CHAPTER 7

Accessing the profession

This chapter will clarify methods of accessing the profession, the current degrees available from architecture schools in the U.S., and the different program types. This information, along with general advice, can help you figure out your best path to joining the profession.

In addition, this chapter addresses some of the mysteries and myths about the architecture profession. They are perpetuated by television, lay people, the media, and with the common overuse of the term, architect.
A career in architecture

If you are interested in the profession of architecture or the built environment, there are a number of ways that you can get involved. The level of involvement will depend on your time commitment and your level of interest.

For those who are interested in a more advisory role, joining a community group that is directly involved with development in a neighborhood would be a good place to start. Most cities have neighborhood groups and CDC (Community Development Corporations) that are involved in the built environment. Neighborhood groups provide an advisory role to the planning commission or other local decision-making body. This type of group, depending on the neighborhood, can be very powerful.

CDCs, usually nonprofit groups, are more directly involved in building the neighborhood. They engage the local neighbors to shape community-led projects. They develop housing, open space, economic initiatives, and grassroots initiatives while creating an avenue for neighbors to communicate.

If your interest in the built environment exceeds a purely advisory role you can apply to architecture school. If you're not sure if architecture school is right for you, you can enroll in courses such as photography, sculpture, art, figure drawing, drawing, digital drawing, or drafting. Each course provides some aspect of creative thinking that is applicable in the architecture profession and will open your mind to more careful observation of the world, along with stimulating your creative energies.

In the U.S., you do not have to make a commitment to architecture immediately after high school. You can attend undergraduate school majoring in a discipline other than architecture, then enroll in an architecture graduate school. Many universities have undergraduate programs that allow you to experiment with the discipline before making a commitment.

Walter Gropius

Walter Gropius (German b.1883 d.1969) involvement in the creation of the Bauhaus School of Design in Dessau, Germany, in 1919 is one of his most significant contributions to the Modern Architecture movement. He hired radical artists László Moholy-Nagy, Paul Klee, and Wassily Kandinsky, among others, to create an interdisciplinary school that brought together sculpture, industrial design, graphic design, textiles, and architecture. The Bauhaus embodied an energetic spirit of the times that embraced standardization and prefabrication to reinvent architecture’s roles in a changing world.

Gropius emigrated to England and eventually moved to Cambridge, MA, where he taught at the Graduate School of Design at Harvard University. His teaching theories became the basis for many curricula in schools of architecture around the U.S. He later founded The Architecture Collaborative (TAC), which became a well-known and respected architecture firm.

Websites

www.NAAB.org
www.archcareers.org
www.ncarb.org

These websites provide up-to-date information on the changing landscape of architecture education, internship requirements, and examination changes.
Paths to licensing

To obtain a license in the U.S. you must first obtain a professional degree from an accredited school of architecture, complete IDP (Intern Development Program) training, and then take a seven-part licensing exam. The type of school you attend and the length of time needed to complete the required IDP training vary from individual to individual but the licensing exam is now consistent across the country.

B.S. in Architecture (pre-professional degree)
Attending a pre-professional architecture degree program allows you flexibility when you attend graduate school. Some coursework completed in the undergraduate program may be credited in the master’s program, allowing you more opportunities to take elective courses.

Only professional degree programs in architecture are accredited by NAAB (National Architecture Accrediting Board). No undergraduate programs are accredited. Some undergraduate programs are part of professional programs, but don’t get accredited separately. Graduate school can last anywhere between one and three years, depending on your undergraduate education.

B.S. in another degree Bachelor of Arts
Obtaining a four-year liberal arts degree before attending a master’s degree program provides you with a broad-based education. This type of background enables you to select a graduate school based on your own educational desires. This path usually requires the longest time spent in graduate school.

Professional degrees, accredited

B. Arch (Bachelor of Architecture): this is an accredited 5-year professional degree.

M. Arch (Master of Architecture): this is an accredited first professional degree. The length of time you spend in a master’s program depends in large part on the program you enroll in and your undergraduate education. Some schools provide credit for architecture courses taken during the undergraduate education, while others allow you to skip entire semesters of the curriculum. This is the terminal degree in architecture.

Arch II, post professional: this is a second professional degree which is not an accredited degree.

D. Des (Doctor of Design): this is usually a multiyear advanced research degree.

PhD: this is the typical route for history/theory professionals.

Understand that picking an architecture school should not be about the quickest path to licensing. When selecting, think about your learning desires and the agenda of the school. Schools frame the methodology of design in many different ways. Find a school that complements your interests.

