

RESIDENTIAL AND SMALL COMMERCIAL PROJECT HANDBOOK

Provided by

Edwin Bruce Associates Architects AIA

1625 The Alameda, Suite 610

San Jose, CA 95126

Phone: (408) 995-5701

Fax: (408) 995-5022

www.eba-aia.com

WORKING WITH AN ARCHITECT

The architect is the professional who guides you through the design and construction process. Licensed by the state to practice architecture, the architect is the only professional specially trained to design the places in which people live and work and to manage all aspects of potentially complex projects from design through construction.

An architect listens to you and serves as your advocate throughout your project. Your architect translates your wishes into built form, ensures compliance with state and city regulations, oversees the work of the builder, and coordinates all technical and aesthetic aspects of your project. Your architect solves space problems, manages your budget, protects your project from unreasonable extra costs and resolves disputes that may arise with your town, other consultants or your builder.

Licensure as an architect is the result of a special educational process, rigorous training, and completion of a complex series of exams. An architect usually has a minimum of five years of professional schooling and three years experience in the workplace before becoming eligible to take the licensing examination. Only licensed architects may use the title "architect" and their project drawings should bear the architect's seal and signature before construction may begin.

American Institute of Architect Members

Most registered architects are members of the American Institute of Architects (AIA), the national professional association that oversees the professional practice of architecture. Over 90% of Architect-designed construction in the United States is handled by AIA members.

Architects who are members of the AIA have numerous opportunities for continuing professional training, timely access to information on new building materials and technologies and, perhaps most important, ongoing, collegial relationships with other AIA members who include the most skilled practitioners in the nation.

AIA member architects are required to comply with the AIA code of Ethics, which dictates guidelines for the highest standards of professionalism, integrity and competence. The code addresses architects' responsibilities to the public, which the profession serves and enriches; to the clients and users of architecture, who help shape the built environment; and to the art and science of architecture, the body of knowledge and creativity that supports the profession.

Many types of people are available today to work on design and construction projects- designers (includes unregistered architects, decorators, and interior designers), design/build companies, engineers, and other consultants. It is important to note that these professional are not substitutes for architects- their education and training is quite different- but often are hired by or otherwise work with or for architects.

What Architects Do

The architect is the skilled professional who listens to you, interprets your wishes, and helps realize your building dreams. The architect is a counselor, planner, designer, mediator, work coordinator, and business administrator. Architects add value at every stage of the project, from initial conceptual design through construction completion. Your architect:

- **Translates your wishes into plans for construction**
Your hopes and dreams for your project may be vague and abstract, and are usually expressed in words. The architect's job is to work with you to translate them into a visual and technical prescription for construction that is very detailed. The goal is for you, your architect, and your builder to share the same, very specific expectations about materials, quality, workmanship and other outcomes. This is usually an educational process for everyone, during which all decisions should be recorded on paper and all construction details and instructions carefully documented.

- **Designs custom work and installations**
Each building has a special history, every site has unusual conditions, and every client has unique goals, desires and requirements. The architect ensures that the design solution unites all of these and reflects your unique personality and style of living and working.

- **Prepares drawings and specifications**
Drawings and specifications are the graphic and verbal descriptions of the project. They describe your preferences and wishes for the project you are building and are used to document decisions about the project's size, function, organization and aesthetic. They prescribe the engineers' requirements for structural stability, climate control, drainage, and electrical service. These documents are submitted to your town in order to obtain a building permit so construction can begin; they are used by the town building inspector to determine that the project will meet local requirements

Drawings and specifications prepared by the architect also are the basis for the relationship between you as the owner client and your contractor (builder). They can be used for competitive bidding among contractors, so you can compare several builders, plans and specifications are used as "contract documents" (instructions to your contractor) and the basis of your agreement with him about exactly what work is to be done and at what cost.

