

**CONSTRUCTION MANAGEMENT MADE EASY  
OR  
DO I REALLY WANT TO MANAGE THAT CONSTRUCTION  
PROJECT MYSELF**

The ultimate self help guide and handbook on discovering the secrets of fast and easy do it yourself construction management for any size project.

By

W. GARY WESTERNOFF



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Library of Congress Catalog Card Number 98-90952

ISBN 0-9668245-0-4

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Manufactured in the United States of America

Published by The Westernoff Group  
P.O. Box 153  
Moraga, CA 94556

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## About the Author

W. Gary Westernoff has been directly involved in Construction General Contracting and Construction Management work in the U.S. and the Pacific Rim for over 30 years. He is a man of many talents and has extensive experience as a contractor, estimator, project manager, draftsman, educator and writer. Inspiration for this book came from his observations of his clients, friends and neighbors and their ongoing frustrations attempting to handle simple and complex construction projects. Gary hopes that this book will answer questions commonly asked by students, property owners, owners representatives, property managers and home owners before embarking on that next construction project.

Also, over the years, Gary has observed that the construction industry is not always standardized when it comes to construction terminology. Gary hopes that this book will be used as a standard, specifically with respect to the management aspects of construction.

### DISCLOSURE AND BOOK LIMITATIONS

The information in this book has been gathered from the training and experience of the author. Neither the author nor the publisher pretends to offer legal advice or advise on other professional specializations. If such advice is required, it is recommended that the reader obtain it from the properly qualified professional authorities.

Also, the Author has used examples based on the State California Contractors' License Law. The examples may not apply in other states and statutory laws may be unique for the specific geographical area of your construction project. Any legal forms such as Waiver and Release forms should be reviewed by qualified legal professional authorities within your geographical area.

The author intends to produce an upgraded version of this book on a compact disc (CD) with animations and audio. If you are interested in knowing the availability and costs of this CD please take a moment to send your name, address, telephone, fax number, and/or e-mail to:

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## Forward

Construction Management is a loose term used to describe the process used to organize and direct men, materials, and equipment to accomplish the purpose of the designer. Whereas, Project Management is the coordination of time, equipment, money, tasks and people. The terms “Construction Management”, the focus of this book, and “Project Management” are often used interchangeably.

## Where do you fit into the total scheme of the Construction Management Process?

The author has defined the following classifications. An individual may fall into more than one classification.

### Amateur

A person who practices to some extent that which he may not be well informed. One who practices an art, not professionally, but for the love of it.

### Desperate

A person forced into doing a construction project when time is of the essence. A scope of work requiring immediate completion, replacement or repair. A desperate person acts without care and is reckless resorting to a last extreme measure. Examples causing a desperate situation may include a leaky roof, plumbing leaks, failing retaining wall, broken hot water heater, completion time limitations, etc.

### Novice

A beginner in any business or occupation; an untried or inexperienced person acting in a class he has not already won an award.

### Owners Representative

A person employed by the owner to handle the day to day construction management activities in the owner's behalf. The titles usually given to an owner's representative are project manager, construction manager, project engineer, or facilities manager. The duties may include project budgeting; estimating; planning; inspections for quality control, specifications compliance, and disbursement approvals of funds to the contractor(s).

### Professional

A person or company engaged and skilled in a profession

## Student

A person attending a school, college or university studying construction management or a related field.

## Determining your Classification

Using the above definitions make a check in the blank(s) provided below to select the classification(s) you believe apply to your background or knowledge as it relates to Construction Management.

\_\_\_\_\_ Amateur

\_\_\_\_\_ Desperate

\_\_\_\_\_ Novice

\_\_\_\_\_ Owner's Representative

\_\_\_\_\_ Professional

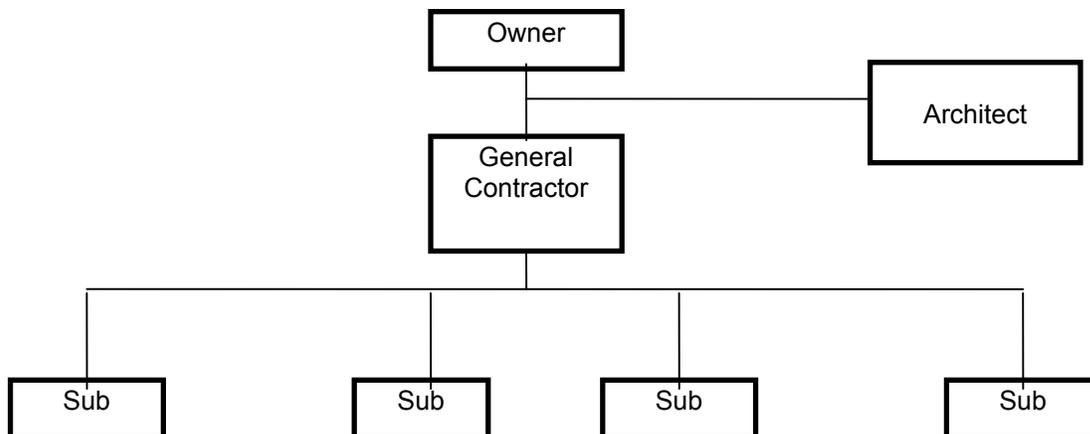
\_\_\_\_\_ Student

- If you checked Amateur, Novice or Student the author suggests that you use the following study outline:
  1. Read the following sections in the order listed below
    - a. Glossary
    - b. Construction Management: Misunderstood or Just Overlooked?
    - c. Comparing Construction Management Services with Hiring a General Contractor
    - d. Construction Management not to be Confused with Project Management
  2. Read Basic Beginnings and set up a system that you feel comfortable with
- If you checked Desperate:
  1. Read the following sections in the order listed below
    - a. Should I do my own Construction Management or Should I Hire a Professional
    - b. Estimating What Your Time is Worth
    - c. Basic Beginnings
    - d. Budget for Savings and Understanding the Estimate

- e. How Much Contingency is Enough
  - f. To Bond or Not to Bond
  - g. Architect, Designer and/or Engineers and Contractor or Construction Manager Hiring Guild Lines.
- If you checked Owners Representative or Professional this book should make an excellent reference guide and handbook. The forms and Glossary are intended to help organize and standardize your current policies, procedures and terminology.

## Comparing Construction Management Services with Hiring a General Contractor

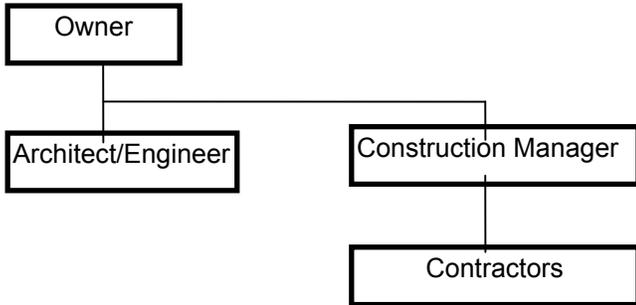
To place the contractual role of the construction manager in proper perspective, it is necessary first to consider the nature of the conventional method of construction through the general contractor. Using that method, the owner contracts directly only with the general contractor (who is regarded, in law, as an "independent contractor" rather than an "agent"). The general contractor then enters into subcontracts for various aspects of the work. See Figure 1 below:



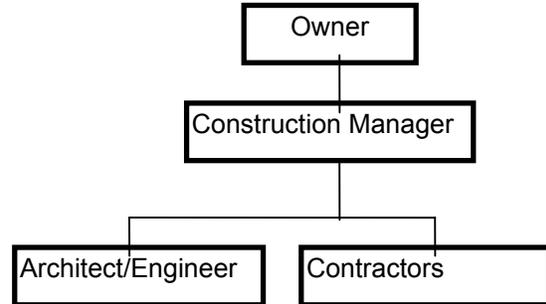
**Figure 1 Common Construction Management Organizational Relationships**

The construction manager on the other hand, offers professional and managerial services as the owner's agent. Typically, there is no general contractor, and the owner contracts directly with the several trades' contractors. This arrangement can take any one of a number of forms. See Figure 2 below for four such forms:

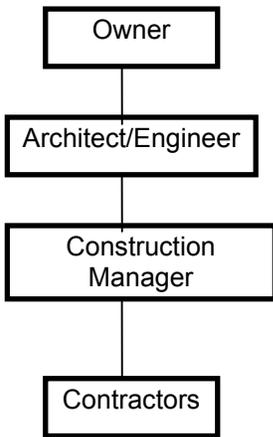
**CM = Construction Manager**  
**A/E = Architect/Engineer**



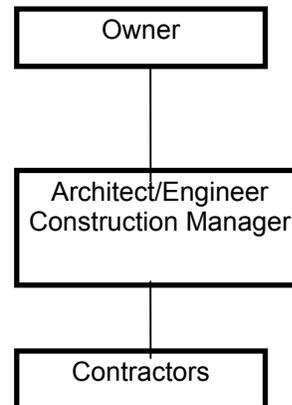
**CM & A/E Separate But Equal**



**CM as Project Manager**



**CM as Consultant**



**A/E & CM Joint Venture**

**Figure 2 Common Construction Management Organizational Relationships**

## Should I do my own Construction Management or Should I Hire a Professional?

The best way to answer this question is to decide if you really understand what is involved in handling your particular project. Keep in mind that every project is unique and therefore has its own set of circumstances.

Whenever you undertake a construction project whether it's the replacement of a door in your home or the building of a commercial facility the construction management process is used.

Here are the steps taken and questions asked for every construction project, big or small, simple or complex:

Define the problem or specific objective and don't overlook simple questions like "is it really broken?", "should it be remodeled?", or "do I need a new building?"; and

Solve the problem by determining how to achieve the objective by asking simple questions like

- Can it be repaired?
- Is remodeling the best or only way?
- How much will it cost?
- How long will it take?
- How will I get it done?
- Do I need a professional to handle this project or is it easier and cheaper to do it myself?

In order to answer these questions we must understand the available construction options, professional relationships and roles.

First let's look at available construction options, they are:

**Design Build...**When a prime or main contractor bids or negotiates a project with the owner to provide both design and construction services on a specific project. The prime or main contractor performs as an independent contractor and this concept can save time and costs over the traditional Contractor and Architect concept;

**Traditional Contractor and Architect Concept...**When a prime or main contractor bids or negotiates the construction of the entire work AFTER the design and final plans and specifications are complete. The prime or main contractor performs as independent contractor and this concept usually costs more and takes longer;

**Fast Track Construction...**When a prime or main contractor, or construction manager (CM) at-risk negotiates to start a construction project BEFORE the plans and specifications are complete. The contractor or CM at-risk performs as Independent Contractor. This option is generally used on very large projects and can expedite the completion time but costs are continually adjusted as the design progresses; and

Many property owners are not aware of a construction process available to them that can save them thousands of dollars, lots of time, and allow them to achieve ultimate project control, which is:

**Owner-Builder as Prime or Main Contractor...When the owner takes on the responsibilities of the prime or main contractor to build a specific project. This option gives the owner ultimate control over schedule and costs especially when employing a construction manager for fee as the owner's agent.**

Under certain conditions the Owner-Builder is exempt from the California Contractors License Law which allows work on his/her own property pursuant to the following Owner-Builder Declaration found in local Building Permit Applications:

In general, the first option permits the property owner or his/her employees to perform construction work so long as the structure is not intended or offered for sale (Sec. 7044, California Business and Professions Code reads: The contractor license law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale); and

The second option permits the owner to hire the various licensed specialty contractor(s) directly to construct the project thereby eliminating the need for a General Contractor (Sec. 7044, Business and Professions Code reads: The California Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

By contracting directly with licensed specialty contractors the Owner-Builder can:

1. Save money because the general contractor marks up the specialty subcontractors actual bid price and then adds other fees such as overhead, profit and general conditions. All of these fees and mark ups can be substantial. Unless you have a cost plus contract with the general contractor and are entitled to see actual subcontract agreements, material receipts and actual labor time sheets you never know how much a project really costs; and
2. Have direct control over the specialty contractors costs, schedule and work quality because you will see and approve actual invoices, schedule results, and work in place quality before releasing any payments.