IDP (Intern Development Program) training
The training requirements for IDP usually take about three years to complete. Some schools provide 6-month internship opportunities that count toward IDP credits. Verify with each individual school.

Licensing Exam
This seven-part exam is usually taken after completing the IDP training, although some states allow you to enroll in IDP and ARE concurrently.

Myths
To be an architect, you have to be good at math.
You need to know basic geometry, algebra, and calculus. The required math course for most architecture schools is basic calculus. More important than having high-level math skills is having a creative, open mind.

To be an architect, you have to be a good artist.
Though knowing how to draw is certainly a valuable skill, it is not necessary to know when entering design school. More important is a willingness to learn and practice. Sketching and drawing are skills that can be taught. Good sketches are those that convey an idea or intention.

Architects make a lot of money.
Money shouldn’t motivate you to become an architect. Starting salary from graduate school might be around $35,000–$45,000 depending on location, market, construction cycle, economy (local, national, and global), experience, and type of firm.

You must specialize in residential, commercial, or industrial design.
Design is a skill applicable to all scales and programs. You do not need to specialize in one area over another. Firms certainly get pigeonholed with designing certain types of projects and it takes an educated client to understand that architects who are well trained can design anything from furniture, to a building, to a city.
Hand drawing provides the most direct way to transfer thoughts onto paper. The knowledge of how to construct three-dimensional images, to think using your hand on paper, and to analyze ideas through sketches provides an excellent foundation for architectural design.

No matter how sophisticated digital software becomes, drawing by hand will always be necessary. It provides the most direct connection between your ideas and the page. Digital programs are tools of design just like the pencil. You need to learn when to use each, what their capabilities and limitations are, and determine which tools are best for the task. Knowing the variety of tools you have available allows you to stay in control of them.

**Pros of digital drawing**
- Multiple people working on drawings; a streamlined communication process
- Don’t have to redraw an entire drawing when making changes
- Data assessment—solar charts, shadows, solar gain, structural issues; component parts available through building information modeling (BIM) software

**Cons of digital drawing**
- Output can be time-consuming
- Resolution between the computer screen and paper can be tricky
- Time to commit to output beautiful renderings

**Frank Gehry**

Frank Gehry (Canadian b. 1929) has become internationally recognized for his sculpturally composed buildings. His 1980s house renovation in Santa Monica, CA, made him an architecture superstar. His early work explored the use of inexpensive materials arranged in dynamic compositions. More recent work challenges the relationship between structure and skin. He revolutionized his design process through the use of three-dimensional digital modeling programs. Many of the technologies used by his firm were originally developed for the automobile and aerospace industries.

**Sculptural composition**
Clad in non-conventional materials such as titanium, and questioning the formal relationships of floor, wall, and ceiling, Gehry’s visceral works, such as the Walt Disney Concert Hall in Los Angeles, stand in powerful contrast to the rectilinear world in which they are situated.
The “digital revolution” in architecture has allowed architects to quickly visualize complex geometries. But the jump from the screen to reality has not been so seamless: actual materials are less pliable than digital matter, resisting the translation from computer to reality. However, this bridge between what we design and what we build is an important next step to take to understand the real implications of digitally generated form. This large-scale model of a building, named the ACC Bench, was developed in the software CATIA. Factors like the flexural ability of plywood were input as generative rules for developing the curves. Finally the three-dimensional form was converted into a two-dimensional projection so that pieces that are curved in two axes could be cut from perfectly flat material. Interestingly, the orthographic projection became most important in making the leap from digital to reality.

Architects
SINGLE Speed DESIGN, Jinhee Park and John Hong.

▼ Digital model
This screenshot of the CATIA model shows the construction components in 3D form. Factors such as plywood flexure and sheet size become generative rules for the curvilinear forms.

▼ From 2D to 3D
The 2D plywood forms were bent into the 3D volumes: full-scale digital templates allowed the simple translation from 2D to 3D.

▼ Model as furniture
By bending a thin material into a honeycomb structure, the structural concept was tested at a larger scale.

▼ 3D becomes 2D
The curvilinear forms were converted into 2D projections for templating.
A portfolio is a carefully composed visual record of your work. It is not necessarily a collection of all of your work, but a collection of projects that demonstrates a specific aspect of your designs. It is a high quality representation of your designs as well as your design process.

Depending on the audience, you may need one of the following portfolios:

**Entry into architecture school:** This portfolio would include any image that expresses your creativity and thought processes. Undergraduate admissions committees are not expecting architectural images in this portfolio.

