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<th>Meaning of the Degree</th>
<th>Cal Poly Pomona Master of Architecture (M.Arch)</th>
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<td>This section is about the structure of the degree, its components and its expectations.</td>
<td>The M.Arch is a three-year First Professional Master of Architecture degree (advanced standing is available for students with architectural background). The M.Arch program is one of only two in the CSU. The M.Arch professional degree, per accreditation, is very close in content to the BArch absent the GE. A primary distinction between the BArch and M.Arch, given student backgrounds and proven academic record, M.Arch students engage their learning of architecture with greater emphasis on research and writing, versus the heavier emphasis on craft and skill in the BArch program. The generic M.Arch degree in Architecture prepares a student for licensure with 3 years of professional training in normative means and methods of practice, followed by an internship, and successful completion of state exams to achieve licensure. In the CPP M.Arch program we balance normative practice with the generative and transformational.</td>
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<td>Describe the generic degree and what makes your degree at CPP distinct.</td>
<td>In resonance with the University, CPP/ARC has a long tradition of cultivating success through a diverse collection of experiences spanning from the classroom and studio setting, to field work investigations of real places and issues. Students are offered several international architectural study opportunities. As one of the most ethnically diverse programs of architecture in the US, at CPP/ARC the culture of the program provides students with an exposure to many cultural perspectives of architecture, and paths to innovation and creative problem solving. <a href="https://env.cpp.edu/arc/arc">https://env.cpp.edu/arc/arc</a></td>
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<td>Describe how the degree aligns with the university vision, values, and outcomes.</td>
<td>CPP/ARC upholds Cal Poly core values for Academic Excellence, Experiential Learning, Student Learning and Success, Inclusive and Diverse, Community Engagement, and Social and Environmental Responsibility.</td>
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<td>Describe your entering students’ abilities and your graduates’ culminating skills.</td>
<td>At CPP/ARC half the architecture students are women, a third are Asian, more than a third are Latino. Most are first or second generation Americans. Until recent policy changes, the M.Arch program has regularly supported international students. Official statistics point to the CPP/ARC program as being the most demographically diverse architecture program in the United States. This diversity provides an essential component of an architectural education – and the cultivation of an empathy to design and make environments for all people.</td>
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<td>Describe the curricular and co-curricular components that you have put into place to achieve your expectations.</td>
<td>The M.Arch program balances design aspirations with the pragmatic. Our disciplinary concerns provide students with a path to conventional architectural practice and a capacity to improve the profession. Students practice the craft of architecture in design studios, where they learn to draw and make models, and where they implement knowledge gained in technical and humanities courses in their projects. At the midpoint and end of each quarter each student presents his or her project to a panel of academics and professionals and must “defend” his or her design decisions. We believe this is unmatched by any program on campus as a model of synthesis of learning outcomes and communication skills.</td>
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<td>In our lecture courses and studios, we guide students to look to technique, to material and structural possibilities, to digital technology and fabrication, to the principles of sustainability, to the expressive potential of architectural representation, to research and precedents, and to the pragmatic constraints of construction, in order to generate appropriate architectural responses to particular situations. Students are also asked to balance these disciplinary concerns with all manner of aesthetic and moral value judgments based on their own biases and those fostered by the faculty.</td>
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The program is built around the design studio project and experience, emulating in-part life in practice. Parallel with studio, students take lecture classes in architectural theory and history, human behavior, programming, sustainability, building technology, structures, codes and digital media are closely coordinated with the studio sequence, and students are expected to demonstrate their knowledge of these areas in their design studio projects. M.Arch students take one design studio per quarter. Studio meets 9 hours per week with an additional 2-hour lecture course that is tied to the studio. The graduate studio sequence consists of three segments: 1) a two-year core, 2) a one quarter topic studio typically emphasizing an area of specialty – health care, education, preservation, or sustainability, 3) a two-quarter culminating grad thesis design project.