Answering YES or NO to the following questions you could determine if this Owner-Builder process is right for your next construction or alteration project:

### **Check List 1 Determining Owner Builder Opportunities**

Questions	YES	NO
1. Do you understand the scope of the work necessary to begin and complete your project?		
2. Are you capable of preparing a written scope of work or performance specifications?		
3. Do you have the ability to qualify contractors?		
4. Do you have the time to schedule, coordinate and inspect your project?		
5. Is your project absent of structural alterations or improvements?		
6. Will all activities in your project scope or performance specifications allow for the respective specialty contractors to supply and install all materials, labor and clean-up without you having to do any leg work?		
7. Are you able and willing to have the necessary building permit documents prepared, submitted and obtained for the project?		
8. Are you willing to assume full financial responsibility for your project?		
9. Are you capable of setting up, reviewing and approving contractor progress and final payment requests?		

A YES answer to all of these questions probably makes you a good Owner-Builder candidate.

However, those who can't answer YES can still take advantage of this Owner-Builder process. The owner can still have ultimate control over schedule and costs by hiring a Construction Manager for fee who basically acts as his/her agent. Some Construction Managers will help set up a project and/or work on an as needed consulting basis. This gives the owner the best of both worlds because Construction Managers are required to be licensed by the Contractors License Board and Construction Management fees are generally substantially less than a General Contractors combined specialty contractor mark ups plus his/her overhead and profit. Also, the Construction Manager for fee, acting as the owner's agent, owes a client a "Fiduciary Duty" (Trust). Whereas, a General Contractor is an independent contractor who is free from the influence, guidance, or control of another or others and does not owe a "Fiduciary Duty".

The following three-owner/project types usually use one or more licensed specialty contractors. Using the Owner-Builder process can prove extremely beneficial on these types of projects because these licensed specialty contractors can usually be easily coordinated and their scope of work defined without risk or conflict.

#### Office or Retail Store owners Tenant Improvements

- Flooring and floor covering
- Painting and Decorating
- Drywall
- Insulation and Acoustical
- Electrical (General)
- Low Voltage Systems (Data and Telephone)
- Fire Protection
- Plumbing
- Warm Air Heating, Ventilating and Air Conditioning (Subs out C-43 Sheet Metal)
- Glazing

#### Homeowner Associations Maintenance and/or Repairs

- Painting and Decorating
- Roofing (Generally Subcontracts out Sheet Metal)
- Fencing
- Landscaping
- Earthwork and paving
- Concrete (Generally Subcontracts out Reinforcing Steel)
- Swimming Pool
- Masonry (Generally Subcontracts out Reinforcing Steel)
- Carpentry Contractor

## Homeowner Improvements and/or Alterations

- Painting and Decorating
- Roofing (Generally Subcontracts out Sheet Metal)
- Fencing
- Landscaping
- Concrete (Generally Subcontracts out Reinforcing Steel)
- Carpentry

Every construction project is unique and as such must be evaluated, planned, implemented based on the owners budget and scheduling objectives. The Owner-Builder process is one way of achieving these objectives.

Next look at the professional relationships of the parties. It is important to understand if a contractor or professional is an Agent or Independent Contractor.

**Agent**...One authorized by a client (principal) to act in his/her stead or behalf and owes the client a "fiduciary duty" (Trust). Example: Construction Manager for fee but classified as an independent contractor for tax purposes. A construction manager for fee has limited or no financial responsibility whereas a construction manager at-risk does have financial risk similar to a general contractor; and

**Independent Contractor**...One free from the influence, guidance, or control of another or others and does not owe a "fiduciary duty". Example: architect, engineer, prime or main contractor, construction manager at-risk.

## Estimating What Your Time Is Worth

### Step One

If you are a home owner fill in the following blanks:

A. My time is worth \$\_\_\_\_\_ per hour;

B. I estimate \_\_\_\_\_ hours of my time to manage this project;

\_\_\_\_\_ hours per day X \_\_\_\_\_ days = \_\_\_\_\_ hours

\_\_\_\_\_ hours per week X \_\_\_\_\_ weeks = \_\_\_\_\_ hours

\_\_\_\_\_ hours per month x \_\_\_\_\_ months = \_\_\_\_\_ hours

C. Therefore, if I manage this project myself it will cost me A \_\_\_\_\_ x B \_\_\_\_\_  
= \_\_\_\_\_

**OR** If you are a company that employs an in-house construction staff, fill in the following blanks:

D. My employees basic hourly rate is \$ \_\_\_\_\_ per hour;  
Plus burden (See Computing Employee Burden Table Below) as follows:

**Table 1 Determining Employee Burden**

Employer Payments	Hourly Cost
Health and Welfare	\$
Pension	\$
Vacation and Holiday Pay	\$
Training and/or Other	\$
Worker Compensation Payments	\$
FICA	\$
Total Burden	\$

E. Total Burden from above \$ \_\_\_\_\_ per hour

F. My employees total hourly rate is D \_\_\_\_\_ + E \_\_\_\_\_ = \_\_\_\_\_

G. I estimate \_\_\_\_\_ hours of my employees' time to manage this project:

\_\_\_\_\_ hours per day X \_\_\_\_\_ days = \_\_\_\_\_ hours

\_\_\_\_\_ hours per week X \_\_\_\_\_ weeks = \_\_\_\_\_ hours

\_\_\_\_\_ hours per month x \_\_\_\_\_ months = \_\_\_\_\_ hours

H. Therefore, if I manage this project it will cost me F \_\_\_\_\_ x G \_\_\_\_\_ = \_\_\_\_\_

**Table 2 Computing Employee Burden**

CLASSIFICATION	ANNUAL BASE SALARY	BASIC HOURLY RATE	EMPLOYER PAYMENTS						TOTAL EMPLOYEE BURDEN
			HEALTH AND WELFARE	PENSION	VACATION AND HOLIDAY	TRAINING AND/OR OTHER	WORKER COMP	FICA	
<b>CLIENT STAFF</b>									
Construction Manager	\$55,000	26.44	3.17	2.91	0.26	0.53	0.93	1.85	27%
Project Manager	\$45,000	21.63	2.60	2.38	0.22	0.43	3.89	1.85	34%
Junion Project Manager	\$30,000	14.42	1.73	1.59	0.14	0.29	2.60	1.01	34%
Trainee Project Manager	\$18,710	9.00	1.08	0.99	0.09	0.18	0.31	0.63	27%
Estimator	\$45,000	21.63	2.60	2.38	0.22	0.43	0.76	1.51	27%
Construction Super	\$52,000	25.00	3.00	2.75	0.25	0.50	4.50	1.75	34%
Computer Operator	\$45,000	21.63	2.60	2.38	0.22	0.43	0.76	1.51	27%
Secretary	\$24,000	11.54	1.38	1.27	0.12	0.23	0.40	0.81	27%
Clerk	\$20,000	9.62	1.15	1.06	0.10	0.19	0.34	0.67	27%
Errand Person	\$13,000	6.25	0.75	0.69	0.06	0.13	0.22	0.44	27%
<b>ANNUAL TOTALS</b>	<b>\$347,710</b>	<b>\$167.17</b>	<b>\$20.06</b>	<b>\$18.39</b>	<b>\$1.67</b>	<b>\$3.34</b>	<b>\$14.70</b>	<b>\$11.70</b>	<b>29%</b>

The rates shown in this table are for illustration purposes only. You must obtain and use the actual prevailing rates for your specific operation.

## **Step Two**

Obtain a written estimate or proposal from the Construction Manager

A. The professional Construction Manager will charge me \$\_\_\_\_\_ per hour or a percentage fee of \_\_\_\_\_% of the hard construction costs.

B. He estimates \_\_\_\_\_ hours to complete this project.

\_\_\_\_\_ hours per day X \_\_\_\_\_ days = \_\_\_\_\_ hours

\_\_\_\_\_ hours per week X \_\_\_\_\_ weeks = \_\_\_\_\_ hours

\_\_\_\_\_ hours per month x \_\_\_\_\_ months = \_\_\_\_\_ hours

C. Plus he expects to be reimbursed for certain expenses such as mileage, reproduction costs, and communication expenses which he estimates to cost \$\_\_\_\_\_

Therefore, the construction manager will cost me A \_\_\_\_\_ X B \_\_\_\_\_ +

C \_\_\_\_\_ = \_\_\_\_\_

Whether or not you decide to employ a professional Construction Manager it is extremely important to keep track of all written and oral communication records. It has been the author's experience that professional construction companies and individuals try very hard to perform in accordance with the contract documents. However, most disputes are caused from memory lapses that can be cured by presenting the written word.

## Construction Management: Misunderstood or just Overlooked?

Construction Management, a very old but untapped service that can save time, frustration and help control building costs. Usually there are three parts of a building team, the General Contractor, the Architect/Engineer, and the Owner.

Another part of the building team that seems to be overlooked by the Home Owner and Small Business Owner is the "Construction Manager". Construction Management is "A special management service performed for the purpose of coordination and accomplishment of project planning, design and construction".

The Construction Manager is usually under special agreement with the owner. However, architects sometimes offer construction management services under separate and special agreements. Generally, Construction Management is not part of the architect's and engineer's basis services, but is an additional service sometimes included in their comprehensive services.

Construction Management is often practiced on extremely large building projects. One of the reasons construction management is used on larger projects is to permit the construction process to start while the design is still progressing which allows the construction manager to recommend construction options for better project and cost control and to allow the building project to be phased over a period of time.

These same construction management techniques are also available to homeowners and small business owners for smaller projects.

Construction Management gives the owner the opportunity to act as owner-builder (where the owner obtains his own building permit) instead of contracting with a General Contractor. The professional Construction Manager can assist the owner in obtaining bids from licensed and properly insured subcontractors and material person(s). The owner signs separate contracts for the construction of the various portions of the project thus saving the General Contractors markup on the separate contract prices. These savings can be substantial on the average project. The trade off, however, is that the owner signs separate contracts instead of having a single contract with a General Contractor. The separate contracts are often broken into the following phases:

1. General Construction
2. Plumbing
3. Heating (Ventilating, Air Conditioning)
4. Electrical
5. Sewage Disposal (if applicable)
6. Elevators (if applicable)
7. Specialties
8. Other

The Construction Manager will then assist the owner in overseeing and supervising the building project based on a predetermined scope of services and written agreement between the Construction Manager and property owner.

The construction manager usually works on a fee based on a percentage of the total construction costs of the project. Also, the Construction Manager is usually reimbursed for his direct out of pocket expenses such as telephone, photocopies, special travel related expenses, and for his direct salary expenses for any on-site staff the Construction Manager employs.

Construction Management fee generally ranges from 2% to 10% per cent of the construction costs. (e.g., subcontractors, materials, supplies, equipment costs, and possibly permit fees plus the Construction Manager's "reimbursable expenses" and "General Conditions" which are usually billed to the owner at cost.) Usually, the larger the project the smaller the overall fee percentage. Some construction management firms' work on a negotiated hourly rate or a predetermined fixed fee.