**Internship portfolio:** This portfolio includes theoretical design projects from school and any additional relevant coursework like photographs, paintings, or sculpture.

**Competition/grant/fellowship portfolio:** Depending on the brief, this may emphasize one aspect of your work over another. If asked for, the portfolio may include only hand drawings or other hand crafted art work.

**Professional portfolio:** This portfolio includes finished images of your completed built work to show potential clients.

The content of each portfolio is very different, but with digital technology it is relatively easy to customize each portfolio. In your portfolio, you want to emphasize your ability to think through problems, that is, highlight your process of design. As digital drawings and models become ubiquitous, your problem-solving skills set you apart from others applying for jobs, school, or grants. For process images include sketches, study models, process models, and diagrams. In addition, the process representations need to be supported by beautiful, well-crafted final presentation drawings and models. Show a variety of work in the portfolio, including orthographic drawings, three-dimensional images, and models represented in manual and digital methods.

Everything about your portfolio should be carefully considered, from the page size, layout, number of images per page and per project, location and size of images, and the amount and size of text. Fix or modify any drawings that do not meet an "excellence criteria" before including them in your portfolio. Establish a pattern for your portfolio; a system that is flexible but recognizable from page to page. Look at how books and magazines are organized. Consider creating a two-page spread versus a single-page layout. Think graphically about the booklet itself. The portfolio itself is a process, not just a collection of images.
This research assignment studied how Tadao Ando differentiated between circulation, public, and private spaces. We also found how contradictions can create complex spaces that still work. The bedrooms, for example, are on different floor plates so that there is never a direct view into bedrooms, yet they are glazed on either side. The privacy is not so clearly defined, but depends on the users of the house.

Drawing and diagramming these spaces came after an extensive eighth scale model was built. The model separates at all the floors. This proved difficult since the floor plates shift on either side of the ramp. Modeling in this fashion made it very clear on how the spaces work with each other to form the house as a whole.

The house itself is made of cast in place concrete and floor to floor glass. The layout of the house is directly related to the process of casting concrete as well as the dimensions of the traditional Tatami mat.
Diversity of work
Your portfolio is a collection of images that best represent your abilities and interests. Therefore, depending on the audience for the portfolio, including other types of non-architectural work is encouraged. You will need to maintain the same high standards for this work as you did for the architectural representations. Do not allow personal feelings or sentiment to sway your decisions in this area. For example, include photographs and artwork that are critical and compelling, but not because it has an image of your favorite pet. In general, include images of photography, graphic design, painting, sculpture, drawing, and furniture.

As you gain experience in the profession, start to include professional work in your portfolio. Remember to credit the appropriate firm and state your role in the design, drawing, or development of the images you present. Details from construction document sets are good to include, especially if you worked on, designed, or contributed to them in some way. Make sure you understand the content of the detail and be prepared to explain it to someone else.

Documentation—what you will need
Do not include original work in your portfolio. You should either scan or photograph your artwork.

To document your models and charcoal drawings you will need a digital camera. If you plan to shoot inside, you will need lights and a black or white sheet as a backdrop. You can also shoot outside using the sun as your light source. Models cast shadows in the sun, when oriented in the same direction, as the actual building would. Be aware that white materials have a tendency to get a little washed out in the sunlight. Overcast days provide gentle, flat light that is best for shooting.

To document your flat work you will need a scanner. You can get a small-format inexpensive scanner that allows you to scan your own work and piece it together in Photoshop. You can also find professional shops or copy stores that have large format scanners. These stores charge a range of

CHAPTER 7: Accessing the profession
The creation of a series of museum pavilions, incorporating a variety of visual characteristics such as materiality, building type, signage, and regulating elements, provided the building blocks for the visual museum zone of the Fort Point Channel. The pavilions take the form of simple glass boxes, to allow for flexibility within the pavilion, for gallery space, art lighting needs, and movement throughout the entire museum system. In allowing the simple glass box to push out into the channel, anchoring itself on the bank, the pavilions could adapt to any available site along the channel.

Hierarchy of elements
These portfolio pages present a hierarchy of images with a variety of representation types exhibited. A sketch image on the left is typically repeated for each type of project and marks the start of each project.
Internships offer you the opportunity to engage with professionals in a variety of fields related to architecture. You may have the opportunity to work on all phases of a project from schematic design to construction administration. This position in a firm will allow you to see first-hand how different practices create and think about architecture.