### Quality of the Degree

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<td>The M.Arch program population is about 50 students. It is currently ranked near the top 20 programs in the United States.</td>
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Quality of the degree is supported by:

- The program’s admissions requirements and application portfolio requirement and review
- The cohort model (students all take the same courses and progress together through the program)
- High degree of individual attention (studios meet 9-12 hours per week, which means students and faculty know each other very well)
- Very active student clubs (largest chapter of AIA nationally, our professional student club, student mentorship by TSD, our honors club)
- Highly personalized faculty advising, quarterly chair meetings with students, and very approachable faculty.

An accomplished and motivated faculty, many with design practices, bring real professional experience directly to the learning environment. A large number of faculty serve on professional organizations locally, nationally and internationally that address environmental, urban, preservation, and technological issues. Department faculty publish books and articles, curate exhibits, organize conferences and symposiums, present at professional conferences, serve on design reviews at other institutions, and win design awards.

CPP/ARC views the department, and its unique urban setting, as a living laboratory where students and faculty can research, develop, and test social, artistic, technological, and environmental design methods and ideas.

The learning outcomes and expectations for the architecture program are based on the student performance criteria defined by the National Architectural Accrediting Board (NAAB). These are organized into four realms: 1) Critical Thinking and Representation, 2) Building Practices, Technical Skills and Knowledge, 3) Integrated Architectural Solutions, and 4) Professional Practice.
1. **Critical Thinking and Representation**

**Communication Skills.** Writing and speaking skills are an essential part of each student’s education, but writing is a requirement for all history classes in the curriculum. The ability to speak is stressed through informal and formal studio presentations. Students are required to make verbal presentations each quarter for each studio. Graduate students are expected to arrive with a solid writing background from their undergraduate experience. Graduate students also are required to complete a culminating experience. This is either a project and written project development or written thesis paper. Graduate students are similarly required to make verbal presentations in each design studio in the curriculum. All students make a verbal public defense of their thesis project.

**Design Thinking Skills.** M.Arch students are required to receive, process, evaluate new information that is delivered in lecture courses and then implement this information into their design studio projects. In lectures, they are challenged through quizzes, papers, and related exercises to form their own opinions and formulate responses to their positions. Graduate students are typically expected to come to the program with a measure of critical thinking skills, but the design studio and specialized lecture that is attached to each studio is aimed at the cultivation of critical thinking. Lecture classes have discussion sections reserved for graduate students with discussion tailored to their educational needs. The three quarter-long thesis sequence stresses an integrated development of thinking and analysis leading to the final project.

**Visual Communication Skills.** All Architecture students receive significant exposure to a range of visual skills resulting from the required minimum of 9 design studios for grads. This is supported by specific courses focused on digital techniques. Students learn design software in a measured and gradual way and gain fundamental abilities that are integrated with the studio projects.

**Technical Documentation.** M.Arch students are required to engage in technical documentation though the integrated 2nd year design studio. M.Arch students’ housing design project from the winter term is taken forward into the spring studio and developed in conjunction with a structural design/environmental controls course, a codes course, and a building construction course, which asks the students to create a design development drawing set meeting professional standards. By coordinating the technical lectures and design studio students show that they are able to synthesize a large body of knowledge learned over their first two years.

**Investigative Skills.** All Architecture students are asked to conduct research at many points in the curriculum. A number of lecture courses in the first two years require students to investigate case studies of a variety of building types. During the first quarter of the M.Arch thesis project sequence, students research a chosen topic emphasis, a project site and building type. Thesis project faculty members critically assess student work for completeness and applicability to the issue at hand. The student’s ability to perform relevant research is evaluated for reliance on original sources, factual correctness, applicability to the topic, and overall logic. All M.Arch students utilize significant investigative skills in their design studio lecture courses, and in the year-long graduate prep and thesis sequence.

**Fundamental Design Skills.** M.Arch students’ exposure to and refinement of basic design and environmental principles is disseminated throughout the curriculum, and is the focus of all design studios.

