

Building Information Modeling (BIM) Process

The Building Process Envisioned

The Maple Ridge Group

Charlottesville, VA

BIM (Building Information Modeling) Process Steps

Project Initiation

Owner Envisions Project

Design at 0%

Summary:

Owner conceives of project parameters and objectives. Takes deliberate steps to begin forming an alliance with and selecting an Architect. Owner can articulate their “must haves”, “like to haves” and “it would be nice to haves” in communicating first input to the Architect. Owner commits key energies and resources required to start the Project planning. Owner is advised and now comprehends the Process ahead.

Conceptual Design

Architect Selected

Design at 10%

Summary:

When the Owner’s needs have been defined and the initial research completed, an early conceptual design of the home is developed. This process permits the Architect to integrate Owner’s requirements. It also allows development of an overview of what the home and its systems may look like prior to making the sometimes hard tradeoffs that may need to be made later. The conceptual design’s output usually will take the form of a series of functional sketches, drawings and/or outline specifications along with descriptions of the home and property. The conceptual design and related supporting materials will often serve as the basis for project go/no-go decisions as well as the “Basis of Design”. Contractor engagement becomes pertinent upon “go” decision. Project scope and budget alignment may still evolve during the schematic phase to achieve Owner’s objective as either scope or may become a more dominant influence.

Schematic Design Phase

Contractor Selected

Design at 25%

Summary: First phase in the design of a project where an Architect prepares schematic diagrams giving a general view of the components and the scale of the project after detailed discussions with the Owner. Appropriate “scope versus budget” priorities and the important discussions that balance the roles of scope and budget are made firm. These discussions can influence the scale (quantities) and features (fit, finish and systems) of the design to serve Owner’s objectives and are a fundamental factor in making subsequent decisions. Contractor would be engaged and would begin advising as to relative influences of design decisions on both budget and timing of the work in an iterative and collaborative process with Architect and Owner. Upon completion of the schematic drawings, the Contractor and the Architect will present a crude budget range (+/- 30%). At this point, an important three party (Owner, Architect and Contractor) discussion and planning meeting will determine the next steps and whether to move on to the Design Development Phase or rework certain schematic diagrams.

Design Development Phase

Key Subcontractors Weigh In

Design at 50%

Summary: Transitional phase of the Architect’s services in which the design moves from the schematic phase toward formalization as important refinements and design decisions are made. In this phase, the Architect with research and input from the Contractor and key subcontractors prepares drawings, electrical, plumbing, appliance and other finish material schedules and other presentation documents to crystallize the design concept and describe it in terms of architectural, electrical, mechanical, and structural systems. In addition, the Architect collaborates with and relies upon the Contractor to prepare a statement of the probable project cost—generally to a meaningful +/- 20% standard. The Contractor evaluates and recommends adjustments to the design based on site parameters, systems choices and other key factors.

Construction Documents Phase

Final Documents for GMP

Design to 100%

Summary: Used to describe all of the documents needed to build a project. Typically these include the plans, specifications, schedules, general conditions and the contract for construction. Because every project is different and every owner has a different set of expectations and requirements, every set of contract documents will be fashioned accordingly. Final budget work is completed to a +/- 10% standard with certain allowances for future decisions. Substantial documentation will be necessary to clarify and refine the Construction Specification, the “Spec” for the Project as final pricing and this phase conclude.

Construction Phase

Home and Site are Completed

Construction Underway

Summary: Contractor initiates and leads project from start to finish with or without the involvement of the Architect—as the Owner will be called upon to decide whether to maintain Architect’s role as collaborator and advisor throughout the Construction Phase. To aid the Owner, certain clients will elect to maintain the Architect’s involvement and/or will engage an Interior Design professional to select, order and deliver wall finish materials, colors, cabinetry, key hardware and other design goods and materials.

Maintenance and Upkeep Phase

Upkeep and Maintenance

Occupancy and Beyond

Summary: Construction is completed and Home is occupied. Systems and materials will be maintained for long-life, minimal energy usage and to minimize “life-cycle costs” of ownership. Maintenance and upkeep are highly correlated with the cost of ownership. The Contractor will advise the Owner about the type of owner upkeep within the first two months of occupancy.

Source: The Maple Ridge Group LC and Arizona State University, Webb School of Construction