Commercial Construction

Commercial construction can include small retail buildings, apartments, office buildings, warehouses, grocery stores, schools, and anything not identified as a single-family house. Code and local zoning requirements are varied and can be very complicated. The steps listed below outline the fundamentals aspects of basic commercial construction.

STEP ONE – CONSTRUCTION DOCUMENTS

Drawing requirements for commercial construction are much more intense than residential projects. Part of this is mandated by codes and other regulations. But the main reason is the varying complexity of these projects and the wide assortment of construction methods utilized by architects and contractors.

STEP TWO – MASS GRADING

Depending on the size of the project and associated site work, mass grading for a project can constitute weeks of work with massive amounts of earth moving. This portion of the project is especially dependent on the quality of the soil and its bearing capacity for the heavy loads the building will transfer to the earth.

STEP THREE – SITE UTILITIES

Utilities can include electrical, gas, sanitary sewer, storm sewer, and telecommunications. The type of building and its needs can dramatically affect the utility work. Public utilities (typically sanitary and storm sewer) are two of the biggest variables when considering rainwater management and the depth below the surface of the existing utilities surrounding the site.
STEP FOUR – FOOTINGS & FOUNDATIONS

Once mass grading is complete and the building pad is prepared, excavation for footings can commence. The requirements for footing depth are mandated by local codes while the size of each footing is dictated by the structural engineer based on the geotechnical report for the site.

STEP FIVE – STRUCTURE

The structure of the building can be wood, steel, or concrete. The type of structure designed for the building varies based on the type of building and its use, overall square footage and height, number of stories, fire protection requirements, and desired performance by the building owner. Additionally, anticipated weather (winter) can also impact what structural system is used.

STEP SIX – EXTERIOR ENCLOSURE

Enclosing the exterior of the building is an important milestone. Some interior work can proceed prior to this event, but any interior finishes must typically wait so weather-related impacts are minimized or eliminated. An exterior enclosure can be precast concrete, metal or wood studs with sheathing, or a metal skin over framing. Window installation follows shortly and completes the enclosure.

STEP SEVEN – ROOFING

Another aspect of the enclosure is the roof. Numerous systems exist with their installation method, lifespan, and weather susceptibility during installation being ways to evaluate the appropriate one to use. Systems can be shingles, metal roofing, or a membrane of various compositions.
STEP EIGHT – CONCRETE SLABS

Pouring concrete slabs for the interior of commercial buildings is highly beneficial for interior overhead work. Weather can impact when the slab is poured but oftentimes the slab can be installed prior to the entire enclosure being completed.

STEP NINE – ABOVE-CEILING WORK

Rough-in work for mechanical and electrical systems begins with the largest elements being installed, typically overhead. This work must be coordinated between each trade as well as with the building structure, interior walls, and ceiling finishes. This work can generally begin prior to the building being weather-tight.

STEP TEN – EXTERIOR FINISHES

There are numerous options for commercial exterior finishes ranging from brick, concrete block, metal panels, fiber-cement siding, vinyl siding, precast concrete, or troweled on cement finishes. All depend on a complex system to ensure weather-tightness for the building. The overall systems are much more elaborate than most residential construction.

STEP ELEVEN – WINDOW SYSTEMS

Window systems for commercial construction are much more varied than residential systems. Curtainwalls are nearly full glass systems and encompass the entire exterior enclosure. The two prime varieties are aluminum storefront or aluminum curtainwall. Smaller commercial projects can utilize residential windows, but this is usually for larger multifamily housing projects.
STEP TWELVE – IN-WALL CONSTRUCTION

Interior wall construction generally coincides with the above-ceiling rough-ins. Once walls are in place, in-wall work commences ahead of the drywall installation. Inspections of both overhead and in-wall work are required prior to ceiling or drywall install. In-wall construction can consist of electrical, mechanical, plumbing, medical gases, and low voltage.

STEP THIRTEEN – DRYWALL

Drywall can be simply walls or possibly ceiling work as well. There are a variety of types of drywall depending on the requirements for fire safety or moisture. There are also different methods for finishing the drywall which impact cost and appearance. A level 5 finish is the highest grade and provides a nearly monolithic look but at the highest cost premium.

STEP FOURTEEN – INTERIOR FINISHES

Commercial construction interior finishes are only limited by the imagination of the designer. These finishes cannot proceed until a building is weathertight. Additionally, some finishes need the building HVAC systems to be functional to control humidity for a proper installation. Codes will also impact what products are acceptable based on the fire rating requirements of the building use.

STEP FIFTEEN – LANDSCAPING

The final step is finish grading and landscaping. This can include irrigation systems and very ornate landscaping. Local codes often dictate minimum requirements but the aesthetic desires of the building owner will often far surpass those design standards.