The homeowner, business owner, or developer not equipped or interested in managing their own building project could benefit greatly from the services of a Construction Manager.

The most common ways of using an experienced Construction Manager are:

1. When the Construction Manager acts as the direct agent for the Owner but the owner still assumes total financial responsibility for the project. Here the owner maintains direct communication with the Architect, General Contractor, and Construction Manager.
2. When the Construction Manager assumes the total financial responsibility for the project. Here the owner maintains direct communication with the Construction Manager only. The construction manager communicates with the Architect, General Contractor, and Subcontractors.
3. When a joint venture is formed between the Architect, Contractor and the Construction Manager. Here the owner maintains direct communication with the Joint Venture entity. The joint venture communicates with the Subcontractors.
4. When the Construction Manager acts as a consultant to the owner and responds to the owners' requests for assistance on building related matters. Here the owner maintains direct communication with the Construction Manager, Architect, General Contractor and/or Subcontractors.

## The Construction Management Contract

A comprehensive construction management contract covers five Major functions:

1. Cost Management, including estimates of construction cost and development of project budget;
2. Scheduling, often incorporating critical path method techniques, for all phases of the project;
3. Design review, including review of formal design submissions and overall construction feasibility;
4. Bid packaging and contractor selection; and
5. On-site management to provide supervision, inspection, and administration.

Construction Management Companies are listed in the Yellow pages of your telephone directory under the heading of "Construction Management". Some General Contracting firms have the capability of performing construction management services.

When selecting a Construction Manager or Construction Management firm request a written Construction Management proposal. The proposal may include all or some of the following depending on the size and complexity of your building project:

1. Master Planning services, which would include project budget information and scheduling.
2. Construction Management Services, which would include systems and procedures, cost management, time management, general consulting, affirmative action and community relations, and on-site management.

Some advantages of using a construction manager are:

1. His/her knowledge of the construction process;
2. Direct control over payments made to the contractor(s) (the ability of paying actual costs plus agreed upon markups);
3. Direct control of subcontractors and Material persons;
4. Direct control of schedule;
5. Ability to negotiate directly with subcontractors when changes in the work are required or if unforeseen conditions are discovered;
6. Minimize the threat of liens by paying subcontractors and material person directly;
7. Having the option of using a general contractor or doing the project as owner-builder;
8. His/her knowledge of owner's and contractors rights and obligations during the building process and proper transferring of risk.

## Construction Management not to be confused with Project Management

Project Management is the coordination of Time, Equipment, Money, Tasks and People.

Whereas

Construction Management is the process of organizing and directing men, materials and equipment to accomplish the purpose of the designer.

The following illustration shows the Architect, Contractor and Owner contained within a sphere. This sphere represents the construction management process of coordinating and directing the respective parties based on the scope of services charged to the Construction Manager by the Owner.

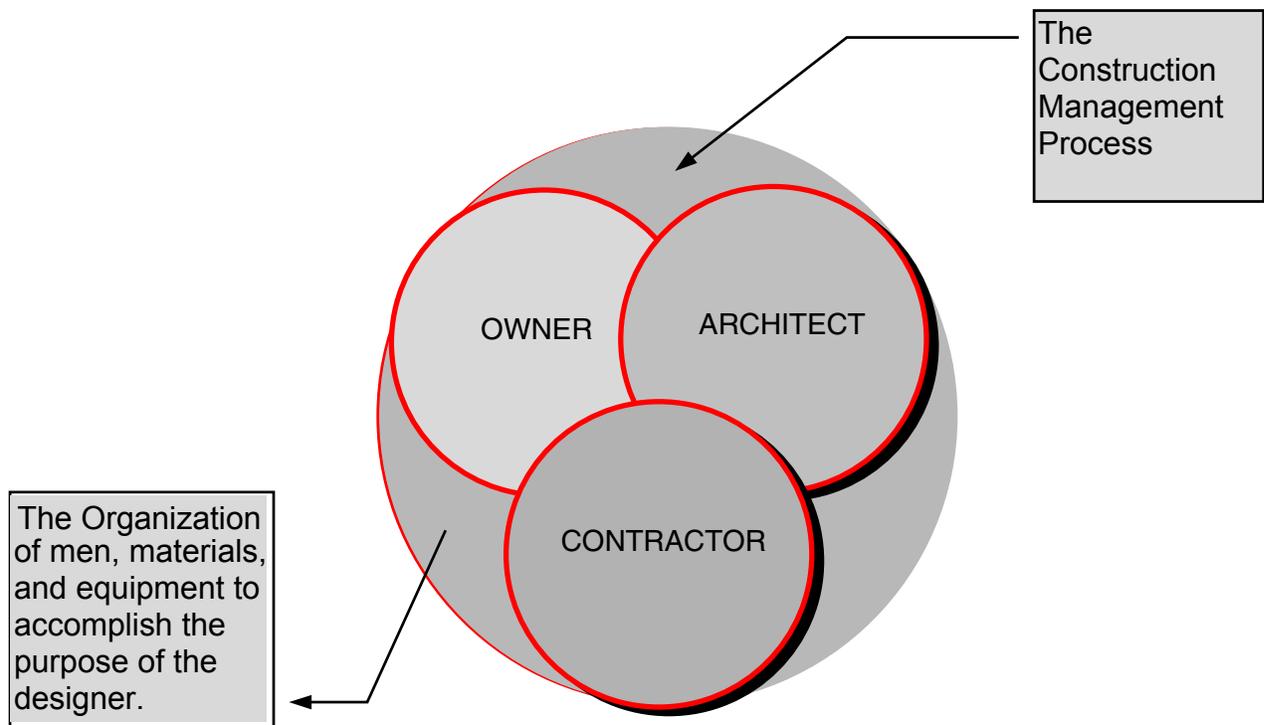


Illustration 1 Construction Management Process

# Construction Management Process Outline

The following outline identifies the various phases and their respective components within the Construction Management process:

## A. Identifying Building Industry Participants

1. Property Owner
2. Building User
3. Architect/Engineer
4. Construction Manager
5. General Contractor
6. Trade Contractor or Subcontractor
7. Manufacturer
8. Organized Labor (union, open shop)
9. Government Administrators (permits)
10. Legislature
11. Contractors License Board
12. Construction Claims/Litigation
13. Insurance/Bonding Companies
14. Banking Community
15. Tax/Accounting
16. Title Company

## B. Objectives

1. Define Project Objectives
  - a. Aggressive and realistic Scheduling
  - b. Budgeting and Cost Forecasting
  - c. Getting the right price (to bid or not to bid)
  - d. Quality Control
2. Project Control
  - a. Scheduling and Adjustments
  - b. Cost Forecasting
  - c. Communication Procedures

## C. Project Communication and Common CM Organizational Relationships

1. Construction Manager as Agent to Owner (CM For-Fee)
2. Construction Manager Assuming Total Financial Responsibility (CM At-Risk)

3. Joint Venture Between Designer, Contractor and Construction Manager (Design-Build)

**D. Construction Management Process Practitioners**

1. Normal Owner
2. Turnkey Builder
3. Corporate Owner
4. Government
5. Architects
6. Engineering Organizations
7. Construction Contractor
8. CPM (Critical Path Method) Engineer
9. Professional Construction Manager

**E. Major Phases of the Work Check List**

1. Project Development

Identify program objectives and objections	
Gather information	
Prepare feasibility studies	
Define budget constraints	
Prepare site analysis	
Site surveying and testing	
Design criteria and project scope	
Identify environmental and other limitations	
Identify financial services and sources	
Prepare cash flow analysis for financial resources	
Establish architectural design criteria	
Develop overall project schedule including these phases	

## 2. Project Organization

Determine project staffing needs	
Identify and build team members	
Develop time, cost and performance controls	
Obtain team commitment to goals	
Prepare and/or review team contracts	
Establish responsibility assignments	
Develop communication procedures	

## 3. Design for Gathering

Identify, prioritize and rank objectives	
Define overall project strategy	
Refine schedule and cost objectives	
Manage and coordinate team activities	
Gather Owner's organizational materials	
Obtain site surveys and testing results	
Document progress	

## 4. Conceptual Design and Planning

Prepare preliminary planning and design schedule	
Prepare preliminary project budget	
Evaluate design criteria	
Develop cash flow projections	
Review construction methodology with the team members	
Determine value engineering procedures	
Define possible cost saving areas	

Review and assist with building code and zoning issues	
Prepare for required governmental submittals	
Evaluate the bidding market conditions	
Establish long lead time item procurement procedures	
Evaluate labor and material availability	
Identify insurance and legal requirements	
Identify accounting and control requirements	

5. Preliminary Design

Organize the value engineering process	
Identify and pre-qualify contractors	
Assemble Instruction to bidder and bid forms	
Identify general conditions items	
Identify safety program responsibilities	
Prepare project schedule for contractors	
Establish performance standards for project	
Coordinate meetings with City Officials	

6. Contract Documents

Review construction contract(s)	
Review plans and specifications	

## 7. Bidding for Performance

Establish procedure for obtaining building permits	
Conduct pre-bid conference	
Establish bid opening procedure	
Conduct bid opening	
Tabulate and evaluate bids	
Negotiate with contractors	
Recommend award of contracts	

## 8. Award Contracts

Conduct post-bid conference	
Insure conformance with bid documents	
Verify schedule conformance	
Attend contract signing meeting	

## 9. Construction Phase

Provide overall project coordination	
Establish submittal approval process	
Manage materials and methods performance	
Establish record keeping procedures	
Conduct job meetings	
Manage and coordinate test and inspection activities	
Establish schedule update procedures	
Identify project security requirements	
Review shop drawings	
Evaluate change order proposals	
Process change orders	
Document construction progress	
Establish lien release procedures	

Review payment requests	
Establish substantial completion performance	
Manage preparation of record (as-built) drawings	
Establish procedure for obtaining guarantees and warranties	
Attend punch list inspection	
Confirm punch list completion	
Establish claim request procedures	

## 10. Close-Out

Attend and conduct project orientation meeting with Owner	
Turn over operating instructions, guarantees and warranties to Owner	
Obtain final certificates of occupancy	
Obtain final unconditional lien releases	
Process final payments to contractors	

## 11. Occupancy

Establish a move in plan	
Oversee move in	

## 12. Operational

Establish maintenance procedures	
Conduct visual inspection following one year of substantial completion	

## **F. Contract Forms and Types of Agreements**

1. Sum Agreement (Stipulated Sum, Fixed Price)
2. Unit Price Agreement
3. Cost Plus Fee Agreement

## **G. Defining Design Professionals**

1. Owner-Builder
2. Architect
3. Construction Manager
4. Engineers (Structural, Civil, Soils)
5. Industrial/Technical Designers
6. Landscape Architects
7. Planners
8. Interior Designers

## **H. Design Professionals Responsibilities**

1. Licensing requirements
2. Building codes/jurisdiction regulations (Federal, State and local)
3. Knowledge of industry standards and construction practice
4. Fiduciary role to owner/standard of care
5. Professional liability

## **I. Major Cost Classifications**

1. General Conditions
2. Off-Site Improvements
3. On-Site Improvements
4. Building Shell or Envelop
5. Interior or Leasehold Improvements
6. Furniture, Fixtures & Equipment
7. Indirect Costs

