%
African American	10	11	12	11	9	3%	3%	3%	3%	2%	3%	4%	4%	4%	3%
Native American/Alaska Native	0	0	0	1	1	0.0%	0.0%	0.0%	0.3%	0.3%	0.5%	0.8%	0.8%	0.6%	0.2%
Pacific Islander	0	0	0	0	0	0%	0%	0%	0%	0%	0.2%	0.3%	0.5%	0.5%	0.0%
Other/Decline to State	10	10	11	7	9	3%	3%	3%	2%	2%	3%	3%	4%	3%	2%
International	99	117	106	80	66	26%	30%	28%	22%	18%	22%	24%	22%	18%	16%
Women	203	224	217	230	235	54%	58%	58%	62%	64%	58%	61%	61%	66%	68%
Men	171	162	156	140	129	45%	42%	42%	38%	35%	41%	39%	38%	34%	32%
Nonbinary	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Decline to State	3	2	2	0	1	0.8%	0.5%	0.5%	0.0%	0.3%	1.3%	0.6%	0.6%	0.3%	0.3%
Total	377	388	375	370	365	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Graduate Student Demographics

Graduate Student Demographics by Gender and Race/Ethnicity, Spring 2017-2021															
	Headcount					Percent									
						Architecture					CED				
Group	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
White	43	48	49	46	36	25%	26%	25%	22%	20%	32%	30%	31%	29%	30%
Asian	13	16	20	18	15	8%	9%	10%	9%	8%	8%	11%	13%	11%	11%
URM	21	16	16	12	19	12%	9%	8%	6%	11%	15%	13%	13%	14%	15%
Chicano/Latino	16	12	12	11	16	9%	7%	6%	5%	9%	11%	9%	9%	10%	10%
African American	4	3	3	0	2	2%	2%	2%	0%	1%	3%	3%	3%	4%	5%
Native American/Alaska Native	1	1	1	1	1	0.6%	0.5%	0.5%	0.5%	0.6%	0.3%	0.2%	0.4%	0.2%	0.2%
Pacific Islander	0	0	0	0	0	0%	0%	0%	0%	0%	0.0%	0.2%	0.2%	0.0%	0.0%
Other/Decline to State	14	17	18	7	3	8%	9%	9%	3%	2%	9%	11%	8%	4%	3%
International	79	85	93	124	105	46%	47%	47%	60%	59%	37%	36%	35%	42%	40%
Women	79	96	108	119	97	46%	53%	55%	57%	54%	54%	57%	61%	61%	59%
Men	91	86	88	87	80	54%	47%	45%	42%	45%	46%	43%	39%	39%	40%
Nonbinary	0	0	0	0	0	0%	0%	0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0.5%
Decline to State	0	0	0	1	1	0.0%	0.0%	0.0%	0.5%	0.6%	0.0%	0.0%	0.2%	0.9%	0.7%
Total	170	182	196	207	178	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

The department acknowledges that student recruitment often occurs via the internet, social media, and word of mouth. Faculty members are conscious about inviting visiting critics from schools from which we would like to attract students. The college has recently redesigned our website to better foreground student work, visiting professors, and other exciting events. In 2022, the department took over a defunct Instagram account, and transformed it into @ucberkeleyarch. The site is managed by two part-time student employees and a lecturer under the direction of the chair.

The department sponsors an open house event for interested graduate applicants every semester. Since COVID, the open house has been offered virtually. The open house features faculty presentations of their research and teaching, student presentations of their studio work, a question-and-answer panel with faculty and another with students. Students are always welcome to visit the school in person, and when doing so, they are given a tour of the building, visit studios, and meet with selected faculty and the chair.

Department Demographics Compared with UC Berkeley:

UC Berkeley's demographic breakdown of faculty is shown below. The department's faculty demographics when compared to campus is quite similar in terms of ethnicity and gender, with a slightly higher percentage of underrepresented minorities.

UC Berkeley Faculty by Percentage					
Group	**2018**	**2019**	**2020**	**2021**	**2022**
White	55.8	52.8	51.4	49.3	46.3
Asian	15.6	15.6	15.9	16.4	17.3
URM	8.6	9.8	10.0	10.9	11.6
Chicano/Latino	5.0	6.1	6.3	6.9	227
African American	3.3	3.6	3.5	3.7	125
Native American/Alaska Native	0.2	0.1	0.1	0.2	0.2
Pacific Islander	0.0	0.0	0.0	0.0	0.0
Other/Decline to State	19.8	21.7	22.7	23.4	24.8
Women	39.7	39.9	36.1	37.2	38.0
Men	60.3	58.8	50.6	50.1	50.1
Nonbinary		0.2	0.7	0.8	0.8
Decline to State		1.0	12.6	11.7	11.0
Total	**100**	**100**	**100**	**100**	**100**

UC Berkeley's demographic breakdown of undergraduate students is shown in the table below. The department has a higher percentage of URM students, consistently the highest on campus. The percentage of Asian students is slightly lower and the percentage of female students higher.

UC Berkeley Undergraduates by Percentage					
Group	**2018**	**2019**	**2020**	**2021**	**2022**
White	24.6	24.0	21.9	20.7	20.3
Asian	39.2	39.7	3.9.5	39.3	39.8
URM	18.6	19.6	22.5	23.3	23.8
Chicano/Latino	14.7	15.5	17.9	18.9	19.4
African American	3.3	3.5	3.8	3.8	3.8
Native American/Alaska Native	0.4	0.4	0.4	0.4	0.4
Pacific Islander	0.2	0.2	0.2	0.2	0.2
Other/Decline to State	4.4	4.4	4.3	4.0	3.7
International	13.1	12.3	12.1	12.5	12.3
Women	52.6	53.6	53.6	54.1	54.8
Men	46.6	45.7	45.7	45.0	43.7
Nonbinary			0.0	0.3	0.8
Decline to State	0.8	0.7	0.7	0.5	0.7
Total	**100**	**100**	**100**	**100**	**100**

UC Berkeley's demographic breakdown of graduate students is below. The department's percentage of Asian and URM students is below that of campus. Efforts to increase URM representation is described earlier in this section. We have a markedly higher percentage of female students.

UC Berkeley Graduate Students by Percentage					
Group	**2018**	**2019**	**2020**	**2021**	**2022**
White	34.4	33.2	34.3	30.6	28.2
Asian	17.7	18.6	20.7	20.5	20.9
URM	11.7	13.2	14.7	15.0	15.0
Chicano/Latino	7.7	8.5	9.2	9.5	9.5
African American	3.4	4.0	4.7	4.8	5.3
Native American/Alaska Native	0.5	0.6	0.7	0.6	0.5
Pacific Islander	0.1	0.1	0.1	0.1	0.1
Other/Decline to State	8.6	6.3	4.9	4.5	4.6
International	27.4	28.7	25.4	29.4	30.9
Women	46.4	45.7	46.5	47.7	48.1
Men	53.3	53.0	52.8	51.1	50.4
Nonbinary		0.0	0.2	0.3	0.8
Decline to State	0.3	1.2	0.5	0.9	0.8
Total	**100**	**100**	**100**	**100**	**100**

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

Program Response:
The university, college, and department have numerous policies and programs to ensure and further diversity on campus.

Diversity Policies of the University of California, Berkeley

The Office of Diversity, Equity, Inclusion and Belonging at UC Berkeley leads efforts in equal employment opportunity (EEO), affirmative action (AA), disability access, prevention of harassment and discrimination, and multiple other aspects related to creating an inclusive environment for all staff, students, and faculty. More information of the Office of Diversity, Equity, Inclusion and Belonging can be found here: Office of Diversity, Equity, Inclusion and Belonging (DEIB) | People & Culture.

Campus staff affirmative action and equal employment opportunity consists of three major components toward creating equity in the workplace for employees: embracing diversity, equal employment opportunity, and affirmative action. Equity in the workplace is characterized by:

- A diverse productive workforce
- A more equitable and accessible work environment
- An inclusive environment where all employees are valued
- A work environment free from discrimination
- A level playing field for employee success

To explore these in greater depth, see What are Diversity, EEO, and AA.

The Office of Graduate Diversity, a division of UC Berkeley's Graduate Division, serves as a resource for the admissions process, academic support, financial advice, and professional development. It also provides a forum for ideas and programs designed to enhance the educational experience of underrepresented students, including those who are undocumented, first-generation college students and those who are educationally and financially challenged. More here: Graduate Diversity.

College of Environmental Design

As a community, CED has four core values:

- We prioritize safe and respectful environments
- We honor and support diverse perspectives
- We are optimistic and committed to change
- We welcome all

CED's strategic plan for inclusion, equity and community will undergo review by college staff and faculty in AY 2023–2024. The current plan includes:

Inclusion

We actively work to ensure that diverse stories are told and heard at CED. This requires improving representation of all marginalized communities, ensuring that resources and support systems are readily available to all, and educating our community as a whole about attitudes, perspectives, and behaviors that contribute to positive culture change. Some of the college's activities toward inclusion:

- Coordinating inclusion plans between campus, CED academic units, CED faculty equity officers, the graduate diversity officer, and the undergraduate associate director of outreach and culture
- Broadening participation and pathways to our programs through outreach (NOMA, ACSA, targeted undergraduate programs) and through CED's Summer [IN]stitute, which offers courses for students in middle school, high school, college, and post-baccalaureate students.
- Offering annual course development grants for faculty to reorganize any required course toward increasing diversity, well-being, and inclusivity.

Equity

We strive to dismantle unfair practices that create unequal playing fields. By targeting support, coordinating our efforts across various constituencies in our college, and training our community on the nuances of systemic change, we are striving to ensure that CED is a fair and supportive place, with access to resources for all, especially those who have been historically underserved.

- Leveling the undergraduate playing field by decreasing costs to college technologies, from software to plotting and digital fabrication, for students with demonstrated financial need.
- Targeting financial hardship and structural racism by offering debt relief through fellowships. Recent gifts have allowed the college to establish the Arcus Social Justice Corps (ASJC) fellowships that offer significant funding to professional graduate students with financial need and diverse experiences who intend to pursue careers that make a social impact.
- Increasing accessibility of the building and the services we provide (written materials, communications, web, employment, events, transportation services, communications, physical spaces) and providing gender-inclusive restroom facilities.

Community

We build a culture of community through transparency, openness to feedback, and engagement. By expanding the way we solicit feedback, engaging our student leaders more intentionally, and getting to know one another while giving back, we aim to increase the sense of belonging and the understanding that we are many parts which make up one whole.

- Fostering inclusion among staff, faculty (especially our lecturers), and students through orientations, welcome parties, staff lunches, and lecture series
- Monthly meetings with undergraduate and graduate student councils and student groups
- Monthly engagement with faculty through the CED Executive Committee and with all faculty every semester
- Monthly collaboration between all unit managers
- Weekly engagement between deans and chairs
- Annual service day to bring students, staff, and faculty together to give back to our campus and local communities
- Annual staff and faculty training in implicit biases, sexual violence and sexual harassment prevention, and bystander intervention
- Developing an anonymous feedback box with appropriate staff and faculty training to respond to input

CED Staff Resources

CED's director of community initiatives oversees development and coordination of college DEI activities and a chief diversity officer serves as liaison between the college and the campus for equity and inclusion initiatives. CED also supports a graduate student advising officer to serve as graduate diversity officer and the undergraduate associate director of outreach and culture.

Department of Architecture

In addition to the financial, staff, and faculty resources listed above, the Department of Architecture is engaged in making changes that advance progress toward establishing an anti-racist and inclusive institution, and to advancing these values within the discipline of architecture and its allied professions.

Department of Architecture DEIB Plan

The strategic report on DEIB planning and achievements presents the results of a program of self-evaluation that was conducted between 2019 and 2021 and completed in spring 2023. It proposes actions enhancing departmental diversity and supporting equity and a culture of inclusion and belonging. The DEIB plan advances the University's Principles of Community statement: Strategic Plan | Diversity, Equity, Inclusion, Belonging, & Justice

- We recognize the intrinsic relationship between diversity and excellence in all our endeavors.
- We embrace open and equitable access to opportunities for learning and development as our obligation and goal.
- Every member of the UC Berkeley community has a role in sustaining a safe, caring, and humane environment in which these values can thrive.

More information on the university's principles can be found here: Principles of Community | Diversity, Equity, Inclusion, Belonging, & Justice

The DEIB Plan includes the following:

Land Acknowledgement

Acknowledging that the land on which the campus sits on unceded Native American territory: *The Department of Architecture recognizes that UC Berkeley sits on the unceded territory of xučyun (Huichin), the original lands of the Chochenyo speaking Ohlone people, the successors of the sovereign Verona Band of Alameda County. This region continues to be of great importance to the Muwekma Ohlone Tribe and other familial descendants of the Verona Band. We recognize that every member of the Berkeley community has, and continues to benefit from, the use and occupation of this land, since the institution's founding in 1868. Consistent with our values of community, inclusion and diversity, we have a responsibility to acknowledge and make visible the university's relationship to Native peoples. As members*

of the Berkeley community, we recognize that the Muwekma Ohlone people are alive and flourishing members of the Berkeley and broader Bay Area community today. On the university website: Ohlone Land | Centers for Educational Justice & Community Engagement.

Self Assessment

The self assessment includes:

- Leadership and Vision: As part of the campus-wide "Pathway to Excellence" initiative, the UC Berkeley Strategic Plan for Equity, Inclusion, and Diversity was adopted in 2009. Its objective is to achieve institutional change by embedding the principles of equity, inclusion, and diversity into every campus unit so that true ownership is broadly shared, better ensuring accountability and visibility. We recognize that the leadership needed to enact that vision must come from all department stakeholders: students, administrators and staff, and faculty. Therefore, an Equity Steering Committee was formed in 2021 that included this diverse set of stakeholders. Activities of the Equity Steering Committee can be found in the Making It Happen section below.
- Department Diversity: This included a review of current demographics trends. Goals that emerged from the self-study include:
    - Increase faculty diversity by ensuring equitable faculty searches
        - Explore new fields of research to diversify candidate pool
        - Define the field broadly to expand candidate pool
        - Search at the assistant professor level
        - Diversify the search committee
        - Evaluate candidates based on qualifications
        - Contact potential diversity candidates to apply
        - Develop specific criteria for evaluation
        - Consider candidate's commitment to DEIB
        - Support diversity candidates through the interview process
    - Improve Equity, Inclusion, Diversity, and Belonging in Graduate Education
        - Support international students
        - Involve community engagement in studio pedagogy
        - Communicate department DEIB values
    - Improve Equity, Inclusion and Diversity in Undergraduate Education
        - Demonstrate commitment to equity and inclusion
        - Develop socially and culturally informed pedagogy
        - Communicate and reduce studio costs
        - Support multilingual students
        - Include resources on health and wellness in all syllabi
        - Recruit URM students
    - More information on these goals can be found here: DEIB Equity Plan
- Curricular and Pedagogical Assessment: Faculty volunteered to review current pedagogical models to understand how to dismantle systemic racism in architectural education and better deliver content with a more diverse, equal, and inclusive approach. A series of questions emerged that faculty used to assess, and in some cases, revise their syllabi. This is an ongoing effort, and will be discussed during the fall 2023 faculty retreat. DEIB Equity Plan
- Department Climate and Support for Underrepresented Groups: The Department of Architecture is committed to fostering a just learning environment. Strategies include using preferred pronouns, encouraging broad participation in discussion groups, and being sensitive to course costs. DEIB Equity Plan

Making It Happen

In 2019, the Berkeley Graduate Division announced a Graduate Diversity Pilot Program directed toward combating racism and fostering diversity, equity, and inclusion. The college received a four-year grant of $175,000 to fund Making It Happen, a program assisting staff, students, and faculty in pursuit of systemic change. It provided crucial financial and moral support during years in which COVID-19 stretched budgets to their limits. Over the summer of 2021, graduate students and faculty launched the Making It Happen pilot pedagogy program to assess and improve course content to better reflect the department's commitment to diversity, equity and inclusion. Making It Happen includes the following initiatives:

- Increase representation of minoritized identities: Advance diversity among community stakeholders — including students, faculty, staff, visiting lecturers, visiting critics, and colloquium speakers — by reimagining and implementing diversity efforts in outreach, admissions, and recruiting. Expand our definitions of community stakeholders within and beyond the department.

- Support the student experience: Balanced wellness, sound mental health, and a sense of belonging to the community are crucial to building a positive student experience. The department is expanding existing services and improving their visibility, as well as developing new partnerships, workshops, and engagement opportunities to contribute to a more balanced and holistic learning environment with increased student experience satisfaction.
- Facilitate engagement with social justice movements: Throughout the nation, college students have called upon educational institutions to address the systemic biases within their departments, and to end their apathy and disengagement from social justice issues. The Department of Architecture is committed to building long-term partnerships with nonprofit and local community groups. This requires that we listen, build trust, and discover what it is that we as a department and as individuals can offer. We will pursue opportunities for students to engage with community organizations advancing social justice around the Bay Area.
- Improve the ways we teach: The acknowledgment of systemic racism in architecture and the effort to decolonize academia must be embedded within an overall redesign of the pedagogical approach of the department. It is critical that the Department of Architecture as a whole engages in self-reflective discussion about white-supremacy culture and how it manifests within individuals, the academic environment, and in the greater systems in which we operate. Developing this awareness and sensitivity are necessary complements to pedagogical redesign and the eventual transformation of both the academy and the profession of architecture.
- Revise the Department Equity Plan: In parallel to the work developed by the Equity Steering Committee, the Department of Architecture Plan for Equity, Inclusion, and Diversity was updated in 2023 to reflect department initiatives. To ensure that an equity advisor is available to attend at all meetings involving searches, hiring, and student admissions, the department will add a second faculty equity advisor. Appointment terms will be on a two-year basis, with a new advisor rotating in every year.
- Assessments: With the assistance of a graduate student researcher, we developed quantitative assessment metrics, starting with our historical demographics for comparison with our current profile. In addition, we will make qualitative assessments by monitoring student exit surveys, mid-semester design studio surveys, and syllabi changes. The university grant-funded the creation of a new database to be updated yearly with metrics on departmental demographics.
- Communication: Develop a website to communicate goals and actions. Develop forums and other modes to invite input from students and faculty.
- The Making It Happen web page is live and can be found here: Making It Happen - UC Berkeley College of Environmental Design

Briefly paused due to staff changes, Making It Happen will recommence in fall 2023 under the direction of the department faculty equity advisor, and the department manager.

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

Program Response:

The department and college are proactive in the area of disability justice. A newly formed endowed professorship, the Lifchez Professor of Practice in Social Justice, honors the importance of design education around accessibility and disability justice. This professorship rotates within the college and was held in the Department of Architecture 2021–2023. Chris Downey, founder of Architecture for the Blind, taught a graduate option design studio in spring 2022 and seminars in fall 2022 and spring 2023. The endowment purchased equipment for plotting embossed drawings that could be read by Downey and other blind architects. In spring 2023, the endowment supported two Lifchez Professors from MASS Design Group, Alan Ricks and Jeffrey Mansfield. Mansfield is a deaf architect, and the department supported ASL interpreters to assist with teaching their graduate option studio.

At the campus level, the Disabled Students Program (DSP) provides accommodation letters to any student with a physical or mental disability. DSP letters specify special accommodations, such as extra time on exams, reduced course assignments, reduced studio deliverables, etc. They also provide services such as sign language or other interpreters, note-taking, captioning, and assistive listening devices. Our faculty regularly respond to DSP issues in both studio and classroom settings. More information on DSP can be found here: Disabled Students' Program

The campus is committed to accommodating all students, faculty, and staff with disabilities, stating: "No one, on the basis of their disability, may be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any UC Berkeley program or activity." More information on these services and policies can be found here: Disability Services. The University of California nondiscrimination policy can be found here: Discrimination, Harassment, and Affirmative Action in the Workplace.

5.6 Physical Resources

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

Program Response:
The Department of Architecture is housed within Bauer Wurster Hall located on the southeast quadrant of campus. The building is shared with other departments and programs in the College of Environmental Design, the Department of Art Practice, and the Center for Environmental Design Research, an organizational research unit in the college. Most architecture classes are held in Bauer Wurster Hall, with the exception of very large lecture classes, which are held elsewhere on campus within easy walking distance. The ground floor includes spaces for public interaction and teaching, including a cafe, lobby for pin-ups and reviews, lecture hall, gallery, and classrooms. These are described in further detail below. The second floor includes the CED Dean's Office and departmental offices including the Department of Architecture. It also has a small seminar room, offices, and lab for the Center for Environmental Design Research, and shared resources such as a library, fabrication shops, a computer lab, the Environmental Design Archives, and a courtyard space. The majority of architecture faculty offices are housed on the third floor. The south tower of the fourth floor has additional faculty offices, used primarily by the History, Theory and Society (HTS) faculty, the HTS PhD and MS office, and classrooms. The fifth through ninth floors in the north tower are designated as studio spaces.

5.6.1 Space to support and encourage studio-based learning.

Program Response:

Studio Space

The north tower of Bauer Wurster is dedicated studio space. Architectural design studios for both undergraduate and graduate students occupy five floors of the nine-story tower. Studio space is essentially open, although in some cases it is partially subdivided by cross partitions. In most cases, partitions form a corridor between the studio bays on each side of the tower and are used for informal studio section pin-ups. Each student is assigned a desk and several large work tables are also available in each studio. Graduate studios on the seventh, eighth, and/or ninth floors occupy slightly less than 10,000 square feet. Most students change studio locations each semester. Each studio floor has a seminar room at the east end, generally referred to as "tube rooms" (because they resulted from the addition of a vertical structural tube that was part of seismic retrofitting at the beginning of this century).

While the studio space is spatially well suited to studio pedagogy, it is uninsulated and suffers from old infrastructure and gaps in maintenance. Maintenance to HVAC systems is handled by the campus facilities department, which is chronically understaffed. It can often be too cold in winter and early spring. This was especially true during COVID when we returned to in-person teaching and windows were kept open for ventilation, but is a recurring problem. In spring 2023, requests for repairs by the CED director of facilities were sufficiently escalated. Broken heat pumps were repaired and a new maintenance schedule established.

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

Program Response:
Didactic learning occurs both in spaces dedicated to the Department of Architecture as well as in shared college spaces. These include:

Lobby (CED)

The lobby is considered two areas. The entry lobby, which leads to the communication stair to the second floor and cascade stair to the rear courtyard, and the linear link that connects the north and south sides of the building. The link is roughly 2,222 square feet with walls lined with plywood for pinning drawings and 8' x 8 'x 2' repositionable mobile walls. This space is frequently used for studio and project reviews.

Lecture Hall (CED)

The largest lecture hall, Room 112, is off the main lobby on the first floor of Bauer Wurster Hall; it seats 155 on chairs and an additional 20 or more on stadium seating and stools along a mezzanine.The stage is accessible via a wheelchair lift. The space is intensively used by the college's three departments throughout the day, for public lectures, large lecture classes,

meetings, and symposia. A small lecture room, Room 102, is to the north of Room 112 on the same floor. Room 102 seats 75 and, while control is held outside the department, it is sometimes used for architecture classes and small public lectures.

Classrooms / Seminar Rooms (ARCH)

Four major classrooms are located along the west side of the ground floor: Rooms 170 and 172 on the south end, and Rooms 104 and 108 on the north end. Room 108 is used for studio reviews and small exhibitions. Rooms 170 and 172 have been renovated with new finishes, lighting, and furnishing since the last NAAB review and are the most popular classrooms in the college. They are in demand by other CED programs and are often fully booked. Rooms 270 and 370, small seminar rooms that are locked and kept clean, are also popular with students and faculty. Rooms 481 and 489 in the south tower are currently used as lab space for faculty. The plan is that these will be returned to classroom space in the future. The remaining rooms are used for regularly scheduled architecture classes as well as reviews and other non-regularly scheduled events. Most classrooms have one door, which limits their capacity to 49 people. The studio "tube rooms" mentioned in the Studio Space section above are controlled by the department and are used by studio faculty during studio and as seminar or class sections during non-studio hours. There is a need for larger classrooms in the college and the dean is currently working to solve this issue. The department controls its classroom scheduling. Below is a chart with room numbers, size, and capacity.

Designated Architecture Rooms:

Room #	Size (SF)	Capacity (# people)
104	1,070	49
108	798	49
170	1,197	75
172	1,068	49
270	375	15
370	484	25
481	1,091	49
489	1,088	49
501A	745	49
601A	1,120	49
701A	745	49
705	474	30
801A	612	49
901A	1,120	49

Exhibition Spaces (CED)

Exhibitions of student and other work are held in various spaces, including the first and second floor lobbies, Room 108, and Room 121, also known as the Bauer Wurster Gallery. Room 108, which is controlled by the Department of Architecture, is a lockable room that can be used for smaller exhibitions of art, photographs, furnishings, architectural photographs, and models, rotated throughout the semester. Room 121, also called the Bauer Wurster Gallery, is a 2,222 square foot-space on the east side of the first floor. It is used for large exhibitions and reviews. NIne large 8' x 8' x 2' and nine 8' x 6' x 2' moveable display panels are used to partition the first floor lobby link and the gallery.

