

Explore the Roles of Architects

ARCHITECTS juggle many tasks and responsibilities for the design and completion of construction and building projects. Their jobs often involve working with a variety of people with different specialties. Therefore, architects should have excellent organizational skills and communication skills. They should be self-motivated but capable of working well with others.



Objectives:



1. Describe the role of architects.
2. Describe the historic influence of architects.
3. Identify career possibilities related to the field of architecture.

Key Terms:



architects
architectural drafters/technicians
architectural drafting teachers
estimators
landscape architects
marine architects
surveyors

Understanding the Roles of Architects

Architecture requires managing many tasks associated with the design, organization, and construction of buildings. It requires the ability to multitask and utilize knowledge across a range of disciplines.

KNOWLEDGE

Knowledge in many areas (e.g., specific design techniques, tools, and principles involved in the production of technical plans, construction documents, drawings, and models) is essential. Being educated about the materials used in construction and how they will perform over time is critical. Architects also need to be familiar with methods and tools used in the building industry.

Function

Designing a building to function properly is a main concern for architects. This requires knowledge of how people work and live in their environments as well as the effects of color, lighting, and form. Architects need to know how buildings use energy and how to make efficient structures to save energy. Designing a building requires integrating many elements. If the building is to function properly, it must follow engineering and physical laws.

Mathematics and More

Knowledge of arithmetic, algebra, geometry, calculus, and statistics and their applications can be critical. The ability to use and construct the English language is also necessary. Without correct spelling, grammar, and composition, text can give inaccurate information. Awareness of the processes and techniques of material refinement and function as well as methods of controlling quality and cost is useful. Architects need a good grasp on how to use physical laws and principles, which are used for predicting and understanding how things work.

SKILLS

Architects must be able to manage time and people because some tasks may take weeks or months to complete. Therefore, communication is a vital part of the process. Architects must pay close attention to directions, listen, and understand points being made. They should repeat what they have heard to confirm they understood. Many factors exist, and problems can arise. As a result, being able to make decisions based on standards and developed criteria is crucial. This includes the ability to think critically and to make judgment calls using logic and reasoning. Architects also need reading comprehension, math, and writing skills.

ABILITIES

With alternate solutions and approaches to design problems, deductive reasoning skills can help architects find efficient answers and choose the most appropriate action to take. Being able to see the small details and how the whole works together is necessary. Another important trait is creativity. In addition, paying attention to details is critical, allowing architects to recognize problems and to see where things may be inaccurate or inconsistent. However, architects

could not succeed without the ability to speak clearly, listen (and understand), write coherently, and read (and comprehend).

TASKS

Many tasks need to be completed from the initial design of a building to its final completion. In most cases, the architect is involved and is responsible for many of them—directly or indirectly. Initially, architects work with clients to develop designs that will meet their needs. Plans and layouts are developed to address spatial and functional requirements. Architects research and select the materials and products required in a building, including its design and structure (e.g., flooring, lighting and plumbing equipment, colors, and internal and external wall materials and systems). Architects are also responsible for keeping the project within budget through cost estimating and making sure that the building can be built in the required time.

Teamwork

To complete a project, many people may be involved. As a result, the architect must organize and direct a team of workers to prepare drawings and specification documents. He or she also works with engineers and integrates engineering elements to ensure the structure can resist gravity, wind, and seismic forces. (These engineering elements are typically required by codes.)

Scaled Drawings

Typically, the architect will represent the client in awarding a contract to construct the building. Clients usually obtain several bids to ensure the best work and price. The scaled drawings—produced along with written specifications—are the actual contract documents for the builder. They describe exactly what to build, including all elements of the design and structure. After the construction has started, architects will represent the clients to ensure that the building is built according to the documents. This usually requires site visits and observations that are reported back to the clients.