## **J. Estimating and Bidding**

1. Using CSI (Construction Specification Institute Format)

## **K. Project Goals**

1. Statement of need(s) - "Program"

2. Produce maximum benefits for lowest overall cost
3. Budget considerations
4. Timing/schedule (evolution of project)
5. Role of esthetics
6. Choosing the team:
  - a. Owner representative, architect, construction manager, engineers, and consultants.
  - b. Contractual arrangements (responsibilities, communication mechanisms)
7. Controlling the cost:
  - a. Level-of-influence (decision making as it affects the ultimate cost)
  - b. Construction contract
    1. Competitive Bids
    2. Lump Sum (fixed fee)
    3. Negotiated
    4. Time and Material
    5. Design-Build
    6. Construction Management At-Risk

## **L. Schedule Terminology**

1. Bar Charts
2. CPM (Critical Path Method)
3. Calendar

## **M. Job Reporting and Anticipating Problems**

1. Daily, weekly, monthly reporting
2. RFI'S (Requests for Information)
3. Change Orders and Controls
4. Anticipating Problems, Delays and Cost Overruns
  - a. Determine long lead time items
  - b. Weather
  - c. Permits
  - d. Financing
  - e. Labor Market and available work force (supply and demand)

## **N. Construction Law**

1. Lien Laws
2. Construction Claims
3. Construction Litigation
4. Claims Prevention
5. Liquidated Damages and Incentive (Bonus) Clauses

## O. Design and Construction Phases

1. Schematic Design Phase
2. Design Development Phase
3. Construction Document Phase
4. Bidding and Negotiating Phase
5. Construction Phase

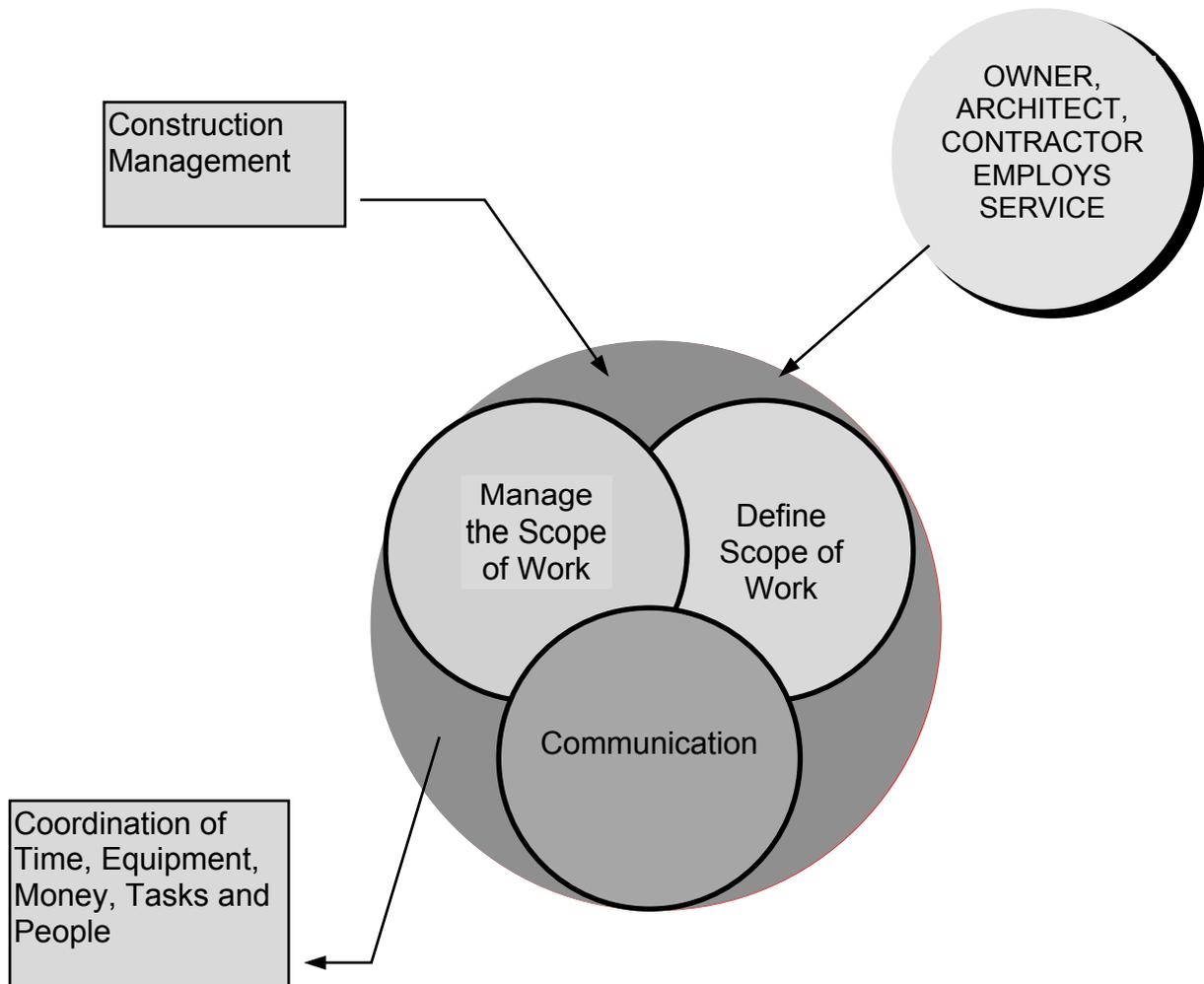


Illustration 2 Project Management Process

## Project Management Outline

The following outline identifies the primary phases and their respective components within Project Management as it relates to the Construction Management process:

### A. Identifying the Functions of Project Management

#### 1. Defining the Scope of Work for the specific project

- a. Identifies Project Goals, Objectives and Activities
- b. Creates a Schedule
- c. Creates a Budget

#### 2. Managing the Scope of Work

- a. Tracks the progress of the work by comparing the projected schedule to the actual progress
- b. Monitors the project costs by comparing the actual cost with the budgeted costs
- c. Monitors resources to insure their efficient use and tracks same
- d. Resolves resource conflicts
- e. Adjusts the schedule as needed
- f. Anticipates and/or defines problem areas
- g. Endeavors to solve problems
- h. Updates project information as needed

#### 3. Communicating Project Status

- a. Communicates project status to the client's staff and/or responsible management
- b. Creates and circulates reports for review

## Basic Beginnings

How do I organize my project?

Projects can be simple or complex. Here are a few examples:

- Installing and servicing equipment;
- Constructing a room addition;
- Planning, designing and constructing a new building; or
- A simple remodel

You will probably ask yourself these questions:

- Who should be involved in my project?
- When is the best time to start my project?
- When do I want my project completed? and
- How much will it cost?

Then complete the forms and procedures:

## Complete a Project Information Sheet

### **Form 1 Sample Project Information Sheet**

Project Name\_\_\_\_\_

Address\_\_\_\_\_

Project Manager\_\_\_\_\_

Telephone Number\_\_\_\_\_

FAX Number\_\_\_\_\_

Pager Number\_\_\_\_\_

E-Mail Number\_\_\_\_\_

Proposed Building Square Footage\_\_\_\_\_

Opening/Completion Date\_\_\_\_\_

#### DEVELOPER

Name\_\_\_\_\_

Address\_\_\_\_\_

Contact\_\_\_\_\_

Telephone Number\_\_\_\_\_

FAX Number\_\_\_\_\_

Pager Number\_\_\_\_\_

Email Number\_\_\_\_\_

CONSULTANTS (Firm name, address, telephone, project manager name)

ARCHITECT\_\_\_\_\_

STRUCTURAL\_\_\_\_\_

## Prepare and Maintain a Project Directory

To keep track of who's involved prepare a Project Directory. A Project Directory is important for the purpose of listing all persons and/or companies contacted and/or being considered for the project. The preliminary directory is generally completed in long hand or an electronic database as the respective project contacts are made and being selected for consideration. The directory keeps all contacts in one location for fast reference.

### **Communication Tip!**

Keep a copy of this directory in a central location so that anyone associated with your project can have access to it for quick reference.

The sample directory provided includes spaces for the following information:

- Job Number - The number is the identifying number given to the project for identifying purposes.
- Location - This is the location of the project. It could be the actual physical address of the property or it could be a brief city description.
- Classification/Description - This is the description of the service the individual or company will be providing to the project. Every person associated with the project should be listed for quick reference and contact. For example - Owner, Architect, General Contractor, Subcontractors by trade classification, Building Department Official, Etc.
- Name, Address & Telephone numbers for each person or company listed.

The finalized directory is generally typed and only includes the people actually selected for or associated with the project (See the Sample Project Directory after this section).

### **Productivity tip!**

Keep a copy of the preliminary directory containing all contacts whether they were actually selected or not. It will save a lot of time in the future because you will have names and addresses of individuals and companies that may prove useful on future similar projects.

## Form 2 Sample Project Directory

<b>PROJECT DIRECTORY</b>	JOB#:
	LOCATION:
<b>CLASSIFICATION/DESCRIPTION</b>	<b>NAME, ADDRESS &amp; TELEPHONE NOS.</b>
	COMPANY: STREET: CITY/ZIP: CONTACT: TELE: e-mail: FAX:

## Prepare a Schedule

### TIP!

A Schedule forces you to plan when you want to start and complete the project and how you want it controlled.

### Schedule Definitions

ITEM	DEFINITION
Activity	The smallest work unit within a project; the basic building block of a project.
Bar Chart	A Bar Chart shows the start and finish dates using horizontal lines to represent the activities duration.
CPM (Critical Path Method)	A planning, scheduling and control technique whereby a construction project is completely planned and scheduled and an arrow diagram drawn to show the interconnected individual tasks involved in constructing the project. CPM concentrates on the tradeoff between the cost of a project and the time needed to complete it.
Critical Path	The set of activities that must be completed on time for the project completion date to be met. Activities on the critical path have no slack time.
Currant Date Line	A vertical line on the chart indicating the currant date.
Duration	The length of an activity, excluding holidays and other non-working days.
Finish Date	The date that an activity or project is completed.
Gantt Chart	The schedule of activities for a project. A Gantt Chart shows start and finish dates, critical and non-critical activities, slack time, and predecessor relationships.
Milestone	An activity with duration of zero (0) and by which progress of the project is measured. A milestone is an informational marker only; it does not affect scheduling.
PERT (Program Evaluating and Review Technique)	A project planning and reporting that is useful in situations where it is difficult to accurately estimate the time needed for individual activities.

ITEM	Definition (continued)
PERT Chart	A type of flow chart showing the order and interrelationships of a project's activities.
Predecessor	An activity that must be completed before another activity can begin.
Slack Time	The flexibility with non-critical jobs that allows their start dates to be adjusted without affecting the project completion date.
Start Date	The date that an activity or project begins.
Successor	An activity whose start depends on the completion of one or more predecessors.

**Tip!**

**Request** a construction schedule prepared by the contractor incorporating your completion date and your move-in date. **Gives real meaning to the completion of your project.**

The following sample schedule called a Work and Duration Schedule is very easy to read and provides all parties with a brief written explanation of the required activities, the expected start and finish dates and times, and responsibility assignments. This schedule is intended to supplement a detailed construction schedule or to be used on projects where detailed construction schedules are not necessary. This schedule can be very simple or it can be extremely detailed depending on the scope of the project.