Review Space (CED)

Reviews are conducted in the first and second floor lobbies, classrooms, and seminar rooms. They are scheduled by the department program assistant and scheduler, who coordinates the demands of various large groups on a first-come, first-served and curricular basis. The program would benefit from updating remaining classrooms similar to Rooms 170 and 172. The first floor lobby review space would also benefit from better pinnable surfaces and lighting. The dean is currently working on raising funds for these updates.

Labs

The building currently lacks a dedicated space for 1:1 prototyping or staging design-build projects. Students are able to use the woodshop, but it is restrictive for long-term projects. Faculty whose research centers on material development or fabrication processes also have a need for permanent lab space — these are temporarily housed in classrooms, offices, and off-site, but this is not ideal. As of spring 2022, the department has been working actively on solutions to this issue. We are in conversations with CEDR Director Gail Brager, who is also a ladder faculty, for shared use of the CEDR high-bay space in

Room 290, and with Sara Guyer, dean of Arts and Humanities, for Rooms 178, 180, and 180, which are currently dedicated to art practice.

Links to Bauer Wurster Hall floor plans can be found here for reference: Bauer Wurster Floor Plans

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

Program Response:
All ladder rank faculty members have individual offices ranging from 120 to160 square feet . Visiting professors and continuing lecturers share offices with the same range of sizes. If possible in any given semester, continuing lecturers and visiting professors may have an office for their exclusive use. Part-time lecturers typically share space with two or three other lecturers. Graduate student instructors share offices of 100 square feet.

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

Program Response:
Resources to support learning are administered by the college's Assistant Dean for Finance and Administration Susan Retta. These fall into three general categories, and are described in further detail below:

1. Information and Infrastructural Technologies (IIT), which covers computing resources.
2. Fabrication Services, which includes the Fabrication Shop, Digital Fabrication Lab, and Materials Store.
3. Facilities,which includes classroom and building management and AV/IT resources.

Information and Infrastructure Technologies

CED's IIT team is comprised of: an IIT Manager, a Business Technology Support Analyst, a Systems Administrator, a Student Technology Center Manager, an Applications Programmer, and Computer Resource Assistants (10 student employees). CED's infrastructure and information technology (IIT) team performs the following tasks:

- Administers computers, software, printers, scanners, and other CED-specific computing resources deployed in classrooms, computer labs, studios, and other community spaces.
- Provides IT support and guidance to CED faculty.
- Manages card key access to spaces within Bauer Wurster Hall.
- Processes fees for computing, printing, and fabrication services.
- Administers log-in access to computing resources associated with these services.
- Administers "IITAPP", an in-house, multipurpose database application used by IIT, fabrication services, and CED A/V to manage customers, track inventory, grant access to services, and process point-of-sale transactions.
- Upon request, collaborates with CED divisions on projects with network, server, software, or other computing requirements.

CED IIT Facilities

CED's IIT is comprised of the following facilities:

- **CED Student Technology Center (STC)** - The Student Technology Center (STC) in room 477 of Bauer Wurster Hall is the student-facing storefront and customer service front-end for IIT operations. The STC manager and her team of student computer resource assistants collectively provide tier-one support for computing and printing services in CED; process fees for computing, fabrication, and printing services; grant log-in access to computing resources; grant card-key access to spaces in Bauer Wurster Hall; triage incoming requests to the CED Help Desk; operate the high-end, photo-quality, wide-format ink-jet printer; and supervise the self-serve, wide-format sheet-feed scanner. During most weeks while classes are in session, CED students may visit the STC, Mondays through Fridays, 9 a.m. to 12 p.m. and 1 p.m. to 5 p.m.
- **Computer Labs** - IIT manages the computing resources in two computer labs: Room 214 (50 seats) and Room 479 (30 seats). Students with computing accounts (see "CED IIT Fees" below) may access the labs 24 hours a day, seven days a week, except when the rooms are booked for classes. In spring 2023, the labs were collectively booked for classes for a total of 15 hours each week, in the 9:30 a.m. to 3:30 p.m. range. A summary of the computing resources in these spaces appears elsewhere in this document.
- **Studio Computing Spaces** - Although the studio spaces on the third through the ninth floors of Bauer Wurster Hall are largely administered by CED facilities, IIT administers the computing subspaces (primarily desktop computers, 2D printers, and flatbed scanners) within these shared studio/classroom spaces. These resources are available 24 hours a day, seven days a week to students with card key access.

- **Server Room** - The CED server room (487) houses physical and virtual servers that host curricular and administrative services. The room is equipped with six one-GB hardwired connections, a robust power supply, and a cooling infrastructure.
- **Other Spaces** - CED IIT manages some computing resources deployed in other spaces in Bauer Wurster Hall, but not the spaces themselves: the Digital Fabrication Lab (DFL), graduate / PhD work rooms, the CED A/V office, and the video wall in the second floor lobby.

CED IIT Fees

Student fees, subject to central campus approval, are published online, posted in CED facilities, and included in new student orientations. These fees offset the operational costs associated with the corresponding service, e.g., hardware, software, consumables, materials, maintenance, repair, staffing, etc. CED IIT processes the following fees in the Student Technology Center.

- **Computing Account Fee** - Grants students 24/7 card-key access to two computer labs; log-in access to the shared computing resources in labs and studios; access to the Render Farm; access to the Remote Lab; a PaperCut account which, in turn, grants access to print (for a fee) to our fleet of laser printers and plotters from lab and studio computers; access to print PDF files (for a fee) to our fleet of laser printers via the PaperCut website from any computer. All students (undergraduate, graduate, and PhD) pay $98 per term (waived for undergraduates in 2022–2023 thanks to the generosity of donors); For graduate students, access to computing accounts is included in PDST (Professional Degree Supplemental Tuition) for those who pay PDST.
- **PhD Web Print Account Fee** - A lower-cost alternative to the computing account fee of $40 for PhD students grants PhD students access to print PDF files (for a fee) to our fleet of laser printers via the PaperCut website from any computer.
- **Digital Fabrication Lab Access Fee** - Grants students card-key access and log-in access to computing resources in the Digital Fabrication Lab (DFL). While most students pay $250 per term for access to the digital fabrication lab, this fee is included in the PDST fee for those who pay PDST. Not under the umbrella of CED IIT, the DFL is documented elsewhere in this report.
- **Fabrication Shop Access Fee** - Grants students access to resources in the Fabrication Shop. While most students pay $150 per term for access to the fabrication shop, this fee is included in the PDST fee for those who pay PDST. Not under the umbrella of CED IIT, the Fabrication Shop is documented elsewhere in this report.

Printing Prices

CED IIT utilizes PaperCut print management and accounting software. A PaperCut account is included with computing accounts and PhD web print accounts. Students can securely add print funds to their PaperCut accounts via credit card by visiting the PaperCut website, or, in person, by visiting the Student Technology Center, where they can add funds to their account via credit card or Apple Pay.

Printing prices (before sales tax) have remained constant since 2010, and are approved by the central campus committee responsible for direct charges to students. Fees are less than those charged by the popular local print shop, Inkstone. Printing fees offset the cost of consumables (ink, toner, paper, print heads, drums, etc.), repair and maintenance, and student staff salaries.

Printing Specs	Price: Single-Sided	Price: Double-Sided
B&W Letter-Sized Paper	$0.06	$0.09
B&W Tabloid-Sized Paper	$0.12	$0.18
Color Letter-Sized Paper	$0.37	$0.45
Color Tabloid-Sized Paper	$0.74	$0.90
Wide-Format Ink-Jet on Standard Paper	$1.55 / sq. ft.	n/a
Wide-Format Ink-Jet on Premium Paper	$3.94 / sq. ft.	n/a

CED IIT Technology

The CED IIT technology recommendations, requirements, services, and available equipment can be found here: CED IIT Information

Fabrication Services

The CED fabrication services consist of the Fabrication Shop, the Digital Fabrication Lab, and the Material Store.

Fabrication Staffing

The director of fabrication, Semar Prom, manages a team of professional staff titled "fabrication specialists". The Director of Fabrication, Semar Prom hold 1.0 FTE, and the 3 Fabrication Specialists hold 0.60 FTE each. In 2020, management of these facilities were consolidated for efficiency, budgetary initiatives, and improved student experience. Fabrication specialists had been part-time employees working two to three days per week; now they are full-time employees when classes are in session. Fabrication specialists are now cross-trained in all areas of the operation, giving students a more fluid experience when they need to use all services. Fabrication specialists have specialization in construction, wood and metal fabrication, and digital fabrication, and are experienced in teaching technical equipment.The CED fabrication operation prioritizes diversity and inclusion and we have a diverse team representing many identities.

Fabrication Shop

The Fabrication Shop was established in 1956 by James Prestini, a famed sculptor and wood craftsman. Located in 277 Wurster Hall, the 3,600-square-foot fabrication shop is housed in an open-plan space with soaring windows. It serves the needs of students requiring the modeling of three-dimensional designs utilizing an industrial woodshop, metalshop, concrete, moldmaking, and alternative materials support. Since 2010, the shop has undergone a change in management, expansion of services, installation of new equipment, and renovations. In 2015, a new Shop Yard and Paint Booth were built on the southeast side of the building. The Fabrication Shop is open five days a week for eight-hours a day (Sundays through Thursdays), from 10 a.m. to 6:30 p.m.. Student safety is the priority of the operation — with equipment such as SawStop saws (a brand of table saws that has technology to lower risk of traumatic injuries) and up-to-date machine guarding where applicable. All students must attend a two-hour mandatory safety and basic use orientation and complete an online course that covers shop policies and safety practices before access is granted. Student participation is limited by a 20:1 (student to staff) ratio for safety. Advance orientations for metal fabrication are provided on an as-needed basis. Current access fees for undergraduates is $150/semester, with no cost to graduate students thanks to department subsidies. This fee covers the cost of supplies/consumables (sand paper, glue, nails, etc.), maintenance (saw sharpening, repairs), tool replacement, and staffing; but doesn't cover all costs. Operational costs of the Fabrication Shop are subsidized by departments and the Dean's Office.

- Woodshop: The industrial woodshop revolves around three SawStop industrial model table saws, an 18" jointer, 24" planer, and wide belt surface sander. Other equipment includes a radial saw, miter saw, nine workbenches, and a variety of smaller power tools.
- Metalshop: The metalshop occupies one-third of the Fabrication Shop, hosting an assortment of metal cutting, bending, drilling, and sanding tools, as well as a machinist lathe and vertical mill. The foci of the metal shop are the welding machines: two MIG welders, a TIG welder, a spot welder, and a plasma cutter. All safety supplies, including welding helmets, jackets, pants, and gloves, are provided to students.
- Tool Wall: The tool wall in the Fabrication Shop provides self-service access to hand tools, measuring, layout, drills and drivers, consumables, hardware, and additional PPE.
- Shop Yard and Spray Booth: Outdoor spaces for doing wet/dirty work or projects that need more space. The shop yard is equipped with power, water, and compressed air. The Spray Booth is an 8' x 12' walk-in booth for finishing with spray paint and/or water-based and solvent-based finishes.

Digital Fabrication Lab (DFL):

In 2010, the CAD/CAM Lab was housed in room 481 Wurster Hall, and was a fully student-run operation. Graduate students scheduled the use of the lab, trained others on how to use the machine, conducted modest repairs, and organized consumables ordering. By 2014, the lab grew to include s: a professional manager; a part-time machinist to maintain equipment; mechanicians to train students, review print/cut files, and oversee equipment use; and a formal online scheduling system.

In 2014, CED opened a new 1,500-square-foot Digital Fabrication Lab (DFL) , in part due to a bequest from Vernon DeMars (BA Architecture 1931), celebrated architect and co-founder of the College of Environmental Design. The construction of the new facility was helped by in-kind donations of design and construction expertise by alums Mark Cavagnero (of Mark Cavagnero Associates) and Tom Mead (formerly of WebCor Builders). To operate the DFL equipment, there are 13 computers (from tablets to desktop), specialized software, and digital cameras over each laser cutter and 3D printer.

Undergraduates have access during staffed hours (five days a week, Sundays through Thursdays) for eight hours each day. Graduates have 24/7 access to laser cutters and 3D printers. Undergraduate access cost is now $250/semester; there is no cost to the student for graduate access due to department subsidies; fees cover the use and repair of equipment, hardware consumables, staffing and infrastructure (including computers, compressed air, etc.). Additionally, students pay for filament for 3D printers and base materials. Prior to 2021, students needed to purchase bits/blades for the CNC router and Zund cutting system. Currently consumables for the CNC and Zund are provided, unless specialty processes are needed. All students must attend a 90 minutes Safety and Basic Use orientation as well as completing an online course that covers lab policies and safety practices. Advance orientations to the CNC and Zund are provided to students on an as needed basis. Fees for PLA 3d printing are calculated per-gram ($0.08/gram) plus a $1 service fee.

Plastic Printers: In 2010, one plastic FDM printer was intermittently available for student use and under constant repair; in 2015, there were eight. Currently, we have 20 Prusa FDM printers to meet demand. Print management via 3D Printer OS allows cloud printing for students. Service fees reduced from $2 to $1 per print and cost of filament reduced from $0.11/gram to $0.08/gram at the start of fall 2022 to reduce printing costs for students. Students can make appointments with fabrication specialists for multipart printing ,so that they aren't charged the service fees on every part. Since spring 2022, an initiative to reduce plastic waste achieved a 20% reduction by switching to a filament manufacturer that uses less plastic packaging. The DFL predominantly uses PLA filament because it does not produce harmful fumes/particulates. The DFL offers 12 Prusa MK3 printers and 8 Prusa Mini printers.

Laser Cutters: In 2010, the Department of Architecture faculty had purchased two laser cutters; by 2015, the department had bought three more and CED-IIT purchased one. There is an online scheduling system for students to reserve laser cutters. The DFL offers 6 laser cutters: 1 Universal Laser Systems (ULS) ILS 12.150D printer, 2 ULS X-660 printers, 2 Universal PLS 6.75 printer, and 1 V460 Laser System.

CNC Router: The CNC router is used for 2D and 3D cutting of solid wood, plywood, and foam. It is utilized by students for furniture making and site models. Prior to 2020, students needed to purchase their own bits for their projects, but bits are now provided for students to lower the cost of access. The DFL offers 1 Techno-Isel 3-axis CNC router.

Blade Cutters: In 2014, the Department of Architecture purchased a Zünd blade cutter to be installed in the DFL. This machine is able to make blade-based cutting, routing, and creasing on a variety of materials such as paper, cardboard, foam core, chipboard, thin veneer plywood, thin plastics, coroplast, and certain fabrics. A variety of cutter tools are available (see chart below) and will expand with time. Prior to 2020, Zund blades needed to be purchased by the students; currently the blades are provided to lower the cost of access. The DFL offers 1 Zund S3 M-1600 Blade Cutter.

Materials Store

The Materials Store was built as a partnership between CED and the Educational Opportunity Program in the Division of Equity & Inclusion, which provided a grant to initiate the build and base stock for the store. Located in the hallway leading to the Fabrication Shop, the Materials Store is a place where CED students can purchase wood, plastic, paper, metal, large-format materials, casting supplies, and other materials to use in the Digital Fabrication Lab and Fabrication Shop. Over time, it is expected that the store will carry other supplies uniquely required by CED students.

The Materials Store's goals are:

- To provide relevant, premium materials, at discounted prices
- To have on-site resources for convenience of time and transportation
- To increase efficiency with pre-processed materials for equipment in the shop and DFL
- To contribute to sustainability practices by enabling students to buy only what they need and thereby reduce waste
- To help subsidize the undergraduate fee waivers program
- To assist students as an educational tool

The Material Store is a not-for-profit operation. While not a wholesaler, the Materials Store does negotiate for volume cost reduction and net revenue generated from the store is distributed 60% to fund the undergraduate fee waiver program for low-income students and 40% is returned to subsidize the store cost.

Facilities & Audio Visual Services

Facilities oversees building infrastructure, including classrooms and classroom equipment.

Facilities Staffing

CED Facilities Director Mike Bond manages a team of three career full-time staff and seven work-study students who serve the occupants in Bauer Wurster Hall. Facilities also includes the audio visual Team, which is led by AV Manager Jeff Allen, who reports to Mike Bond. As the CED Facilities Director, Bond oversees the general operations of Bauer Wurster Hall, CED events, building/student safety and emergency response program, ergonomic services, ADA compliance, facilities infrastructure upgrades and renovations, relations with outside vendors such as the cafe in the building, and our architecturally historically significant off-campus property, Havens House. Bond and his team are considered essential employees by the university and the college and are here throughout the entire year, even when classes are not in session. As diversity is of the utmost importance, Bond's team is made up of men, women, and nonbinary staff and students who identify with a wide variety of communities.

Student Safety

At the beginning of each semester, the facilities director meets with all incoming students during orientation to review building safety and emergency procedures. The university offers services such as a late night safety service to walk students to and from the building to their car, bike, ride-share, or even house (within a certain miles radius). The university also has an on-site student health center, the Tang Center, where students can receive basic medical attention and health-related education.

Havens House

Perched on Panoramic Hill just above the UC Berkeley campus, the Weston Havens House, a masterpiece of 20th-century California modernist architecture, is currently used as a residence for distinguished visiting CED professors and as a site for studio investigations and projects. The house is under the stewardship of the College of Environmental Design (CED) and is managed by CED Facilities Director Mike Bond. In addition to being used as a temporary residence ,Havens House is also used for small CED events, meetings, and as an educational tool for instruction. Recently, we have held several classes on architectural history and architecture in the LQBTQ community at the house. We also offer tours of the house to the public, at $20 per person, and regularly receive guests from all over the world.

CED Audio Visual Services

The CED audiovisual team provides AV equipment and services for all CED students, faculty, and staff. The team is under the supervision of the CED Facilities department and is managed by AV Manager Jeff Allen and his assistant, Ben Peterson. Some of their main tasks include providing AV support in classrooms, o-line support for Skype/Zoom classes/lectures, live support for reviews, recording services, running sound/video for evening lectures, and organizing live sound for large conferences and special events. AV also runs a loan office and regularly loans out items such as white boards, monitor carts, microphones, cables, sound systems, and computers from its office in Room 103 Bauer Wurster Hall. AV office hours are 8:30 a.m. to-7:30 p.m., Mondays to Fridays.

Audiovisual Equipment in Architecture Spaces

CED AV manages and maintains the audiovisual services in seven classrooms and four large design studios. Architecture classrooms come equipped with up-to-date LED Epson 2K projectors and sound bars for audio with centralized cabling/ access for instructor and student usage. Design studio spaces have eight 55” 4K monitors on carts that can be checked out for classes and an additional three 65” Zoom carts for mobile hybrid class instruction on a need-to-use basis. CED AV also manages sound and lighting, live streaming setup/recording, and filming/recording in our main lecture hall, Room 112.

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

Program Response:

The UC Berkeley campus offers in-person instruction for the vast majority of classes. The Committee on Course Instruction (COCI) approves all courses, and will approve online or hybrid formats where appropriate. Zoom accounts are provided to all faculty, staff, and students free of charge to enable these forms of teaching.

The department offers two professional classes in an online format. These include the colloquia ARCH 207B Architecture and Urbanism and ARCH 207C Professional Practice. 207B is a companion to ARCH 201, a studio that focuses on the interface between building and city. ARCH 207B includes lectures by architects and urbanists from around the world, and so works best in an online format. Similarly, ARCH 207C is the companion to ARCH 203 Integrated Design Studio, and includes lectures by professional architects, as well as engineering, life safety, and other consultants on integrated building design that help fulfill NAAB learning objectives. The online format allows more flexible scheduling for the studio consultants and industry professionals without sacrificing course content.

The professional program also offers two hybrid courses, ARCH 200C and 200D Architectural Representation. These courses are on digital media and modeling, some of which is best taught online. Students complete technical training videos online and have an in-person class once a week to apply lessons learned to specific course and studio assignments.

5.7 Financial Resources

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

Program Response:

The Department of Architecture distinguishes between the various undergraduate and graduate programs in terms of income and expenses in order to adhere to the terms and conditions of various funding sources. In order to properly support our students, this means that in certain years there may be a carry forward balance in certain funds while we are pulling from reserves in others. There are many income sources used in the MArch program and shared with the other programs in the Department of Architecture. The summary below shows the department’s overall income and expenses for the last three years, which include base operations and limited use funds. However, the last three years are not fully representative of annual expenses in prior or future years, due to the lack of student travel and in-person events in years 2020–2022 and a series of staff vacancies in 2022–2023.

	2020-21	2021-22	2022-23
Income (in thousands)			
Campus Support	6,511	5,953	6,185
PDST Tuition	1,060	1,307	1,463
Other Income*	1,690	2,624	1,384
TOTAL Income	**9,261**	**9,884**	**9,032**
Expenses (in thousands)			
Compensation			
Salaries	5,044	4,778	4,807
Benefits	1,588	1,478	1,476
Non-Compensation			
Student Aid**	448	678	841
Fee Remissions	378	347	328
Supplies & Expenses	83	134	90
Other Expenses	190	245	350
TOTAL Expenses	**7,701**	**7,660**	**7,892**

*Other Income includes Arch Annual Fund, Summer Sessions, Academic Research Support, and Gifts & Endowments.

**The Department also provides Student Aid through Block Grant, which is housed within Graduate Division and provides roughly $330,000 in additional student aid each year.

Each August carryforward balances from the prior fiscal year (July–June) and permanent budget (funding that recurs annually) are transferred by university administration to departments. The university transfers some funding to CED, which allocates funding to the four departments based on need and expenses. Income from endowments and gifts are transferred either annually in August or quarterly depending on the fund terms.

MArch students are charged Professional Development Supplemental Tuition (PDST) on top of UC Berkeley tuition. The PDST is $3,986/semester. Revenue from the fee is transferred to the Department of Architecture in August for the fall semester and between November and January for the spring semester. The Department of Architecture receives 100% of the PDST paid by students in the MArch program, which it uses to support students, faculty, and staff. The department allocates a minimum of 33.3% of the total PDST towards student aid. In past years, the 33.3% was reached through a combination of PDST, endowments, and gift funds. Beginning in 2023–24, 33.3% of PDST will support student aid, which is also supported by other endowments and gifts. The Department of Architecture also pays for shop, DFL, and computer access for each MArch student, which equates to 12.7% of the PDST paid by students. An additional 10% is sent to the CED Dean's Office for various college-level expenses. The Department of Architecture allocates the remaining funds to salaries of MArch graduate student instructors, lecturers teaching in the MArch program, graduate student advisors and staff who support the program, lecturers/exhibitions, and MArch final reviews.

Expense Categories over Which the Program has Control or Influence

- Temporary Instruction Costs: lecturer (non-ladder rank faculty) salaries/benefits and GSI (Graduate Student Instructor) salaries/fee remission.
  - The number of lecturers and GSI positions are dependent on student population and available ladder-rank faculty members. Ladder-rank faculty sabbaticals, course releases for administrative positions, teaching or service overloads, and a steady decline in ladder-rank faculty FTE in recent years all increased the need for temporary instruction.
  - Temporary instructor salaries are set by an agreement between the lecturers/GSIs unions and the university based on experience as determined by the Department Chair.
  - GSIs are paid a salary and have their tuition fees waived. Typically, PhD students with GSI appointments have a 50% appointment, which translates to 20 hours per week. They teach two sections of a large lecture course, for which they are a lead GSI. MArch students with GSI appointments have 25–40% appointments, which translates to 10 to16 hours per week. They teach one to two sections of a large lecture course or a section of an undergraduate sophomore design studio. Given the academic workload of MArch students, the department does not support MArch students with GSI appointments above 40%.
- Financial Aid - Packages offered at time of admission and ad hoc aid approvals are determined by the department chair, MSO, and graduate student advisors. Most of the funds used for financial aid come from restricted sources aimed solely at student aid.
- Travel - Course travel budgets are set by the chair and MSO in consultation with faculty members and include the maximum amount that will be reimbursed per instructor and per student. The department has endowments that are used specifically to support student travel. Other travel expenses include airfare and lodging for lecturers in the department's

public lecture series and for out-of-town guests invited to final reviews. This amount fluctuates depending on the number of invited guests and funding capacity.
- Conferences/Events/Entertainment (Food and Drink)- This amount fluctuates depending on the number of lectures/ exhibits and the number of critics participating in final reviews. The Department of Architecture also provides funding to the Graduate Architecture Student Union (GASU) for social and community-building events.
- Non-Employee Payments/Honoraria - This amount fluctuates depending on the number and status of reviews, events and courses, and other guests.
- Publications and Media - The Department prints a minimal number of MArch thesis / studio one final review booklets. These documents are also posted on the department website. The department also supports printing costs for *Room 1000*, the graduate architecture journal.
- Equipment - Most often, equipment is purchased when current devices are no longer effective and cannot be repaired. Occasionally, the department will purchase new equipment to stay current with emerging technologies.