**Use of Precedents.** Students are exposed to the use of precedents in most design studios at Cal Poly Pomona. Studios all begin with a research phase, typically involving
the use of case studies to explore issues of building type, technological innovation, materials, sustainability, and/or historical changes. Studios and lecture courses use the case study method to apply rigor and critical observation to the notion of precedents in design. The research on design precedents is typically presented in studio and discussed for applicability and thoroughness. Case studies are required as part of the research phase of the undergraduate senior project, where they are used to deepen the analysis of a given building type in reference to trends may transform the type into new areas of concern in practice.

**Ordering Systems Skills.** All Architecture students are introduced to ordering systems during the first-year design studios where they examine built environments at the urban, district, block and individual building scales. The examination of ordering systems continues in second and third year studios. In their second year students spend two-quarters designing a multi-family housing project that requires a systemic approach to meet the functional, programmatic, and technical aspects of their design. Specific exercises in building analysis require the students to diagram the ordering principles of significant buildings. This includes documenting structure, envelope, fenestration, circulation, lighting strategy, and program of a variety of buildings.

**Historical Traditions and Global Culture.** Students are principally exposed to historical traditions in the four-quarter required architectural history/theory sequence. Our diverse and multi-cultural teaching faculty offer studios sited in foreign settings such as Turkey, Haiti, Mexico, China, and parts of Europe. These studios serve to contrast accepted local building practices with alternative expressions borne out of differences in climate, financial capacity and vernacular building traditions. Our student population is extremely diverse and is engaged in different traditions and cultures as a matter of daily life on campus and in the southern California community. For their topic studio quarter, M.Arch students have access to several quarter-length exchange programs in Germany, Italy, Denmark, and Taiwan, as well as a summer studio in China.

**Cultural Diversity.** M.Arch students in our program are the picture of cultural diversity. As noted elsewhere we have arguably one of the most diverse student populations in an architecture program in the country. The growing realities of global practice, coupled with the diverse student body and faculty, make cultural diversity a welcome topic of discussion in classes, seminars, and design studios. We have offered classes in culturally and economically diverse settings (such as Tijuana and Veracruz, Mexico), where the realities of a depressed economy overlaid on different conceptualizations of family, serve to educate students and challenge them to understand and adequately serve different populations.

**Applied Research.** All Cal Poly Pomona students are made aware of the role of applied research and the role it plays in design, through design studios focused on materials science (pre-fabrication, concrete construction, wood construction, etc.); the use of technology in architecture; and sustainability, where the monitoring of conditions within buildings is linked to the use of appropriate technologies for shading, cooling, heating and ventilation. Graduate students in particular are invited to participate in research projects conducted on historic preservation, structures, construction, behavioral factors and sustainability. Students act as research assistants and co-author materials for publication and conference presentations.

2. **Building Practices, Technical Skills and Solutions**

**Pre-Design.** Graduate students are introduced to pre-design and programming issues in their first-year studios. The relation of program and design is further advanced in the multi-family housing studio. The first quarter of the M.Arch thesis project sequence
specifically focuses on pre-design for the development of the culminating experience project. Pre-design services are discussed in professional practice courses, such as discussions of programming as an additional service, and financial and legal/ethical issues. Programming as a discrete planning and critical thinking activity is a component of the multi-family housing sequence. The lecture component of this studio presents a range of programming techniques and methodologies for the design of housing.

Accessibility. M.Arch students are introduced to ADA requirements at two different levels of knowledge: site and building design. In some courses the goal is to achieve student ability to design for accessibility within buildings, in other courses we aim to nurture continued discussion on accessibility across a site or at the urban scale. The first-year programming lecture course deals with circulation concerns as part of programming, while the design studio focuses on the development of an ADA compliant site circulation strategy. The strong emphasis of our program on social issues engenders discussions throughout the program on accessibility as a right of all human beings and as a professional responsibility of the architect. ADA is more formally addressed in the required codes lecture course. Graduate students take a required lecture course on building codes that addresses disabled access requirements.

Sustainable Design. Sustainability has long been a special interest in our Department. Sustainability is introduced in first year courses. In the undergraduate program sustainability is the focus of the spring quarter first-year lecture and design studio as well as in the first-year spring graduate lecture and studio. Many students take topic studios and professional electives focused in this area of study. Many students also choose to focus on issues of sustainability for their master’s theses.