### SAMPLE WORK AND DURATION SCHEDULE

Date:

From: Owner

To: Contractor

Location: Project name and address

DISTRIBUTION (A&amp;E/Contractor/Vendors):

DISTRIBUTION (Owner/Client):

(Name of Project) WORK AND DURATION SCHEDULE IS AS FOLLOWS:

<u>Activity &amp; No.</u>	<u>Start Date/Time</u>	<u>Finish Date/Time</u>	<u>Responsibility</u>
---------------------------	------------------------	-------------------------	-----------------------

## Prepare Communication and Job Record Procedures

Most construction disputes stem from poor communication. Therefore, it is extremely important to set up a very effective and efficient communications system and procedures at the beginning of a project. These communication systems and procedures should be incorporated into the project's contract documents.

Here are some Communication tips that will prove useful for the purpose of avoiding memory lapses. Most Important: Always keep copies of written communications for every project.

Create a project numbering system (sometimes referred to as Job Number)

Here is a simple project numbering system using the year of project inception:

- Project or Job Number 9401 means that in 1994 (94) the first project was 01. This system is limited to 99 projects per year. You can increase the number of projects to 999 per year by adding one more zero (001).

A series of job numbers would look like this: 9401, 9402, 9403, etc. for 1994 and 9501,9502,9503, etc. for 1995.

Upon creating a job numbering system you should select a filing system procedure. For best results and efficiency keep all written communication in a single file folder or binding with tabs for each major section.

## Create a Job File

The most practical job files are three ring binders or pressboard classification folders with six sections. In either case set up and label each section of the folder or tabs as follows:

- Project Directory (Directory on Top)
- Contractor and Vendor Proposals
- Billings, Preliminary Lien Notices
- Change Order Proposals and Change Orders
- Schedule of Values
- Contracts
- Preliminary Lien Notices
- Building Permits, Local Government Correspondence, Utility Companies
- Schedules
- Field, Safety, Job Inspection Reports, Conference Notes, Field Reports, Safety Reports

- Conference Notes
- Job Inspection Reports
- Budget Information and General Correspondence
- Letters, Transmittals, Memos, Facsimiles
- Project Budget

## Budget for Savings and Understanding the Estimate

A Budget gives you a handle on how much you are willing to spend for the project.

Before establishing a budget it is important to understand the limitations of estimating. An **estimate** is defined as a forecast of construction cost, as opposed to a firm proposal; whereas **construction estimating** is a forecast of construction costs prepared on the basis of a detailed analysis of materials, labor, equipment for all items of work by multiplying the volume by costs per unit or measurement, and finally an approximate evaluation of the finished product. In either case a construction cost estimate is a forecast based on designed and planned items.

At the onset of a project planned items do not exist. Therefore, early conceptual budget planning is essential for establishing a target range for monitoring performance as the project progresses. Also, this conceptual budget can serve as a basis for continuous in progress revisions to insure that the original overall budget objectives are not being overlooked. Those who understand this process will experience an easier time working with the project team members as the project is executed.

## Establish a Project Budget

Before making a budget the following actions must be taken:

The project must be identified and a preliminary Scope of Work for the project must be completed. Here are simple scope of work outlines for large or small projects. The idea is to begin gathering information about your project and putting it in writing.

### Small Project

#### **Project statement or identification:**

*Replace back yard fence*

#### **Preliminary Scope of Work:**

1. *Hire a contractor to remove and dispose of an existing fence; supply all labor, materials and equipment necessary to install a new fence.*

Upon defining the Preliminary Scope of Work a preliminary list of all necessary project cost components can be identified. The activities associated with the replacement of the back yard fence could look like this:

## Identify, Organize and List Cost/Budget Components

1. Building permits fees;
2. Lineal feet of fence to be replaced multiplied by the estimated lineal feet replacement cost;
3. Estimated cost to remove and dispose of the existing fence (hourly or lump sum); and
4. A Cost Contingency (see How Much Contingency is Enough?). For this fence project we would probably want to establish a contingency between 10 to 15 percent of the total estimated costs for this project.

### Large Project

**Project statement or identification:** *Build new office facility*

#### **Preliminary Scope of Work:**

1. *Complete a feasibility study*
2. *Purchase land*
3. *Hire construction consultants (Architects, Engineers, Construction Manager, etc.)*
4. *Build a new building complete with interior improvements and furniture*
5. *Sell the building*

**Table 3 Sample Budget**

Square Feet:	100				
DESCRIPTION/ACTIVITY	QTY	UNIT COST	UNIT	TOTAL	\$/SQ FT
Permit Fees	1	\$200.00	EA	\$200.00	\$2.00
Fence	50	\$10.00	LF	\$500.00	\$5.00
Remove & Dispose of Extg Fence	1	\$300.00	EA	\$300.00	\$3.00
SUBTOTAL				\$1,000.00	\$10.00
Contingency	1	10.00%	%	\$100.00	\$1.00
TOTAL BUDGET				\$1,100.00	\$11.00

**Table 4 Sample Budget**

DESCRIPTION	FORECAST		BUDGET	
	COST TO DATE	BUDGET COST	OVER (UNDER) BUDGET	OVER (UNDER) BUDGET %
<b>DESIGN PHASE</b>				
Design Architectural Fee	\$32,391	\$250,000	\$217,609	87%
Reimbursable Expenses	5% \$897	\$12,500	\$11,603	93%
<b>SUBTOTAL</b>	<b>\$33,288</b>	<b>\$262,500</b>	<b>\$229,212</b>	<b>87%</b>
<b>CONSTRUCTION PHASE</b>				
General Conditions	\$0	\$318,600	\$318,600	#N/A
Construction	\$0	\$2,124,002	\$2,124,002	#N/A
Total Construction Before OH&P	\$0	\$2,442,602	\$2,442,602	#N/A
Overhead	6.0% \$0	\$146,556	\$146,556	#N/A
Profit	7.4% \$0	\$181,241	\$181,241	#N/A
Change Orders	\$0	\$0	\$0	#N/A
<b>SUBTOTAL</b>	<b>\$0</b>	<b>\$2,770,399</b>	<b>\$2,770,399</b>	<b>#N/A</b>
<b>SOFT COSTS</b>				
Construction Management	\$2,343	\$95,540	\$93,198	98%
Reimbursable Expenses	8% \$142	\$7,643	\$7,502	98%
Property Management	\$0	\$0	\$0	#N/A
Project Insurance	\$0	\$0	\$0	#N/A
Other	\$0	\$0	\$0	#N/A
<b>SUBTOTAL</b>	<b>\$3,638</b>	<b>\$122,291</b>	<b>\$118,653</b>	<b>97%</b>
<b>TOTAL BEFORE CONTINGENCY</b>	<b>\$36,925</b>	<b>\$3,155,190</b>	<b>\$3,118,265</b>	<b>99%</b>
<b>CONTINGENCY</b>				
Contingency	10%	\$315,519		
<b>GRAND TOTAL</b>	<b>\$36,925</b>	<b>\$3,470,709</b>	<b>\$3,433,784</b>	<b>99%</b>

## Identify, Organize and List Cost/Budget Components

It is good practice to organize your project and cost components using a widely accepted construction industry format. The MASTERFORMAT published by The Construction Specifications Institute (CSI) has been widely accepted as an industry standard in the United States and Canada since 1963. The numbers of MASTERFORMAT are organized into 16 basic groupings of related construction information called "divisions." The numbers and titles of the divisions are:

- Division 1 - General Requirements
- Division 2 - Site Work
- Division 3 - Concrete
- Division 4 - Masonry
- Division 5 - Metals
- Division 6 - Wood and Plastics (Carpentry)
- Division 7 - Thermal and Moisture Protection (Building envelop items)
- Division 8- Doors and Windows
- Division 9 - Finishes
- Division 10 - Specialties
- Division 11 - Equipment
- Division 12 - Furnishings
- Division 13 - Special Construction
- Division 14 - Conveying Systems
- Division 15 - Mechanical (HVAC, Plumbing, etc.)
- Division 16 - Electrical, Data, Voice

This MASTERFORMAT provides the specifications writer with a standard yet flexible system for writing specifications at various levels of detail as needed to meet the project's needs.

## Cost Classifications

Familiarization with the MASTERFORMAT allows the users to easily relate a specification section with both product information and cost data. The following describes how job costing or job budgeting can be organized using the MASTERFORMAT divisions:

Division 1 - General Requirements can be used to accumulate costs for temporary construction facilities and controls, mobilization, job site administration, and other general requirement cost items.

Here is a list of possible General Requirement cost items:

#### NON-DISTRIBUTABLE LABOR

- Project Manager
- Architectural
- Drafting Service
- Interior Design
- Electrical Engineering
- Voice and Data Consulting
- Security System Design
- Sound Engineering
- Mechanical Engineering
- Civil Engineering
- Title 24 Consultant
- Landscape/Irrigation Design
- Soils Engineering

#### PERMITS AND FEES

- Building Permits
- Gas Fees
- Temporary Power Fees
- Demolition Fees
- Sanitary Sewer Fees
- Domestic Water Fees
- Business License

#### TEMPORARY SERVICES

- Overhead Temporary Power Pole
- Temporary Toilet(s)
- Temporary Water
- Temporary Job Telephone
- Temporary Job Shack and Furnishings
- Temporary Fence and Gate
- Temporary Lighting
- Storage

#### OTHER GENERAL REQUIREMENTS

- Project Superintendent
- Job Clean Up Labor
- Pick Up Truck for Superintendent
- Debris Removal and Trash Dumpsters
- Time Keeper
- Engineering Layout and Survey
- Construction Staking

- Concrete Testing
- Soils Testing
- Scaffolds
- Small Tools and Equipment Allowance
- Safety Program, Equipment, First Aid
- Project Sign
- Barricades and Cones
- Hauling from Yard
- Watch Person
- Scheduling
- Reconstruction Estimate

#### INSURANCE AND BONDING

- Workers Compensation Insurance
- General Liability Insurance
- Project Liability Insurance
- Insurance Other
- Performance, Material and Payment Bond

#### OTHER OVERHEAD AND CONTINGENCY

- Main Office Overhead
- Project Overhead

#### PROJECT CLOSE-OUT

- Final Clean Up Labor
- Record Drawings (As-Built Drawings)
- Supervision and Punch List
- Warranties and Guarantees
- One Year Inspection

Divisions 2 through 16 can be used to accumulate applicable project costs related to products and their installation;

A line item accounting for Contractors Overhead and Profit (OH&P); and

A Cost Contingency provision.

## How Much Contingency is Enough?

Contingency is defined as a sum designated to cover unpredictable or unforeseen items of work, or changes subsequently required by the owner.

The table below indicates possible contingency items and their corresponding variations through various project phases. These contingencies are to be applied to the known identifiable items of cost at each stage.

These percentages should be determined and agreed to by all respective project team professionals. The percentages should include factors for experience and judgment limitations, and represent probable additional budget requirements in addition to those, which are definable at the beginning stage of project development. Therefore, it is likely that the percentages will vary between firms and projects.

With contingencies determined, each member of the project team can better understand his/her responsibility in maintaining the overall project budget.

Maintain a "the budget cannot be exceeded" attitude. Agree at the start if various contingencies are exhausted, either the budget will be revised (if approved by the owner), the design will be altered or a creative alternative will be developed.

The following is a good guide for determining the amount of contingency (per cent of total project cost) to allow for depending on the phase the project is in:

**Table 5 Estimated Percent of Total Contingency at Various Phases**

Responsibility	Contingency	Pre Design	Schematic Completion	Development Completion	Construction Pre Bid	Construction Completion
Owner	Scope	10	4	1		
Architect	Design	7	5	1		
Contractor/ Construction Manager	Market Range (Costs)	5	5	5	5	
Contractor/ Construction Manager	Field Coordination	2	2	2	2	2
Open	Unforeseen	1	1	1	1	1
<b>TOTALS</b>		<b>25</b>	<b>17</b>	<b>10</b>	<b>8</b>	<b>3</b>

This table illustrates that the contingency could be as high as 25 per cent at the beginning of the project before starting the Pre-Design Phase; and could be as low as 3 per cent before starting construction.