Revenue Categories over Which the Program has Control or Influence

- Summer Session Income - Architecture courses taught in the summer generate revenue, dependent on enrollment and salary expenses. This source is influenced by managing the content of the courses offered and prioritizing high-enrollment courses. In recent years, the department has run courses with minimal enrollment in order to provide students with an opportunity to stay on track.
- University Extension Income - Income is generated by approving enrollments of University Extension students in architecture courses (concurrent enrollment).
- Professional Development Supplemental Tuition - Currently, there is no income directly tied to student population in the department of architecture across the BA, MS, and PhD programs. The department receives the PDST paid by each MArch student.
- Incremental Tuition Share - As an incentive to grow professional degree programs, the university entered into a tuition share agreement with the department to increase MArch? enrollment above 113 students. The department receives a share of the campus tuition for each additionally admitted student. This has allowed the department to grow the MArch program to around 175 students and receive incremental tuition from campus for 62 of those students.
- Annual Fund Income - These funds are sought by the CED development and alumni relations office and are unrestricted in their terms. Efforts are ongoing to increase this revenue stream.

Scholarship, Fellowship, and Prize/Award Funding for Students

The Student Scholarship Endowments and Payouts table linked below summarizes student financial aid funding managed by the Department of Architecture, including competition-based awards. These funds are restricted and issuance of aid and/or awards must adhere to the terms and conditions of the endowment. Graduate fellowships are based on academic merit primarily and secondarily on financial need as appropriate. The bulk of funds for awards is derived from the interest generated from endowments designated for student aid. Out of the total listed in the table linked below, roughly $600,000 is restricted to student-related travel and was therefore unable to be used over the last three years due to COVID.

A table of student financial aid funding managed by the Department of Architecture can be found here: Student Scholarship Endowments and Payouts

The Department of Architecture offers graduate fellowships based on financial need as well as academic merit. The bulk of the funding for the awards is derived from the interest generated from departmental endowments as well as PDST and university and government sources. The largest singler endowment, the Allen Fellowship, generates approximately $350,000 annually. In addition, the university awards the department approximately $330,000 in Block Grants, which are paid from various university endowments.

Most of the fellowships are used to recruit newly admitted students to the program; financial aid offers are based on applicant ranking within the admissions pool and are usd to encourage diversity and excellence in our program. Fellowship packages range from all tuition and fees, including PDST, for the entire length of their program to a specific dollar amount. For those with awards longer than one year, the additional years can be supplemented with graduate student instructor (GSI) positions, which pay a salary and provide tuition and fee remission.

In addition to the fellowships, architecture graduate students may also receive prizes and awards based on academic merit, which are administered through the College of Environmental Design. A list of all awards available to students can be found here:Architecture Prizes and Awards. The John K. Branner Traveling Fellowship, an application-based competitive award, supports independent travel in exploration of a particular architectural question or issue.

Financial Resources for Faculty

Start-Up Funding
Newly hired ladder-rank faculty are given financial start-up packages that may be used to support research and teaching through a number of avenues, including, but not limited to, hiring students, summer salary payments, and purchasing of equipment. The packages generally include the following:

- A recruitment allowance from the central campus that is available for payout to the faculty member. The primary purpose of this funding is to assist with housing costs, as the San Francisco Bay Area has one of the highest housing indexes in the country. However, this funding may also be used to support expenses related to childcare, education or tuition assistance, or similar purposes. Currently the amount provided by the central campus is $75,000. The allowance may be paid out in a single or multiple installments within the first 10 years of appointment.
- Research funding is provided by both the central campus and the Department of Architecture as part of the start-up package. This funding is for research purposes, office furniture, computers, etc. The current amount provided per faculty is $75,000.
- The Mortgage Origination Program (MOP) was implemented by campus to aid new faculty in financing the purchase of a home. Authorizations for MOP loans are good for one year.
- The Zero Interest Supplemental Home Loan Program (ZIP Loan) is a newly established loan program. ZIP loans are secured secondary financing for the purchase of a principal place of residence. ZIP loans have no monthly payments, zero percent interest, and forgiveness of 10% of the principal each year the faculty member is in good standing at Berkeley. Faculty can convert up to $60,000 of their FRA into a zero-interest forgivable home loan. The ZIP Loan and MOP can be used in conjunction and may represent up to 95% of the value of the residence being purchased.
- A supplemental housing loan of up to $45,000 can be used in conjunction with the MOP loan to buy a home with a purchase price of $900,000 or less. The Supplemental Housing Loan Program cannot be used in conjunction with the ZIP loan.
- The College of Environmental Design will pay for moving related expenses, including airfare, up to $20,000.

Other Financial Resources for Faculty

The department, college, and campus provide a number of other financial resources for existing faculty. This includes:

- Berkeley Excellence Accounts for Research (BEAR) Funding is research funding program for ladder rank faculty that replaced a long-standing funding program from the Academic Senate's Committee on Research (COR). This funding, which campus implemented in 2014, provides eligible faculty with $2,000 per semester. Part-time ladder rank faculty are given funds in proportion to their percentage of appointment. Ladder rank faculty who are appointed to endowed chairs with an annual payout of $10,000 or more are not eligible for BEAR funding. Ladder rank faculty are able to carry forward a balance of $6,000 or less.
- The Joan E. Draper Architectural History Endowment supports teaching, research, and creative activities of faculty and scholars in the area of architectural and urban history and conservation of history records and images. Each fall, the department chair sends out a call letter to architecture faculty, graduate students, and the director of the Environmental Design Archives asking for proposals for Draper funding. Awards are then distributed, with at least 20% being directed to the Environmental Design Archives, per the donor's wishes.
- The Charles Moore Endowment for the Study of Place yields approximately $20,000 per year and supports "programs that address humanistic value as a basis for place-making, learning principles from the history of many cultures, and from the close study of existing places." The department sends out a call letter to faculty each fall asking for proposals for course travel supported by the Moore fund. Proposals are awarded each year to support travel expenses for faculty members and participating students.

Endowed Chair Funds

- **Eva Li Chair** - Established in 2003, this chair holds an annual revenue (FY2022–2023) of $26,000 and is held by Ronald Rael. As stated in the fund terms, to "advance the study of architecture with a preference for investigations that examine the ethical consequences of design processes and decisions in personal, cultural, and ecological terms." Income may be used for "program support, graduate student staff, support of visiting lecturers, publications, etc."
- **David Woo Chair** - Established in 2011, this chair holds an annual revenue (FY2022–2023) of $49,000 and is held by Professor and Chair Lisa Iwamoto. As stated in the fund terms, to "support the work of an eminent faculty member in the College of Environmental Design…to support faculty compensation, and the remainder would be used to support graduate students and to provide discretionary research funds for the chair holder."

Funding from Other UC Berkeley Divisions/Departments

- The UC Berkeley Center for Teaching & Learning provides many funding opportunities for faculty and graduate students. A list of these is below and more information is available at
  - Distinguished Teaching Awards
  - Presidential Chair Fellows
  - Lecturer Teaching Fellows Programs
  - Teaching Excellence Colloquium
- **Vice Provost for Faculty** - Provides several faculty fellowships outlined here: Faculty Fellowships
- **Freshman/Sophomore Seminar Incentive** - Senate faculty and emeriti receive a $3,000 unrestricted research grant for teaching a freshman/sophomore seminar in addition to their regular teaching load. Additional information can be found here: Freshman & Sophomore Seminars - Information for Faculty

- **Berkeley Connect Research Grant for Director & Assistant Director** - The director and assistant director of Berkeley Connect in the Department of Architecture receive research grants annually of $3,000 and $1,500 respectively.
- **Arts Research Center Opportunities**
- **Townsend Center for the Humanities** - Provides multiple funding opportunities for faculty and students: Townsend Center for the Humanities

Summary of Planned or In-progress Institutional Development Campaigns

In 2023–2024, the campus will be in its final year of a six-year Light the Way Campaign. Campaign priorities include faculty and students, focusing on endowed FTE and doctoral/professional fellowships; undergraduate opportunities; research for the public good around data science, energy/climate/environment, democracy and equality, innovation and entrepreneurship; and investing in restoring campus buildings. The university has already reached the $6 billion dollar goal, but development is neverending.

The College of Environmental Design has several priority areas for fundraising:

- Tech access
- Design/research gifts
- Visiting Professors of Practice or early career teaching fellowships; depending on the department chair, these can be designated for the MArch program
- Graduate fellowships
- Facilities renewal, including fundraising to renovate the lobby as an MArch review space Endowed administrative chairs

In addition to individual philanthropy, we are exploring a corporate affiliates program for current use fundraising — tentatively called Partners in Environmental Design. Funds will not be targeted for the MArch program but will be used to support college infrastructure that ultimately benefits the MArch program.

Changes in Funding and Expenses

There are two recent unfunded mandates that impact expenses in future years. They are the following:

- UC-AFT Contract: In December 2021, a new agreement between the University of California and the American Federation of Teachers, the union that represents the lecturers was reached. The contract has mandated salary increases over the next three years. This impacts the expenses of the department on the order of a 10% increase over the course of the next three years for ecturer salaries.
- UC-UAW Contract: In fall 2022, the University of California and the United Auto Workers Union who represent Graduate Student Instructors (GSIs) and Graduate Student Researchers (GSRs) reached an agreement that created a roughly 25% increase in the cost to hire a GSI or GSR. As a result, the department is able to support fewer MArch students through GSI and/or GSR positions.

5.8 Information Resources

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

Program Response:

The Environmental Design Library — a subject specialty library within the UC Berkeley Library system's Social Sciences Division — is one of the premier design libraries in North America. It supports the research and instructional needs of the departments and research centers in the college. The library's collection includes nearly 220,000 monographic volumes,125,000 of which are held off-site in the University of California's Northern Regional Library Facility and can be delivered to campus within 24 hours. The library also maintains subscriptions to 150 current print serials.

Students and faculty have full access to the University of California's 35-million volume monographic collection, more than 1,400 electronic databases, and tens of thousands of electronic journal subscriptions. The Environmental Design Library's strengths in architecture include history, theory, and practice; housing; vernacular architecture; building science; structures and construction; green design and sustainable architecture; social factors in architectural design; and design methods and processes. The library collects at the research level as defined by the American Library Association and holds most periodicals listed in the Association of Architecture School Librarian's Core Periodicals List.

Our rare book collection consists of nearly 5,000 volumes, which are being digitized for preservation and access, and includes early treatises, limited editions, materials with original reproductions or fine bindings, and artists' books. The rare book collection is housed in a secure climate-controlled room adjacent to the library in Bauer Wurster Hall and includes materials from the libraries of noted architects, landscape architects, and firms, such as John Galen Howard, Beatrix Farrand, Mai Arbegast, Frederick Law Olmsted and F.L. Olmstead, Jr., Greene and Greene, and William Charles Hays.

The College of Environmental Design provides the library 14,000 square feet of space and the University Library pays for staffing and collections. The UC Berkeley Library also provides information technology and acquisition and cataloging services. The collection is cataloged according to OCLC standards and our holdings are included in national catalog databases and the ten-campus online catalog, UC Library Search. Borrowing policies can be found at UC Library - Borrow and Renew and include the ability for faculty and students to request material from any of the University of California's more than 50 libraries and have it delivered directly to the Environmental Design Library.

Collection Funds*	3/3/23	Use
Monographs (state funds)	$71,640	books
Serials (state funds)	$37,035	journals
Donations	$6,714	books
Endowment s	$68,920	books and journals
Total Collections	184,309	
Operational Funds (1)		
Academic Staff (state)	$148,137	1 librarian salary (and benefits)
Professional Staff (state)	$175,539	2 staff salaries (and benefits)
2.5 FTE student assistants (state)	$82,500	Student wages
Total Operations	$406,176	
Other		
Undesignated gift funds thru College	$10,600	Furniture, exhibits
Elizabeth Byrne Endowment Funds	$7,875	Furniture, exhibits
TOTAL	$608,960	

*Collection funds do not include centrally funded electronic packages (such as Cambridge, Oxford, Sage Wiley and Springer journals or Project Muse and Taylor and Francis monographic packages.)

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

Program Response:

The Environmental Design Library is one of four campus full-service "hub libraries" and is the hub for UC Berkeley Library's Social Sciences Division (which also includes the anthropology, business, and social welfare libraries). It shares resources with the Social Sciences Division, but dedicated personnel include the equivalent of 1.0 FTE librarian, 1.0 FTE library assistant and 1.0 FTE circulation supervisor.

- Environmental Design Librarian (1.0 FTE)
- Technical Processing Lead (0.5 FTE)
- Chief Operations Manager (0.5 FTE)
- Circulation Supervisor (0.5 FTE)
- Evening/Weekend Circulation Supervisor (0.5 FTE)

David Eifler has been UC Berkeley's Environmental Design librarian for 15 years, holds a second master's degree in City and Regional Planning, and was recently awarded UC Berkeley's Distinguished Librarian Award. He delivers more than 50 in-person library instruction classes annually, ranging from citation management skills workshops to course-specific classes. The library's technical processing lead and operations manager each have more than 15 years' experience with UC Berkeley libraries and are college graduates; one has a Master of Library and Information Sciences. They are responsible for processing materials, overseeing circulation, and supervising student employees.

During the semester, the library is open 73 hours a week and students have in-person and email access to the librarian between 9 a.m. and 5 p.m., Mondays through Fridays. The circulation desk is staffed by two employees at all times, who often serve as the first line of reference response. The UC Berkeley Library also operates a 24-hour chat service for basic questions, with referrals to subject liaisons for more complex questions. The library's hours of operation during the semester are 9 a.m. to10 p.m. Mondays toThursdays; 9 a.m. to-5 p.m. Fridays; 1 to 5 p.m. Saturdays; and 1 to 10 p.m. Sundays.

6—Public Information

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

6.1 Statement on NAAB-Accredited Degrees

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

Program Response:
The Department of Architecture and the College of Environmental Design provide publicly accessible information regarding degree programs, admissions, and other career information online. This includes: information from the NAAB Conditions for Accreditation, 2020 Edition, Appendix 2 is found on the Accreditation and Licensure page of the CED website; the statement on NAAB-accredited degrees is found on the Master of Architecture page under Accreditation/Licensure.

6.2 Access to NAAB Conditions and Procedures

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

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

Program Response:
The Department of Architecture website includes information and documentation on NAAB Conditions and Procedures. The following documents are available under theAccreditation and Licensure portion of the CED website.

- 2020 NAAB Conditions for Accreditation (present conditions for accreditation)
- 2020 NAAB Procedures for Accreditation (present procedures for accreditation)
- 2014 NAAB Conditions for Accreditation (in effect at time of last visit)
- 2015 NAAB Procedures for Accreditation (in effect at time of last visit)

6.3 Access to Career Development Information

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

Program Response:
The Department of Architecture website gives students and graduates access to information regarding Careers and Work Opportunities. It includes resources on the following topics:

- Job and internship opportunities
- Architecture news and community
- Licensure and career development
- Handshake: UC Berkeley's recruiting platform
- Career counseling
- CareerMail newsletter: A biweekly newsletter that includes relevant career insights, upcoming UC Berkeley Career Center events, opportunities beyond the Career Center, employer info sessions, and job/internship postings.

6.4 Public Access to Accreditation Reports and Related Documents

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

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

Program Response:

The Accreditation and Licensure page on the CED website includes the following documents:

- All Interim Progress Reports and narratives of Program Annual Reports submitted since the last team visit:
  - 2021 Interim Progress Report - Plan to Correct
  - 2020 Interim Progress Report
  - 2019 Interim Progress Report
  - 2018 Interim Progress Report
  - 2019 NAAB Program Annual Report
- 2022 NAAB Decision Letter
- The Architecture Program Report submitted for the last visit
- The final edition of the most recent Visiting Team Report, including attachments and addenda
- NCARB ARE pass rates

Statements and/or policies on learning and teaching culture can be found on the About the Department of Architecture page on the CED website. The Diversity page of the website includes the department's stance and policies on diversity, equity, and inclusion. This includes the departmental goals and pledges as well as Making It Happen, the department's efforts towards designing an inclusive architecture education.

6.5 Admissions and Advising

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

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

Program Response:

The CED Graduates Admissions page includes all documents required for admission. These include application forms, deadlines, and instructions for CED and UC Berkeley. There is a list of all prerequisites and all required application materials. The MArch Admissions page includes application requirements, admissions criteria, process of evaluation of pre-professional degrees, and information about advanced standing applicants and transfers. The CED Financial Aid page includes information on fellowships, student employment, prizes and awards, and FAFSA resources. The Resources section of the CED website includes a list of awards, scholarships, and fellowships available to students. Diversity initiatives and their effect on admissions are addressed in the program's Diversity page.

6.6 Student Financial Information

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

Program Response:
The CED Financial Aid page includes information on fellowships, student employment, prizes and awards, and FAFSA resources. The Resources section of the CED website includes a list of awards, scholarships, and fellowships available to students. The Tuition and Fees page of the website includes information on the professional degree supplemental tuition, California residency, additional material costs, estimated expenditure forms, and CED materials fees. The MArch Admissions page includes a subsection with the following information:

- Student tuition, fees, charges, and budgeting
- Tuition and fees
- Graduate Student Instructor appointments
- Graduate Student Researcher appointments
- Student Assistant appointments
- Graduate Fellowships
- Other forms of financial aid
- FAFSA

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

Program Response:
The information in the Tuition and Fees page mentioned above in conjunction with the Cost of Attendance page gives students an initial estimate for all costs associated with the program.

FULL TIME FACULTY RESUMES

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Mark S. T. Anderson

Courses Taught: (Four semesters prior to current visit)**:**
ARCH 204A: Thesis Prep
ARCH 204B: Thesis Studio
ARCH 100C: Advanced Undergraduate Studio, Urban Emphasis
ARCH 269: Construction Seminar, "*Drawing on Construction Series: Heavy and Mass Timber"*
ARCH 201: Architecture and Urban Design Studio

Educational Credentials:
BA History and Asian Studies, Pacific Lutheran University, Tacoma WA 1982
M.Arch, Harvard University Graduate School of Design, Cambridge, MA 1986

Teaching Experience:
University of Hawaii, Assistant Professor/Associate Professor of Architecture, 1997—2001Design **(**Studios, drawing courses, construction technology courses)

University of California, Berkeley, Asst./Assoc./Professor of Architecture 2001—present **(**Design Studios, drawing courses, construction technology courses)

Visiting professorships including frequently at Northwest Polytechnic University, Xi'an, China; and Krakow Polytechnic University, Krakow, Poland**)**

Professional Experience:
1983-present, Bay Pacific Construction, Seattle, San Francisco (design and construction projects in Washington, California, Japan)
1991-present, Anderson Anderson Architecture, Seattle, San Francisco (completed building projects in United States, Japan, China; Museum and gallery installations/exhibitions in Americas, Asia, Europe; numerous national and international design awards, publications)

Licenses/Registration:
California, Washington, Hawaii; (architecture and general contractor license dates vary per current projects)

Selected Publications and Recent Research:
Anderson Anderson, Architecture and Construction, Princeton Architectural Press, 2001
Prefab Prototypes, Site-Specific Design for Off-Site Construction, Princeton Architectural Press, 2006
Proceedings of the Conference on Architecture and Civil Engineering, Singapore, Co-Editor-in Chief, ten volumes 2008—2018, World Scientific Publishers, Singapore
Wall Horn, Exhibition Catalog, Smith College, 2019
Current design and research emphasis in heavy timber and mass timber construction, modular construction and building system development, and in numerous drawing, fabrication and book projects

Professional Memberships:
Elected to College of Fellows, American Institute of Architects c.2010
Elected as Fellow of Modular Building Institute c.2016
Peer, Design Excellence Program, GSA, since c.2004
Active in professional networks in mass timber industry and in modular construction industry (especially in Canada, United States, Europe, China)

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Andrew Atwood

Courses Taught (Four semesters prior to current visit)**:**
Arch 100A: Fundamentals of Architectural Design
Arch 200B: Introduction to Architecture Studio II
Arch 200D: Representational Practice in Architectural Design II

Educational Credentials:
M.Arch, Harvard Graduate School of Design, 2003-07
Bachelor of Arts, University of Richmond, 1994-98

Teaching Experience:
2013-Present, UC Berkeley College of Environmental Design, Associate Professor of Architecture (2019-Present); Assistant Professor of Architecture (2013-19)
2011-13, Southern California Institute of Architecture, Full time faculty
2010-11, University of Southern California School of Architecture, Adjunct Assistant Professor and Coordinator of Advanced Fabrication Technologies
2009-10, University of Southern California School of Architecture, Lecturer

Professional Experience:
2011-Present, First Office, Principal (Los Angeles, CA)

Licenses/Registration:
1/2020-Present, Licensed Architect, State of California, License Number: C 38436

Selected Publications and Recent Research:
2018, Not Interesting: On the Limits of Criticism in Architecture, Andrew Atwood (San Francisco: Applied Research and Design, 2018)
2015, Nine Essays, Andrew Atwood & Anna Neimark, Treatise Series (Chicago: Graham Foundation for Advanced Studies in the Fine Arts, 2015)

Professional Memberships:
AIA

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Gail Brager

Courses Taught (Four semesters prior to current visit)
50% administrative release time)

ARCH142/242: Design for Sustainability Colloquium
ARCH 149/249: Sensory Spaces

Educational Credentials:
B.S., Mechanical and Environmental Engineering, University of California, Santa Barbara, 1980
M.S., Mechanical Engineering, University of California, Berkeley, 1982
Ph.D., Mechanical Engineering, University of California, Berkeley, 1984

Teaching Experience:
UC Berkeley since 1984

Professional Experience:
N/A

Licenses/Registration:
N/A

Selected Publications and Recent Research:

DeKay, Mark + Gail Brager. *Experiential Design Strategies*. ORO Publications. 2023 (*currently in press*)

Altomonte, Sergio, Joseph Allen, Philomena Bluyssen, Gail Brager, Lisa Heschong, Angela Loder, Stefano Schiavon, Jennifer Veitch, Lily Wang, and Pawel Wargocki. Ten questions concerning well-being in the built environment. *Building and Environment*, 106949. May 2020.

Ko, W. H., S. Schiavon, H. Zhang, L. Graham, G. Brager, I. Mauss, & Y.W. The impact of a view from a window on thermal comfort, emotion, and cognitive performance. *Building and Environment*, Volume 175, May 2020.

Parkinson, T., R. de Dear, G. Brager. Nudging the adaptive comfort model. *Energy and Buildings*, Volume 26, January 2020
#8 of top ten cited papers in Energy and Buildings for 3-year period

Ličina, V.F., Cheung, T., Zhang, H., De Dear, R., Parkinson, T., Arens, E., Chun, C., Schiavon, S., Luo, M., Brager, G. and Li, P., Development of the ASHRAE global thermal comfort database II. Building and Environment, 142, pp.502-512. September 2018.
Building and Environment Best Paper Awards

de Dear, Richard J, Takashi Akimoto, Edward A Arens, Gail Brager, Christhina Candido, David K W Cheong, Baizhan Li, N Nishihara, Chandra Sekhar, Shin-ichi Tanabe, Jorn Toftum, Hui Zhang + Yingxin Zhu. 2013. Progress in Thermal Comfort Research over the Last Twenty Years. Indoor Air 23(6): 442–46. April 2013

Brager, G.S. and de Dear, R.J., Thermal Adaptation in the Built Environment: A Literature Review. Energy and Buildings, 27/1, February 1998
Best of Decade – Research Paper Award, from Energy and Buildings

Professional Memberships:
ASHRAE, SBSE

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Luisa Caldas

Courses Taught (Four semesters prior to current visit)**:**
ARCH 240: Advanced Topics in Energy & Environment
ARCH 245: Daylighting in Architecture
ARCH 203: Integrated Studio
ARCH 229: Space and Media in Immersive Environments
ARCH 202: Graduate Option Studio
ARCH 249: The Architecture of Light: An Analytical Journey

Educational Credentials:
PhD, MIT, Dept. of Architecture
MSc, The Bartlett Graduate School, University College London
Licenciatura in Architecture (5-year degree, MArch equivalent), University of Lisbon
Politecnico di Milano, Italy, final year of Licenciatura

Teaching Experience:
Professor of Architecture, UC Berkeley, Dept. Architecture, CED: since 2012
Visiting Professor, Tokyo Institute of Technology, Japan: 2017
Professor, Faculty of Architecture, University of Lisbon, Portugal: 2010-2012
Associate Professor, Faculty of Architecture, University of Lisbon, Portugal: 2008-2010
Visiting Scholar, MIT Department of Architecture: 2008
Assistant Professor, School Architecture, Dept. Civil Engineering & Architecture, Technical University of Lisbon: 2002-2008

Professional Experience:
Lawrence Berkeley National Laboratory, Energy Technologies Division, 2012-14
SoftEnergies: Sustainable Building Technologies, Managing Partner, 2003-12
Freelance Architect: 2002-12
Architect, MacCormac Jamieson Prichard (MJP), London, 1995-96
Architect, CPU Consultants, Lisbon, 1993–94
Arch Assistant, Frederico George, Lisbon,1990-92

Licenses/Registration:
Licensed Architect, Portugal

Selected Publications and Recent Research:
Sathyanarayanan,H., Caldas. L., 2023, “Co-Designing with Children: Innovating Patient Engagement and Participation in Pediatric Healthcare Design Research with Immersive Technology and Affective Interactions.” Academy Journal N.24, AIA Academy of Architecture for Health (AAH), forthcoming
Zhuang, X., Ju, Y., Yang, A., Caldas. L., 2023 “Synthesis and Generation for 3D Architecture Volume with Generative Modeling,” International Journal of Architectural Computing, forthcoming
Bailey, E., Caldas, L., 2023, Operative Generative Design Using Non-Dominated Sorting Genetic Algorithm (NSGA-II): A Novel Generative Design Workflow, Submitted to Automation in Construction.
Keshavarzi, M., Caldas, L., Santos, L., 2021, "RadVR: A 6DOF Virtual Reality Daylighting Analysis Tool." Automation in Construction 125(4)
Keshavarzi, M., Afolabi, O., Caldas, L., A.Y. Yang. A Zakhor, 2021, "GenScan: A Generative Method for Populating Parametric 3D Scan Datasets, Proceedings of CAADRIA ’21, March 2021, Hong Kong
Keshavarzi, M., Yang, A., Ko, W., Caldas, L., 2020, “Optimization and Manipulation of Contextual Mutual Spaces for Multi-User Virtual and Augmented Reality Interaction.” 2020 IEEE Conf. Virtual Reality and 3D User Interfaces, 353-362
Stals, A., Caldas, L., 2020, “State of XR research in architecture with a focus on professional practice - A systematic literature review”, Architectural Science Review, 11/20/2020
Taube, B., Green, V., Santos, L., Caldas, L., 2020, “Using Machine Learning to Predict the Daylight Performance of Top-lighting Strategies”. 35thPLEA Conf: Planning Post Carbon Cities, Sep.2020, Spain
Caldas, L, Keshavarzi, M., 2019, "Design Immersion and Virtual Presence." TAD: Technology | Architecture + Design 3, no. 2 (2019): 249-251.