Site Design. Graduate students commence site-planning skills on an abstract level in their first design studio and these skills are further developed in the sustainability studio. Site planning is also central to the housing studio and urban design studio. By spring of their first year they begin to address site issues and develop an understanding of environmental forces. The second-year housing studio typically asks students to address local site constraints and the urban context. Site design in the legal context of zoning and programmatic concerns is a required component of the graduate prep and thesis courses.

Life Safety. Graduate students are introduced to egress requirements in first year, and this is further expanded upon in the 2nd year housing studio. The 2nd year housing studio and codes lecture courses address egress with regard to multi-family dwellings and local and state regulations. Life safety is further discussed in the construction courses, in the four structures courses and the two environmental controls courses.

3. Integrated Architectural Solutions

Comprehensive Design. The integrated studio blends Design, Structures and Construction in one integrated multi-housing design studio project. In response to shifts in NAAB criteria and an evaluation of ARE scores, the Department made a curricular shift focused on the development of greater technical integration in second and third year in the graduate program. This year the curriculum continues to adjust to place increased emphasis on the development of a comprehensive studio. These studios are tied to a parallel set of courses in structures, environmental control systems, a combined structures/environmental controls class, and a code compliance course.

Construction Cost Control. Construction costs are informally discussed with undergraduates during the core years of studio instruction, and depending on the
nature of the topic may also be addressed in upper division topic studios. Research on funding, financial feasibility, and life-cycle costs are important factors in design development, especially for the urban design and housing studios. Feasibility and construction estimating are an integral part of the programming component of senior project and thesis.

M.Arch students have extensive exposure to costs in professional practice courses. A new course “The Architect and the Development Process”, launched in fall 2014 specifically addresses issues of cost where students develop financial analyses as design project pro-formas. Students are asked to use this knowledge to develop a basic cost estimate for their buildings in Thesis project.

**Environmental Systems.** Graduate students take a two-quarter environmental controls course sequence. Environmental control systems play a significant role in the Department’s curriculum. There are also integrated sustainable design studios, solar/daylighting and energy conservation courses and other electives that address environmental controls and green building design.

**Structural Systems.** All Architecture students take a four-quarter structures course sequence. The first of these is a fundamentals course tied to the tectonic design studio where structure is applied to individual studio project. Next in the sequence are two structural courses that address building construction types: wood, steel, concrete, and masonry. The final required structures class examines the impact of seismic and lateral forces. All four courses are taught in a lecture format with associated physical testing activities. The newly built structures lab has greatly improved the ability for faculty to demonstrate structural forces through hands on learning.

**Building Envelope Systems.** All Architecture students take a sequence of courses to develop their knowledge and application of building envelope systems. This includes coursework in the environmental controls and construction courses. Building envelope design is a component of the housing studio.

**Building Service Systems.** All Architecture students study building service systems within the environmental controls courses, and in the integrated structures/ENV controls course tied to the housing studios.

**Building Materials and Assemblies.** All Architecture students take the same two-quarter materials construction course sequence. The development of construction means, methods and assemblies is also part of the housing design studio, the tectonic studio, many upper division topic design studios, and senior project and grad thesis.

### 4. Professional Practice

**Collaboration.** Grad students are introduced to collaboration within the ENV disciplines at several points in their studies. This past fall M.Arch and MLA 2nd year grad students collaborated on a team project to design a new interpretive facility and campus for a land conservancy in south Orange County. M.Arch students take a 3rd year urban design lecture and studio that is team-based. Additionally, students have several options within their topic studio term to take a studio that is both collaborative and cross-disciplinary, taught by both landscape architecture and architecture faculty. In these courses, students from both disciplines work together on a team project. Graduate students are also required to take professional electives outside of the department.

**Human Behavior.** M.Arch students are required to take an upper division behavioral factors course. Students are asked to examine and understand aspects of human behavior and its effects on design. The course includes content on the development of
suburbia, the changes to our natural environments, and the study of cultural behaviors in both domestic and foreign human groups. Students study the formation of gender roles, privacy, labor and the various modes of shelter through the examination of cultural differences in far ranging groups of people. This course serves as a preparation for thesis research topics.

