

## 7 Stages to the Planning Process

# PROJECT PHASES

### CONGRATULATIONS!

You've decided to hire an architect. What next? How do you and an architect turn your ideas into reality? There is a well-defined method for doing this - read on!

### HIRING PHASE

**O** First things first. How do you go about hiring an architect? In the state of Iowa, architectural design services are regarded as a professional service, and you are able to secure an architect and negotiate design services directly with the architect. You may choose to work with a firm you already have a relationship with, solicit recommendations from others or issue a Request for Proposals (RFP) to hire your design professional.

It is usually the case that as your lead design consultant, your architect will provide full design services that include architecture, structural, mechanical, plumbing, electrical, data and civil design. Sometimes additional design consultants are needed for the project such as theater design, food service design or landscape architecture design. These consultants will also be hired directly by the architect. In this way, all design services are provided by a single entity for accountability.

There will likely be additional professional services that are required to complete the project that will be hired directly by the owner. These might include a site survey, a geotechnical investigation, third-party costing, asbestos abatement, special inspections for structural elements and building commissioning.

When it comes to construction, there are different requirements for securing a contractor to erect your building. On private projects that do not involve any public funding, the owner can hire a contractor directly for the construction of the building. This may take the form of a Design/Build process in which the architect and the contractor work together to develop the Construction Documents (i.e. drawings and specifications). A variation on this approach is called "negotiated bid," where the owner negotiates with the contractor for the cost of construction. For public projects the owner will be required to use "competitive bidding" where they must accept the lowest responsive and responsible bidder for the work. This process is described as Design/Bid/Build. The architect provides the construction documents, the contractor bids for the work against other contractors, and then the contractor with the lowest bid enters into a contractual relationship with the owner to build the project. Sometimes, for public work, an owner hires a construction manager directly to oversee the work.

In this model, the construction manager and the architect work together for constructability and costing during the production of the Construction Documents. The competitive bidding requirement for public work is accomplished by contractors bidding for identified aspects of the work through multiple prime contracts called "Bid Packages". The work is divided into individual packages such as Civil, Structural, General Carpentry, Flooring, etc. These are publicly bid and the construction manager oversees the work.



Once you have your architect on board and your project construction approach determined, you will follow a linear sequence of phases to go from a conceptual design to a finished product.

## PROGRAMMING PHASE

**1** You will likely already know the basic elements you need in a new or renovated facility. If it is an office building, you might know how many offices and conference rooms you want, what kind of reception area would be ideal, what kinds of employee services you want and how the building should sit on your site. During this programming phase, you and your architect confirm your needs and priorities and identify additional elements you might not have considered (i.e. storage space, building circulation, or non-gender toilet rooms). Initial discussion about HVAC or Information Technology needs will also take place during this phase. Your architect will also look at your proposed building through the lens of code requirements and to make sure everything is covered (i.e. ADA parking stalls and energy efficiency). At the end of this phase a programming document will be provided that encapsulates your needs and fits within your budget.

Now the design begins.

## SCHEMATIC DESIGN PHASE

**2** With your input, your architect will take all your programming requirements and organize them into a building floor plan with consideration for how the building will fit on your site, which will begin to show what your building might look like from the outside. Key considerations during this phase are:

**Adjacencies** – Are the spaces arranged in the layout and sequence you want? How do the public spaces interact with the private spaces? If the project is a school, is the cafeteria centrally located, the classrooms secure and the receiving area discreet while also accessible?

**Site Considerations** - How is the building oriented on the site to maximize natural light and protect from winter winds? How is public and emergency access being addressed? What is the connection between indoor and outdoor spaces?

**Room Sizes** – Are classrooms adequately sized? Are the offices large enough? Are there sufficient support spaces to serve the building such as electrical or data rooms, mechanical rooms, or janitor closets?

**Materials** – What is the balance between material cost and durability (i.e. concrete block walls versus drywall)? Are there materials that should be considered for ease of construction? What are the aesthetic drivers for the look and feel of the building?