Professional Memberships:
Architects Association of Portugal, American Medical Extended Reality Association

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Christopher Calott

Courses Taught:
RDEV 280: MRED+D Capstone Project
ED251: Discourse and Methods in Contemporary Urban Design
RDEV 290: MRED+D Capstone Preparation
ARCH209: Integrated Development, Architecture and Urbanism
ED251: Discourse and Methods in Contemporary Urban Design

Educational Credentials:
Harvard University, *Loeb Fellowship Program*, 2011-2012
Princeton University, *M. ARCH.,* 1987
Brown University, *B.A., Honors*,1983; The Rhode Island School of Design,1979-1983
The Institute for Architecture & Urban Studies, *Undergraduate Certificate,*1982.

Teaching Experience:
University of California, Berkeley, Berkeley, California, *Associate Professor* and *Lalanne Chair of Real Estate Development, Architecture and Urbanism,* 2014-PRESENT; Johns Hopkins University, Carey School of Business, Baltimore, Maryland, *CityLab Capstone Advisor,* 2023-PRESENT; University of Maryland, College Park, Maryland, *ReACT Think Tank Visiting Professor,* 2022-PRESENT; Tulane University, School of Architecture, New Orleans, Louisiana, *Director, Master of Sustainable Real Estate Development Program*, 2013-2014; University of New Mexico, Albuquerque, New Mexico, *Adjunct Professor,* 2007-2011; *Visiting Associate Professor in Architecture and Planning Programs,* 1998-2005; ISTHMUS: School of Architecture & Design of Latin America and the Caribbean, Panama City, Panama, *Visiting Professor,* 2006, 2009 & 2011; University of Maryland, College Park, Maryland, *Visiting Professor,* 2009; Centro Metropolitano De Arquitectura Sustenable, Mexico City, Mexico, *Visiting Professor,* 2008. Universidad Autonoma de Juarez, Ciudad Juarez, Mexico, *Visiting Professor,* 2006; Instituto Superior de Arquitectura y Diseno, Chihuahua, Mexico, *Jornadas de Arquitectura Professor,* 2005. Mexico Summer Urban Design Program, Mexico City, Mexico, University of Arkansas and Universidad de Anahuac, *Studio Coordinator,* 1999-2002; University of California, Berkeley, Berkeley, California, *Lecturer,* 1996-1998; University of Miami, Coral Gables, Florida, *Visiting Professor,* 1997; Auburn University, Auburn, Alabama, *Visiting Associate Professor,* 1994-1996; University of Minnesota, Minneapolis, Minnesota, *Visiting Critic,* 1993; Princeton University, Princeton, New Jersey, *Teaching Assistant,* 1984-1987.

Professional Experience:
Sand Hill Property Company, Palo Alto, California, *Design and Development Consultant,* 2015-PRESENT; Neighborhood Development Company, Washington, DC, *Design and Development Consultant,* 2022-PRESENT; Christopher Calott Architecture + Development, Oakland, California, *Principal,* 2014-PRESENT; CALOTT + GIFFORD Architecture / Urban Design, Albuquerque and Santa Fe, New Mexico, *Partner,* 2000-2012; INFILL SOLUTIONS: *Innovative Urban Design & Development*, Albuquerque, New Mexico, *Partner,* 2001-2011; Christopher Calott Architecture / Urban Design, Los Angeles, Minneapolis and San Francisco, *Principal,* 1992-2000;

Licenses/Registration:
Registered Architect in California (License #24185) and New Mexico (License #3831)

Publications and Recent Research:
Sonoma County, California: Wildfire, Energy, and Economic Resilience, ULI Advisory Services Panel Report, published by Urban Land Institute, Washington, DC, 2021; Toa Baja, Puerto Rico: Building Physical, Economic, and Social Resilience, ULI Advisory Services Panel Report, published by Urban Land Institute, Washington, DC, 2019; Lower 9 Vision Coalition Community Plan, published by the Tulane City Center, New Orleans, Louisiana, Spring, 2014; "Housing as a Form of Non-formal Urbanism in Mumbai" published in Extreme Urbanism II, Harvard University Press, Cambridge, Massachusetts, 2013; "Return to Common Ground: New and Revitalized Plazas in New Mexico," published in The Plazas of New Mexico, Trinity Press, San Antonio, 2012; The Pacheco Street Lofts Infill, published in ULI Development Case Studies, Urban Land Institute, Washington, D.C., 2009; "Urban Interlopers," published in Metropolis, March, 2008; "Unexpected Opportunities of an Urbanist Practice," published in Professional Practice 101: Business Strategies and Case Studies in Architecture, John Wiley & Sons, Hoboken, New Jersey, 2006; "FRONTERA / BORDER: Border Crossing at Anapra, Ciudad Juarez –Sunland Park, New Mexico," published in ARQUINE: Revista de Arquitectura, Mexico City, Mexico, 2005.

Professional Memberships:
American Institute of Architects (1993), Urban Land Institute (2006), Lambda Alpha International (2016).

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Greg Castillo

Courses Taught (Four semesters prior to current visit)**:**
ARCH 270: History of Modern Architecture
ARCH 279: Design Radicals: The Bay Area Counterculture Legacy (graduate elective seminar)
ARCH 202: The Dessau Effect: Urban revival, workshop pavilions, and the Bauhaus legacy (graduate option studio)
ENVDES 5: Cities and Sites (required survey course for all College of Environmental Design undergrads)
ARCH 281: Introduction to Methods in Architectural History, Theory and Society

Educational Credentials:
Ph.D. History of Architecture, University of California, Berkeley, 2000
M.Arch. Architectural Design, University of California, Berkeley, 1995
M.A. Communications Management, University of Southern California, 1978
B.F.A. Photography, Rochester Institute of Technology, 1975

Teaching Experience:
Professor, Department of Architecture, University of California, Berkeley, 7/2019 - present
Associate Professor, Department of Architecture, University of California, Berkeley, 7/2009 - 7/2019
Senior Lecturer, Faculty of Architecture, University of Sydney: 1/2007 - 6/2009
Assistant Professor, University of Miami School of Architecture: 8/2001 - 6/2006

Professional Experience:
Guest Curator (50% appointment), Berkeley Art Museum / Pacific Film Archive, 1-7/2016

Selected Publications and Recent Research:
Co-editor (with Lee Stickells), *Design Radicals: Spaces of Bay Area Counterculture* (Minneapolis: University of Minnesota Press, in press).
"German Lessons: How Philip Johnson and Catherine Bauer brought colliding visions of transatlantic modernism to MoMA" *Places* online journal, August 2022.
"Domestic Funk: Favelados of the Global North," in Vikramaditya Prakash, Maristella Casciato, and Daniel E. Coslett, eds.,*Global Modernism and the Postcolonial: Rethinking Architectural History* (Abingdon: Routledge, 2022), 209-232.
"Salvage Salvation: Counterculture Trash as a Cultural Resource," Farhan Karim and Farahana Ferdous, eds., *Routledge Handbook of Architecture and Social Engagement* (Abingdon: Routledge, 2018), 306-321.
"Counterculture *Terroir*: California's Hippie Enterprise Zone," in Andrew Blauvelt, ed., *Hippie Modernism: The Struggle for Utopia* (Minneapolis: Walker Art Center, 2015), 87-101.
"Hippie Modernism: How Bay Area design radicals tried to save the planet," *Places* (October, 2015)
Cold War on the Home Front: The Soft Power of Midcentury Design (Minneapolis: UMn Press, 2010)

Professional Memberships:
Society of Architectural Historians
Association of Collegiate Schools of Architecture
European Architectural History Network
North American Chapter on the History of Emotions

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Raveevarn Choksobatchai

Courses Taught (Four semesters prior to current visit)**:**
ARCH 200A: Fundamentals of Architecture Design
ARCH 229: Case Studies in Representation: Drawing Water
ARCH 100D: An Upper level Architecture Studio: Skin Deep
ARCH 200A: Fundamentals of Architecture Design
ARCH 202: An Upper level Architecture Studio: Crafting Light

Educational Credentials:
Harvard University GSD, M Arch with high commendation
Harvard University GSD, M Landscape Architecture
Chulalongkorn University, Bangkok, Thailand, B

Teaching Experience:
University of California, Berkeley, Full Professor of Architecture 2016 – present
University of California, Berkeley, Associate Professor of Architecture 1995-2015

Professional Experience:
Founding & Design Principal at **VeeV Design,** a studio of art, architecture, environmental design and research,(independent prac6ce since 2000)
Co-Founder and Design Principal at Loom, a collaborative practice of art, architecture and environmental design from 1989-2000

Licenses/Registration:
Licensed Architect in Thailand

Selected Publications and Recent Research:
CA Homes Edited & Written by Michael Web, Thames & Hudson Publishing, USA, 2024
Grace Street Live/Work Project, Haus Und Auto, edited by Andreas K Vetter, Callwey, Georg D.W. GmbH, 2022
Ambient House, Radical House: Redefining Domestic Architecture For The 21st-Century, Metropolitan Arts Press Ltd, Spring 2020
Grace Street Live/Work, Homes for Our Time: Contemporary Houses around the World, edited by Philip Jodidio, Taschen Books, 2018
Recent Research - Obscured Typology: A study and design of Co-Housing for Elderly population in Ayudhaya, Thailand

Professional Memberships:
Lifetime Artist Member No.43824 San Francisco Museum of Modern Art
Associate Member, The American Institute of Architects, 2007
Active Member of Association of Siamese Architects, Thailand, 2007-Present

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Renee Y. Chow

Courses Taught (Four semesters prior to current visit)**:**

N/A, release for administration

Educational Credentials:
M.Arch, Massachusetts Institute of Technology
B.S.AD, Massachusetts Institute of Technology

Teaching Experience:
Professor, U.C. Berkeley, Department of Architecture
Associate Professor, U.C. Berkeley, Department of Architecture
Assistant Professor, U.C. Berkeley, Department of Architecture
Assistant Professor, Massachusetts Institute of Technology, Department of Architecture

Professional Experience:
Principal, Studio URBIS

Licenses/Registration:
CA, NCARB

Selected Publications and Recent Research:
Book: *Changing Chinese Cities: The Potentials of Field Urbanism*. Singapore: National University of Singapore Press, 2015.
Book: *Suburban Space: The Fabric of Dwelling*. Berkeley: University of California Press, 2002.
Recent Research: Pacific Rim Urban Resilience by Design

Professional Memberships:
American Institute of Architects (AIA)
Lambda Alpha International (LAI)

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Margaret Crawford

Courses Taught (Four semesters prior to current visit)**:**
ARCH 170B: Survey and Architecture and Urbanism
ARCH 179: Publics and their Spaces
ARCH 279: Contemporary Urban Dynamics
ARCH 277: California Architecture
ARCH 98BC/198BC: Architecture Berkeley Connect

Educational Credentials:
PhD Urban Planning, UCLA 1986

Teaching Experience:
2000-2009 Professor of Urban Planning and Design Theory, Harvard Graduate School of Design
1985-2000 Chair of History, Theory, and the Humanities, Southern California Institute of Architecture

Selected Publications and Recent Research:
"A Conversation about Public Space with Margaret Crawford," *Journal of Architecture Philosophy* 6 (1)
"The Fung Bros rep the Ethnoburb," *Creativity from Suburban Nowheres: Rethinking Cultural and Creative Practices from the Outside In*, edited by Ilja Van Damme, Ruth McManus, and Michiel Dehaene. (Toronto, University of Toronto Press, 2023)
Urbanization in China: Critical Concepts 4 volumes Co-edited with Marco Cenzatti (New York: Routledge, 2019)

Professional Memberships:
Society of Architectural Historians
Society of American City and Regional Planning History

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: C. Greig Crysler

Courses Taught (Four semesters prior to current visit)**:**
Arch 130: Introduction to Design Theories and Criticism (Fall 2021, Fall 2022)
Sabbatical [Spring 2022)
Introduction to Methods in the History and Theory of Architecture (Team Taught; Fall 2021)
Spaces of Queer Theory (Fall 2021; course release Fall 2022)

Educational Credentials:
Ph.D Graduate Program in the History and Theory Architecture, SUNY Binghamton
AA Diploma, Architectural Association School of Architecture
B.E.S. School of Architecture, University of Waterloo, Ontario, Canada

Teaching Experience:
University of California, Berkeley (1999-2023)
University of Chicago at Illinois (1997-1999)

Professional Experience:
Diamond and Schmitt, Toronto Ontario (1988-90)
Fletcher Priest Architects, London, UK (1985-86)
Alan Stanton Architecture, London, UK (1984-85)

Licenses/Registration:
N/A

Selected Publications and Recent Research:
C. Greig Crysler, *Writing Spaces: Discourses of Architecture, Urbanism and the Built Environment,* [Architext Series] (London and New York: Routledge 2003)
C. Greig Crysler, Stephen Cairns and Hilde Heynen (eds), *Sage Handbook of Architectural Theory* (London and Thousand Oaks, CA: Sage Publications, 2012)
C. Greig Crysler and Maria Moreno Carranco, *Spaces of Fear: Bodies, Walls, Cities* (co-edited with Maria Moreno Carranco (Mexico City: Publicaciones UACHE of the Universidad Autónoma Metroplitana, 2019; Mexico City; English language edition with postscripts, 2021)
C. Greig Crysler, Stathis Gerostathopoulos, Yanin Kramsky and Chandra Laborde, "Spatializing Queer Ecologies," in *The Routledge Handbook of Urban Space and Politics* (Forthcoming; London and New York: 2023)
C. Greig Crysler and Shiloh Krupar, *Territories of Exaction: Austerity, Bias, Dross* [co-authored book in preparation; illustration by C. Greig Crysler and Monica Lamela Blanquez]
C. Greig Crysler and Maria Moreno Carranco (eds), *Mexico City: Materiality, Performance and* Power (in preparation for submission to Publicaciones UACHE of the Universidad Autónoma Metroplitana, Mexoco City)
C. Greig Crysler, "Skin and Blood: The Materiality of Mixed Race in *Roma,*" in C. Greig Crysler and Maria Moreno Carranco (eds), *Mexico City: Materiality, Performance and Power*

Professional Memberships:
Society of Architectural Historians; American Studies Association; Association of Collegiate Schools of Architecture; American Association of Geographers; College Art Association

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: René Davids

Courses Taught (Four semesters prior to current visit)**:**
ARCH 204B: Thesis
ARCH 201: Architecture and Urbanism Studio
ARCH 204A: Thesis prep
ARCH 202: Dessau Effect, Bauhaus Studio
ARCH 209: Housing as a Design Generator
ARCH 100D: Architectural Design IV

Educational Credentials:
Royal College of Art, London, M.A. Environmental Design
Escuela de Bellas Artes, Arts Diploma Universidad de Chile, Santiago
Facultad de Arquitectura y Urbanismo, Bachelor of Architecture Universidad de Chile, Santiago

Teaching Experience:
Escuela de Arquitectura, Facultad de Architectura y Urbanismo, Universidad de Chile, Santiago de Chile
Architectural Association School, London, U.K.
Mackintosh School of Architecture, Glasgow, UK.
Royal College of Art, College of Environmental Design, London U.K.
School of Architecture, School of Architecture U.C. San Diego
School of Architecture and Planning, University of New Mexico
University of Illinois, Chicago
College of Architecture, Planning and Landscape, University of Arizona
Escuela de Arquitectura, Universidad Católica del Perú.

Professional Experience:
Founding Partner Davids Killory Architecture

Licenses/Registration:
Registered architect in the State of California, Fellow of the American Institute of Architects
Licensed to practice in Chile, member of the Colegio de Arquitectos de Chile

Selected Publications and Recent Research:
Urban Decline to Green Paradigm: Learning from Dessau *Journal of Urban Design* https://doi.org/10.1080/13574809.2023.2174505 .
The Zollverein and the Future of Industrial Conservation. Beyond the future: emergencies, risks, challenges, transitions, and opportunities Beni Culturali: centri storici, valorizzazione e nuove modalità di fruizione/ Cultural Heritage: Historical Centres, Enhancement and New Modes of Use. Napoli, ITALY, Dec. 2022
Urban Shrinkage: Learning from Dessau ICERI 2022. *Proceedings of the 15th Annual International Conference of Education*, pp. 7020-7026. Nov., 2022.
Landform Buildings and the Future of Constructed Topographies WIT *Transactions on the Built Environment* WIT Press Vol 210, 2022, pp 189-200.
Dynamic Landscapes: The Reclamation of Disused Quarries in *Studies in the History of Gardens & Designed Landscapes* (2020) DOI: 10.1080/14601176.2020.1796368 https://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F14601176.2020.1796368&area=0000000000000001

Professional Memberships:
Fellow of the American Institute of Architects (AIA)
Miembro del Colegio de Arquitectos de Chile

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Georgios Eftaxiopoulos

Courses Taught (Four semesters prior to current visit)**:**
ARCH 201: Architecture & Urbanism Design Studio
ARCH 100D: Architectural Design IV
ARCH 229: Special Topics in Design and Methods

Educational Credentials:
Doctor of Philosophy in Architectural Design, Architectural Association.
Diploma in Architecture, Architectural Association.
Bachelor in Architecture (Hons), University of Nottingham.

Teaching Experience:
07/2022 – Present, Assistant Professor of Architecture and Urbanism, University of California - Berkeley.
08/2021 - 07/2022, Course Tutor, Architectural Association.
08/2020 - 07/2022,Teaching Assistant Professor, Aarhus School of Architecture.
08/2017 - 07/2021, Seminar Tutor, Architectural Association.
08/2019 - 07/2020,Tutor, Royal College of Art.
08/2017 - 07/2020, Visiting Lecturer, Royal College of Art.
08/2018 - 07/2019, Unit Master, Architectural Association.
08/2015 - 07/2017, Studio Master, University of Navarra.
08/2012 - 07/2013, Studio Master, The Berlage.

Professional Experience:
04/2012 – Present, Principal, EO.
07/2015 - 07/2017, Principal, Laboratory Bohol.
08/2014 - 08/2015, Project Architect, EM2N.
02/2012 - 03/2014, Project Architect, 51N4E.
07/2011 - 01/2012, Project Architect, DOGMA.

Licenses/Registration:
Architect Title and Registration (European Union), Technical Chamber of Greece

Selected Publications and Recent Research:
Eftaxiopoulos, Georgios. “The World’s Greatest Depot: West India Docks, Warehouses and Flexibility.” In *Architectures of Extraction in the Atlantic World*, edited by Paul Niell and Luis J. Gordo Peláez. London: Routledge, 2023. (Forthcoming)
Eftaxiopoulos, Georgios, and Maria Alvarez Garcia. “Infinite but Tiny: Towards a Hybrid Architecture of Dwelling.” *Footprint* 32: Rethinking the Architecture of Dwelling in the Digital Age (Spring 2023). (Forthcoming)
Alvarez Garcia, Maria, and Georgios Eftaxiopoulos. “A View from Paradise: Olafur Eliasson’s Your Rainbow Panorama.” *OASE* 111: Staging the Museum (May 2022): 131–41.
Eftaxiopoulos, Georgios. “The Largest Room in the World: MPK20 and Hyper-Flexibility.” *AAFiles* 77 (September 2020): 89–101.
Eftaxiopoulos, Georgios. “No-Fun: Fun Palace and the Cult of Flexibility.” *Perspecta* 51: Medium (November 2018): 255–61.
Recent Research: “Certainty in Uncertain Times: Architectures of Accumulation”

Professional Memberships:
Technical Chamber of Greece

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Darell Wayne Fields

Courses Taught (Four semesters prior to current visit)**:**
On Leave 2021-2023

Educational Credentials:
Doctor of Philosophy, Harvard Graduate School of Arts and Sciences, Cambridge, MA
Master of Architecture, Harvard Graduate School of Design, Cambridge, MA
Bachelor of Science in Architecture, University of Texas, Arlington, TX

Teaching Experience:
Princeton University, School of Architecture, Visiting Research Scholar/Lecturer, 2022-2023
Princeton University, School of Architecture, Presidential Visiting Scholar, 2021-2022
University of California Berkeley, CED, Continuing Lecturer, Fall 2017-present
California College of the Arts, School of Architecture, Adjunct II Professor, 2008-2009, 2011, 2021
University of Arkansas, School of Architecture, Associate Professor with Tenure, 2005-2008
University of Arkansas, Fulbright College, Joint Appointment with Tenure, 2005-2008
Northeastern University, School of Architecture, Associate Professor with Tenure, 2004-2005
Harvard Graduate School of Design, Department of Architecture, Associate Professor, 1998-2004
Harvard University, Department of African American Studies, Interdisciplinary Affiliate, 1998

Professional Experience:
Principal, The Maxine Studio, 2012-present
Design Consultant, Cox Hall Renovations, Emory University, 2021
Principal Designer, Black Cultural Center, University of Oregon, 2019

Licenses/Registration:
N/A

Selected Publications and Recent Research:
Log 57 Guest Editor | Black is … an' Black Ain't, Anyone Corp: New York, NY, 2023
Log 56 | Model Behavior (Exhibition Catalogue), Anyone Corp: New York, NY, 2022
On Solitude, Princeton University School of Architecture: Princeton, NJ, 2021
Architecture in Black: Theory, Space, and Appearance, The Bloomsbury Press: New York/London, 2015

Professional Memberships:
N/A

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Liz Gálvez

Courses Taught: (Four semesters prior to current visit):
Berkeley Architecture, University of California:
F 2023 ARCH 249/149: Special Topics in the Physical Environment in Buildings.
F 2023 ARCH 100: Fundamentals of Architectural Design.
Yale School of Architecture, Yale University:
S 2023 ARCH 4303: (Im)material Artifacts: Matters, Environments, and their Techniques.
S 2023 ARCH 1012: Graduate Core Studio. Architectural Design II.
F 2022 ARCH 1101a: Advanced Design Studio. Land Matters.
Rice School of Architecture, Rice University:
S 2022 ARCH 102: Undergraduate Studio. Principles of Architecture II.
S 2022 ARCH 550: Advanced/Intermediate Seminar, Elective. Prepared Air: or What is an Environment?

Educational Credentials:
2016 Master of Architecture; Concentration in History, Theory & Criticism of Architecture. Massachusetts Institute of Technology
2011 Bachelor of Science in Design, with Distinction; Minor in Philosophy. Arizona State University.

Teaching Experience:
Five years of experience teaching core and advanced courses in design, and advanced seminars on environmentalism and architecture.

Professional Experience:
Liz Gálvez is a registered architect, directs Office e.g., and teaches courses on design and environmentalism. She practices between the San Francisco Bay Area and Michoacán, Mexico. Her work focuses on the interface between architecture, theory, and environmentalism through a re-examination of building technologies. Worked as a professional architect at a number of design firms, including Merge Architects, NADAAA, Will Bruder Architects, and Rojkind Arquitectos.

Selected Publications and Recent Research:
Galvez Liz & Dalia Munenzon — Collective Comfort Research Project. Ongoing. SOM Foundation Research Prize.

Gálvez, Liz, Lizzie Yarina and Claudia Bode. “The Unbearable Tightness of Building.” *Thresholds* (2022) (50): 271–288. https://doi.org/10.1162/thld_a_00767.