**Client Role in Architecture.** Cal Poly Pomona has for some years offered studios that are community-based or have as principal aims the betterment of the public realm. This includes the topic studios based on the needs of actual communities (such as the Tijuana, Haiti, Park Service, and historic preservation studios.) The needs of the public and community are also addressed in the undergraduate urban design studio and lecture, which use actual design projects as the focus of the studio, working with local groups and city agencies. All students are exposed to the legal and ethical responsibilities that the architect has to the client in their professional practice courses.

**Project Management.** All architecture students are exposed to office organization and specific team roles in the first Professional Practice course. Project management is described in the context of office typology and project delivery methodologies. Students engage in the development of a work plan for a prototypical project budget based on a calculated fee. Students are asked to describe responses to specific “what if” conditions and describe how these would impacts their management plan.

**Practice Management.** All architecture students are exposed to practice management in two courses: ARC 471/A Professional Practice and ARC 473 The Architect and the Development Process. Topics include office formulation, organizational structure, legal structure, liability, marketing, taxation, finance/fees, and real-estate development processes.

**Leadership.** Leadership is a part of every design studio, but it is most directly emphasized in the urban design studio in the context of making larger planning and community decisions. All students are instructed in the role of the architect in practice and the community in professional practice courses. These courses look at the architect’s role in practice and his or her interaction with various regulatory agencies. As part of the course all students attend and document a local design review meeting to assess the performance of an architect in this regulatory context. Students are provided credit in a range of classes, for participation and leadership in the student professional organization AIAS and encouraged to discuss lessons learned from this leadership in classroom discussion.

**Legal Responsibilities, Ethics and Professional Judgment.** All architecture students are instructed in the legal parameters of professional practice. Liability is discussed in the context of contracts and various organizational structures of practice, as well as how an architect limits personal liability through insurance and standard of care. Students analyze case studies for exposure to the AIA’s Cannons of Ethics and how these play a role in professional judgment. Students are also presented with an ethical dilemma and asked to propose possible ethical solutions to the situation. The actual resolution of the scenario is presented following these discussions. Differences between the real and the student solutions are discussed. All students are asked to write about the ethical dimensions of the participants in the design review observation assignment.

**Community and Social Responsibility.** All architecture students are introduced to social responsibility and community engagement in a number of studio courses. The housing studio is aimed at understanding low-income housing and the need for architects to make decisions in the context of larger community goals. The urban
design studio explores these dimensions as well, but at a larger scale. Graduate students engage community and social responsibility in their human behaviors course and housing studio. Most graduate thesis projects have a dimension of community and social responsibility. All students are engaged in a discussion of social responsibility in the professional practice courses as part of discussions on the legal and ethical responsibilities of practice.