The amount of contingency has a direct relationship to the amount of known information in connection with the project. The least amount of information known the greater the contingency. And conversely, the greater amount of information known the lesser amount of contingency is needed.

## To Bond or Not to Bond

### Should I require a bond for my project?

Recognize that a bond adds cost to the overall project costs. It is like an insurance policy for the purpose of guaranteeing the contractor(s) performance to complete work and insure that the contractor pays his employees and material suppliers with the money you pay the contractor.

If you have pre-qualified the contractor (see How do I Screen and Qualify Contractors?) and you are comfortable with his/her capabilities you may want to save the cost of the bond.

### **TIP!**

Regardless if you decide to purchase the bond or not it is a good idea to determine if the contractor is Bondable, what his/her Bonding Rate is, and what his/her Bonding Capacity is.

### Bondable - What does it mean?

A contractor is bondable when a rated surety company has given the contractor a written statement of bond ability. Before issuing such a statement the surety company conducts their own background check on the contractor before they make a commitment to provide a bond to the contractor. When the surety company is satisfied that the contractor is a good risk the contractor becomes bondable.

### Bonding Rate - A Useful Contractor Qualifying Tool

When the contractor becomes bondable the amount the surety company charges the contractor for the bond is called the bonding rate. This bonding rate is based on the risk factor the bonding company places on issuing the bond to the contractor. The higher the risks to the bonding company the higher the bonding rate. And conversely, the lower the risks to the bonding company the lower the bonding rate.

The bonding rate is a good guide for comparing contractors by looking at their bonding rates you can generally tell if the contractor has a good track record.

Example: Contractor A has a bonding rate of 1% (one per cent) whereas contractor B has a bonding rate of 3% (three per cent). Contractor A has a greater experience level and capabilities than contractor B as viewed by the Bonding Company. Also, contractor A's bond will cost you 2% less than contractor B's bond.

## Bonding Capacity-Why is it important?

The bonding capacity is the dollar amount the bonding company is willing to guarantee for all bondable and non-bondable work the contractor has on hand based on the experience level and capabilities of the contractor.

Example: The bonding company determines that the construction company qualifies for a bonding capacity of \$2,000,000. The contractor has work on hand, contracts totaling \$1,000,000 (\$500,000 requiring bonds and \$500,000 not requiring bonds). In this example the contractor has a bond surplus of \$1,000,000 for any future work requiring a bond.

Example: The bonding company determines that the construction company qualifies for a bonding capacity of \$2,000,000. The contractor has work on hand, contracts totaling \$1,000,000 not requiring bonds. The contractor wants to bid on a new \$2,000,000 project requiring a bond, which would increase his work on hand to \$3,000,000. In this example the contractor has a bond deficit of \$1,000,000 and will not be granted the bond unless the bonding company reevaluates the contractor's capabilities and agrees to increase the contractor's Bonding Capacity.

### Tip!

If you are requiring a bond **ask** the contractor to invoice you for its direct Cost. **You'll save a hefty mark-up**. It is not necessary to include the bond cost in the contract schedule of values and incur the contractor's markup.

## Insurance to Limit Liability

### What type of insurance should I have on my project?

It is the writer's opinion that every project you undertake should be properly insured. Generally, all construction contracts will have a section on insurance stating the property owners and the contractor's insurance obligations under the contract.

**IMPORTANT:** Insurance procurement requirements written in a contract do not guarantee that the insurance has been procured is valid, or coverage is in force. Therefore, it is very important to obtain Certificates of Insurance before construction begins. The following is a partial listing of types of coverage available and who is generally responsible for procuring it:

The **PROPERTY OWNER** is generally asked to procure and maintain in full force and effect:

Fire insurance with course of construction, vandalism and malicious mischief clauses attached; such insurance is generally the sum of at least equal to the contract price with loss, if any, payable to any beneficiary under any deed of trust covering the project. The policies may name the contractor and construction lender as additional insured; and if

the owner fails to procure this coverage the contractor generally has the option of procuring the insurance as agent for and at the expense of the owner.

The CONTRACTOR is generally required to procure and maintain in full force and effect:

Worker's compensation and comprehensive liability insurance policies.

Limits of Insurance:

### Worker's Compensation and Employer's Liability Insurance

The respective contractor licensing states bases the limits of worker's compensation on statutory requirements. In California, for example, all contractors are required to procure worker's compensation insurance before a contractor's license is issued. There is one exception to this requirement. If the contractor has no employees, an exemption certificate must be submitted to the Contractors State License Board, certifying under penalty of perjury that he/she does not employ any person in any manner to be subject to Worker's Compensation laws of California.

You should contact the Contractor's License Board in your respective state to confirm this requirement.

### Comprehensive General Liability Insurance

The limits of insurance are generally determined by the architect and/or the owner and are usually written into the specifications for the project. Your insurance requirements could look like this:

#### General Liability

- General Aggregate Limit (Other than Products-Completed Operations) \$1,000,000
- Products-Completed Operations Aggregate Limit \$1,000,000
- Personal and Advertising Injury Limit \$1,000,000
- Each Occurrence Limit \$1,000,000
- Fire Damage Limit \$50,000
- Medical Expense Limit \$5,000

#### Automobile Liability

- Any Auto \$1,000,000
- All owned Autos \$1,000,000
- Scheduled Autos \$1,000,000
- Hired Autos \$1,000,000
- Hired Autos none
- Non-Owned Autos \$1,000,000
- Garage Liability none

## Certificates of Insurance

### Tip!

**Always** demand certificates of insurance from the contractor before he/she starts the work.

### TIP!

**Verify** General Liability and Workers Compensation insurance certificates from the contractor prior to starting construction. Examine the policies expiration dates and be satisfied with the amount of coverage the policies offer; also insist on getting a copy of the certificate for your file. **Otherwise, you may have considerable liability.**

## Architect, Designer and/or Engineer(s) Hiring Guidelines

It is not uncommon to wonder if you really need an architect, engineer or designer for a particular project. Ask yourself and answer the questions in the following table:

**Table 6 Determining the need for Architectural/Engineering Services**

QUESTION	YES	NO	MAYBE
Do I understand the scope of the work necessary to begin this project?			
If YES, can I prepare a written scope of work for this project?			
If YES, do I have the time and am I willing to prepare the scope of work?			
Do I have the expertise to prepare a sketch or drawing of this project?			
If YES, do I have the time and am I willing to prepare the sketch or drawing?			
Does my project require structural alterations or improvements?			
Am I willing to assume the liability for planning and designing my project?			
Is my contractor willing and capable of preparing Written Scope of Work?			
Is my contractor willing and capable of preparing a Sketch or Drawing?			
Will the building permit application require an architects/engineers stamp on the building permit documents?			

## Screening Architects and Engineers

Some of the core essentials that may form a basis for screening Architectural and Engineering professionals are found by completing the following steps:

### **Step One**

Select the Architects and engineers that you are interested in working with and have them complete the following Architect Engineer Qualification Statement. Give them a reasonable amount of time to complete the qualification statement but give them a due date for returning the information.

Upon receiving the completed qualification statement review it for completeness and punctuality based on your requested due date. Chances are if the professional can't honor your requested due date to complete a simple qualification statement he/she probably can't honor other project commitments either.



## **Step Two**

Contact the references shown on Qualification Statement(s) provided by the professional(s). Using the table below as a checklist select the QUALIFICATION FACTORS that apply to your project and try to get answers to those questions from the references.

## **Step Three**

- Assign a weight to each QUALIFICATION FACTOR using a scale of 1 to 10 (10 being most important) ASSIGNED WEIGHT;
- Judge each firm's qualifications using a range of 0 to 100 JUDGED SCORE;
- Multiplying the ASSIGNED WEIGHT by the JUDGED SCORE equals the QUALIFICATION SCORE; and
- Total the QUALIFICATION SCORES for each candidate architect.

**Table 7 Screening Architects and Engineers**

<b>QUALIFICATION FACTOR (Select only those that apply)</b>	<b>ASSIGNED WEIGHT X</b>	<b>JUDGED SCORE (Range 0 to 100) =</b>	<b>QUALIFICATION SCORE</b>
1. Ability to understand the Owner's project, organization and concepts			
2. Design, creativity and innovation			
3. Construction documents and communication abilities			
4. Understanding and experience with the team approach utilizing a Construction Manager			
5. Performance ability for his/her services			
6. Firm experience and stability			
7. Current Work Load			
8. Normal variations in architectural services when working with a Construction Manager			
9. Ability and willingness to design within the Owner's budget constraints			
10. References for the last ten projects completed including contractor or CM of record			
<b>TOTALS</b>			

## **Step Four**

Request written fee/cost proposals from the firms receiving the highest qualification score.

## Contractor or Construction Manager Hiring Guidelines

Here are a few guidelines to follow when you're seeking the services of a Construction Manager or a Contractor to complete your next.

An essential ingredient is finding a Construction Manager or Contractor who can be flexible and innovative.

For example, in many cases it's important to do a construction project around an existing building or within an active office or business without disrupting the day-to-day operations or living space. A good Construction Manager or Contractor can schedule the work at off-hours or devise another way of circumventing the owner's ongoing work schedule.

Review the Construction Manager or Contractor's experience to ensure the firm has done your kind of project before. Sometimes a high-rise builder or Construction Manager may not be a good choice for an upscale retail shopping center. Likewise, a residential homebuilder may not have the skills to tackle a commercial building.

### **Tip!**

Don't be afraid to negotiate fees, scope of services and schedule with a Construction Manager or Contractor.

### **Tip!**

Take a hard look at whether it is more economical to negotiate a contract with a Construction Manager or Contractor to take on the whole job versus putting various segments out to bid.

### **Tip!**

*"It is difficult to negotiate where neither will trust"* (Samuel Johnson).

By negotiating you have the contractor involved from pre-construction through project completion. The contractor gets involved in managing all aspects of the work, including communicating with all subcontractors, overseeing budget and cost control activities, being flexible in work performance and seeing that the owner's objectives are carried out precisely.



- License Expiration Date  
To make sure license is currently active and remains valid for the duration of your project.
- Federal or Social Security ID reporting  
Saves time at end of year for tax purposes.

# Form 4 Contractor Qualification Statement

(CHECK)

Person to Contact: \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

- Sole Proprietor
- Partnership
- Corporation
- Union
- Non-Union
- Open Shop
- Minority
- Woman Owned

**Bonding Capacity:** \$ \_\_\_\_\_

**Bonding Rate:** % \_\_\_\_\_

**Work on Hand:** \$ \_\_\_\_\_

Telephone Number: (        ) \_\_\_\_\_      FAX Number: (        ) \_\_\_\_\_

e-mail Number: \_\_\_\_\_

**Do you maintain an Office:** \_\_\_ YES \_\_\_ NO      Fed. I. D. or S.S.# \_\_\_\_\_

**With a:** \_\_\_ Secretary \_\_\_ Answering Service \_\_\_ Pager \_\_\_ Answering Machine \_\_\_ Other \_\_\_\_\_

Trade: \_\_\_\_\_ Number of Years in Business: \_\_\_\_\_ Job Superintendent Name: \_\_\_\_\_

Areas of Expertise or Specialization:

\_\_\_\_\_

State License Type/License #/Expiration Date:

\_\_\_\_\_

**Supplier references (Name and Phone number):**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**General Contractor and/ or Construction Manager references (Name and Address):**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Completed By and Title**

The following Construction Manager Qualification Statement should be completed and returned for your review. It is a good idea to obtain Qualification Statements from at least three Construction Managers for your specific project.