Many architects, particularly in larger firms, prepare their drawings on computer using CADD (computer aided drafting and design) software. Computer-generated drawings may take less time to prepare than those that are hand-drawn, can be revised easily, and are especially useful for repetitive design elements often found on larger commercial or institutional projects. Computer-aided drawings are not necessary for most residential and small commercial projects. Computer-aided drawings are simply one of many tools an architect uses.

- **Ensures the project is "code compliant"**
Both the town and state in which the project is located have regulations that govern your project. An architect should be aware of them and ensure that your project satisfies them. Zoning regulations, which are published by each city and vary from one town to another, concern the building's use, size, relationship to the site and parking. Building codes are published by the state and address how buildings are to be constructed, dictating, for example, door sizes and materials, window sizes and locations, structural lumber sizes, and stair and hallway dimensions. A special section of the code ensures access to public buildings for people with disabilities; requirements for bathrooms, kitchens, ramps, and other building elements.
- **Coordinates the work of consultant**
The architect coordinates the work of specialty consultants your project may require, including structural, electrical and mechanical (heating, plumbing, air conditioning), and civil (drainage and site utilities) engineers.

- **Helps you secure a builder**
 The architect can help you through the process of selecting a contractor through competitive bidding. About half the cost of any construction is labor and the other half is materials. Since labor costs vary according to skill, experience and the contractor's overhead, competitive bidding allows you to select a contractor on the basis of cost and schedule as well as reputation and approach.
- **Administers the construction contract**
 The architect brings an experienced and balanced perspective to the project during construction. The architect serves as your advocate, ensuring the project is built as it was designed and specified. The architect analyzes and helps you make decisions about "change orders", which could affect your project's costs. Change orders are any changes proposed by the client or the contractor or changes required to address conditions that could have not been foreseen. Some clients prefer not to involve the architect during construction phase (perhaps to save money); however, by keeping the architect involved through construction, you may maintain an important advocate and perspective on the progress of the job.
- **Manages your money**
 Working with an architect on your project can save you money in a number of ways. Having a single, complete set of architectural drawings to present to a number of prospective contractors allows you to choose among comparable bids- bids that are based on the same expectations. When the contractor knows at the start what will be built and when the client has taken time to plan carefully, costly delays and change orders during construction are minimized. During construction, the architect ensures that any proposed changes are responsibility priced and in keeping with local costs and methods of construction. Finally, the architect authorizes payment to your builder, giving you added assurance that both you and your architect are satisfied with the builder's performance and product.

Value of Working with an Architect

Architects provide a broad range of services and can provide value at every stage of the design and construction process. By working directly with you and assessing your requirements in great depth, the architect tailors the design to suit your personality, needs, budget and lifestyle. The architect's extensive study of design alternatives (some of which you may not have considered), allows you to choose the design most appropriate to your needs. An architect's knowledge of site-planning and natural energy processes (the influence of wind and sun on the building, groundwater flow, etc.) ensures accommodation to your site characteristics and neighborhood context. By overseeing construction, your architect ensures that your project is built according to design.

The architect also saves you money and time. By keeping abreast of the latest construction materials and technologies, architects can recommend materials and systems that fit your budget. Your architect provides documents for the contractor bidding process, which should result in a fair contractor price. Construction is expedited through an architect's careful planning and complete drawings and specifications. The architect serves as your agent with the contractor, resolving disputes that may arise and analyzing additional costs the contractor proposes.

The design aesthetic of the project is perhaps the most obvious area in which an architect makes a unique and valuable contribution, creating a visually appealing place with pleasing character and style. ultimately, your property's value is increased through appropriate design, improved functionality and high-quality detailing.

Projects that Benefit from an Architect's Leadership

A wide range of projects can benefit from the involvements of an architect. Most architects are both general practitioners and specialists- that is, while many have special expertise or preference for one or more types of projects, most can (and do) work on many types of buildings.

The list below illustrates the range of this firm's capabilities and includes new construction, renovations, and additions.