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<td>This section is about the assurance that the degree is meeting the expectations.</td>
<td>The Department of Architecture uses a variety of assessment metrics to ensure that the program is meeting expectations and learning outcomes. These include ongoing program assessment by faculty, reviews of student work by faculty and outside observers and a rigorous accreditation process by the national architecture accrediting agency. Graduate and undergraduate program assessments are performed through regular monitoring of the curriculum by the Department Chair, the faculty via faculty meetings, and the Department’s Curriculum Committee. Curriculum assessment at the Department level employs a variety of resources to inform necessary changes, such as input from members of the profession, alumni, students, and National Accrediting Architectural Board (NAAB) Criteria. Members of the Department Curriculum Committee review student projects from each year. The committee then meets to discuss whether course outcomes demonstrate compliance with NAAB student performance criteria requirements.</td>
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<td>Describe the assessment that you have put into place to measure whether the curricular and co-curricular components are meeting their purposes.</td>
<td>External input is gathered through attendance by faculty or the Chair at Association of Collegiate Schools of Architecture (ACSA) and National Council of Architectural Registration Board’s Intern Development Program (NCARB IDP) conferences, by attending reviews at other schools, through discussion with outside critics, and via alumni gatherings and surveys. Internal input is done through advising, through meetings with the Cal Poly Pomona Chapter of American Institute of Architecture Students (AIAS) representatives, and through quarterly meetings of the Chair with year cohorts (informally called “chair chats”).</td>
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<td>Describe the assessment that you have put into place to measure to what extent the program is achieving its expectations and learning outcomes at the desired levels.</td>
<td>At the beginning of each quarter a juried exhibit of student work, called the Interim Exhibit is displayed publicly so that students, faculty, alumni, and invited professionals can see the best work produced in the previous quarter. Outside educators and professionals attend student presentations at midterm and during final reviews every quarter. These project presentations are required for all students in all studios. We receive extensive feedback through this process, as these reviews are often daylong discussions. The final graduate thesis juried exhibit and reviews are held off campus. At this review over 15 jurors, a mix of academics and practitioners, are invited to respond to student presentations of their work. Our faculty members regularly attend similar reviews at other institutions in order to gauge our students’ progress in comparison to other programs.</td>
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<td>Describe the feedback that you collect, internally and externally, to support your assessment.</td>
<td>To ensure that students are prepared for third year in the M.Arch program, the Graduate Coordinator reviews each candidate’s records (GPA, GWT) and work (portfolio) before they are allowed to continue onto third year.</td>
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<td>Lecture courses require research and papers. In addition, material learned in lecture courses taught alongside studios must be synthesized and implemented into the students’ design projects. This is particularly true of the 2nd year integrated design studio, which requires students to implement knowledge learned in environmental controls, structures, codes, and building technology lectures.</td>
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<td>When issues arise based on these assessments they are discussed in faculty meetings, which are also attended by a representative from the student body (AIAS). After</td>
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discussion, a direction is established through faculty consensus and referred to the Curriculum Committee for development. The committee then returns to the faculty with a developed proposal that the faculty votes to approve. Upon approval, the proposal is then reviewed by the necessary committees or VPs on campus, and then implemented.

Assessment in the graduate program begins during the admission process and continues through academic advising. The faculty review the graduate applications, which provides a perspective on the strengths and weaknesses of applicants in order to make curricular adjustments for the following year.

Once students are admitted, the Graduate Coordinator handles academic advising with assistance from the Department Chair. Students receive advising before their initial quarter in the M.Arch. I program and throughout their program on a quarter-by-quarter basis. The Graduate Coordinator, as well as the Department Chair attend graduate reviews of student work each quarter and assess the progress of the students. This allows them to adjust staffing and to make recommendations about course content to the curriculum committee and individual instructors. Instructors from the preceding and subsequent studio courses attend the end of quarter reviews to assess progress and revise the next course syllabus to compensate for any observed shortcomings. In some cases, students are held back, or remedial work is suggested before they are allowed to proceed onto the next studio.

The following external assessments of the Department have endorsed our programs:

**NAAB Accreditation.** The Department of Architecture underwent an accreditation review in February 2014 by the National Architectural Accrediting Board (NAAB). After leading an extensive review of our programs, the National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, granted the graduate (M.Arch) program an 8-year term of accreditation. This is the longest term allowable, and is a reflection of the strengths of these program.

**Outside Rankings.** The 2016 publication DesignIntelligence, a yearly report published by the Design Futures Council ranked CPP M.Arch #22 in the US. The program was also listed as being in the top ten nationally in the area of “Construction Methods & Materials” and “Sustainable Design Practices & Principles.”

**Awards and Scholarships.** Students within the program have received national and regional awards and scholarships from professional organizations. Many of these awards and scholarships require submission of portfolios showing academic work.

**Internships, employment, and licensure.** 500-hours of paid internships are required of all graduate and undergraduate architecture students. The department believes that this is an essential part of each student’s professional development. Internship hours are recorded via the National Council of Architectural Registration Boards (NCARB), which ensure that the work is useful and meets professional experience requirements. There are four categories that interns must earn experience in: Pre-Design, Design, Project Management, and Practice Management to satisfy the internship requirement for licensure.

Graduates of the program have gained employment in award-winning national and international design firms, teaching at leading institutions, and additional graduate studies.