The following is a partial list of questions contained in this form and a brief explanation of their importance:

The following is a partial list of questions contained in this Construction Managers Qualification Statement and a brief explanation of their importance:

- **Work on Hand and Scope of Services**      The total amount of work currently under contract. This amount should represent the total amount of the projects currently being managed by the Construction Manager with a supporting list of corresponding services being performed for each project.

Helps define the Construction Manager's qualifications for your specific project.
- **Areas of Expertise of Specialization**      Helps define the Construction Manager's qualifications for your specific project.
- **State License Type**      For license identification purposes because Construction Managers are generally regulated by contractor licensing laws. This varies from state to state and must be verified.
- **License Number**      If required helps to insure that the Construction Manager is properly licensed.
- **License Expiration Date**      To make sure license is currently active and remains valid for the duration of your project.
- **Federal or Social Security ID**      Saves time at end of year for tax reporting purposes.

# **Form 5 Construction Manager Qualification Statement**

**(CHECK)**

Person to Contact: \_\_\_\_\_  
Title: \_\_\_\_\_  
Company: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

- Sole Proprietor
- Partnership
- Corporation
- Union
- Non-Union
- Open Shop
- Minority
- Woman Owned

**Work on Hand and Scope of Services:** \$ \_\_\_\_\_ (Attach List)

Telephone Number: (        ) \_\_\_\_\_ FAX Number: (        ) \_\_\_\_\_

e-mail Number: \_\_\_\_\_

**Do you maintain an Office:** \_\_\_ YES \_\_\_ NO                      Fed. I. D. or S.S.# \_\_\_\_\_

**With a:** \_\_\_ Secretary \_\_\_ Answering Service \_\_\_ Pager \_\_\_ Answering Machine \_\_\_ Other \_\_\_\_\_

Number of Years in Business: \_\_\_\_\_

State License Type/License #/Expiration Date: \_\_\_\_\_

**Architect references (Name and Address):**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**General Contractor references (Name and Address):**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Owner/Developer/Client references (Name and Address):**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Completed By and Title**

## **Check List 2 Essentials for Construction Contracts and Agreements**

<b>Contract Documents</b>	<b>Essential for Competitive Bidding</b>	<b>Essential for Other Construction</b>	
1. Advertisement or Notice to Contractors	YES	NO	
2. Instruction to Bidders	YES	NO	
3. For Bid or Proposal, including required Bonds & Insurance	YES	NO	
4. Contract of Agreement	YES	YES	
5. General & Special Conditions of Contract	YES	YES	
6. Specifications	YES	YES	
a. General (pertaining to all work, e.g. CSI Format)			
b. Special (pertaining to particular features, or separate crafts)			
7. Plans and Drawings (working drawings)	YES	YES	
<b>Contract Agreement and Articles</b>	<b>Lump Sum</b>	<b>Unit Price</b>	<b>Cost Plus</b>
1. Scope of Work	YES	YES	YES
2. Time of Completion	YES	YES	YES
3. Contract Sum	YES	NO	NO
4. Progress Payments	YES	YES	YES
5. Extra Work Provisions	YES	YES	YES
6. Final Payment Provisions	YES	YES	YES
<b>Time of Completion</b>			
1. Work Commencement Date	YES	YES	YES
2. Completion Date (suggest number of calendar days after start date)	YES	YES	YES
3. Penalty Provision for schedule Over-Run (late completion)	YES	YES	YES
4. Bonus Provision for schedule Under-Run (early completion)	YES	YES	YES
NOTE: In general, penalties may not be assessed for late completion unless there are substantial equivalent rewards (Bonus) for early completion.			

Contract Agreement and Articles Continued	Lump Sum	Unit Price	Cost Plus
<b>Contract Sum Variations</b>			
1. Specified Sum	YES	NO	NO
2. Controlled Owner's Budget (adjustable)	NO	NO	YES
3. Work Item Number	NO	YES	YES
4. Work Classification	NO	YES	YES
5. Estimated Number of Units for Each Work Item	NO	YES	YES
6. Unit Description	NO	YES	YES
7. Unit Price Bid	NO	YES	YES
8. Total for All Items Bid	NO	YES	YES
Reimbursed for Indirect Costs (overhead expenses such as all expenses directly incurred and not chargeable to a specific project or task.	Included	YES	YES
Reimbursed for Direct Costs (expenses directly incurred by or for a specific project)	Included	YES	YES
Progress Payments (Schedule of Values) Report	YES	NO	NO
1. Description of Work	YES		
2. Scheduled Value	YES		
3. Work Completed (work in place and stored materials)	YES		
4. Percentage Complete	YES		
5. Balance to Finish	YES		
6. Retainage	YES		
<b>Control Sheets and Reports</b>			
1. Weekly Payroll Sheets for Contractor's Men)	NO	NO	YES
2. Material Vouchers from Vendors	NO	NO	YES
3. Monthly Cost Report	NO	NO	YES
4. Monthly Cost Report Summary for Owner	NO	NO	YES
Adjustments for Changes in the Work	YES	YES	YES
1. Extra Work Order Form	NO	NO	YES
2. Credit Memorandum Procedures or Form	NO	NO	YES
3. Change Order Proposal (estimate) subject to owners review and approval	YES	YES	NO
4. Change Order (based on approved Change Order Proposals)	YES	YES	NO
Percentage of Completion Report	NO	NO	YES
1. Cost-To-Date Amounts	NO	NO	YES
2. Amount To Complete	NO	NO	YES
3. Final Estimated Costs	NO	NO	YES
4. Working Estimate and Extra Costs	NO	NO	YES
5. Under-Run or Over-Run Values	NO	NO	YES

## Productivity and Efficiency Tips for Contractors

- Get organized and develop effective *Time Management* skills
- Don't contract for jobs beyond your current capabilities and/or bonding capacity
- Establish and maintain good *Record Keeping* procedures including a *Job Costing* system for tracking actual costs against your original project *Budget* or *Estimate*
- Develop adequate *Invoicing* and *Payment* procedures preferably using an inexpensive software program such as *Quick Books Pro*
- Forecast the amount of work completed as of your progress payment request date
- Develop a *Policies and Procedures Manual* for your internal use to improve communication and minimize conflicts with your employees. The manual can serve as a standard for reviewing and rewarding employees; and it can be given to prospective employees for review during the interview process.
- Develop a *Business Plan*
- Request Client Representation during:
  - Pre Bid Meetings
  - Construction Phase
  - Post Construction
- Develop Project Close Out Procedures and include these costs in your bid. Costs for one-year warranty provisions are often overlooked and not included by contractors when preparing estimates. Include these costs.
- Routinely send out 20-day notice to owners and prime contractors to protect your lien rights.
- Develop a standard *Construction Contract* between *Contractor* and *Subcontractors* incorporating your terms and conditions and use it whenever possible.
- Develop good *Change Order* procedures including change proposals for time and/or money.

## Bidding for Responsiveness, Dependability and Value

### Verbal Quotation Form

Even though written communication is stressed and should be the rule of thumb, many contractors (especially subcontractors and material suppliers) will give verbal quotations or cost proposals on the telephone. The FAX machine has helped enormously to minimize this practice. However, when you do obtain verbal quotations it is extremely important to obtain all pertinent detailed information about the proposed transaction. This information will become the *Terms and Conditions* written into the final contract agreement and/or purchase order between you and the respective subcontractor. The sample *Verbal Quotation* form in this section has been designed to obtain that pertinent information necessary for defining and understanding the scope of work, terms and conditions, and limitations being proposed by the contractor or material supplier.

The following is a list of questions in the form and a brief explanation of their importance:

- Job Number                                      For quick reference and identification
- Job Name                                         For identification
- Vendor Name                                    For contract agreement purposes
- Item Quoting                                    Brief description of item being quoted
- Vendor Address                                For contract agreement purposes
- Received By                                    Person in your organization taking the proposal
- Quoted By                                        Name of person giving the proposal
- Date Quoted                                    Date proposal given
- License Number                                To insure that the contractor or vendor is properly licensed
- License Expiration Date                    To make sure license is currently active and will remain valid for the duration of your project
- Federal or Social Security ID            Saves time at end of year for tax reporting purposes
- Base Bid                                         Total price being proposed
- Alternate Bids                                 Usually specified in the Bid Documents and are subject to acceptance by yourself or the owner

- Deposit, Advance, COD      It is very important to know this information before accepting the proposal for knowing your real costs and inclusion in the Contract Agreement
  
- Lead Time      Needed for scheduling purposes and/or determining if the item(s) require a long delivery time  
  
Here are some tips if the delivery time compromises the scheduled completion time of the project:  
  
**Tip! For Contractors**  
  
Qualify your bid to include the long lead-time requirements of the item  
  
**Tip! For Owners**  
  
Adjust your scheduled completion time based on the lead-time requirements of the item  
  
If the completion or delivery time of an item compromises the intended completion time as set forth in the bidding documents it may be necessary to qualify the bid by informing the contracting parties
  
- Completion Time      Same as above
- Installed      For the purpose of knowing what is being included in the *base price*
- FOB Job Site      Same as above
- Including Tax      Same as above
- Spec Section Nos.      Whenever possible the division number of the specified item(s) should be referenced for purpose of tying the work to the bidding documents for the project and inclusion in the *contract agreement*
  
- Addenda Included      It is important that all vendors, subcontractors and material suppliers have bid on the same and latest information. The receipt of any and all addendum's issued during the bidding process should be acknowledged and confirmed.
  
- Per Plans and Specs      Sometimes an item being purchased has not been specified in the project plans or specifications. It is

important to know if the item is or is not based on plans and specifications

- Labor Only For the purpose of knowing what is being included in the *base price*
- Material Only Same as above
- Labor and Materials Same as above
- Description of Work For *contract agreement purposes*
- Exclusions or Qualifications For the purpose of knowing what is being included in the *base price*

## Form 6 Sample Verbal Quotation Form

Job Number	Received By
Job Name	Quoted By
Vendor Name	Date Quoted
Vendor Address	Phone Number (     ) FAX Number (     )
License Number	License Expiration Date
Federal Tax I.D. or S.S. #	Other
Item Quoting	

BASE BID	ALTERNATE BIDS:		
(If required by Vendor circle )	+-\$	+-\$	+-\$
DEPOSIT    ADVANCE    COD	+-\$	+-\$	+-\$

LEAD TIME:	DAYS	WEEKS	MONTHS
COMPLETION TIME:	DAYS	WEEKS	MONTHS

INSTALLED YES                  NO	FOB JOB YES                  NO	INCLUDING TAX YES                  NO	PER PLANS & SPECS YES                  NO
--------------------------------------	------------------------------------	--	--

ADDENDA INCLUDED 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	SPECIFICATION SECTION NUMBERS
---	-------------------------------

LABOR ONLY YES	MATERIAL ONLY YES	LABOR AND MATERIAL YES
-------------------	----------------------	---------------------------

EXCLUSIONS OR QUALIFICATION:
------------------------------

The information obtained by using this form can be used to prepare your purchase order or compare and verify against the contractor's or material supplier's written proposal that usually follows a verbal quotation.