Software

Architects primarily use computer aided drafting and design (CADD) software and equip-

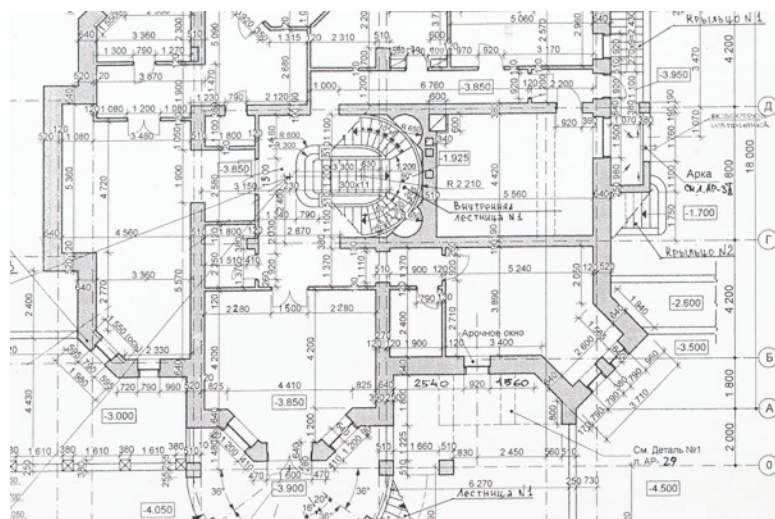


FIGURE 1. Architects organize a range of information that is graphically represented and coded in construction documents.

ment. It can be basic or advanced (capable of analyzing building data) drafting software. The software is used to create drawings for design and construction as well as for three-dimensional models to display ideas.

Historical Influences

Architects have been responsible for many of the great buildings and structures of the world. They have also been involved with the planning and design of many cities. Some of the oldest construction drawings in existence were created during the Roman Empire and were used to build country villas for some of the important government officials.

RENAISSANCE

During the Renaissance, architects designed and built cathedrals and castles. Michelangelo designed many of these buildings (e.g., St. Peter's Cathedral in Rome). As history developed and the Industrial Revolution began, architects helped bring the built environment into modern times by redesigning entire regions of cities to provide transportation and housing for growing populations in places such as Chicago, Paris, and Barcelona. They also helped design and create many of the new cultural centers around the world (e.g., the National Library in Paris by Henry Labrouste and the Crystal Palace by Joseph Paxton).



FIGURE 2. Michelangelo, an extremely important architect, was involved in many projects during the Renaissance.

THOMAS JEFFERSON

In the United States, there have been many influential architects throughout history. One of the first was a president. Thomas Jefferson, who lived from 1723 to 1826, was the architect and founder of the University of Virginia.

DANIEL H. BURNHAM

Daniel H. Burnham, 1846 to 1912, published his plan for Chicago in 1909, giving the city international recognition. He also designed Union Station in Washington, D.C.

LOUIS H. SULLIVAN

The first architect to be considered truly modern was Louis H. Sullivan, 1856 to 1924. He developed the philosophy of “form follows function.” He wanted buildings to look aesthetically pleasing and to function and work for their specific use. Some of his designs are the Auditorium Building, the Sullivan Center (previously known as the Carson Pirie Scott building in Chicago) and the Guaranty Building in Buffalo, New York.



FIGURE 3. Louis Sullivan was one of the first architects to think about the form and function of a building as he dealt with modern materials.

FRANK LLOYD WRIGHT

One of the most famous architects in the world is Frank Lloyd Wright, 1867 to 1959. He had an apprenticeship under Louis Sullivan and created Prairie Style Architecture. He produced hundreds of projects over his lifetime, with some as far away as Japan. His most famous works are the Fallingwater residence in Mill Run, PA; Unity Temple in Oak Park, IL; and the Guggenheim Museum in New York, NY.

JOSEPH B. STRAUSS

Joseph B. Strauss, 1870 to 1938, designed the Golden Gate Bridge in San Francisco.

LUDWIG MIES VAN DER ROHE

Ludwig Mies van der Rohe, 1886 to 1969, was responsible for developing the philosophy that less is more. The steel and glass skyscrapers and the modern movement in America are to his credit. He also designed the Illinois Institute of Technology campus in Chicago and the all glass Farnsworth House in Plano, IL.

Career Possibilities

Architects have a variety of options when it comes to career opportunities. They may find a niche (e.g., working with renewable resources and “green” engineers). When pursuing a career, students should be aware of the numerous options. Sources (e.g., the Occupational Information Network and the Occupational Outlook Handbook) can be consulted online for



FURTHER EXPLORATION...

