7 Steps of the Architectural Design Process

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INTRODUCTION

The architectural design process is a fascinating and intricate journey that transforms your vision into a real-life building, with all the practical and functional needs that implies. It's an artistic and collaborative venture that demands creativity, rigorous planning, clear communication, and precise execution. The first thing to understand is that the process is lengthy. Not in a negative way. But realistically, it takes time to get the design right, design the structure and systems to work correctly and organise all of the information so the contractor can build it. And creating a building doesn't happen overnight. Because of this, a process has evolved, creating a structure that allows the right things to happen at the right time. It establishes clear goals and milestones for each step, keeping everything organised and timely.

The next thing to understand is that many people are working on your project. From engineers who design your heating, cooling, electrical and plumbing and make sure your building will hold up to wind, snow, and storms to various consultants the project requires—lighting, acoustic, etc.— to your local jurisdiction that will approve your building's permits. As well as any other site, environmental, or specialised consultants unique to your site or area. Your architect works as the hub, coordinating everything to ensure you get the building you want. In this overview, we delve into the essential phases of the standard architectural process, explaining what each stage involves and its critical importance in the successful realisation of any architectural endeavour. Interestingly, this process is becoming less commonly used for custom residential work. Most firms work with their clients to tweak this process so that it fits their goals. We compare our process to the standard architectural process as we go through the phases.

Architectural Design Process Steps:

1. The Pre-Design Phase

2. Schematic Design Phase
3. Design Development Phase
4. Construction Documents Phase
5. Bidding and Contractor Selection
6. Construction Administration
7. Post-Occupancy Evaluation

THE PRE-DESIGN PHASE: LAYING THE GROUNDWORK

The adventure begins with the pre-design phase. As the name suggests, this is not a design phase but the part of the process where architects learn the client's vision, establish the project goals and establish the project's overall scope.

This phase is marked by intensive discussions aimed at capturing the client's desires and needs, conducting detailed site analyses to evaluate feasibility, and programming to document the intended functions of each space. It's a foundational stage where the groundwork for the entire project is established, setting the tone for all subsequent phases.

At the end of the pre-design phase, there should be:

- A clearly established program. The Program is the list of rooms and functions (i.e. the number of bedrooms, bathrooms, library, den, home theatre, home office, spa, meditation room, a place to play the piano, and so on). This list should include the square footage needed for each of these spaces, which will be used as the foundation for the design in the next phase and help establish a budget.
- A preliminary budget. The architect helps come up with this initial number based on the overall size of the house, the desired quality of construction — the level of detail and finish, and an understanding of local building costs.
- Major project goals. This includes design style visions, environmental certifications, health and wellness goals, and timelines.
- Project feasibility. Determine if this project can be designed on this site, adhere to local regulations, and stick to the client's budget and schedule.

Figure 1: Floor plan

SCHEMATIC DESIGN PHASE: THE BIRTH OF IDEAS

In this stage, architects transform the insights and data gathered during pre-design into preliminary sketches, models, and floor plans. This phase is characterised by a vibrant exchange of ideas and concepts, where architects present diverse design options, actively integrating client feedback to refine and evolve these initial ideas. Cost estimation is crucial, ensuring the project remains aligned with financial expectations and constraints.

By the end of the schematic design phase, the design is starting to take shape. You can start to feel the building coming together. The overall design is arranged, and the significant spaces are alive.

The main deliverables at the end of the schematic design phase are:

- Conceptual sketches of the design, including floor plans, site layout and elevations.
- A document showing the look and feel of the project. This can include precedent images showing design and material inspiration, as well as sketch renderings of key details and interior spaces
- An updated budget estimate

DESIGN DEVELOPMENT PHASE: REFINING THE VISION

In this phase, the design starts to move from concept to reality, where the project takes a more defined and tangible form. Architects elaborate on the schematic designs, selecting specific materials and finishes and meticulously defining the interior and exterior aesthetics.

In this phase, the engineers and consultants come on board. The architect starts to coordinate with structural engineers, environmental consultants, and other specialists to ensure the design's integrity, sustainability, and feasibility.

At the end of the design development phase, you will see:

- Developed architectural drawings of floor plans, sections, and elevations.
- Coordinated preliminary drawings to establish structural and mechanical systems, ensuring they could be incorporated without compromising the design.
- A document outlining selections for interior and exterior finishes and materials
- An updated budget estimate based on the refined design, systems and building material

Figure 2: Schematic Design

CONSTRUCTION DOCUMENT STAGE: BLUE PRINT FOR REALITY

In the construction documents phase, architects prepare comprehensive drawings and detailed specifications that will serve as the blueprint for the construction process. Accuracy and precision are paramount in this phase to prevent costly and time-consuming revisions during construction. This phase also involves the complex task of navigating and securing the necessary building permits and approvals.

