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WHAT PROFESSIONAL SERVICES (OTHER THAN AN ARCHITECT) DO I NEED TO HIRE FOR A CONSTRUCTION PROJECT?

Note: industry jargon that you are likely to hear often is included in italics. Throw around these terms to impress your friends!

A construction project involves many professional services. The most well-known of these are:

Architect. This professional is educated and licensed to ensure the *health, safety and welfare of the public* through good design and compliance with building codes, zoning ordinances and design guidelines. They often lead teams of professionals to design buildings and other structures. The architect has the knowledge to improve building performance and energy efficiency with passive and active design strategies. The architect is also commonly your advocate throughout the construction process.

Structural Engineer. This professional is educated and licensed to design the foundations and framing systems that keep a building standing. Structural engineers are experts for anything that involves substantial weight, applied loads or resisting forces. They design the systems that protect building occupants in the event of high winds, tornadoes, hurricanes and earthquakes.

Mechanical Engineer. This professional is educated and licensed to design the *building systems* that provide comfort and sanitation. For most building construction projects, the mechanical engineer designs the heating, ventilation and air conditioning (HVAC) systems and the plumbing systems. These building systems have a significant impact on building performance and energy efficiency.

Electrical Engineer. This professional is educated and licensed to design the electrical and lighting systems in a building. They often specify the light fixtures for a construction project, or may work with a specialized lighting designer. The electrical engineer also works closely with the mechanical engineer, whose systems are often the largest energy consumers in a building.

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The latter three are often hired by the architect, who reviews and coordinates the building systems with the architectural systems.

The architect may also hire specialized consultants, depending on the size and complexity of a construction project. These professionals include the **acoustical consultant** (sound control), **theater designer**, **aquatics designer** (swimming pools), **lighting designer**, **fire protection engineer**, **building façade/envelope consultant**, **LEED/sustainability consultant**, **code consultant** and others.

There are also design professionals who are usually hired by you (the owner), because their role is ancillary to the architect and/or because you may have specific needs that require regular contact with these professionals and demand they be subordinate to you (not the architect). With that said, these professionals may also be part of the architect's team of consultants. Among them are:

Surveyor. This professional is licensed to provide land surveying services. A detailed, accurate *survey* is an extremely important tool for the design team of a construction project. The surveyor will identify property lines, *building setbacks*, *easements*, locations of utilities, *topography* (land elevations and contours), flood plains, and existing improvements on the site, such as buildings, fences and paved areas. Although unexpected items may be encountered underground during the *Build* phase, the survey goes a long way toward reducing risk.

Geotechnical (Soils) Engineer. This professional is licensed to investigate geotechnical conditions on a site. They are sometimes called soils engineers, although they also study *groundwater*, site contamination and other aspects of the site. These investigations are usually conducted by taking multiple *borings*, which are deep, slender cylindrical samples cut from the earth and analyzed on site or in a laboratory. The results are presented in a *boring log*, which graphically tells the architect and structural engineer what type and quality of soil (and water) is present. This information determines which foundation systems are acceptable and how the *earthwork* should be performed. If the construction project has a basement or underground floors, the borings may be 20 feet or deeper. Groundwater may dictate the type of foundation drainage or sump systems that will be required.

Civil Engineer. This professional wears many hats, but they are licensed to design site and surface drainage systems, *erosion control* and site utilities. The civil engineer usually works closely with the architect. As a rule of thumb, they design the utility systems (water, electric, gas, sewer and AV/IT) that are ten feet or more outside of the building, while the mechanical and electrical engineers coordinate and design everything inside of that imaginary boundary. The civil engineer also creates a *grading plan* that determines how the topography should be reshaped to accommodate the building, paving and proper stormwater drainage (away from the building). Many municipalities today have very strict standards to protect public water quality and aging sewer systems, so the civil engineer may also design systems that filter stormwater runoff which has been contaminated by contact with the manmade materials of a building or paved area.

Landscape Architect. This professional is licensed to design the landscaping and irrigation systems that protect the natural integrity and enhance the beauty of a site. They select planting species that are appropriate for the local context and climate. Most local zoning ordinances require specific quantities of plants and/or landscape buffers along the property lines.

AV/IT Consultant. This professional coordinates the design and installation of all audio-visual (AV), information technology (IT) and telecommunication systems. Their role may also cover security and surveillance systems.

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