Gálvez, Liz. “Cooked Air: The Kitchen and its Exhalate.” *Footprint,* Vol. 15 No. 1, Issue 28 (Spring/ Summer 2021): 127-139. https://doi.org/10.7480/footprint.15.1.4944.

Gálvez, Liz. “From Exigent to Adaptive.” *Footprint,* Vol. 13 No. 2, Issue 25 (Autumn/ Winter 2019): 101-118. https://doi.org/10.7480/footprint.13.2.3925.

Professional Memberships:
Registered Architect, Commonwealth of Massachusetts. Registration No. 952613-AR-AR.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Maria Paz Gutierrez

Courses Taught (Four semesters prior to current visit):
ARCH 205: “Lignin and Lining”/ “Biotic and Abiotic Air Unit”
ARCH 202: “CA Indigenous Heritage Center”
ARCH 229: Representation & Computation “Across Sections”
ARCH 269: Representation & Computation “Plant Fibers Origins”/ “Indoor Air & Microbiomes”

Educational Credentials:
PhD, University of Cambridge, UK (Building Science/Materials Engineering).
M Arch, University of Pennsylvania (highest honors).
Arch. Dipl, Universidad Finis Terrae, Chile (highest honors).

Teaching Experience:
Fifteen years teaching upper level and fundamental studios including introductory and building technology and materials courses focused on biodegradable materials and sustainability innovation addressing socioeconomic and environmental challenges in design.

Professional Experience:
Gutierrez’s is an architect whose research (founder BIOMS) focuses on bio-based and living materials with multifunctional capacities addressing energy-water-air and cultural challenges. Selected Awards include: *2022 IN DETAIL AWARD* (supervisor); *RIBA 2020 President's Medal of Research Award* (Climate Change/shortlisted), 2010 *ACSA Creative Achievement Award, 2014 Buckminster Fuller Award semifinalist; Bakar Fellow 2020-22*; *2012 Nexus Fulbright Award*, *Emerging Frontiers of Innovation Award* by the US National Science Foundation, 2001 AIA Academic Medal. Her research has been published broadly in the most prestigious architecture and scientific journals, including *Science*, *Nature Scientific Reports, RIBA Journal, Energy & Buildings* and featured in public forums including *Science Nation* and the *BBC*. Gutierrez has two forthcoming books *Regeneration Wall* (2021 Routledge) and *The Forest, The Fields, 3D Printing Now and Then* (2023, Cambridge Scholars), and two provisional patents in biomass and living materials innovation.

Licenses/Registration:
LEED AP US, Registered Architect (Chile).

Selected Publications & Recent Research:
M. P. Gutierrez, W. Liao, K. Scharnagl, E. Variano, "Metabolic Activity of 3D extruded Lichen onto Lignocellulosic Scaffolds", *Journal of Biotechnology*, 2023
M. P. Gutierrez. "Material Alignments" *Technology| Architecture+ Design* 5, no. 1 (2021): 115-118.
M. P. Gutierrez. "The Northwestern Amazon malocas: Craft now and then." *Journal of Material Culture* 25, no. 1 (2020): 3-35.
M.P. Gutierrez "3D printed plant waste offers security to flood-struck Amazon homes" *RIBA Journal*, 02/22/2021
M. P. Gutierrez and T.I. Zohdi. "Effective reflectivity and heat generation in sucrose and PMMA mixtures." *Energy and buildings* 71 (2014): 95-103.
M. P. Gutierrez, and L. P. Lee. "Multiscale design and integration of sustainable building functions." *Science* 341, no. 6143 (2013): 247-248.

Professional Memberships:
AIA Associate; ACSA; ACADIA; Advisory Board HBBE (U. N, UK), Materials Research Society; National Academy of Engineering.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Lisa Iwamoto

Courses Taught (Four semesters prior to current visit)**:**
4 course release for department chair.
ARCH 100C: Undergraduate Architectural Design III
ARCH 204A: Thesis Seminar

Educational Credentials:
Harvard University Graduate School of Design, Cambridge, MA
Master of Architecture with Distinction

University of Colorado, Boulder, CO
Bachelor of Science with Honors, Architectural/Civil Engineering

Teaching Experience:
University of California at Berkeley, Department of Architecture
Professor, 2012-present; Associate Professor, 2007-2012; Assistant Professor, 2002-2007

University of Michigan, Taubman College of Architecture + Urban Planning
Assistant Professor of Practice, 1998-2001; Lecturer in Architecture, 1997-98; Muschenheim Fellow, 1996-97

Visiting Professor/Visiting Critic: Harvard GSD, SCIArc, Cornell

Professional Experience:
Founding Partner, IwamotoScott Architecture, San Francisco
Designer, Schwartz/Silver Architects, Boston
Designer, Thompson and Rose Architects, Cambridge, MA
Intern, Morphosis, Los Angeles
Structural Designer, Bechtel Corp, San Francisco, CA

Licenses/Registration:
Registered Architect: California #C37125, Michigan #1301048354

Selected Publications and Recent Research:
Ivy Tech Community College Columbus Building, Columbus, Indiana, 82,000sf ground-up building, completed
1450 Owens Street, San Francisco, 200,000sf core & shell, in construction
Chengdu Exhibition Pavilion, Chengdu China, 30,000sf ground-up building, in construction
4575 Santa Monica Blvd., Los Angeles, CA, 16 unit ground-up apartment, in construction
Portola Garden Homes, San Francisco, CA, 64 single family homes in special use district, in CD's
Alexandria Center for Life Sciences, San Carlos, CA, Bio-tech campus + 2 buildings, in CD's
Google One Maritime Plaza, San Francisco, CA, 180,000sf interior TI, completed
950 Market Street, Façade consultant & interior for 242 unit multi-family residence, completed
Fortinet HQ, Sunnyvale, CA, Interiors for new 200,000sf HQ, completed
UCSF Parking Garage Façade, San Francisco, CA, completed
Goto Residence, Napa, CA, 2,000sf single family house, completed
Mazza ADU, Burlingame, CA, 600sf ADU, completed
Twitch HQ, San Francisco, CA, 190,000sf interior TI, completed
Pinterest HQ1, San Francisco, CA, 100,000sf interior TI, completed
Pinterest HQ2, San Francisco, CA, 150,000sf interior TI, completed

Professional Memberships:
None

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Rudabeh Pakravan

Courses Taught (Four semesters prior to current visit)**:**
ARCH 201: Architecture and Urban Design Studio
ARCH 11B: Introduction to Design

Educational Credentials:
B.Sc, Civil Engineering, UC Berkeley, 1995
M. Arch, University of Pennsylvania, 2000

Teaching Experience:
2018-present, UC Berkeley, Continuing Lecturer, Department of Architecture
2010-2017, UC Berkeley, Lecturer, Department of Architecture
2009-2010, University of Southern California, Studio Instructor, Department of Architecture

Professional Experience:
Sidell Pakravan Architects, Principal, 2014-present
Rudabeh Pakravan Studio, Principal, 2009-2014
Endres Ware Architects Engineers, Project Designer, 2005-2009
Michele Saee Studio, Project Designer, 2000-2005

Licenses/Registration:
Registered Architect, State of California since 2013

Selected Publications and Recent Research:
“Four Delightful Exhibitions”, The Architect’s Newspaper, February 2023
“Seventh Street Residence”, The Architect’s Newspaper, January 2023
Design Vanguard, Architectural Record, 2021.
“West Berkeley Residence”, Dwell Magazine, January 2021
“19th Street Residence”, Archdaily, September 2019.
“Suburban Staid No More: A California French Family Remake a Bay Area House”, Remodelista, March 2019
“Territory Jam”, New Constellations, New Ecologies, ACSA Conference Proceedings, 2013. Redefining Public Space, PENNDesign/Annenberg Sponsored Conference Proceedings, Editor, 2013.
“Territory Jam: Tehran”, Places Journal, July 2012

Professional Memberships:
AIA East Bay

NAAB Faculty Resume

Name: Keith Duncan Plymale

Courses Taught:
ARCH 204B: Thesis Studio (advisor)
ARCH 100A: Fundamentals of Architectural Design
ARCH 100B: Fundamentals of Architectural Design
ARCH 100C: Architectural Design III
ARCH 100D: Architectural Design IV

Educational Credentials:
Columbia University, G.S.A.P.P., MS Building Design, 1989
University of Kentucky, S.O.A., B.ARCH, 1986

Teaching Experience:
University of California Berkeley, Dept. of Architecture, 2001 - 2023
California College of the Arts, Graduate Program, 2002 - 2012
Stanford University, College of Engineering, 2005
University of Kentucky, School of Architecture, 1989-2000
The Ohio State University, Department of Architecture, 1991

Professional Experience:
Volume 21 Architecture, San Francisco, 2002 - 2023
CPH3D, Concrete Print House 3D, Tampa/San Francisco 2022 - 2023
Michale Willis Architects, San Francisco, 2000 - 2002
Atelier Wylde-Oubrerie, Lexington/Columbus, 1989 - 1994
Bickel Gibson Architects, Louisville, 1984 - 1987

Licenses/Registration:
California License #28443
Florida License #AR101701
Kentucky License #4026

Publications and Research:
Leonardo Ricci: Model Structure Form - History of Post War Architecture #10/#11, Accepted for Publication
Music That We See: Design Environment Group Architects, DEGA - With Professor Gregory Luhan, Texas A&M University
Artist In Residence, The Brandies School, San Francisco, 2019

Professional Memberships:
NCARB, Architecture License Advisor to Students
AIA, American Institute of Architects, Student Advisor
CSA, California Safety Assessment Officer, Building Evaluation

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Ronald Rael

Courses Taught (Four semesters prior to current visit)**:**
ARCH 207A: Architecture Lectures Colloquium
ARCH 100C: Architectural Design III

Educational Credentials:
M.Arch, Columbia University
B.Envd, University of Colorado Boulder

Teaching Experience:
University of California Berkeley, University of Arizona, Clemson University, Southern California Institute of Architecture

Professional Experience:
Partner, Rael San Fratello
CEO, Emerging Objects
Co-Founder and CCO, FORUST
Designer, Office for Metropolitan Architecture

Licenses/Registration:
N/A

Selected Publications and Recent Research:
Printing Architecture, Princeton Architectural Press 2018
Borderwall as Architecture, University of California Press 2017
Earth Architecture, Princeton Architectural Press 2008 & 2010 (2nd printing)

Professional Memberships:
Board member (ex-oficio), Berkeley Art Museum and Pacific Film Archive; Earth USA.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Charles Salter

Courses Taught (Four semesters prior to current visit)**:**
ARCH 144/249: Introduction to Acoustics

Educational Credentials:
Boston College, M.B.A. Finance
Massachusetts Institute of Technology, B.S. Art & Design: Architecture Concentration, Minor: City Planning
Tufts University, B.S.C.E. Structural Engineering, Minor: Economics

Teaching Experience:
1973-Present: Continuing Lecturer, UC Berkeley College of Environmental Design

Professional Experience:
Practiced acoustical engineering for over 50 years – conducted a wide range of consulting in the areas of architectural acoustics, noise control engineering, and environmental noise impact.
Had project responsibility for various facility types including schools, recreation centers, offices, theaters, residences, hospitals, and civic buildings.

Licenses/Registration:
California: ME No. 16460 (1974)
Nevada: ME No. 3963 (1974)
Institute of Noise Control Engineering, Board Certified (1975)

Selected Publications and Recent Research:
"Community Noise, Urbanization, and Global Health: Problems and Solutions" in *Innovating for Healthy Urbanization*, ed. Roy Ahn, Thomas F. Burke, and Anita M. McGahan (Springer New York, 2015) Ch 8, p 165
Co-Author, *ACOUSTICS: Architecture, Engineering, the Environment* (William Strout Publisher, 1998)

Professional Memberships:
Allied Member of AIA San Francisco
US Green Building Council, Former Technical Advisory Committee Member

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Stefano Schiavon

Courses Taught (Four semesters prior to current visit)**:**
ARCH 140: Energy and Environment.
ARCH 246: Building Energy Simulations.
ARCH 241: Research Methods in Building Science.
ARCH 249: Mechanical Systems for Sustainable Buildings

Educational Credentials:
2008 PhD in energy engineering, University of Padova, Italy
2005 MS in mechanical engineering with honors, University of Padova, Italy

Teaching Experience:
2010-11 Assistant Professor, Polytechnic University of Turin
2011-17 Assistant Professor of Architecture, UC Berkeley
2017-22 Associate Professor of Architecture, UC Berkeley
2020-22 Associate Professor of Civil and Environmental Engineering UC Berkeley
2022-now Professor of Architecture and Civil and Environmental Engineering, UC Berkeley

Professional Experience:
N/A

Licenses/Registration:
California: ME No. 16460 (1974)
Nevada: ME No. 3963 (1974)
Institute of Noise Control Engineering, Board Certified (1975)

Selected Publications and Recent Research:
(Entire list at Google Scholar | ORCID)
Parkinson T, Schiavon S, de Dear R, and Brager G. 2021. Overcooling of offices reveals gender inequity in thermal comfort. *Scientific Reports* 11 (1): 1–7.
Porras-Salazar JA, Schiavon S, Wargocki P, Cheung T, and Tham KW. 2021. Meta-analysis of 35 studies examining the effect of indoor temperature on office work performance. *Building and Environment* 203: 108037.
Graham LT, Parkinson T, Schiavon S. 2021. Lessons learned from 20 years of CBE's occupant surveys. *Buildings and Cities* 2(1): 166–84.
Ko WH, Kent MG, Schiavon S, Levitt B, and Betti G. 2021. A window view quality assessment framework." *LEUKOS* 18(3):168-193.
Cheung T, Schiavon S, Parkinson T, Li P, Brager G. 2019. Analysis of the accuracy on PMV – PPD model using the ASHRAE Global Thermal Comfort Database II. *Building and Environment.* Volume 153, 205-217.
Ko WH, Schiavon S, Brager G, Levitt B. 2018. Ventilation, thermal and luminous autonomy metrics for an integrated design process. *Building and Environment*. Volume 145, 153-165.
Jia R, Jin B, Jin M, Zhou Y, Konstantakopoulos IC, Zou H, Kim J, Li D, Gu W, Arghandeh R, Nuzzo P, Schiavon S, Sangiovanni-Vincentelli AL, Spanos JC. Design Automation for Smart Building Systems. *Proceedings of the IEEE.* 2018. Volume 6 (9), 1680-1699.
Woolley J, Schiavon S, Bauman F, Raftery P, Pantelic J. 2018. Side-by-side laboratory comparison of space heat extraction rates and thermal energy use for radiant and all-air systems. *Energy and Buildings*. Volume 176, 139-150.

Professional Memberships:
ASHRAE: American Society of Heating, Refrigerating and Air-Conditioning Engineers
ISIAQ: International Society of Indoor Air Quality and Climate.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Simon Schleicher

Courses Taught (Four semesters prior to current visit)**:**
ARCH 250: Introduction to Structures
ARCH 258: Robotic Fabrication
ARCH 203: Integrated Design Studio
ARCH 252: Form and Structure

Educational Credentials:
Doctor of Engineering (Dr.-Ing.), University of Stuttgart, 2015
M.Arch., Massachusetts Institute of Technology (MIT), 2009
B.Arch. (Pre-Diploma), University of Stuttgart, 2006

Teaching Experience:
07/2020 – present, Associate Professor, University of California, Berkeley
07/2014 - 07/2020, Assistant Professor, University of California, Berkeley
05/2009 - 02/2014, Graduate Thesis Advisor (B/O Prof. Knippers), University of Stuttgart Institute of Building Structures and Structural Design (ITKE)
10/2013 - 03/2014, Visiting Lecturer, University of Innsbruck, Innsbruck, Austria Institute of Structure and Design (KOGE)

Professional Experience:
09/2021 – present, Director of Robotic Fabrication Lab (RFL), University of California, Berkeley
11/2018 – present, Principal and Founder, seamwork LLC, San Francisco, USA
06/2017 – present, Director of Flexible Structures Lab (FSL), University of California, Berkeley
09/2013 - 02/2015, Principal and Founder, seamwork® - Transdisciplinary Design, Germany
05/2009 - 02/2014, Research Associate, University of Stuttgart, Stuttgart, Germany Institute of Building Structures and Structural Design (ITKE)
09/2009 - 07/2010, Project Manager, ICD/ITKE Research Pavilion 2010, Stuttgart, Germany
01/2004 - 12/2006, Graduate Research Assistant, University of Stuttgart, Institute of Building Structures (IBK 2)
07/2004 - 09/2004, Architectural Designer, Auer+Weber Architects, Munich, Germany
02/2003 - 04/2003, Architectural Designer, Werner Sobek Engineers, Stuttgart, Germany

Selected Publications and Recent Research:
Schleicher, S., & Herrmann, M. (2020). Constructing hybrid gridshells using bending-active formwork. International Journal of Space Structures, 0956059920924189.
Schleicher, S., Kontominas, G., Makker, T., Tatli, I., & Yavaribajestani, Y. (2019). Studio One: A New Teaching Model for Exploring Bio-Inspired Design and Fabrication. Biomimetics, 4(2), 34.
Schleicher, S., La Magna, R., & Knippers, J. (2017). Bending-active Plates: Planning and Construction. In Fabricate: Rethinking Design and Construction, 242-249.
La Magna, R., Schleicher, S., & Knippers, J. (2016). Bending-active plates. Advances in architectural geometry, 2016, 170-87.
Schleicher, S. (2015). Bio-inspired compliant mechanisms for architectural design: transferring bending and folding principles of plant leaves to flexible kinetic structures. Forschungsberichte aus dem Institut für Tragkonstruktionen und Konstruktives Entwerfen – Research reports of the Institute of Building Structures and Structural Design (ITKE), 40, Universität Stuttgart, Fakultät für Architektur und Stadtplanung. ISBN: 978-3-922302-40-7
Schleicher, S., Lienhard, J., Poppinga, S., Speck, T., & Knippers, J. (2015). A methodology for transferring principles of plant movements to elastic systems in architecture. Computer-Aided Design, 60, 105-117.
Lienhard, J., Schleicher, S., Poppinga, S., Masselter, T., Milwich, M., Speck, T., & Knippers, J. (2011). Flectofin: A hingeless flapping mechanism inspired by nature. Bioinspiration & Biomimetics, 6(4), 045001.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Andrew M. Shanken

Courses Taught (Four semesters prior to current visit)**:**
Architecture 170A (Fall 2022 and Fall 2021)
Architecture 279: Yesterday's Tomorrows: Past Visions of the Future co-taught with Stefan Hoffmann in History (Fall 2021)

Educational Credentials:
Haverford College (1986-1990), B.A. in the Growth and Structure of Cities and History
Princeton University (1993-1995) M.A. in Art History
Princeton University (1995-1999) Ph.D. in Art History

Teaching Experience:
2015-present: Full Professor, University of California, Berkeley
2010-2015: Associate Professor, University of California, Berkeley
2004-2010: Assistant Professor, University of California, Berkeley
2000-2004: Oberlin College, Assistant Professor, Department of Art
1999-2000: Bryn Mawr College, Lecturer, Growth and Structure of Cities,
Princeton University, Instructor, Writing Program; and University of Pennsylvania, Lecturer, Department of Art History

Professional Experience:
N/A

Licenses/Registration:
None

Selected Publications and Recent Research:
194X: Architecture, Planning, and Consumer Culture on the American Homefront. University of Minnesota Press, 2009.
Into the Void Pacific: Building the 1939 San Francisco World's Fair. University of California Press, 2015
The Everyday Life of Memorials. Zone Books, 2022.
Breaking the Bronze Ceiling, co-edited with Valentina Rozas-Krause (Forthcoming, Fordham University Press
"Unit: A Semantic and Architectural History," *Representations* 143 (Summer, 2018): 90-116.
"The Visual Culture of Planning," *Journal of Planning History* (June, 2018).
"Meet Me at the Plague Column: Monuments and Conservation Planning," *Future Anterior* 14, 1 (Summer, 2017): 126-141.
"Plot Lines: A Story about Edmund Bacon," *OASE: Journal of Architecture* 98 (2017): 9-20.
"FTM(TF): Allegories of Electricity from Edison to Wifi," *Women's Studies* 46, 5 (June 2017): 415-441.
"Keeping Time with the Good War," *American Studies Journal* 59 (Spring 2015).
"The Tree in the System: Shifting Urban Paradigms in Mid-Century," *Perspecta* 45 (2012): 143-152.
"Preservation and Creation: Alfonso Rubbiani and Bologna," *Future Anterior* 7, 1 (Summer 2010): 61-81.
"Le case dei borghesi, 1879," Translation, *Future Anterior* 7, 1 (Summer 2010): 82-95.
"Breaking the Taboo: Architects and Advertising in Depression and War," *Journal of the Society of Architectural Historians* 69, 3 (September, 2010): 406-31.
"The Sublime 'Jackass:' Transgression and Play in the Inner Suburbs," *Places* 19, 3 (Fall, 2007) 50-55.
"Confederates on the Fairway: A Civil War Themed Subdivision in Rural Ohio," *Landscape* (September 2007).
"Better Living: Towards a Cultural History of a Business Slogan." *Enterprise and Society* (Sept., 2006) 485-519.
"The Uncharted Kahn: The Visuality of Planning and Promotion in the 1930's and 1940's," *Art Bulletin* 88 (June, 2006) 310-327.
"Between Brotherhood and Bureaucracy: Joseph Hudnut, Louis I. Kahn and the American Society of Planners and Architects." *Planning Perspectives* 20, 2 (April, 2005): 147-175.
"From the Gospel of Efficiency to Modernism: A History of Sweet's Catalog, 1906-1947," *Design Issues* 21, 2 (Spring, 2005): 28-47.
"Planning Memory: The Rise of Living Memorials in the United States during World War II," *Art Bulletin* 84 (March 2002): 130-147. Awarded the Arthur Kingsley Porter Prize by the College Art Association, 2003.
"Corporate Competitions and Bureaucracy, 1934-1945," *Architectural Research Quarterly* 3, 1 (1999): 43-54.

Professional Memberships:
Society of Architectural Historians

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Dan Spiegel

Courses Taught (Four semesters prior to current visit)**:**
ARCH 200B: Introduction to Architecture Studio
ARCH 203: Integrated Design Studio
ARCH 207C: Professional Practice Colloquium

Educational Credentials:
M.Arch I : 2008 Harvard University Graduate School of Design
BA in Public Policy: 2003 Stanford University

Teaching Experience:
University of California Berkeley College of Environmental Design
Continuing Lecturer in Architecture, 2015 – present

California College of the Arts
Senior Lecturer in Architecture, 2017

Wentworth Institute of Technology
Adjunct Professor of Architecture, 2011

Harvard Graduate School of Design
Career Discovery Studio Instructor, 2008

Professional Experience:
SAW // Spiegel Aihara Workshop, Inc
Founding Partner
2011 - present

Licenses/Registration:
Architect, California
Architect, Hawaii

Selected Publications and Recent Research:
Architect's Newspaper Best of Practice: 2022
AN Interior Top 50 Interior Firms: 2020, 2021, 2022.
AIA Design Awards: 2014, 2016, 2017, 2020, 2022.
New Talent, July 2020, Metropolis Magazine.
Emerging Talent, 2019 Monterey Design Conference
Design Vanguard 2019, Architectural Record.
Architect's Newspaper Best of Design Awards: 2017, 2018
Next Progressives, Architect Magazine, November 2018.
League Prize 2018, The Architectural League of New York.

Professional Memberships:
American Institute of Architects, AIA

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Kyle Steinfeld

Courses Taught (Four semesters prior to current visit)**:**
ARCH 200D: Representational Practice in Architectural Design II
ARCH 200C: Representational Practice in Architectural Design I
DESINV 201: Debates in Design

Educational Credentials:
2004 Master of Architecture, Massachusetts Institute of Technology
1999 Bachelors of Design in Architecture, University of Florida

Teaching Experience:
Sixteen years of experience teaching core courses in design and architectural representation, and topical research studios and seminars in Design Computation.
Central role in the first semester of the MArch program, teaching and taking part in the courses: ARCH 200C, 200D, and 200A.

Professional Experience:
Architect and technologist who applies techniques drawn from artificial intelligence to architectural design. Work has been exhibited at the Italian Pavilion of the Venice Architecture Biennale, at the Pavillon De L'Arsenal in Paris, and at the NeurIPS workshop on Machine Learning for Creativity and Design.
Worked as a professional architect at a number of design firms, including Skidmore Owings and Merrill, Acconci Studio, Kohn Petersen Fox Associates, Howler/Yoon, Diller Scofidio Renfro, and TEN Arquitectos.