In this phase, the architect needs to prepare everything the contractor will need to build the building. This includes:

- Highly detailed architectural drawings of plans, sections, and elevations with all dimensions and annotations are necessary for the design to be clearly understood on the construction site.
- Development of final details for every part of the project. Think of any trim or casing detail, how the walls meet the floors and ceilings, how the return air grilles are concealed, how the drip caps above the windows keep the rain out, and so on. There is no universal way of doing these things. They all need to be designed and communicated.
- Final drawings from the engineers and consultants outlining all systems for the contractor and their sub-contractors.

BIDDING AND CONTRACTOR SELECTION: ASSEMBLING THE TEAM

Selecting the right construction team is pivotal for the project's success. This phase can involve either a negotiated or competitive bidding process. Architects play a significant role in guiding clients through this process, assisting in the analysis of bids, and selecting a contractor that best fits the project's specific needs, quality standards, and budget.

This is where we see where the standard process runs into challenges. Waiting until this point to request bids and select your contractor isn't ideal for all projects, mainly custom residential designs. The benefits are that you will leave this phase knowing that you have a competitive price and have had the opportunity to sift through various proposals to find a contractor with whom you have a good rapport. The issues are that 1) the bidding process adds time, and 2) there is a greater likelihood that the early phase cost estimates weren't accurate, leading to costly and time-consuming design revisions.

In our approach, we prefer to bring the contractor onto the team in the early phases of design. The bidding phase becomes a pricing phase for the already selected contractor, using all the information in the final drawings and specifications.

This has several benefits:

1. Early phase price estimates that include the project's contractor are more likely to be accurate at each phase
2. Having the contractor involved in design discussions from the beginning improves the design and constructability
3. The project can move quickly into construction once the design is finished and the permits are approved

CONSTRUCTION ADMINISTRATION: GUIDING THE BUILD

During the construction phase, the architect's role evolves to focus on overseeing the project's execution. Regular site visits ensure the construction adheres to the design plans and specifications. The architect is on call to answer any questions the contractor may have about the information in the contract documents and to manage any unforeseen changes or challenges, ensuring they are addressed efficiently and in alignment with the project's goals.

Another critical role of the architect in this phase is to oversee and approve payment requests from the contractor, checking in on-site to make sure the contractor is only submitting invoices for work that has been completed. The architect is on board throughout construction, assisting with the close-out process and overseeing the contractor's punch list to ensure everything is completed as you want it before the contractor packs up and moves on.

This phase is essentially the same as the team-oriented approach. However, including the contractor in the design process creates a more collaborative environment and reduces the number of questions the contractor needs to clear up with the architect (RFIs), ultimately saving time and money.

POST OCCUPANCY EVALUATION: MEASURING SUCCESS

The final phase, post-occupancy evaluation, allows architects and clients to assess how the building performs in relation to the initial objectives and expectations. Feedback from occupants is invaluable, offering critical insights that can inform future projects. This phase is essential for ensuring continuous improvement in architectural design and practice. The architect will visit the building six months after completion to review its performance and conduct a survey to obtain crucial feedback on meeting the initial goals.

Figure 3: Final Design

CONCLUSION

The architectural design process is a detailed, multi-layered journey, with each phase playing an indispensable role in ensuring that the final structure fulfils the client's vision and stands as a beacon of thoughtful, innovative design and execution. A thorough understanding of these phases is crucial for clients and architects, as it facilitates effective navigation, leading to successful, impactful, and fulfilling architectural projects. The standard design process has many benefits, and it remains the primary template for many project types, especially public projects where an open bidding process ensures transparency. For our purposes, the team-based process has many benefits, most importantly keeping the focus on design and construction quality and maintaining overall efficiency and timeliness.

ABOUT THE AUTHOR

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Andrew is a Certified Building Biologist who studied architecture at Yale University's School of Architecture and Art at the Cranbrook Academy of Art. This furthered his passion for old stuff, places, and classic details. Prior to starting his architecture career, Andrew co-owned and ran a 'Healthy Home and Lifestyle' store for a dozen years, helping people protect their kids and make homes beautiful and safe. Andrew is currently travelling around the country in an RV with his family, looking for cool ducks.

ABOUT THE PUBLISHER

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