Finding an appropriate internship takes time and patience. You want to find a firm that allows you to grow and learn while investing in your education as an architect. Your first internships are usually filled with familiarizing yourself with how firms conduct business, office standards, and the firm’s philosophy on design. You will become knowledgeable about local and national building codes and the general process of how to take a conceptual idea through to construction.

Interning in an architecture office is a required component of becoming an architect. A degree from an accredited Masters of Architecture program along with multiple years of work in an architectural office, under the guidance of a licensed architect, constitute a component part of the licensing process.

The years in an office, working as an intern, prepare you for many of the practicalities of the architecture profession. Your internship plays a critical role in what and how you learn about the profession in more detail.

Look for firms that allow you the most flexibility with work types. You do not want to be building models or completing red lines for three years. Will the firm provide you with opportunities to visit job sites, attend job meetings, or investigate construction or material techniques that are not commonplace in the office? Your responsibility will grow as you gain more experience.

One thing to understand when participating in an internship is that interns are at the low end of the hierarchy of the office. You are typically performing repetitive work during the beginning of your career. This should not discourage you—see the opportunity as part of this learning process and absorb everything you can about practice. In the office environment, realize that you are part of a team. Listen and give your opinion. Recognize that design is a small portion of the activities that go on in the office. Pay attention and ask lots of questions.

The intern’s role
During the process of design, interns assist in both manual and digital methods of representation, including drawing on the computer and constructing models for review by project architects, clients, and contractors.
Case study: Working for a nonconventional office—Design Corps

Cause:
North Carolina is home to one of the largest farmworker populations in the U.S. According to the National Center for Farmworker Health, migrant farm labor supports a $28 billion fruit and vegetable industry in the U.S., the majority of which is hand harvested. Despite their integral role in the food economy, migrant and seasonal farmworkers are some of the most economically disadvantaged people in the U.S.—many earn less than $10,000 annually and over 60% of families have below-poverty-level incomes. Low income correlates to poor housing conditions, which are often substandard or nonexistent. Even “Gold Star” growers, who are providing some of the best housing options, only meet state codes which require only one wash tub for every 30 workers, one shower for every 10 workers, one toilet for every 15 workers, and do not require mattresses or telephone access in case of emergency. Overcrowding, inadequate sanitation and unsafe structural defects are just some of the realities of farmworker housing.

Design Corps has developed the Farmworker Housing Program to build quality new housing on farms where there is a need. The program is a true partnership that involves the farmers and the workers in the process of developing the design and making it affordable to both through the assistance of federal funds, which are secured by Design Corps. This project, a pilot for housing in North Carolina, is designed for former farmworkers who have lived in the challenging farmworker housing conditions and are themselves determined to set higher standards for farmworker housing.

Method:
Design Corps’ vision is realized when people are involved in the decisions that shape their lives, including the built environment. This design process involves a synthesis of ideas from three major stakeholders; the farmer, the farmworker, and the State Housing Finance Agency. This participatory process is composed of meetings, surveys, discussions, and is integrated with material and manufactured housing research to provide housing options that are affordable, durable, and sustainable.

www.designcorps.org

Design Corps design process components:

1. Participatory process
Farmworker surveys, site visits, and research are key components in their participatory process. Their vision is realized when people are involved in the decisions that shape their lives, including the built environment.

2. Healthy housing
The ambition is to improve the lives of farmworkers through design that responds to principles of decent and healthy housing, consideration for cultural customs, and daily routines. Housing conditions directly affect farmworker health, sanitary conditions, and nutrition.

3. Manufacturing process
This project employs the benefits of manufactured housing, including economy, speed, and minimization of waste. In recognition of some of the limitations of manufactured housing, including standard dimensions and material options, this project is a synthesis of a manufactured unit and a site-built portion that integrates the manufactured unit into the site. Addressing issues of solar orientation, cross ventilation, and square footage, the site built portion is completed by a General Contractor. Working with a General Contractor allows for introduction of as many energy and sustainable material strategies as possible.

4. Sustainability
The design integrates strategies that respond to issues of sustainability, economy, and durability. Some strategies include passive solar, light-colored enclosure systems, cross-ventilation, and low-flow fixtures. An outdoor garden is designed to assist with solar gain and also to address and ameliorate conditions of food insecurity in farmworker populations.

Impact:
The project outcome addresses the cause in a significant manner: How does the solution function in context? What changes or resulting outcomes were documented in participants, communities and/or audiences?

► Design for others
This shed for FEMA trailer residents on the Gulf Coast was designed and built by Design Corps after Hurricane Katrina in 2005.