Residential Projects

- Single family new homes
- Single family additions
- Single family remodeling
- Building re-use
- Outbuildings and other structures
- Landscaping and related site design
- Accessible (barrier-free) design
- Consulting- only services

Small commercial projects

- Offices
- Retail stores
- Food and entertainment facilities
- Institutional facilities (educational, religious, medical, cultural)
- Interior space planning
- Landscaping and related site design
- Accessible (barrier-free) design
- Consulting-only services

How to be a Good Client

As the owner and client, you must take responsibility for a good working relationship with your architect and the success of your project.

- Good communication is a key to success in any endeavor. Be clear about your needs, so your architect understands your preferences, lifestyle, and intended use of the space to be designed. Ask a lot of questions and be sure to get answers in language you understand.
- Decide on your budget at the outset- both the ideal and the maximum you are willing to spend- and communicate it clearly.
- Make decisions in a timely manner. Try not revisit or reverse decisions you have already made, because it is likely your architect has already acted on them and designed accordingly. If you do change your mind tell the architect immediately.
- Review promptly the drawings and materials the architect gives you, and return them quickly with questions, comments and changes.
- Be flexible about achieving the design solution- sometimes, the best solution is arrived at through a process of sketching, discussion and revisions, which takes time.

The Role of the Builder

Historically, the architect functioned as "master builder", providing both design and building services. Today the architectural and construction parts of the building industry have evolved into separate disciplines. Architects provide designs and drawings, identify necessary engineering, and create design schemes that satisfy your needs related to use, views, materials, size, as well as environmental opportunities and constraints. Builders (general contractors) provide construction services based on architects' designs and

are best suited to define construction methods and sequences, estimate costs, and coordinate the work of engineers and subcontractors.

In a typical scenario, the builder is hired through a competitive bidding process in which the client requests bids from a number of contractors who outline their credentials and approaches to cost, schedule, and logistics for the project construction. The bidders all use the same design drawings to develop their submittals, so you receive comparable estimates. A variant to competitive bidding is a negotiated contract, in which your architect helps you develop cost, schedule and scope or work through discussions with a single contractor.

Your contract with the builder may be based on a lump-sum price or be billed on a time and materials (T&M) basis, with or without a guaranteed maximum price (GMP) determined at the start.

As the owner, you are ultimately responsible for selecting your contractor because you will have to work with him everyday and you will have to pay him. If you would like, your architect can assist you in finding builders to consider and may help you review their credentials. To determine whether a contractor is registered to do business in California call the contractors state license board at 1-800-321-2752 or check their website at www.cslb.ca.gov

SELECTING AN ARCHITECT

You will benefit by involving an architect in your project as early in the process as possible and by making an intelligent selection.

A brief call to an architect can help determine if his or her expertise is appropriate to your project.

Check the architect's education, training, experience, and references. Most importantly, however, is good "chemistry" between you and your architect- you will need to feel comfortable with each other and will get to know each other well. Your architect should be a good listener, responsive to your phone calls, clearly interested in your needs and able to communicate without using jargon. Be patient: This process will take some time and it is one of the most important decisions you will make for your project.

Selection Criteria

Use the following criteria to choose among the architects you consider:

- **License:** The architect should be licensed in California.
- **Experience:** The architect should have a track record of work similar to yours in size, complexity, type, and/or cost.
- **Chemistry:** you should be convinced that your architect will listen to you and you should be comfortable sharing details of your life style needs, and budget as well as your hopes and concerns about the project.
- **References:** other people for whom the architect has worked should be satisfied customers and should attest to the architect's ability to respect agreements about service, fees and schedule.
- **Firm size:** At one end of the spectrum are large firms which employ hundreds of people and have branch offices nationally or even worldwide. Most firms, however, consist of fewer than 10 people,

and many architects practice in one- or two-persons offices. These smaller firms are more likely to design houses and small commercial projects and are usually better positioned to handle your needs. With a smaller firm, a senior-level professional is likely to work with you.