Selected Publications and Recent Research:
K. Steinfeld, T. Tebbecke, G. Grigoriadis, and D. Zhou, “Artificiale Rilievo: GAN-Generated Architectural Sculptural Relief,” in Towards Radical Regeneration, C. Gengnagel, O. Baverel, G. Betti, M. Popescu, M. R. Thomsen, and J. Wurm, Eds., Springer International Publishing, 2022, pp. 133–148.
K. Steinfeld, “Imaging Place Using Generative Adversarial Networks (GAN Loci),” in Machine Learning and the City: Applications in Architecture and Urban Design, S. Carta, Ed., Wiley, 2022, pp. 513–516.
K. Steinfeld, “The Sorcerer’s Apprentice,” in Artificial Intelligence and Architecture: From Research to Practice, S. Chaillou, Ed., Birkhäuser, 2022.
K. Steinfeld, “Significant Others: Machine Learning as Actor, Material, and Provocateur in Art and Design,” in The Routledge Companion to Artificial Intelligence in Architecture, I. As and P. Basu, Eds., Routledge, 2021.
K. Steinfeld, “L’apprenti Sorcier,” in L’intelligence artificielle au service de l’architecture, S. Chaillou, Ed., Le Moniteur, 2021, pp. 102–115.
J. Ko and K. Steinfeld, Geometric Computation. United Kingdom: Routledge, 2018.

Professional Memberships:
Editorial Board, International Journal of Architectural Computation

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Neyran Turan (Associate Professor)

Courses Taught (Four semesters prior to current visit)**:**
ARCH 100C. Undergraduate Architecture Design Studio
ARCH 204A. Thesis Seminar
ARCH 204B. Thesis Studio
ARCH 230. Advanced Architectural Theory and Criticism
ARCH 139/239. Architecture and the Anthropocene (Elective Seminar)
ARCH 281. Methods of Inquiry in Architectural Research

Educational Credentials:
Doctor of Design, Harvard University Graduate School of Design, Cambridge, 2009.
Master of Environmental Design, Yale University School of Architecture, New Haven, 2003.
Bachelor of Architecture, School of Architecture, Istanbul Technical University, Turkey, 1998.

Teaching Experience:
Assistant Professor, UC Berkeley College of Environmental Design
Assistant Professor, Rice University School of Architecture
Lecturer, Harvard University Graduate School of Design

Professional Experience:
Founding Partner, NEMESTUDIO (www.nemestudio.com)

Licenses/Registration:
Registered architect in Turkey.

Selected Publications and Recent Research:
Built Work (in progress). NEMESTUDIO, *CS2 House*. A single-family house located in Denver, Colorado. Construction is scheduled to start in 2023.
2022 Best of Design Awards – The Architect's Newspaper
Built Exhibition (completed). NEMESTUDIO, *Four Dioramas*. Installation and exhibition design for the 5,750 square-feet space of the Pavilion of Turkey at the 2021 Venice Architecture Biennale, Sale d'Armi, Arsenale, Venice. Commissioned by the Istanbul Foundation for Culture and Arts. May – November 2021.
→ *Project awarded with:*
2023 ACSA Faculty Design Award
2022 Built Environment Award - Core 77 Design Awards
2021 Best of Year Awards – Interior Design Magazine
Authored Book (published). Neyran Turan, *Architecture as Measure* (Barcelona and New York: ACTAR Publishers, 2020). → Book awarded with: *Graham Foundation for Advanced Studies in the Fine Arts grant (Chicago, May 2018)*

Professional Memberships:
Selection Committee Member. Pavilion of Turkey participation at the 2023 Venice Architecture Biennale. Organized by the Istanbul Foundation for Culture and Arts (IKSV). September 2022.
Jury Member. *46th Annual KRob Competition,* American Institute of Architects-AIA Dallas chapter. September 2020.
JAE Editorial Board Member. Journal of Architectural Education (JAE), September 2016 – 2019. The JAE Editorial Board serves as the primary peer-review body for submissions to the journal and advises the Executive Editor regarding editorial policy and content.
Jury Member. Rice Design Alliance Young Architects Spotlight Prize, Houston, 2015–2016.
Steering Board Member. Rice Design Alliance, 2014–2016.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Yasmin Vobis

Courses Taught (Four semesters prior to current visit)**:**
S2023: ARCH 100D Architectural Design IV
F2023: ARCH 100C Architectural Design III
F2023: ARCH 260 Introduction to Construction
S2024: Arch 100D Architectural Design IV

Educational Credentials:
Master of Architecture, Princeton University
BA in Architecture, University of California at Berkeley

Teaching Experience:
2022-Present : University of California at Berkeley. Assistant Professor of Architecture.
2020-2022: Harvard Graduate School of Design. Assistant Professor of Architecture
2022: Brown University. Professor of the Practice of Architecture
2017-2019: The Irwin S Chanin School of Architecture, Cooper Union. Visiting Professor II of Architecture
2014-2017: The Rhode Island School of Design, School of Architecture. Critic
2008-2010: Princeton University School of Architecture. Assistant-in-Instruction

Professional Experience:
2014 - : Ultramoderne. Architecture office co-founded with Aaron Forrest. Principal.
2012-2014: Steven Holl Architects. Assistant Project Architect.
2010-2012: Guy Nordenson and Associates Structural Engineers. Designer and Project Manager.
2009-2010: LTL Architects. MoMA PS1 Designer-in-Residence for *Rising Currents* Exhibition.
2007: WORKac. Research Assistant for *49 Cities* book publication.
2005-2006: Ogrydziak Prillinger Architects. Project Designer.

Licenses/Registration:
Registered Architect Rhode Island #4891

Selected Publications and Recent Research:
2024. Heterogeneous Constructions. Forthcoming book, published by Birkhäuser Verlag. With Aaron Forrest and Brett Schneider.
2023. “Sticks and Stones and: An Atlas of Heterogeneous Construction.” *Constructive Disobedience* Conference proceedings. TU Braunschweig. Forthcoming.
2022. “An Update from the Post Typical.” Response in *PLAT 10.5: Reflect*, Rice School of Architecture. With Aaron Forrest.
2021. “Ten Points on CLT Models and Public Performance.” Essay in *Blank: Speculations on CLT* edited by Jennifer Bonner and Hanif Kara.
2021. “Ultramoderne.” in *GRAM 03* | Architecture Magazine, Edition QNDMC. Firm conversation.
2019. *Vacant Providence.* Book. Drawings, writings, and research. With Aaron Forrest.
2019: “Other Methods” in *Perspecta 52*. Essay on Rome Prize photogrammetry research.
2019: “Post Typical.” *PLAT Journal,* Rice School of Architecture. With Aaron Forrest.
2018: *Young Architects 18: Impermanence*. Featured firm. Anne Rieselbach, Ed. The Architectural League of NY.

Professional Memberships:
NCARB (National Council of Architectural Registration Boards)
NCARB Certified # 87152

PART TIME FACULTY RESUMES

Part time faculty who teach assessment point courses included here.

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: Robert A. Bracamonte

Courses Taught (Four semesters prior to current visit)**:**
ARCH 207D: The Cultures of Practice

Educational Credentials:
Bachelor of Architecture w/ Distinction, University of Arizona, 1974

Teaching Experience:
2023, UC Berkeley College of Environmental Design, Lecturer

Professional Experience:
Over 40 years with various Architectural Firms…
Anderson DeBartolo Pan, Inc., Design Principal (1979-1995)
Ehrlich Rominger / HDR – Principal (1995-2004)
Ellerbe Becket SF – Design and Managing Director (2004-2012)
NBBJ – Associate, Project Manager (2012-2015)
Perkins+Will, Associate Principal (2015-2017)
DGA, Inc., Principal (2017-current)

Licenses/Registration:
California C11416 – 1979, Arizona 11904 – 1978

Selected Publications and Recent Research:
N/A

Professional Memberships:
American Institute of Architects
CoreNet

NAAB Template for Faculty Resumes (limit 1 page/individual)

Name: David Jaehning

Courses Taught (Four semesters prior to current visit)**:**
ARCH 160: Introduction to Construction, Spring 2023
ARCH 203: Integrated Design Studio "The Mass Timber Effect"
ARCH 260: Introduction to Construction
ARCH 202: Advanced Graduate Studio "The Mass Timber Effect"

Educational Credentials:
Master of Architecture, University of California at Berkeley
Bachelor of Architecture, University of North Carolina at Charlotte

Teaching Experience:
6 years lecturer at UC Berkeley's Department of Architecture

Professional Experience:
David Jaehning Architect – San Francisco, California (founded 2017)
Marlon Blackwell Architects – Fayetteville, Arkansas (2010 – 2016)
David Chipperfield Architects – Milan, Italy (2009 – 2010)
Robinson, Mills & Williams – San Francisco, California (2006 – 2009)
Skidmore, Owings & Merrill – San Francisco, California (2004 – 2006)
Herzog & de Meuron – Basel, Switzerland (2002 – 2004)

Licenses/Registration:
AIA #0178793
California, CAB #34474
Oregon, ARI-13877
NCARB #93158

Selected Publications and Recent Research:
"Of Blends and Voids" was published in the Work issue of Room One Thousand, May 2018
"Construction: An Aspiring Architect's Handbook", co-authored with Dana Buntrock, under contract with Birkhäuser Verlag GmbH and anticipated release in 2024

Professional Memberships:
American Institute of Architects
National Council of Architects Registration Board

PC 1 Career Paths

Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
Students understand the path to licensure in the US.	ARCH 207D, required in the 4th semester.	Discussion Student understanding of paths to licensure is facilitated through class lectures in classes #3, #4, and #26, and reinforced through the assigned reading on those weeks. Assessment of student understanding is evaluated through class discussion in classes #3, #4, and #26 and attendance at relevant class meetings.	95% of students are expected to participate in class discussion, and to articulate an understanding of the path to licensure.	In S23, 95% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by introducing an in-class quiz that asks the question: "describe the paths to licensure in the US".	ARCH 207D Discussion Reports ARCH 207D Lecture Slides ARCH 207D Attendance Sheet ARCH 207D Student Work / Class Notebook
Students understand the career opportunities that utilize the disciplines skills and knowledge.	ARCH 207D, required in the 4th semester.	Project: Student Resume Student work is evaluated for a demonstrated understanding of appropriate career opportunities.	90% of students are expected to receive 90 points or more on this assignment.	In S23, 82% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by requiring students to produce multiple versions of their resumes, each targeting a different career opportunity.	ARCH 207D Course Grading Sheet ARCH 207D Student Work / Student Resumes
		Project: Firm report Student work is evaluated for a demonstrated understanding of the diversity of career opportunities, as reflected in the way in which students describe the specific characteristics of their selected firm.	90% of students are expected to receive 90 points or more on this assignment.	In S23, 84% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by requiring students to compare their selected firm to firms researched by other students, and to discuss the different career paths reflected in the choices made by these firm.	ARCH 207D_Student Work / Firm Report
		Project: Portfolio Storyboard Student work is evaluated for a demonstrated understanding of the diversity of career opportunities, as reflected in the way their portfolio positions them in within a specific career trajectory.	90% of students are expected to receive 90 points or more on this assignment.	In S23, 93% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by requiring students to produce multiple versions of their portfolio, each targeting a different career opportunity.	ARCH 207D_Course Grading Sheet ARCH 207D_Student Work / Portfolio Storyboard
		Discussion Assessment of student understanding of career opportunities is evaluated through class discussion in class #14 and attendance at relevant class meetings.	95% of students are expected to participate in discussion and demonstrate understanding.	In S23, 94% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by introducing an in-class quiz that asks the question: "describe three different career opportunities that utilize the skills and knowledge of our discipline".	ARCH 207D_Student Work / Class Notebook ARCH 207D_Attendance Sheet ARCH 207D Discussion Reports

PC 2 Design

Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
Students understand how the architectural design process shapes the built environment.	ARCH 201, required in the 3rd semester.	Assignment 1 The first assignment for every section is an intervention in the built environment in an urban context. Students are assessed on their understanding of the role of design process in designing at three different scales: Urban/Building/Housing Unit. Deliverables include student-produced models and drawings that are assessed in person through a juried architectural review.	95% of students are expected to demonstrate the relevant understanding through their design work. If a student fails to do so, they are notified at the midpoint of the semester.	In F22, 92% of the students met the benchmark.	Starting in AY 23-24, we will develop the current grading method into a formal rubric for this assessment point, and provide letter grades for this assignment to students. A link to this new rubric is included here as evidence. In AY 23-24, the MArch program committee will explore including ARCH200B as an assessment point for PC2.	ARCH 201_Assignment 1 ARCH 201_Assignment 1 Rubric 2023 ARCH 201_Assignment 1 Rubric 2022 ARCH 201_Assignment 1 Grading Sheet ARCH 201_Course Grading Sheet
Students will be able to convey the methods by which design processes integrate multiple factors, in different settings and scales of development, from buildings to cities.	ARCH 201, required in the 3rd semester.	Course Performance Through designing housing in a given urban context, students are assessed on the quality of their final design project, the quality of their final design representations, the consistency of their design process, and their verbal communication at the final review.	95% of students are expected to receive a B+ or above in the course.	In F22, 93% of the students met the benchmark.	Starting in AY 23-24, we will breakdown the current grading criteria into 4 separate designations: Conceptual Criteria, Technical Criteria, and Studio Engagement. Students will be given points for each topic which translate into a total final grade for the course. The points will be given based on deliverables and presentation at a Juried Final Review.	ARCH 201_Course Grading Sheet
Instills in students the role of the design process in shaping the built environment and conveys the methods by which design processes integrate multiple factors, in different settings and scales of development, from buildings to cities.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the Design components of their work in the Final Drawing Set submitted at the conclusion of the semester. The PC-2 criteria can be found in the following sheets of the Final Drawing Set: G011, G012, G030, A000, A010, A110, A200, A201, A300, A301, A302, A400, A500, A600, A601, A900, A901, S000, S001, S100, S101, S102, & S103. Each of these sheets are scored and weighted for the PC-2 Criteria and averaged into a composite score.	85% of students are expected to receive 87% percent of the available points for PC-2 Design or better.	In F22, 88% of the students met the benchmark.	Starting in AY 23-24, we plan to we plan to implement methods to more carefully weight the sheets in a more targeted manner to make sure that the most important evidence of Design work is factored more heavily in determining the grade for this category.	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet

PC 3	Ecological Knowledge and Responsibility						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students will be able to holistically understand the dynamic between built and natural environments.	ARCH 240, required in the 4th semester.	Assignment 2 - Weather Analysis Students analyse weather variables using Climate Studio software. Students learn how climate characteristics impact passive design options for buildings, using Climate Consultant software. Student ability to understand the dynamic between built and natural environment is reflected in the graphs produced and their analysis in writing.	90% of the students are expected to have a A- or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to use the narrative approach in the climate analysis assignment by focusing on a specific question or storyline instead of presenting all details. Introduce the use of a 3D wind rose map in climate studio to enhance the analysis of wind patterns and their impact on the site. Consider utilizing the CBE Clima tool as an alternative Climate Consultant tool, as it offers a more updated user interface and features for climate analysis.	ARCH 240 Student Work / Assignment 2 ARCH 240_Course Grading Sheet ARCH 240_Assignment 02_Climate Analysis
			Assignment 3 - Site Analysis Using Climate Studio simulations, students learn to analyse building sites in relation to solar and wind exposure, and how that impacts building massing and orientation. Student ability to understand the dynamic between built and natural environment is assessed by evaluating student-produced site analyses, which must account for the following metrics: Total Solar Radiation, Aggregated Solar Radiation, Sun Path + Sun Mask, Shading.	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to provide a site for students without studio classes or those with sites outside SF/Oakland. Include ventilation analysis with a 3D wind rose overlay in Climate Studio. Customize the cold hours/warm hours comparison to accurately reflect the summer behavior in SF, instead of the default settings.	ARCH 240 Student Work / Assignment 3 ARCH 240_Course Grading Sheet ARCH 240_Assignment 03_Site Analysis
			Assignment 4 - Daylighting Students learn how to provide access to natural light in their buildings by using computer simulations with Radiance/Climate Studio. Simulations are performed for different metrics for diffuse light, direct light, and visual comfort. Students demonstrate meeting certain lighting levels/benchmarks for each metric. The assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from computer simulation results. Student ability to holistically understand the dynamic between built and natural environments is assessed by evaluating student-produced daylight analyses, which must account for Daylight Metrics (e.g. daylight factor (DF), useful daylight illuminance (UDI), spatial daylight autonomy (sDA), and annual sun exposure (ASE), and Glare Metrics (e.g. point-in-time daylight glare probability, annual daylight glare probability, spatial disturbing glare (sDG)).	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to explore how different materials can affect daylighting performance within a space. Explore light shelves and other reflective surfaces in optimizing daylight distribution and quality. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 4 ARCH 240_Course Grading Sheet ARCH 240_Assignment 04_Daylight Analysis
			Assignment 5 - Thermal and Energy Performance Students create whole building energy models using Climate Studio/EnergyPlus. 3D models include building geometry, materials and HVAC systems. Detailed material assemblies for envelope construction are created for walls, roofs, and glazing elements. Simulations are performed for different metrics for heating, cooling, ventilation and artificial lighting. Energy Use Intensity (EUI) is used as an overall metric of energy efficiency. Using parametric studies, students demonstrate meeting certain levels/benchmarks for each metric. Assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from simulation results. Student ability to holistically understand the dynamic between built and natural environments is assessed by evaluating student-produced thermal and energy analyses, which must account for a range of Energy Metrics (e.g. total energy use intensity (kWh/m2), a breakdown of energy use intensity (heating, cooling, lighting, equipment, etc), quantitative and percentage improvements in energy use intensity for a revised design).	90% of the students are expected to have a B+ or above	100% of the students met the standard	Starting in AY 23-24, we plan to emphasize the influence of material properties on thermal analysis, such as the use of light-colored materials or low-emission materials. Explain how these material choices affect factors like solar reflectance, emissivity, and thermal conductivity, which contribute to the overall thermal performance of the building. Present both numerical and percentage data in the parametric analysis to provide a comprehensive evaluation of the improvements achieved. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 5 ARCH 240_Course Grading Sheet ARCH 240_Assignment 05_Thermal and WBE
			Assignment 6 - Final project Departing from the previous assignments, students further optimize building design to reconcile conflicting objectives between daylighting, natural ventilation, heating+cooling+ventilation HVAC loads, and artificial lighting use. Computer simulations are used to fine tune the final building. Students design a renewable energy system to meet the final energy demands of the building, to achieve a Net Zero energy solution. Students should also produce an environmental section displaying ecological design strategies in general. Student ability to holistically understand the dynamic between built and natural environments is assessed by evaluating student-produced projects, which must incorporate metrics from 1) a solar analysis, a daylighting analysis, and a thermal/energy analysis; 2) natural ventilation requirements; 3) on-site energy generation.	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to better address the following 1) zero-net energy: provide analysis or calculations demonstrating how the on-site renewable energy contributes to achieving near-zero energy or net-zero energy performance for the building. 2) well-being: highlight the non-energy benefits, such as improved indoor environmental quality, occupant comfort, aesthetics, or social aspects. 3) use narratives, images, or diagrams that illustrate how design enhances user well-being or experience, for occupants and surrounding community. 4) devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 6 ARCH 240_Course Grading Sheet ARCH 240_Assignment 06_Final Project ARCH 240_Assignment 6 Grading Sheet

PC 3 CONTINUED						
Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
Students understand how future architects can responsibly mitigate climate change by leveraging ecological, advanced building performance, adaptation, and resilience principles in their work and advocacy activities.	ARCH 240, required in the 4th semester.	Assignment 1 - Green Building Case Study Student analyse recent AIA Committee on the Environment (COTE) awards to understand how they mitigate climate change by leveraging ecological, advanced building performance, adaptation, and resilience principles. Assessment is based on the content of the student-produced slideshow presentation, as described in the handout.	90% of the students are expected to have a A- or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to include critical analysis section to provide deeper evaluation of building strengths, weaknesses, and overall performance. Use illustrations and visuals instead of directly copying and referencing website reports to enhance presentation and engagement levels. Add a section on carbon emissions to assess the building's environmental impact in terms of greenhouse gas emissions and its contribution to climate change.	ARCH 240 Student Work / Assignment 1 ARCH 240_Course Grading Sheet ARCH 240_Assignment 01_Green Building Case Study
		Assignment 2 - Weather Analysis Students analyse weather variables using Climate Studio software. Students learn how climate characteristics impact passive design options for buildings, using Climate Consultant software.	90% of the students are expected to have a A- or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to use the narrative approach in the climate analysis assignment by focusing on a specific question or storyline instead of presenting all details. Introduce the use of a 3D wind rose map in climate studio to enhance the analysis of wind patterns and their impact on the site. Consider utilizing the CBE Clima tool as an alternative Climate Consultant tool, as it offers a more updated user interface and features for climate analysis.	ARCH 240 Student Work / Assignment 2 ARCH 240_Course Grading Sheet ARCH 240_Assignment 02_Climate Analysis
		Assignment 3 - Site Analysis Using Climate Studio simulations, students learn to analyse building sites in relation to solar and wind exposure, and how that impacts building massing and orientation. Student understanding of how future architects can responsibly mitigate climate change is assessed by evaluating student-produced site analyses, which must account for the following metrics: Total Solar Radiation, Aggregated Solar Radiation, Sun Path + Sun Mask, Shading.	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to provide a site for students without studio classes or those with sites outside SF/Oakland. Include ventilation analysis with a 3D wind rose overlay in Climate Studio. Customize the cold hours/warm hours comparison to accurately reflect the summer behavior in SF, instead of the default settings.	ARCH 240 Student Work / Assignment 3 ARCH 240_Course Grading Sheet ARCH 240_Assignment 03_Site Analysis
		Assignment 4 - Daylighting Students learn how to provide access to natural light in their buildings by using computer simulations with Radiance/Climate Studio. Simulations are performed for different metrics for diffuse light, direct light, and visual comfort. Students demonstrate meeting certain levels/benchmarks for each metric. The assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from computer simulation results. Student understanding of how future architects can responsibly mitigate climate change is assessed by evaluating student-produced daylight analyses, which must account for Daylight Metrics (e.g. daylight factor (DF), useful daylight illuminance (UDI), spatial daylight autonomy (sDA), and annual sun exposure (ASE), and Glare Metrics (e.g. point-in-time daylight glare probability, annual daylight glare probability, spatial disturbing glare (sDG)).	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to explore how different materials can affect daylighting performance within a space. Explore light shelves and other reflective surfaces in optimizing daylight distribution and quality. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 4 ARCH 240_Course Grading Sheet ARCH 240_Assignment 04_Daylight Analysis
		Assignment 5 - Thermal and Energy Performance Students create whole building energy models using Climate Studio/EnergyPlus. 3D models include building geometry, materials and HVAC systems. Detailed material assemblies for envelope construction are created for walls, roofs, and glazing elements. Simulations are performed for different metrics for heating, cooling, ventilation and artificial lighting. Energy Use Intensity (EUI) is used as an overall metric of energy efficiency. Using parametric studies, students demonstrate meeting certain levels/benchmarks for each metric. Assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from simulation results. Student understanding of how future architects can responsibly mitigate climate change is assessed by evaluating student-produced thermal and energy analyses, which must account for a range of Energy Metrics (e.g. total energy use intensity (kWh/m2), a breakdown of energy use intensity (heating, cooling, lighting, equipment, etc), quantitative and percentage improvements in energy use intensity for a revised design).	90% of the students are expected to have a B+ or above	100% of the students met the standard	Starting in AY 23-24, we plan to emphasize the influence of material properties on thermal analysis, such as the use of light-colored materials or low-emission materials. Explain how these material choices affect factors like solar reflectance, emissivity, and thermal conductivity, which contribute to the overall thermal performance of the building. Present both numerical and percentage data in the parametric analysis to provide a comprehensive evaluation of the improvements achieved. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 5 ARCH 240_Course Grading Sheet ARCH 240_Assignment 05_Thermal and WBE
		Assignment 6 - Final project Departing from the previous 4 assignments, students further optimize building design to reconcile conflicting objectives between daylighting, natural ventilation, heating+cooling+ventilation HVAC loads, and artificial lighting use. Computer simulations are used to fine tune the final building. Students design a renewable energy system to meet the final energy demands of the building, to achieve a Net Zero energy solution. Students should also produce an environmental section displaying ecological design strategies in general. Student understanding of how future architects can responsibly mitigate climate change is assessed by evaluating student-produced projects, which must incorporate metrics from 1) a solar analysis, a daylighting analysis, and a thermal/energy analysis; 2) natural ventilation requirements; 3) on-site energy generation.	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to better address the following 1) zero-net energy: provide analysis or calculations demonstrating how the on-site renewable energy contributes to achieving near-zero energy or net-zero energy performance for the building. 2) well-being: highlight the non-energy benefits, such as improved indoor environmental quality, occupant comfort, aesthetics, or social aspects. 3) use narratives, images, or diagrams that illustrate how design enhances user well-being or experience, for occupants and surrounding community. 4) devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 6 ARCH 240_Course Grading Sheet ARCH 240_Assignment 06_Final Project ARCH 240_Assignment 6 Grading Sheet
Instills in students a holistic understanding of the dynamic between built and natural environments, enabling future architects to mitigate climate change responsibly by leveraging ecological, advanced building performance, adaptation, and resilience principles in their work and advocacy activities.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the Ecological Knowledge and Responsibility components of their work in the Final Drawing Set submitted at the conclusion of the semester. These projects grapple with the ecological impacts of vehicle infrastructure (converting gas to electric) as well as the impacts on the environment of our building systems, material assemblies, siting decisions, and landscape context. The PC-3 criteria can be found in the following sheets of the Final Drawing Set: G001, G011, G012, G020, A000, A010, A100, A101, A102, A400, A401, A600, A601, M001, M002, & M003. Each of these sheets are scored and weighted for the PC-3 Criteria and averaged into a composite score.	85% of students are expected to receive 87% percent of the available points for PC-3 or better.	In F22, 67% of the students met the benchmark.	Starting in AY 23-24, we plan to implement improve the emphasis on Environmental Analysis and Observation in the early stages of the student design projects, while guiding site visits with this in mind.	ARCH 203_Drawing Set Guidelines ARCH 203_Daylighting Calculation Spreadsheet ARCH 203_Drawing Set A600 Environmental Design Instructions ARCH 203_Natural Ventilation Calculation Spreadsheet ARCH 203_Student Work ARCH 203_Integrated Studio Handbook ARCH 203_Grading Sheet