ONLINE CONNECTION: Occupational Outlook Handbook

Understanding different aspects of a career is important when making a selection. Many sources can give you a range of information about architecture careers (e.g., The U.S. Department of Labor). Visit the following Web site to see a range of statistical data on architecture:

<http://www.bls.gov/oco/ocos038.htm>

up-to-date information regarding job growth, work conditions, and average earnings. Education requirements are also listed. Most of the following jobs require a bachelor's degree or a master's degree. In addition, an internship is often required.

ARCHITECTS

Architects are people who design and plan structures (e.g., private residences, office buildings, theatres, schools, and other related structures). To practice architecture, you must pass a certification exam similar to most engineering fields. The job involves organizing a range of professions to creatively use forms and materials to complete a project. The median wage is \$30.84 hourly or \$64,150 annually.

ARCHITECTURAL DRAFTERS/TECHNICIANS

Architectural drafters/technicians are people who work with architects to develop detailed architectural drawings and designs. They also organize the required specifications to build structures. The median wage is \$20.17 hourly or \$41,960 annually.

ARCHITECTURAL DRAFTING TEACHERS

Architectural drafting teachers are people who organize and administer courses that cover knowledge necessary for architecture, interior design, drafting, and environmental and landscape architecture. The median salary is \$64,620 annually.



FIGURE 4. Drafters create architectural drawings used for constructing homes, buildings, and structures.

ESTIMATORS

Estimators are people who can be employed across a range of disciplines (e.g., specialization in product manufacturing to construction projects). They prepare cost estimates, helping to determine the final price of a product or project—including involvement in the contract and bidding process. The median wage is \$25.45 hourly or \$52,940 annually.

LANDSCAPE ARCHITECTS

Landscape architects are people who deal with the layout of the land, which may include landscaping to large-scale developments (e.g., park layouts; land subdivision for commercial, residential, and industrial sites; and the planning around large institutional and transportation structures). The median wage is \$26.51 hourly or \$55,140 annually.

MARINE ARCHITECTS

Marine architects are people who develop plans and designs for marine crafts and floating structures (e.g., ships, ocean liners, submarines, barges, floats, buoys, and tugs). These people typically work closely with marine engineers. In addition to education, professional certification may be required. The median wage is \$35.09 hourly or \$72,990 annually.



FIGURE 5. Marine architects are involved with ship designs. Ships are constructed like many buildings. However, the designs must be for floating structures.

SURVEYORS

Surveyors are people who record property lines for legal documents and construction projects. They make exact measurements and give property boundaries that determine the shape, contour, and any land features near the surface. They may also be involved with land evaluation, mining, excavation, mapmaking, and infrastructural projects. The median wage is \$23.99 hourly or \$48,290 annually.

Summary:



Many tasks need to be completed from the initial design of a building to its final completion. Therefore, the architect must organize and direct a team of workers to

prepare drawings and specification documents to guarantee that a project is under budget and is on time. Architects primarily use CADD software and equipment.

Knowledge of a range of information is required for an architect (e.g., production of precision technical plans, materials used in construction, and methods and tools used in the building industry). Designing a building to function properly is a main concern. Being able to manage time is essential because some tasks take weeks or months to complete. Also, some architectural design documents may be long and in depth, requiring good reading comprehension.

Numerous great structures around the world were designed by architects. The range and types of work related to architecture can vary across fields. Responsibilities can include drafting, designing homes, designing marine equipment, surveying land, and landscaping. Typically, most architecture jobs require at least a bachelor's degree and have good pay.

Checking Your Knowledge:



1. What do architects work with to ensure that a building can resist gravity and wind loads?
2. What are some skills an architect should possess?
3. List and describe three fields related to architecture.
4. What type of work do architectural drafters/technicians perform?
5. Who are some famous architects in history?

Expanding Your Knowledge:



Research a historically significant architect. Then write a paper about the architect's accomplishments. Next, create a poster that illustrates his or her contributions to the field. Share the poster with your class. Turn in your paper to your instructor.

Web Links:



About Architecture

<http://architecture.about.com/cs/careers/f/archsalary.htm>

Architect Job Description

<http://careers.stateuniversity.com/pages/286/Architect.html>

Building a Career in Architecture

<http://careerplanning.about.com/cs/occupations/p/architect.htm>

Architecture Careers

<http://www.archcareers.org/>