To understand the design needs of the building more thoroughly, the architect will conduct information gathering sessions with the users of the building to ascertain a deeper understanding of the program's needs. A cost opinion based on the design is generated. Sometimes adjustments are required to bring the projected cost of the project into alignment with the budget. At each phase, the architect should make sure the design matches the budget.

At the end of the Schematic Design (SD) Phase the deliverables normally include a conceptual floor plan, exterior renderings, a programming compliance document, a project schedule and a cost opinion. For public projects, the governing board typically needs to approve SD work before the architect moves to the next phase.





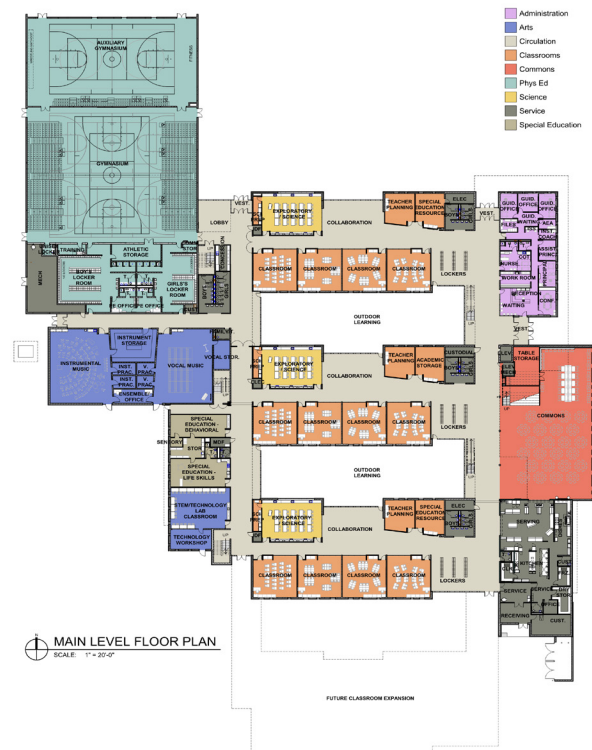
## DESIGN DEVELOPMENT PHASE

**3** During Design Development (DD) the design team refines the design of the building to make sure all the programming needs are being met.

During this phase the proposed building systems, including mechanical, electrical and building envelope materials, are carefully evaluated for efficiency, cost, and performance. The balance between energy efficiency and cost will be addressed. While Department of Energy code compliance must be followed, decisions about enhanced energy savings opportunities will be weighed against cost pay back.

A second round of input sessions are scheduled to review the design with the users of the space. A cost opinion is generated and the design is brought into alignment with the owner's budget. For public projects, the DD documents are approved by the owner prior to moving on to the next level.

The Level of Design (LOD) shown on the documents at this phase include dimensions, casework, doors and finishes, material selection and a higher level of detail. Building renderings are more advanced so the owner can confirm the aesthetics of the design meet with their approval.



## CONSTRUCTION DOCUMENT PHASE

**4** Once all the design decisions have been largely made and the owner has approved the program and aesthetics of the project, the Design Team moves into a phase of intensive document development, coordination and refinements called the Construction Document (CD) phase. Little owner input is needed during this phase since the focus is on producing construction documents that contractors will use to construct the building.

Through concentrated coordination from all members of the design consultant team, the final design of all the building systems is accomplished during the CD phase. Duct routing is synchronized with steel joists; plumbing systems are routed to serve sinks, toilets, and drinking fountains; site utility connections are matched up with the building systems; door hardware information is developed. The design professions employ various tools such as clash detection, quality control procedures and collaborative review sessions to provide a well-coordinated set of construction documents. The documents include both drawings and specifications. Specifications are written material describing in detail the specific components of all the building systems from thickness of drywall to the gauge of metal doors.