- **Design philosophy:** you and your architect should be philosophically, aesthetically and ethically compatible. Whatever the architect's goals and stylistic preferences, you should have confidence that your project will be specially designed for you.
- **Level of Service:** Architects can vary in the services they provided. Some will carry your project through construction while others may leave the responsibilities for overseeing construction to you or the contractor. Match your preference with the architect's.
- **Design fees:** Fees should not be determining factor in selecting your architect. Variations in cost generally reflect variance in service- define the scope of service carefully, including possible cost-savings and extras, the use of consulting engineers, and work by others such as landscape, security, sound system and interior design consultants.

20 Questions to Ask Your Architect

1. What does the architect see as important issues or considerations in your project? What are the challenges of the project?
2. How will the architect approach your project?
3. How will the architect gather information about your needs, goals, etc.?
4. How will the architect establish priorities and make decisions?
5. Who from the architecture firm will you be dealing with directly? Is that the same person who will be designing your project? If not, who will be designing your project?
6. How interested is the architect in this project?
7. How busy is the architect?
8. What sets this architect apart from the rest?
9. How does the architect establish fees? When will fee payments be expected?
10. What would the architect expect the fee to be for this project?
11. What are the steps in the design process?
12. How does the architect organize the process?
13. What does the architect expect you to provide?
14. Does the architect have a specific design style? Can he/she show examples of past design work?
15. What is the architect's experience/ track record with cost estimating?
16. What will the architect show you along the way to explain the project? Will you see models, drawings, or sketches?
17. If the scope of the project changes later in the project, will there be additional fees? How will these fees be justified?
18. What services does the architect provide during construction?
19. How disruptive will construction be? How long does the architect expect it to take you complete your project?
20. Can the architect provide a list of past clients with whom he or she has worked?

STRUCTURING THE RELATIONSHIP WITH YOUR ARCHITECT

Compensation for architectural services

Architects are paid in one of three ways. One method is a percentage of the total construction costs, which varies in proportion to the size and complexity of the project. A second option is payment on an hourly fee basis plus expenses. The third is a “lump sum” fee. You and your architect should agree on fee method, conditions and pricing parameters **before any design work begins**.

For residential projects it is customary for the architect to be paid in bi-monthly or monthly as the project advances, rather than with full payment at the end of the job. A down-payment or retainer will be required prior to start-up. In most cases our fees includes compensation for structural, engineering consultants the architect may need to hire for your project. Other consultants the owner’s hire directly include soils engineers, civil engineers, surveyors. Occasionally other consultants are required depending on the size and complexity of the project.

The Contract

For commercial projects it is customary for the architect to also hire mechanical and electrical engineers. We strongly recommend that you and your architect begin your relationship with a written agreement or contract that details your expectations, the architect’s service fees, schedule, and all other parameters you and your architect consider important. A thorough, clear, written agreement will help prevent later misunderstandings or disappointments.

The American Institute of Architects has devolved sample contracts, which you can obtain from the AIA Santa Clara Chapter, or ask us for a sample.

Do not allow any work to begin before you and the architect have signed a contract or detailed letter of agreement.

BUDGETING THE PROJECT

Before beginning any design, work with your architect to think through your project carefully. Budgeting the cost of design and construction is an important first step to help you avoid surprises and frustration. Resist the tendency to withhold budget information from your architect. Only with full knowledge of your ideal budget and absolute limit can your architect design within your budget and allocate your project money wisely. However, your architect cannot guarantee construction costs; you and your architect must work with the contractor to ensure that the actual construction is within budget.

Contingencies

Although much is done to research the site of your project or to predict conditions in an existing building before renovation, there are sometimes surprises revealed during demolition or construction that could not have been known in advance. These hidden conditions can include poor soils, underground tanks or piping, plumbing leaks or inadequacies, asbestos, structural deficiencies or insect damage. Provide an extra amount in your budget (a “construction contingency”) to cover the cost if fixing these problems. Depending on the size and complexity of the project, a reasonable contingency is between 10% and 15% of the total cost of construction.