PC 4	History & Theory						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students understand the importance of the theories of architecture and urbanism, framed by diverse social, cultural, economic, and political forces, nationally and globally.	ARCH 230, required in the 2nd semester.	Discussion The class meets once a week and consists of lectures, student presentations, and class discussions. All students are expected to prepare for each week by completing the assigned readings before the lectures and participating actively in discussions with relevant questions. After each weekly lecture, the second portion of the class is dedicated to discussion, where the professor and the GSI lead different discussion groups. Through participation in discussion, student understanding of the importance of how architectural history, theories, and practices shape and are shaped by their interaction with various socio-political, cultural, and economic conditions is assessed. Each discussion is moderated by Session Moderators assigned for that week.	75% of the students are expected to have a B+ or above (see the 'summary' section of the grading sheet).	In S23 %75 of the students met the benchmark	Starting in AY 23-24, we plan to ask students to bring their weekly response papers to the class discussion to make the discussions even more engaging. Also, more peer-to-peer discussion collaboration is planned for next year.	ARCH 230_Grading Sheet
			Weekly Reading Response Paper All students are expected to formulate one 200-250 words response paper, which addresses central issues encountered in the readings for that week. Each response is due before each class and submitted online at the course website discussion forum. Each student can see their classmates' responses only once they have added their response to the forum. Reading responses are between 200-250 words and address the central issues encountered in the readings for that week. Beyond mere summaries of the readings or general comments on the weekly topics, students are expected to reflect critically on a specific issue they encountered in the readings by raising a question about something they are interested in, excited to learn more about, did not understand, or disagreed with. They are encouraged to actively question the themes and arguments in the weekly readings, find relationships between readings, examine their response to these ideas, and consider their impact on the world.	85% of the students are expected to have above B (see the 'summary' section of the grading sheet).	In S23 70% of the students met the benchmark	Starting in AY 23-24, we plan to ask students to verbally present their response papers in class. Tools such as ChatGPT will be incorporated to the class pedagogy next year to allow students to experiment with the tool with a more informed manner. More reading workshops will be held during the year to help students get adjusted to various reading techniques.	ARCH 230_Grading Sheet
			Session Moderator Assignment Over the course of the semester, each student acts once as a Session Moderator. Each week, the Session Moderator(s) assigned for that session briefly introduce the topic with an analysis of the required readings listed on the course syllabus for that week. The Session Moderators present the theme with a critical reflection on the main arguments in the readings and initiate the discussion session. The Session Moderators meet with the GSI during office hours (before the group presentations) to get feedback on the discussion preparations. Student understanding of the importance of the theories of architecture and urbanism is assessed through their performance as Session Moderator.	85% of the students are expected to have above a B	In S23 %85 of the students met the benchmark	Starting in AY 23-24, session moderators will be asked to review all submitted reading responses into their discussion.	ARCH 230_Grading Sheet
			Final Paper Final semester project is a further elaboration on a theme that is of particular interest to the student through a focus on a case study, reflected through the format of a review essay. The case study can be (1) a building, (2) an (unbuilt) architectural project, (3) an architectural article, (4) an architectural representation (drawing, model, etc.), (5) a book, or (6) an exhibition. Students are encouraged to consider their final paper for the course as a more extended response paper with a more considered structure. The final paper must include a critical analysis/text of 2500 words. For the semester project, there is a mid-term submission and one seminar symposium, during which students get feedback on their developing work. Student understanding of the importance of the theories of architecture and urbanism is assessed through this paper.	85% of the students are expected to have above B+ (see the 'summary' section of the grading sheet).	In S23 %85 of the students met the benchmark	Starting in AY 23-24, more in-progress submissions of the final project are planned.	ARCH 230_Grading Sheet
	Students understand the importance of the histories of architecture and urbanism, framed by diverse social, cultural, economic, and political forces, nationally and globally.	ARCH 270, required in the 1st semester.	Final Exam Through twice-weekly lectures and weekly discussion sections, this course surveys histories and theories of architectural and urban design practice. Chronologically, the survey starts in the 17th C. with the formation of the French Academy of Architecture, the genesis of a modern architectural design profession (as distinguished from building trades) through training in design methods, history, and theory specific to the discipline. The survey runs through to the present, examining how the ideologies and practices of the architecture profession have interacted with diverse societies, cultures, and political economies in multiple national and geographic settings, including Asia and the Global South. The final exam requires students to identify a set of buildings by name, architect, location, and date, and to write a short essay discussing how the building comparison illustrates significant trends in professional practice, political and economic context, building technology and materials, or client culture and values.	100% of students are expected to score 90% or above in the final exam.	In F22, 90% of students met the benchmark.	Since all students who failed to achieve the benchmark were students with English as a second language, starting in AY 23-24, Graduate Student Instructors will review written assignments submitted for discussion sections, identify students with weak written language skills, and direct them to appropriate University resources for improvement of this skill set.	ARCH 270_Final Exam ARCH 270_Grading Sheet

PC 5	Research & Innovation						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students will be able to engage and participate in architectural research.	ARCH 204A, required in the 5th semester.	Thesis Book The thesis book is a pamphlet that outlines each student's research ambitions through the articulation of a thesis and design proposal. All work in this class, including the weekly presentations, is focused on developing a clear thesis ambition and a thesis proposal presented in the form of a thesis book. The thesis book is expected to articulate a strong intellectual and design position, which is focused on specific architectural aspects and techniques. It includes a short bibliography of the 5-10 essays or book chapters most relevant to the ambition. It asserts the thesis ambition's disciplinary and extra-disciplinary relevance (social, cultural, political, technological, economic, aesthetic, etc.). It includes a design thesis project proposal that indicates the student's thesis ambition's potential architectural design implications and an initial elaboration on projected design and representational techniques.	%90 of students are expected to have B+ or above	In F22, %90 of students met the benchmark.	No changes are planned in relationship to this goal.	ARCH 204A_Grading Sheet
	Students will be able to test and evaluate innovations in the field.	ARCH 204B, required in the 6th semester.	Thesis Project Following the related thesis seminar in the previous fall semester, the studio focuses on developing a research project in the form of a thesis and cultivating a particular position each student takes in the field. At the end of the studio, each student is expected to refine a thesis focus, put forward an architectural proposition of that focus as a project, and produce detailed drawings and models of that project, which are coordinated into a final review presentation.	%90 of students are expected to have B+ or above	In F22, %90 of students met the benchmark.	No changes are planned in relationship to this goal.	ARCH 204B_Grading Sheet

PC 6	Leadership & Innovation						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students will understand approaches to leadership in the context of a multidisciplinary team and/or a diverse set of stakeholder constituents.	ARCH 207D, required in the 4th semester.	In-Class Exercise: Role Play In classes #25, #26, #27, #28, students demonstrate approaches to leadership through "role play" exercises in which students perform a given role (e.g. client & architectural design team) in a typical architectural selection process.	95% of students are expected to participate in this exercise, and to demonstrate leadership approaches. Student performance is measured using peer evaluation.	In S23, 97% of students met the benchmark.	No changes are planned in relationship to this goal.	ARCH 207D_Attendance Sheet ARCH 207D Discussion Reports
	Students will be able to apply effective collaboration skills in solving complex problems.	ARCH 203, required in the 5th semester.	Integrated Design Project Students work throughout the semester on the design of an architectural project, and work through a collaborative model with their project partners and working sessions with outside consultants in Fire & Life Safety, Mechanical Design, Structural Design, Environmental Design, and Facade Design. The result of these collaborations can be found throughout the student projects, but is particularly evident in the following sheets in the student drawing sets. The PC-6 criteria can be found in the following sheets of the Final Drawing Set: G043, A600, A601, S000, S001, S100, S101, S102, S103, M001, M002, & M003. Students are scored on their approach and contributions to a collaborative process based on several criteria and averaged into a composite score.	85% of students are expected to receive 87% percent of the available points for PC-6 or better.	In F22, 96% of the students met the benchmark.	Starting in AY 23-24, we plan to implement self-assessment forms for the students to fill out in order to evaluate the quality of collaboration from within each student group.	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet ARCH 207C & ARCH 203 Lecture Slides ARCH 207C_Summaries of Lectures ARCH 207C_Schedule ARCH 207C_Readings

PC 7	Learning & Teaching Culture						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students will be able to confirm that they have been fostered in a positive and respectful environment that encourages optimism, respect, sharing, engagement, and innovation among its faculty, students, administration, and staff.	Graduating Student Exit Survey, administered in the final semester prior to commencement.	On the Graduate Student Exit Survey, students are asked to respond to the following: Q10.6 - "Are students treated equitably and fairly by CED faculty?"	80% are expected to answer "yes".	In S22, 85% of students answered "yes".	No changes are planned in relationship to this goal.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q13.1 - "I am satisfied with the advising and mentoring I receive from faculty on academic matters."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 84% responded "strongly agree", "agree", or "somewhat agree".	In AY 23-24, the MArch program committee will explore ways to improve this metric.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q13.2 - "I am satisfied with the advising and mentoring I receive from faculty on career and professional matters."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 78% responded"strongly agree", "agree", or "somewhat agree".	The new GSAOs announced in Fall 2023 a new initiative to have faculty reach out to their professional connections to increase professional development opportunities.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q14.1 - "My overall academic experience in CED (courses, studio, lectures, curriculum, faculty, etc.) has been positive."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 95% responded "strongly agree", "agree", or "somewhat agree".	Improving the academic experience is an ongoing effort within the architecture department. The GSAOs continually seek out student feedback in individual meetings and in meetings with student organizations to gather feedback on support measures. This feedback is used to maintain what is working and improve what isn't.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q14.5 - "The social environment in CED (clubs, community events, social activities, student-led activities, leadership opportunities, the sense of camaraderie among students, etc.) has been positive."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 91% responded "strongly agree", "agree", or "somewhat agree".	Student organizations open to graduate students were invited to speak at the orientation for incoming students in Fall 2023. The new GSAOs are in the process of hiring a student worker whose responsibilities will include supporting student organizations in the implementation of new programs and events.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.1 - "I think CED faculty are genuinely concerned about my welfare."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 93% responded responded "strongly agree", "agree", or "somewhat agree".	No changes are planned in relationship to this goal.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.2 - "I believe the CED environment encourages free and open discussion of difficult topics."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 86% responded "strongly agree", "agree", or "somewhat agree".	No changes are planned in relationship to this goal.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.3 - "I have opportunities for academic success that are similar to those of my classmates."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 92% responded "strongly agree", "agree", or "somewhat agree".	GSAOs will meet with each student for academic advising and checkups on degree progress. Faculty will communicate with GSAOs when they notice a student is struggling in their classes so GSAOs can reach out and develop a plan of action together with the student.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.4 - "CED offers effective classroom opportunities to explore issues of diversity and the built environment."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 87% responded "strongly agree", "agree", or "somewhat agree".	No changes are planned in relationship to this goal.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.5 - "CED has achieved a positive climate for equity and inclusion."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 91% responded "strongly agree", "agree", or "somewhat agree".	CED believes a positive climate for equity and inclusion is not something to be "achieved" and then left aside; rather, CED continually works to maintain this postive climate. Part of this includes discussing with faculty and staff concrete examples of what equity and inclusion look like in practice, and checking that faculty and staff are developing daily practices for establishing and re-establishing equity and inclusion across every context they are a part of, as well as providing models of behavior that students can reflect.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.6 - "Channels for expressing discrimination or harassment complaints are readily available to CED students."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 91% responded "strongly agree", "agree", or "somewhat agree".	The CED Inclusion + Belonging Working Group has been discussing the best way to open a channel for feedback on these issues. Additionally, the new GSAOs are working to create a student-forward, psychologically safe environment so that students feel more open discussing these issues with them.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q15.7 - "I know where to find resources specific to my demographic or circumstances (e.g., veterans, international students, women, LGBT, transfer students, immigrant students, student parents, financial, etc.)."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 84% responded "strongly agree", "agree", or "somewhat agree".	The new GSAOs have and will continue to send out information about university resources and affiliate groups/organizations on campus like the Multicultural Center, Gender Equity Resource Center, Center for Equity and Justice, etc, at the beginning of each semester to all graduate students. They also will continue to send out invitations to events held by these affiliate groups throughout the academic year.	CED Graduate Exit Survey 2022
			On the Graduate Student Exit Survey, students are asked to respond to the following: Q16.9 - "I feel that I belong in CED."	80% are expected to respond "strongly agree", "agree", or "somewhat agree".	In S22, 93% responded "strongly agree", "agree", or "somewhat agree".	The new GSAOs are hiring an architecture graduate student to help implement programming on belonging and inclusion at CED, like community building events and socials, a mentorship program, and a student newsletter with a student spotlight.	CED Graduate Exit Survey 2022

PC 8	Social Equity and Inclusion						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students understand a diverse set of cultural and social contexts.	ARCH 230, required in the 2nd semester.	Discussion Participation The class meets once a week and consists of lectures, student presentations, and class discussions. All students are expected to prepare for each week by completing the assigned readings before the lectures and participating actively in discussions with relevant questions. After each weekly lecture, the second portion of the class is dedicated to discussion, where the professor and the GSI lead different discussion groups. The course focuses on how architectural theories and practices shape and are shaped by their interaction with various socio-political, cultural, and economic conditions. All the weekly readings of this course touch on this topic in different ways, but especially the weeks below cover topics related to social equity and inclusion, Week 2 (Theory), Week 3 (Ruin), Week 4 (Politics of disability), Week 8 (Architecture, race, and indigenous agency), Week 9 (Queer space), Week 13 (Architecture and environmental justice), Week 14 (architecture and care). By participating in discussions and sharing their questions and thoughts, on course readings and content, students broaden their learning on these topics.	75% of the students are expected to have a B+ or above (see the 'summary' section of the grading sheet).	In S23 %75 of the students met the benchmark	Starting in AY 23-24, students will be asked to bring their weekly response papers to the class discussion to make the discussions even more engaging. Also, more peer-to-peer discussion collaboration is planned for next year.	ARCH 230_Grading Sheet
			Weekly Reading Response Paper All students are expected to formulate one 200-250 words response paper, which addresses central issues encountered in the readings for that week. Each response is due before each class and submitted online at the course website discussion forum. Each student can see their classmates' responses only once they have added their response to the forum. Reading responses are between 200-250 words and address the central issues encountered in the readings for that week. Through their response papers for those weeks mentioned above, students learn various social and economic contexts and architecture's inevitable relationship with those forces.	85% of the students are expected to have above B (see the 'summary' section of the grading sheet).	In S23 70% of the students met the benchmark	Starting in AY 23-24, students will be asked to verbal present their response papers in class next year. Tools such as ChatGPT will be incorporated to the class pedagogy next year to allow students to experiment with the tool with a more informed manner. More reading workshops will be held during the year to help students get adjusted to various reading techniques.	ARCH 230_Grading Sheet
			Final Paper Final semester project is a further elaboration on a theme that is of particular interest to the student through a focus on a case study, reflected through the format of a review essay. The case study can be (1) a building, (2) an (unbuilt) architectural project, (3) an architectural article, (4) an architectural representation (drawing, model, etc.), (5) a book, or (6) an exhibition. Students are encouraged to consider their final paper for the course as a more extended response paper with a more considered structure. The final paper must include a critical analysis/text of 2500 words. For the semester project, there is a mid-term submission and one seminar symposium, during which students get feedback on their developing work. Through a focus on a particular case study of their choice in their final paper, which is either situated in a particular region (if studying a building) or a discourse (if studying a book, essay, exhibition, or drawing) and is enmeshed in a specific social and political context, students get an understanding of larger systemic issues around social equity and inclusion.	85% of the students are expected to have above B+ (see the 'summary' section of the grading sheet).	In S23 %85 of the students met the benchmark	Starting in AY 23-24, more in-progress submissions of the final project are planned.	ARCH 230_Grading Sheet
	Students are able to design built environments that equitably support and include people of different backgrounds, resources, and abilities.	ARCH 201, required in the 3rd semester.	Course Performance As part of the exercises that look at the specifics of the housing unit, students are required to investigate different modalities of housing, including non-normative living arrangements, housing for diverse communities, mixed-use housing, communal housing. Students will also look at strategies for successfully integrating housing into the adjacent communities as opposed to displacement. Students are also required to provide access to transportation, and equitable access to green space	95% of students are expected to receive a B+ or above in the course.	In F22, 93% of the students met the benchmark.	Starting in AY 23-24, students will be required to articulate how their project equitably supports and includes people of different backgrounds, resources, and abilities at the final presentation of their work.	ARCH 201_Course Grading Sheet

SC 1	Health, Safety and Welfare in the Built Environment						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students are able to demonstrate their understanding of the impact of the built environment on human health, safety, and welfare at multiple scales, from buildings to cities.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the Health, Safety and Welfare in the Built Environment components of their work in the Final Drawing Set submitted at the conclusion of the semester. Each student team works closely with a consultant specializing in Environmental Design, Fire & Life Safety, and Mechanical Design through multiple iterations of their design projects to develop these concepts within their projects. The SC-1 criteria can be found in the following sheets of the Final Drawing Set: G003, G011, G012, G040, G043, G050, A110, A400, A401, A600, A601, M001, M002, & M003. Each of these sheets are scored and weighted for the SC-1 Criteria and averaged into a composite score.	85% of students are expected to receive 87% percent of the available points for SC-1 or better.	In F22, 83% of the students met the benchmark.	Starting in AY 23-24, we will be bringing in new Mechanical Consultants in the Fall and plan to foreground the relationship between health and mechanical systems. The department will hold a search for a 'Structural Design and Building Technology" faculty position in 2023-24. The expectation is that the new faculty member would be a full-time consultant to ARCH 203 to round out the professional consultant group.	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet ARCH 207C & ARCH 203 Lecture Slides ARCH 207C_Summaries of Lectures ARCH 207C_Schedule ARCH 207C_Readings

SC 2 Professional Practice						
Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
Students understand the importance of professional ethics, the regulatory requirements, the fundamental business processes relevant to architecture practice in the United States.	ARCH 207D, required in the 4th semester.	Project: Course Notebook Student work is evaluated for a demonstrated understanding of ethics, regulatory requirements, and business processes, as reflected in the class notes taken, additional data collected, and supplemental documents collected on the subject.	At least 90% of students are expected to demonstrate an understanding of issues related to this goal through their work related to this project. An acceptable understanding of these issues is reflected in a grade of 90 points or more on this assignment.	In F22, 83% of the students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by introducing an in-class quiz on the subject.	ARCH 207D_Course Grading Sheet ARCH 207D_Student Work / Class Notebook
		Discussion Students understanding of the forces that shape ethics (class #4), regulatory requirements (class #3) is evaluated through class discussions.	All students are expected to participate in class discussions in classes #3 and #4 that covers topics on "The Architect's Practice Act", the "AIA Code of Ethics", and on ethical behavior. 100% of students are expected to articulate an understanding of these issues in discussion.	In F22, 98% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by introducing an in-class quiz on the subject.	ARCH 207D Discussion Reports ARCH 207D_Attendance Sheet ARCH 207D Lecture Slides
		Discussion Students are provided with examples of standard contracts between owner and architects, and are asked to complete an in-class exercise to develop a Request for Proposals. Students understanding of the forces that shape business processes (classes #7 through #12) is evaluated through class discussions based on this exercise.	All students are expected to participate in class discussions in classes #7 through #12 that cover relevant topics. 95% of students are expected to articulate an understanding of these issues in discussion.	In F22, 96% of students met the benchmark.	Starting in AY 23-24, we plan to better assess this student learning outcome by introducing an in-class quiz on the subject.	ARCH 207D Discussion Reports ARCH 207D_Attendance Sheet ARCH 207D Lecture Slides ARCH 207D_Agreement Between Owner & Architect ARCH 207D_RFP Challenge

SC 3 Regulatory Context						
Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
Students are able to demonstrate an understanding of the fundamental principles of life safety, land use, and current laws and regulations that apply to buildings and sites in the United States. Students are able to demonstrate methods and evaluative processes used to comply with relevant laws and regulations as part of a project.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the understanding of the Regulatory components of their work in the Final Drawing Set submitted at the conclusion of the semester. Each student team works closely with a consultant specializing in Fire & Life Safety, and will have attended a presentation by a member of the San Francisco Planning Department in A207C. Students are also provided with an Integrated Studio Handbook, which outlines several key building code elements they should be familiar with and implement within their projects. The SC-3 criteria can be found in the following sheets of the Final Drawing Set: G001, G003, G011, G012, G040, & G043. Each of these sheets are scored and weighted for the SC-3 Criteria and averaged into a composite score.	85% of students are expected to receive 87% percent of the available points for SC-3 or better.	In F22, 51% of the students met the benchmark.	Starting in AY 23-24, we will be updating the Integrated Handbook to reflect new Building Codes. Relevant code references will be explicitly required on more sheets. Much of the information seems to be present but not explicit within the student projects.	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet ARCH 207C & ARCH 203 Lecture Slides ARCH 207C_Summaries of Lectures ARCH 207C_Schedule ARCH 207C_Readings

SC 4	Technical Knowledge *Goal / Student Learning Outcome*	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students are able to demonstrate an understanding of the established and emerging systems, technologies, and assemblies of building construction.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of Technical components of their work in the Final Drawing Set submitted at the conclusion of the semester. Each student team works closely with consultants specializing in Fire & Life Safety, Mechanical Design, Structural Design, Environmental Design, and Facade Design. Students are expected to identify these systems within their projects at multiple scales, from overall design concept to small scale construction detail. The SC-4 criteria can be found in the following sheets of the Final Drawing Set: G020, G043, G050, A100, A101, A102, A110, A200, A201, A300, A301, A302, A400, A401, A500, A600, A601, S000, S001, S100, S101, S102, S103, M001, M002, & M003. Each of these sheets are scored and weighted for the SC-4 Criteria and averaged into a composite score.	85% of students are expected to receive 87% percent of the available points for SC-4 or better.	In F22, 83% of the students met the benchmark.	Starting in AY 23-24, we will be streamlining the drawing set format so that there is less friction and redundancy between the technical drawings and presentation drawings, allowing for clearer representation of technical knowledge. We are also moving the deadline for the Drawing Set earlier in the semester so that the Technical Knowledge can be a more fundamental portion of the Final Reviews.	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet ARCH 207C & ARCH 203 Lecture Slides ARCH 207C_Summaries of Lectures ARCH 207C_Schedule ARCH 207C_Readings
		ARCH 250, required in the 2nd semester.	Lab Exercises 1-5 In five exercises, students learn to calculate and evaluate forces and stresses in structural members using both manual calculations and digital design and analysis tools, and to determine appropriate cross-sectional dimensions.	S/U Grading. Full points for complete submissions. At least 85% of students are expected to demonstrate an understanding of the problems associated with this objective by completing the exercises and submitting them by the due date.	77% of the students met the benchmark. Of the late assignments, all but 3 were submitted satisfactorily and received full points.	The exercises are the least popular part of the course because students struggle with the math. Even after going over the solutions together, many have difficulties. Therefore, in AY 22-23, we have offered extracurricular 1:1 tutoring, and allowed students to submit their work even after the deadline. This was well received, but required more effort by the supervisor and GSI. Starting in AY 23-24, it would be better if the understanding of methods and ways of solving problems could be developed during class time.	ARCH 250_Summaries of Lectures and Tutorials ARCH 250_Grading Sheet ARCH 250 Lecture Slides ARCH 250 Exercises & Solutions ARCH 250_Student Work / Exercise 1 ARCH 250_Student Work / Exercise 2 ARCH 250_Student Work / Exercise 3 ARCH 250_Student Work / Exercise 4 ARCH 250_Student Work / Exercise 5
			Project 1: Case Study Analysis Students are asked to present existing buildings to their classmates and explain the structural system and construction method used. The advantages and disadvantages as well as suggestions for improvement are discussed with the whole class.	It is expected that 85% of students will score above 90/100 (B+).	In S23, 84% of students met the benchmark.	Project 1 is very popular with students because they are eager to gain knowledge by studying from built projects. Difficulties usually arise from the fact that they are not used to discussing buildings from a technical perspective rather than an aesthetic perspective as practiced in their design studios. Starting in AY 23-24, we will seek to improve this by inviting more technical instructors to design studio meetings. In my course, I will try to better clarify expectations in the future by showing good presentations from previous years. as well as better curate the list of projects. It has been helpful this semester to better curate the list of case study projects by including only those for which there is sufficient literature and technical documentation.	ARCH 250_Summaries of Lectures and Tutorials ARCH 250_Grading Sheet ARCH 250 Lecture Slides ARCH 250_Project 1 Description ARCH 250_Student Work / Project 1