Once a final cost analysis is done and the documents are lined up with the budget, the project is ready to either go out for bid or start construction. If the projected cost of the project exceeds the available budget, the owner and Design Team can undergo a Value Engineering process that will identify a less costly way of achieving the design intent, reduce project scope or identify alternate bid items that could be accepted if the bid day numbers allow.





For privately bid work, the owner is allowed to open the bids privately and award the project to whomever they choose, not necessarily the low bidder. They may base their decision on previous experience with the contractor, the projected schedule or references from others who have used the contractor.



## BID PHASE

**5** Once the Construction Documents are completed and printed, the project goes out for bid. This is required for public projects, but often an owner prefers private projects go through the bidding process in order to take advantage of the competitive bidding process. For public projects, your architect will guide you through the process of setting bid dates, dates for public hearing and required notifications to bidders that the project is out for bids.

Potential bidders typically have three-to-four weeks to secure the bid documents, put their pricing together and submit their bids. During this time the Design Team will review substitution requests from contractors for alternate products that might meet the specifications of product or materials stipulated in the bidding documents. The Design Team will also answer clarification questions about the bid documents. In order to make sure all bidders have updated information about the project bidding, the Design Team will issue addenda to contractors that includes all approved substitution requests and answers to questions.

Often times a pre-bid meeting is held for bidders to visit the proposed construction site and to ask questions directly to the Design Team or owner. The architect typically facilitates this meeting.

For public projects, bids are required by state law to be opened and read aloud at a public meeting. If the apparent low bidder is deemed both responsive and responsible the owner will typically award that contractor the project. Exceptions include if the project is over budget or if there are significant irregularities in the submitted bids. In those instances, the owner can reject any or all bids. The owner generally seeks legal counsel for advice in these circumstances.

## CONSTRUCTION PHASE

**6** Once a project is awarded to a contractor, the architect will set up a pre-construction meeting to kick off the project with the contractor, the owner and the Design Team. The contractor will spend the first few weeks putting contracts in place with subcontractors and securing insurance policies and performance bonds. The contractor will also start the process of construction submittals. This consists of submitting cut sheets, product parameters or drawings from their subcontractors, fabricators and material suppliers to demonstrate the products, procedures, and materials conform with the construction documents. The design team reviews these submittals for compliance.

During construction the contractor is in control of the Means and Methods of the project – how they plan to build the building. The architect and design team’s responsibility during this phase is to attend (and usually conduct) construction progress meetings, make regular visits to the jobsite to observe progress and review that the construction is in conformity with the construction documents. The Design Team will also review contractor questions, evaluate any additional costs associated with the project and issue clarifications to the contractor as needed.



## CLOSE OUT PHASE

**7** Once the project nears completion there are key milestones for the contractor to meet:

**Substantial Completion** – This is when the project is complete enough that it is able to be turned over to the owner for their use. For a school project this might be defined as the first day of school - with students and teachers using the building for its intended purpose. The project will typically be just about 100% complete at this time, with minor items to finish up or modify per the architect's review. The architect and design team will perform a punch list to identify completeness and point out items such as lack of adequate grass coverages, paint touch up or under performing systems. The contractor is required to rectify these punch list items. In order to provide leverage to encourage the contractor to complete punch list items, the contractor is required to hold back 5% of the construction cost of the project that will be released only when punch list items have been completed to the design team and owner's satisfaction. This is called "Retainage." By state law the entire 5% retainage amount does not need to be withheld from the contractor until all punch list items are complete. Partial retainage can be released as punch list items are finished.

**Final Completion** – Once all punch list items are completed to the design team and owner's satisfaction, and the contractor proves that they have paid all their subcontractors, an official Final Completion Document is processed and the owner accepts the project. After final completion the building is completely turned over to the owner. The contractor and architect remain involved throughout the warranty periods and to help the owner settle into the building.



**Tom Wollan,**

AIA, LEED AP

is a Principal / Architect at frk architects + engineers, Iowa's leading architecture firm focused on education.