Another type of contingency you should budget is called the “client contingency”. Reversing or remaking decisions about the design after construction begins is very costly because the builder must reschedule his subcontractors, remove and rebuild areas already complete, and quickly obtain materials or components not currently on site. You may decide that you want bigger windows, different wall configurations, or larger closets. You may want to renovate areas of your building not previously included in the project scope. New home furnishings, house wares or appliances may also need to be added to residential buildings. The “client contingency” should cover these costs and the additional design and construction costs they imply. Taking time to plan carefully during the design stage minimizes these kinds of expenses.

The sample budget worksheet following will help you outline costs and fees for your project. We can help you complete it.

THE DESIGN AND CONSTRUCTION PROCESS

20 Questions to Answer Before You Get Started

The following questions can be used to help define your desires, your expectations, and other details of your project and will help you communicate them to your architect. The more information you provide for your architect, the easier it will be for the architect to get started and the better the architect will be to address your needs. (Although geared to homeowners, these questions can be adapted easily for small commercial projects.)

1. Describe your current home
 - What do you like about it?*
 - What's missing?*
 - What don't you like?*
2. Do you want to change the space you have?
3. Do you want to build a new home?
4. Why do you want to build a house or add to or renovate your current home?
 - Do you need more room?*
 - Are children grown and moving on?*
 - Is your lifestyle changing?*
5. What is your lifestyle?
 - Are you at home a great deal?*
 - Do you work at home?*
 - Do you entertain often?*
 - How much time do you spend in the living areas, bedrooms, kitchen, den or office, utility space, etc.?*
6. How much time and energy are you willing to invest to maintain your home?
7. If you are thinking of adding on, what functions/ activities will be housed in a new space?
8. What kind of spaces do you need (bedrooms, expanded kitchen, bathrooms, etc.)
9. How many of those spaces do you think you need?
10. What do you think the addition/renovation/new home should look like?
11. If planning a new home, what do you envision in this home that you don't have now?
12. How much can you realistically afford to spend?
13. How soon would you like to be settled into your new home or addition? Are there rigid time constraints?
14. If you are contemplating building a new home, do you have a site selected?
15. Do you have strong ideas about design styles? What are your design preferences?

16. Which family member will be the primary contact with the architect, contractor, and others involved in designing and building your project? (it is good to have one point of contact to prevent confusion and mixed messages.)
17. What qualities are you looking for in an architect?
18. How much time do you have to be involved in the design and construction process?
19. Do you plan to do any of the construction work yourself?
20. How much disruption in your life can you tolerate to add on to or renovate your home?

Six Typical Project Steps

Design and construction projects involve several steps. Typically projects go through the following six phases; however, on some projects several steps may be combined or others added.

1. **Programming (deciding what to build):** You and your architect will begin by defining the requirements for your project (how many rooms, the function of the spaces, etc.), ensuring your desires fit within your budget. Programming is often done with the help of site and economic studies.
2. **Schematic Design (developing the concept):** During this phase the architect prepares a series of rough sketches, which show a conceptual approach to the design, general arrangement of the rooms, and general organization of the site. You approve these sketches before proceeding to the next phase.
3. **Design Development (refining the design):** the architect prepares more refined drawings, which communicate and document more detailed aspects of the proposed design. Floor plans show proportions, shapes and dimensions of all the rooms. Outline specifications are prepared listing the major materials and room finishes.
4. **Preparation of construction documents:** Once the design is approved by you, the architect prepares detailed drawings and specifications, which the contractor can use to establish actual construction costs, obtain permits to begin construction, and build the project.
5. **Hiring the contractor:** as the client, you select and hire the contractor. Three or four contractors are usually asked to submit proposals or “bids” for the project, which include total construction costs, obtain permits to begin construction, and build the project.
6. **Construction:** the contractor physically builds the project and is solely responsible for construction methods, techniques, schedules, and procedures. During construction, the architect provides “construction administration” (not “inspection” or “supervision”), ensuring the project is built according to plans and specifications. Your architect may visit the site periodically to observe construction, review and approve the contractor’s requests for payment, and keep you informed of the project’s progress.