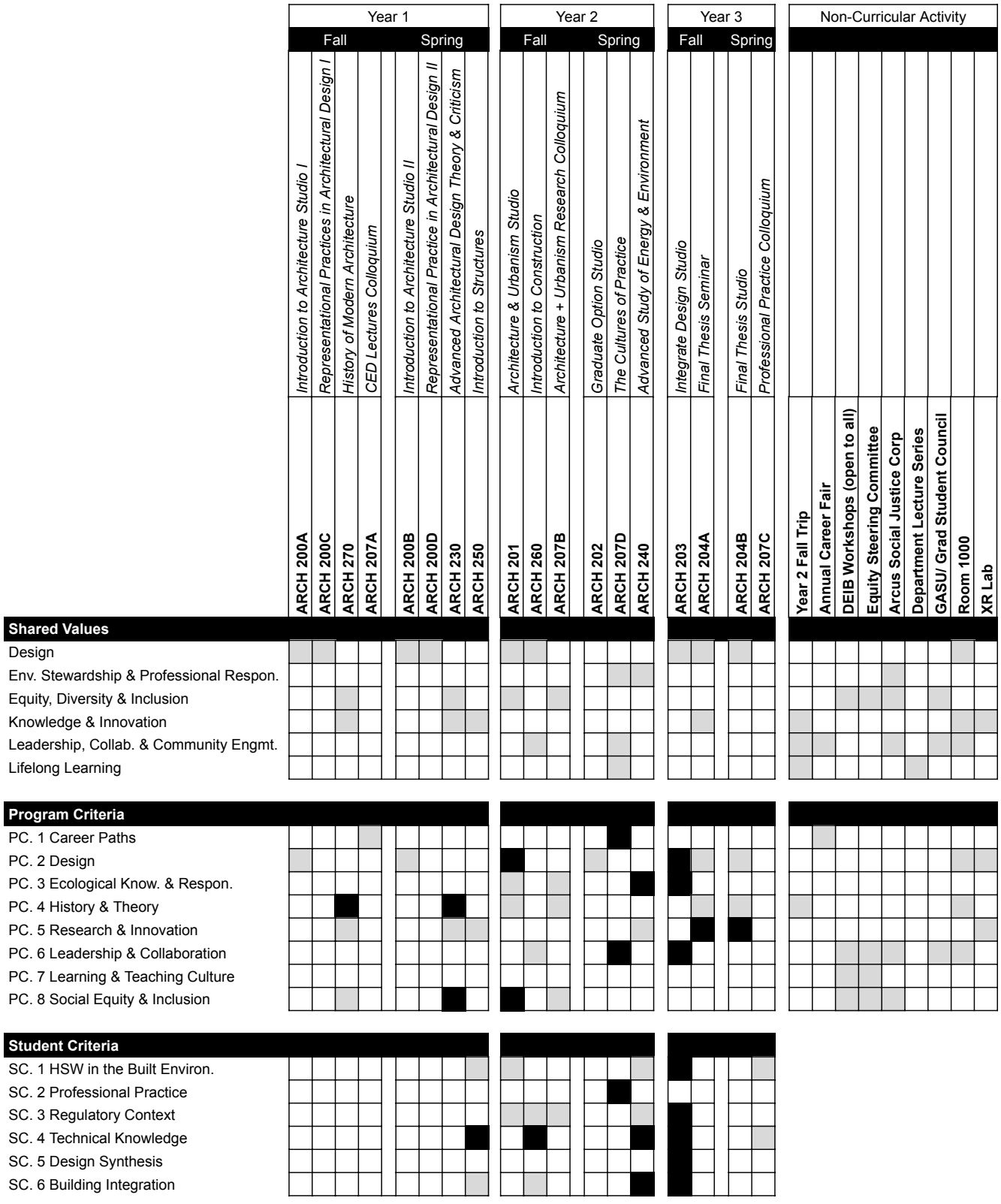
SC 4 CONTINUED

Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	ARCH 260, required in the 3rd semester.	Quiz 1 This quiz includes the following questions that assess student understanding of the established and emerging systems, technologies, and assemblies of building construction. True/False: a) Type I buildings are less fire-resistant than Type V buildings. b) Metal connectors are more widely used than mortise-and-tenon rigid joints due to cost advantages. Multiple choice: a) What are some benefits engineered lumber has over dimensioned lumber? Matching words: Wall section framing of a dimensioned lumber construction.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 30% of students met the benchmark.	In the past, quizzes were returned to the students after grading was complete. Starting in AY 23-24, we plan to either scan completed quizzes or administer digitally in order to better isolate and review individual quiz questions as they relate to NAAB audits. In this and the past 5 academic years, a low percentage on the first quiz is typical. Students initially do no believe they need to read the assigned text. As a result, students perform much better on subsequent quizzes. In F23, reminders on what material is covered in the quizzes on a weekely basis before or after a lecture.	ARCH 260_Grading Sheet ARCH 260_Quiz 01
		Quiz 2 This quiz includes the following questions that assess student understanding of the established and emerging systems, technologies, and assemblies of building construction. True/False: I-joists are not conventionally used for wall construction but can be used for both floor and roof construction. Matching words: Roof framing members.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 91% of students met the benchmark.	In the past, quizzes were returned to the students after grading was complete. Starting in AY 23-24, we plan to either scan completed quizzes or administer digitally in order to better isolate and review individual quiz questions as they relate to NAAB audits.	ARCH 260_Grading Sheet ARCH 260_Quiz 02
		Quiz 3 This quiz includes the following questions that assess student understanding of the established and emerging systems, technologies, and assemblies of building construction. True/False: a) Roof materials are selected to resist water, wind and even fire, b) Insulation is used to speed and promote heat transfer. Multiple choice: a) DWV..., b) Which of the following is the least expensive, most common roof finish? Short answer: a) List three types of elevators and describe a minimum of one characteristic for each, b) List three reasons we might want to deliver heat to a space from the floor instead of the ceiling.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 55% of students met the benchmark.	In the past, quizzes were returned to the students after grading was complete. Starting in AY 23-24, we plan to either scan completed quizzes or administer digitally in order to better isolate and review individual quiz questions as they relate to NAAB audits. In F23, spend additional time focusing on topics that will be on the quiz.	ARCH 260_Grading Sheet ARCH 260_Quiz 03
		Quiz 4 This quiz includes the following questions that assess student understanding of the established and emerging systems, technologies, and assemblies of building construction. True/False: a) Hollow Structural Sections produce weight savings, as they have better strength to weight ratio than wide flanges, b) Corrugated metal decking is often used for floors sitting on top of structural steel frames, c) Because light gauge steels studs tend to twist or buckle easily, attention must be paid to how they are loaded or braced, d) Because they are so hard to work with, Buckling Resistant Braces (BRBs) are still very rare in California. Multiple choice: a) Which of the following is true of bolted structural steel frames?, b) From a structural perspective, which of the following is the biggest concern to designers using structural steel frames. Short answer: a) List two steel alloy choices or finishes that can prevent or inhibit corrosion/rust, b) List three advantages that steel studs offer over wood studs, c) List and explain three ways that structural steel can be protected against fire.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 57% of students met the benchmark.	In the past, quizzes were returned to the students after grading was complete. Starting in AY 23-24, we plan to either scan completed quizzes or administer digitally in order to better isolate and review individual quiz questions as they relate to NAAB audits. In F23, spend additional time focusing on topics that will be on the quiz.	ARCH 260_Grading Sheet ARCH 260_Quiz 04
		Quiz 5 This quiz includes the following questions that assess student understanding of the established and emerging systems, technologies, and assemblies of building construction. True/False: a) Admixtures may increase the plasticity of concrete, b) Most structural concrete has a compressive strength of 3,000-6,000 psi (pounds per square inch), although mixes as high as 10,000 psi can be found in use, c) Symmetry is a good strategy for buildings that must resist seismic forces, d) In concrete construction, the cost of labor is usually more expensive than the material. Short answer: a) Explain the advantages and disadvantages of using fly ash in concrete, b) Explain the value of post-tensioning concrete.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 83% of students met the benchmark.	In the past, quizzes were returned to the students after grading was complete. Starting in AY 23-24, we plan to either scan completed quizzes or administer digitally in order to better isolate and review individual quiz questions as they relate to NAAB audits.	ARCH 260_Grading Sheet ARCH 260_Quiz 05
		Construction Site Reports Students demonstrate an understanding of the established systems, technologies, and assemblies of building construction by reporting on a construction site; it will be the basis for graded assignments that will take the form of reports. Students produced original photographs, sketches related to observations on-site, and prose which links work observed on-site to technical readings and other materials.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 98% of students met the benchmark.	Starting in AY 23-24, we plan to eliminate renovated single-family houses from allowed sites, as past examples lack complexity and skilled / permitted labor for students to benefit.	ARCH 260_Grading Sheet ARCH 260_Construction Site Report Assignment ARCH 260_Construction Site Report Grading Rubric ARCH 260_Student Work / Construction Site Report

SC 4 CONTINUED *Goal / Student Learning Outcome*	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
Students are able to demonstrate an understanding of established methods and criteria used to assess building technologies against the design, economics, and performance objectives of projects.	ARCH 240, required in the 4th semester.	Assignment 4 - Daylighting Students learn how to provide access to natural light in their buildings by using computer simulations with Radiance/Climate Studio. Simulations are performed for different metrics for diffuse light, direct light, and visual comfort. Students demonstrate meeting certain levels/benchmarks for each metric. The assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from computer simulation results. Students understanding of established methods used to assess building technologies is assessed by evaluating student-produced daylight analyses, which must account for Daylight Metrics (e.g. daylight factor (DF), useful daylight illuminance (UDI), spatial daylight autonomy (sDA), and annual sun exposure(ASE), and Glare Metrics (e.g. point-in-time daylight glare probability, annual daylight glare probability, spatial disturbing glare (sDG)).	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to explore how different materials can affect daylighting performance within a space. Explore light shelves and other reflective surfaces in optimizing daylight distribution and quality. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 4 ARCH 240_Course Grading Sheet ARCH 240_Assignment 04_Daylight Analysis
		Assignment 5 - Thermal and Energy Performance Students create whole building energy models using Climate Studio/EnergyPlus. 3D models include building geometry, materials and HVAC systems. Detailed material assemblies for envelope construction are created for walls, roofs, and glazing elements. Simulations are performed for different metrics for heating, cooling, ventilation and artificial lighting. Energy Use Intensity (EUI) is used as an overall metric of energy efficiency. Using parametric studies, students demonstrate meeting certain levels/benchmarks for each metric. Assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from simulation results. Students understanding of established methods used to assess building technologies is assessed by evaluating student-produced thermal and energy analyses, which must account for a range of Energy Metrics (e.g. total energy use intensity (kWh/m2), a breakdown of energy use intensity (heating, cooling, lighting, equipment, etc), quantitative and percentage improvements in energy use intensity for a revised design).	90% of the students are expected to have a B+ or above	100% of the students met the standard	Starting in AY 23-24, we plan to emphasize the influence of material properties on thermal analysis, such as the use of light-colored materials or low-emission materials. Explain how these material choices affect factors like solar reflectance, emissivity, and thermal conductivity, which contribute to the overall thermal performance of the building. Present both numerical and percentage data in the parametric analysis to provide a comprehensive evaluation of the improvements achieved. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 5 ARCH 240_Course Grading Sheet ARCH 240_Assignment 05_Thermal and WBE
		Assignment 6 - Final project Departing from the previous 4 assignments, students further optimize building design to reconcile conflicting objectives between daylighting, natural ventilation, heating+cooling+ventilation HVAC loads, and artificial lighting use. Computer simulations are used to fine tune the final building. Students design a renewable energy system to meet the final energy demands of the building, to achieve a Net Zero energy solution. Students should also produce an environmental section displaying ecological design strategies in general. Students understanding of established methods used to assess building technologies is assessed by evaluating student-produced projects, which must incorporate metrics from 1) a solar analysis, a daylighting analysis, and a thermal/energy analysis; 2) natural ventilation requirements; 3) on-site energy generation.	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to better address the following 1) zero-net energy: provide analysis or calculations demonstrating how the on-site renewable energy contributes to achieving near-zero energy or net-zero energy performance for the building. 2) well-being: highlight the non-energy benefits, such as improved indoor environmental quality, occupant comfort, aesthetics, or social aspects. 3) use narratives, images, or diagrams that illustrate how design enhances user well-being or experience, for occupants and surrounding community. 4) devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 6 ARCH 240_Course Grading Sheet ARCH 240_Assignment 06_Final Project ARCH 240_Assignment 6 Grading Sheet
	ARCH 250, required in the 2nd semester.	Project 2: Trusses Students are asked to apply their gained knowledge to design a pedestrian bridge, which is evaluated in terms of 1) concept and geometry, 2) structural design and analysis, and 3) proposed changes and design improvements based on the results of the analysis.	It is expected that 85% of students will score above 90/100 (B+).	In S23, 93% of students met the benchmark.	Project 2 is very popular with students. By showing good examples from previous years, the expectation is clear. Students usually have a hard time designing as a team, and more deskcrits would help identify the strengths of the students' ideas. Usually this adds a lot of extra work for the instructors. Starting in AY 23-24, we plan to have more than one invited guest from academia and practice such that students to get more diverse feedback on their designs.	ARCH 250_Summaries of Lectures and Tutorials ARCH 250_Grading Sheet ARCH 250 Lecture Slides ARCH 250_Project 2 Description ARCH 250_Student Work / Project 2
		Project 3: Pavilion Design Students are asked to apply their gained knowledge to design a sports pavilion, which is evaluated in terms of 1) concept and geometry, 2) structural design and analysis, and 3) proposed changes and design improvements based on the results of the analysis.	It is expected that 85% of students will score above 90/100 (B+).	In S23, 77% of students met the benchmark.	Project 3 is very popular with students, but comes at the end of the semester when the design studios attract most the students' attention. Therefore, it is important to help students manage their time and coordinate with the final reviews of the other classes. By showing good examples from previous years, the expectation is clear. Thanks to the previous Project 2, students are now more comfortable designing as a team. Starting in AY 23-24, we plan to have more time to discuss students' ideas.	ARCH 250_Summaries of Lectures and Tutorials ARCH 250_Grading Sheet ARCH 250 Lecture Slides ARCH 250_Project 3 Description ARCH 250_Student Work / Project 3
	ARCH 260, required in the 3rd semester.	Tectonic Precedent Team projects will explore tectonics through various contemporary precedents and illustrate how projects are developed from concept to construct. There will be two parts to this exercise and students will work in teams of three for both parts. Part One will focus on written research and a technical drawing of a given precedent. In Part Two, the same teams will construct a detailed physical model of their precedent and will revise both written and drawn elements from Part One. Relevant to this NAAB requirement, students outlined the principles used to determine exterior/interior materials and related performance. Also, technical drawings and digital models will illustrate and identify the assembly of materials, systems, and components from the given precedent.	It is expected that 85% of students would score above 90/100 (B+)	In F22, 95% of students met the benchmark.	No planned improvements. New precedents will continue to replace previous examples.	ARCH 260_Tectonic Precedent Assignment ARCH 260_Student Work / Tectonic Precedent ARCH 260_Grading Sheet

SC 5	**Design Synthesis**						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students are able to demonstrate an 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.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the understanding of design synthesis in the Final Drawing Set submitted at the conclusion of the semester. Each student team works closely with consultants specializing in Fire & Life Safety, Mechanical Design, Structural Design, Environmental Design, and Facade Design. Furthermore, students are tasked with understanding the requirements of the program, the needs of the users, and opportunities and constraints of an appropriate Site Strategy. Students are expected to identify these systems and requirements within their projects at multiple scales, from overall design concept to small scale construction detail, and are evaluated on the degree to which they synthesize these various components into a coherent, singular design proposal. The SC-5 criteria can be found in the following sheets of the Final Drawing Set: G001, A000, A010, A100, A101, A102, A110, A200, A201, A300, A301, A302, A400, A401, A500, A600, A601, A900, A901, S000, S001, S100, S101, S102, S103, M001, M002, & M003. Each of these sheets are scored and weighted for the SC-5 Criteria and averaged into a composite score.	85% of students are expected to 87% percent of the available points for SC-5 or better.	In F22, 92% of the students met the benchmark.	Starting in AY 23-24, we plan to to expand the program analysis portion of the design process, allowing for a more nuanced understanding of the relationship between program requirements and other conditions for building design	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet ARCH 207C & ARCH 203 Lecture Slides ARCH 207C_Summaries of Lectures ARCH 207C_Schedule ARCH 207C_Readings

SC 6	**Building Integration**						
	Goal / Student Learning Outcome	*Assessment Point*	*Assessment Method(s)*	*Assessment Point Benchmark Expected*	*Assessment Point Benchmark Achieved*	*Planned Improvements*	*Evidence*
	Students are able to demonstrate an 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.	ARCH 203, required in the 5th semester.	Integrated Design Project, Final Drawing Set Students work throughout the semester on the design of an architectural project, and are evaluated on the quality of the understanding of building integration in the Final Drawing Set submitted at the conclusion of the semester. Each student team works closely with consultants specializing in Fire & Life Safety, Mechanical Design, Structural Design, Environmental Design, and Facade Design. Students are expected to identify these systems and requirements within their projects at multiple scales, from overall design concept to small scale construction detail, and are evaluated on the degree to which they integrate these various components into a coherent, singular design proposal at multiple scales. Student projects should be enhanced rather than limited - representationally, spatially, and functionally - by these layers of systems. The SC-6 criteria can be found in the following sheets of the Final Drawing Set: A100, A101, A102, A150, A200, A201, A300, A301, A302, A400, A401, A500, A600, A601, A900, A901, S000, S001, S100, S101, S102, S103, M001, M002, & M003. Each of these sheets are scored and weighted for the SC-5 Criteria and averaged into a composite score.	85% of students are expected to 87% percent of the available points for SC-6 or better.	In F22, 94% of the students met the benchmark.	Starting in AY 23-24, we plan to streamline the drawing set format so that there is less friction and redundancy between the technical drawings and presentation drawings, allowing for clearer representation of technical knowledge. We are also moving the deadline for the Drawing Set earlier in the semester so that the Technical Knowledge can be a more fundamental portion of the Final Reviews, allowing for greater discussion of Building Integration, rather than just Design and Representation quality.	ARCH 203_Drawing Set Guidelines ARCH 203_Student Work ARCH 203_Grading Sheet ARCH 207C & ARCH 203 Lecture Slides ARCH 207C_Summaries of Lectures ARCH 207C_Schedule ARCH 207C_Readings
		ARCH 240, required in the 4th semester.	Assignment 4 - Daylighting Students learn how to provide access to natural light in their buildings by using computer simulations with Radiance/Climate Studio. Simulations are performed for different metrics for diffuse light, direct light, and visual comfort. Students demonstrate meeting certain levels/benchmarks for each metric. The assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from computer simulation results. Students ability to make design decisions while demonstrating integration of building envelope systems and assemblies, environmental control systems, and the measurable outcomes of building performance is assessed by evaluating student-produced daylight analyses, which must account for Daylight Metrics (e.g. daylight factor (DF), useful daylight illuminance (UDI), spatial daylight autonomy (sDA), and annual sun exposure(ASE), and Glare Metrics (e.g. point-in-time daylight glare probability, annual daylight glare probability, spatial disturbing glare (sDG)).	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to explore how different materials can affect daylighting performance within a space. Explore light shelves and other reflective surfaces in optimizing daylight distribution and quality. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 4 ARCH 240_Course Grading Sheet ARCH 240_Assignment 04_Daylight Analysis
			Assignment 5 - Thermal and Energy Performance Students create whole building energy models using Climate Studio/EnergyPlus. 3D models include building geometry, materials and HVAC systems. Detailed material assemblies for envelope construction are created for walls, roofs, and glazing elements. Simulations are performed for different metrics for heating, cooling, ventilation and artificial lighting. Energy Use Intensity (EUI) is used as an overall metric of energy efficiency. Using parametric studies, students demonstrate meeting certain levels/benchmarks for each metric. Assignment progresses from an initial design proposal (base case) to an optimized design based on iterative changes resulting from simulation results. Students ability to make design decisions while demonstrating integration of building envelope systems and assemblies, environmental control systems, and the measurable outcomes of building performance is assessed by evaluating student-produced thermal and energy analyses, which must account for a range of Energy Metrics (e.g. total energy use intensity (kWh/m2), a breakdown of energy use intensity (heating, cooling, lighting, equipment, etc), quantitative and percentage improvements in energy use intensity for a revised design).	90% of the students are expected to have a B+ or above	100% of the students met the standard	Starting in AY 23-24, we plan to emphasize the influence of material properties on thermal analysis, such as the use of light-colored materials or low-emission materials. Explain how these material choices affect factors like solar reflectance, emissivity, and thermal conductivity, which contribute to the overall thermal performance of the building. Present both numerical and percentage data in the parametric analysis to provide a comprehensive evaluation of the improvements achieved. Devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 5 ARCH 240_Course Grading Sheet ARCH 240_Assignment 05_Thermal and WBE
			Assignment 6 - Final project Departing from the previous 4 assignments, students further optimize building design to reconcile conflicting objectives between daylighting, natural ventilation, heating+cooling+ventilation HVAC loads, and artificial lighting use. Computer simulations are used to fine tune the final building. Students design a renewable energy system to meet the final energy demands of the building, to achieve a Net Zero energy solution. Students should also produce an environmental section displaying ecological design strategies in general. Students ability to make design decisions while demonstrating integration of building envelope systems and assemblies, environmental control systems, and the measurable outcomes of building performance is assessed by evaluating student-produced projects, which must incorporate metrics from 1) a solar analysis, a daylighting analysis, and a thermal/energy analysis; 2) natural ventilation requirements; 3) on-site energy generation.	90% of the students are expected to have a B+ or above	100% of the students met or exceeded the standard	Starting in AY 23-24, we plan to better address the following 1) zero-net energy: provide analysis or calculations demonstrating how the on-site renewable energy contributes to achieving near-zero energy or net-zero energy performance for the building. 2) well-being: highlight the non-energy benefits, such as improved indoor environmental quality, occupant comfort, aesthetics, or social aspects. 3) use narratives, images, or diagrams that illustrate how design enhances user well-being or experience, for occupants and surrounding community. 4) devise methods to keep class participation high as the semester progresses and studio becomes more heavy, usually leading to a decline in participation in other classes.	ARCH 240 Student Work / Assignment 6 ARCH 240_Course Grading Sheet ARCH 240_Assignment 06_Final Project ARCH 240_Assignment 6 Grading Sheet


Year 1
Fall
Spring
Year 2
Fall
Spring
Year 3
Fall
Spring
Non-Curricular Activity
Introduction to Architecture Studio I
Representational Practices in Architectural Design I
History of Modern Architecture
CED Lectures Colloquium
Introduction to Architecture Studio II
Representational Practice in Architectural Design II
Advanced Architectural Design Theory & Criticism
Introduction to Structures
Architecture & Urbanism Studio
Introduction to Construction
Architecture + Urbanism Research Colloquium
Graduate Option Studio
The Cultures of Practice
Advanced Study of Energy & Environment
Integrate Design Studio
Final Thesis Seminar
Final Thesis Studio
Professional Practice Colloquium
ARCH 200A
ARCH 200C
ARCH 270
ARCH 207A
ARCH 200B
ARCH 200D
ARCH 230
ARCH 250
ARCH 201
ARCH 260
ARCH 207B
ARCH 202
ARCH 207D
ARCH 240
ARCH 203
ARCH 204A
ARCH 204B
ARCH 207C
Year 2 Fall Trip
Annual Career Fair
DEIB Workshops (open to all)
Equity Steering Committee
Arcus Social Justice Corp
Department Lecture Series
GASU/ Grad Student Council
Room 1000
XR Lab
Shared Values
Design
Env. Stewardship & Professional Respon.
Equity, Diversity & Inclusion
Knowledge & Innovation
Leadership, Collab. & Community Engmt.
Lifelong Learning
Program Criteria
PC. 1 Career Paths
PC. 2 Design
PC. 3 Ecological Know. & Respon.
PC. 4 History & Theory
PC. 5 Research & Innovation
PC. 6 Leadership & Collaboration
PC. 7 Learning & Teaching Culture
PC. 8 Social Equity & Inclusion
Student Criteria
SC. 1 HSW in the Built Environ.
SC. 2 Professional Practice
SC. 3 Regulatory Context
SC. 4 Technical Knowledge
SC. 5 Design Synthesis
SC. 6 Building Integration