Schedule

Some residential and small commercial projects can be designed within a few weeks; however, it’s very important to have adequate time to think through the options, do research and talk to people about what you are planning. Therefore, we recommend you allow between three and six months for the design phase. This can include selecting an architect at the outset of your project and, later, selecting a builder.

Most projects take between six to nine months to build; larger projects can certainly take longer. A new custom home can take one year. Interior construction can be done in any season; outdoor construction must be carefully timed. If you plan outdoor construction for warm weather months, you are less likely to be delayed by winter storms which make outdoor work difficult. Summer construction finds many contractors

busy; be sure to let your contractor know long in advance of when you want to begin construction so he can reserve the time and resources.

RECOMMENDATIONS AND LESSONS LEARNED

You can avoid common pitfalls that occur during design and construction projects

- Remember that you get what you pay for- be sure to hire a qualified architect, not the least expensive one.
- do not expect to save money by hiring non-professionals
- Execute a contract or letter of agreement detailing fees, schedules, budgets and tasks, and monitor the process outlined in the agreement.
- Take time to plan for your project- and allow your architect and contractor the time needed to properly design and build.
- Do not allow your builder to rush you to decisions, consult with your architect.
- Make all design decisions before construction begins- it gets very expensive to change your mind later.
- Resist revisiting decisions once you make them. Every decision affects work done after it; changes can be inconvenient and costly.
- Carefully conduct necessary surveys, title searches and similar research.
- It is not reasonable to expect that a building project will heal a marriage, friendship or company; it won't.
- It is unwise to try to fit your needs into a beloved design. Instead, allow a design to grow from a thorough understanding of your needs.
- Ask many questions until you get the answers you need in the language you can understand.
- Monitor construction and ask questions about anything you don't understand.
- Do not substitute "bargain" materials for good materials.
- Allow budget contingencies for both design and construction.
- Observe construction so you will be more likely to catch errors early.
- Expect to spend a great deal of time making decisions and material selections.
- Embrace the process and keep the goal in mind.
- Move out during construction.

Budget Worksheet

This budget worksheet will help you outline costs and fees for your project. We can help you complete it.

Land and Building Acquisition and financing

Land cost
Building cost
Title report
Real-estate appraisal
Financing costs, loan fees
Bonds and assessments
Legal fees (re-zoning, variances, etc.)
Topographic and boundary survey
Soils/geotechnical analysis/ report

A. Subtotal \$

Design

Architect's fee
Engineering fees
Landscape architecture fees
Interior design and color consultation fees
Special engineering fees (solar, acoustical, security, communications, e.g.)
3D models

B. subtotal \$

Construction

Cost-estimating
Site work (grading and utilities)
Building construction
Landscaping, planting, irrigation
Recreational features (swimming pool, tennis court, e.g.)
Permit fees/ construction taxes required by various government agencies
Insurance (builder's or owner's risk) and bonds (commercial projects only)
Materials testing and inspection
Built-in furniture and cabinets

C. Subtotal \$

Furnishings

Interior finishes and flooring
Interior furnishings, wall/window coverings, and upholstery
Appliances

D. Subtotal \$

Other

Contingency for estimating errors and unforeseen expenses
Adjustment for inflation
Cost of temporary lodging (if appropriate)
Cost of delays

E. Subtotal \$

Add subtotals A through E

TOTAL \$

CONCLUSION

We hope this information has been helpful, and would like to leave you with one final thought. A well designed and constructed home will bring you years of enjoyment, and at such time in the future that you may decide to sell your home, the small percentage of project costs that was for architect fees will pay off richly in re-sale value. There is no substitute for an elegantly solved architectural design coupled with professionally executed construction.