## Bid Form

The bid form on the following page includes all the essentials to collect costing and scheduling information for your project. The form gathers information that can be incorporated into the final contract agreement between the owner and contractor for the project.

### Tip!

**Demand** a pre-defined extra or deductive work costing breakdown including, but not limited to: pre-established unit prices, written approved cost estimates, and a 3-tier basis of actual construction costs plus percentage of overhead and profit. **Minimizes disputes and dramatically controls costs.**

### Tip!

**Require** a schedule of values itemized to include: General conditions, trade activities, bonds at cost, and overhead and profit. **An invaluable aid in reviewing payment requests.**

### Tip!

**Have** the contractor provide a sub-contractor's list of emergency telephone numbers. **Saves time and frustration when instant communication is necessary.**

## Form 7 Sample Bid Form

Date: \_\_\_\_\_

From: (Contractor's name and Address)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

To: (Owner's or Bid Recipient's Name and Address)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Having carefully examined the Contract Documents covering:

*(Insert a Brief description of the work being performed), located at (Insert job site address), said documents prepared by (name of architect, engineer or person preparing the drawings and/or construction documents for the project), and dated (date of documents), having familiarized ourselves with the site and job conditions; and having examined and approved the form of the Construction Contract; the undersigned does hereby tender the following bid for the performance of all work in accordance with said Contract Documents.*

1. Base Bid \$ \_\_\_\_\_

Base Bid Items listed or description of work being bid:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

2. Alternate Bids added or deducted costs for alternatives:

Item Descriptions listed	ADD	(DEDUCT)
_____	\$ _____	\$ _____
_____	\$ _____	\$ _____
ADD (TOTALS).....	\$ _____	
DEDUCT.....		\$ _____

Cost of performance and labor and materials payment bond(s), at contractor's cost. (Not included in base bid or contract price). \$ \_\_\_\_\_

4. Unit Percentages

For added (MORE) labor and/or materials, add cost plus \_\_\_\_\_ %  
For deducted (LESS) labor and/or materials, deduct cost plus \_\_\_\_\_ %

5. Completion Time

The undersigned agrees, if awarded the Contract, to complete all work called for under this Contract within \_\_\_\_\_ calendar days after being awarded the contract and receiving the written notice to proceed with the work from the Owner.

6. Contract - Bond - Evidence of Insurance

The undersigned agrees to execute and abide by the form of *construction contract* provided to the undersigned with this *bid form* and to furnish, at the time of execution of the Contract, (*list those items required such as performance and labor and materials payment bond(s) or certificates of insurance*).

7. Addenda

Receipt of the following addenda is hereby acknowledged:

Addenda Number Dated

\_\_\_\_\_  
\_\_\_\_\_

8. Changes in the Work

All change orders or "extras", if any, or any deviation from the *contract documents* shall be authorized and valid only if approved in writing by (*owner's name*). Neither party may waive this provision by acts or conduct.

CONTRACTOR'S LICENSE NUMBER \_\_\_\_\_

CONTRACTOR'S LICENSE EXPIRATION DATE \_\_\_\_\_

IF CORPORATION, STATE OF INCORPORATION \_\_\_\_\_

STATE CORPORATION NUMBER \_\_\_\_\_

IF PARTNERSHIP, FULL NAME OF PARTNERS \_\_\_\_\_

\_\_\_\_\_  
(Contractor's Signature)

\_\_\_\_\_  
(Dated)

## Bid Instructions

Bid Instructions are useful for communicating your expectations to *prime* or *main* contractors and trade contractors.

The author developed the following Bid Instructions after completing hundreds of construction projects as a General Contractor. The instructions give background information about the company soliciting the bids and include noted forms that will be required of the successful bidders during the pre-construction and construction phases of the project.

### Sample Letter 1 Bid Instructions

**Your Letter Head Here**

#### **Date**

The Company (**TC**) began on January 1, 1998 to specialize in performing Planning and Construction Management, and Design Build projects for national **Retail Stores and Banks** throughout the United States and Hawaii. **TC** has completed over 600 such projects including office tenant improvement projects for national and independent Retailers and Developers and has built a solid company around repeated contracts with these customers. **TC** performs work as a **GENERAL CONTRACTOR OR CONSTRUCTION MANAGER**.

**TC** is fully aware of the vital role its subcontractors have played in making us successful. We have developed an excellent reputation with subcontractors by treating them fairly, by furnishing superior supervision and by paying our bills on time. It is the policy of **TC** to pay approved subcontractor's bills within 30 days after receipt of invoice and payment from the Owner. Credit information about The Company may be obtained from Dun & Bradstreet (DUNS: XX-XXX-XXXX).

For our mutual protection, we have prepared Bid Instructions that we feel will eliminate bidding errors that may cause problems later. You will note that the **Bid Instructions** request some of the subcontractors to break down their base bid. This request is made to avoid possible duplication of costs between subcontractors and to make sure all contract activities or items are covered. The breakdown is an option, **not a must**.

## TABLE OF CONTENTS

### SAMPLE FORMS ATTACHED AND INCLUDED FOR REFERENCE

1. CONDITIONAL WAIVER AND RELEASE UPON PARTIAL PAYMENT shall be submitted with each payment request.
2. CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT shall be submitted with final payment and/or retention payment request.
3. TC SUBCONTRACT/PURCHASE ORDER AGREEMENT shall be fully executed prior to commencing your work. **NOTE: TC** requires certificates of insurance naming **TC** as additional insured.
4. TC VERBAL QUOTATION form shall be completed and submitted with **Bid**. We encourage bids be submitted via FAX (# \_\_\_\_\_)

### GENERAL BID INSTRUCTIONS

#### PURPOSE

1. These bid instructions are intended to clarify any questions about "who does what". They supersede instructions of other bid documents only as they may relate to who furnishes and/or installs specific materials, equipment, fees and services.
2. These instructions will become part of the final sub-contract agreement if you are the successful bidder. Submittal of your proposal, without qualifications, implies that you have included all the conditions of these bid instructions and other supplemental sub-contract conditions of these bid instructions and other supplemental sub-contract conditions and specifications.

#### LAWS, CODE, ETC.

3. All work shall be performed under and in accordance with all applicable governmental codes and requirements, trade practices, and respective facilities regulations.
4. Subcontractor shall pay all taxes or contributions levied by any governmental or other authority on any materials, supplies, labor or equipment, or the use or sale or installation thereof, and the same shall be deemed to be included in the contract price and Sub-contractor shall not be entitled to any payment from Contractor on account thereof.

BOND

5. Do not include performance bond costs.

FEES

6. Include all tap-in, hookup or similar fees relating to your work and bid separately.

METERS

7. Include all costs for obtaining and installing meters and bid separately.

PERMITS

8. Include costs for all permits relating to your work.

GUARANTEE

9. Guarantee all materials and workmanship for at least one (1) year from the time of Final Acceptance and Completion of the work.

SITE INSPECTION

10. By submission of a bid, you acknowledge that you are familiar with the job site conditions affecting the work. Should your investigation of the job site reveal conditions contrary to the plans, specifications, or scope of work, you must advise **TC** in writing prior to or when submitting your bid. Failure to do so will not relieve you from completing the work as shown or required.

ALLOWANCES

11. If allowances are indicated in the specifications, include them in your bid and state the amount included.

PRE-ORDERED ITEMS

12. A pre-ordered item of material or equipment is one that has not been paid for, and you must include the cost in your bid. If items have been pre-ordered the costs will be so indicated in the drawings, specifications, or scope of work.

ITEMS FURNISHED BY OTHERS

13. Include costs for accepting delivery, unloading, assembly, storing, distributing, installation and removing of trash, for all items furnished by you or others and installed by you.

### CUTTING & PATCHING

14. Cutting, framing, patching and/or sealing of all required openings in roofs, floors, ceilings, and fixtures will be done by the subcontractor requiring the openings, or arrangements will be made by that subcontractor for others to do the work. (**EXCEPTION** Drywall contractors must cut and frame all necessary openings in drywall ceilings.)

### ROOFING, ROOF FLANGES, ROOF JACKS, PITCH POCKETS

15. Each subcontractor requiring roof penetrations must include in their bid the costs necessary for any flanges, flashing, framing, pitch pockets and sealing as may be required. (**EXCEPTION** In the case of existing facilities it is **strongly recommended** that the building owner be contacted for the name of his roofing or roofing maintenance contractor).

### HVAC

16. HVAC subcontractor will include the supply and installation of the following:
- a. All condensation lines from units to sewer system.
  - b. All sheet metal flashing, scuppers, coping, etc.

### CLEAN-UP

17. Subcontractors performing work for **TC** will be required to clean the premises from the accumulation of waste materials or rubbish caused by his employees.

### UNLOADING

18. Each subcontractor must include costs for unloading, storing and distributing material furnished for his use, whether furnished by **him self** or **others**.

### EXCAVATION & RELATED CUTTING & PATCHING

19. Subcontractors will include costs as may be necessary to install any under slab or underground plumbing, mechanical or electrical material and will back fill, tamp and compact excavated areas as necessary. When this work is required under or in existing slabs subcontractors will include costs for saw cutting (electric saws only if in building interiors), concrete chipping, concrete removal, and concrete patching.

### DEMOLITION

20. Electrical, HVAC, Plumbing and Sprinkler subcontractors must include all demolition that pertains to their trade. Any architectural demolition, such as walls, ceilings and



## Check List 3 Pre-Construction Meeting Agenda

**Job #:**

**Job Name:**

**Date of Meeting:**

**Meeting Time:**

### Topics for Discussion

- Certificates of Insurance
- Cleanliness (debris removal)
- Pass out lien release forms for invoicing
- Review schedule
- No change orders or additional work unless authorized in writing
- No verbal commitments
- Emergency telephone numbers required from
  - Electrical
  - Plumbing
  - Mechanical
  - Fire Protection
  - \_\_\_\_\_
  - \_\_\_\_\_
- Working hours
- Inspections
- Request for written notice to proceed from owner
- Name of project manager and superintendent
- Safety program
- Forms to hand out
- Conditional lien release
- Sample subcontract
- Sample *Work Order & Estimate for Change Order*
- List of proposed subcontractors and vendor
- Sample certificate of insurance named as additional insured

### Paying for Performance

The following illustrates a simple way of tracking a project's progress and determining how much money to pay the contractor:

### Form 9 Sample Schedule of Values

Activity or Description of Work	Scheduled Value	Inspection Date	Percent Complete	Total Completed Value	Previous Payments	Amount To Pay	Less Retainage 10%
General Conditions	\$ 20,000	6/5/98	55%	\$ 11,000	\$10,000	\$ 1,000	\$ 900
Foundations	\$100,000	6/5/98	100%	\$ 100,000	\$70,000	\$ 30,000	\$ 27,000
Framing	\$200,000	6/5/98	50%	\$ 100,000	\$65,000	\$ 35,000	\$ 31,500
Drywall	\$60,000	6/5/98	25%	\$ 15,000	\$20,000	\$ (5,000)	\$ (4,500)
Electrical	\$250,000	6/5/98	50%	\$ 125,000	\$6,000	\$ 119,000	\$ 107,100
Plumbing	\$240,000	6/5/98	25%	\$ 60,000	\$10,000	\$ 50,000	\$ 45,000
HVAC	\$100,000	6/5/98	60%	\$ 60,000	\$15,000	\$ 45,000	\$ 40,500

Activity or Description of Work	Performance Based on Actual Work Completed vs. Scheduled Scheduled = _____ Actual = _____
---------------------------------	---

Date Line placed on the schedule. Usually using a Red pencil.

Units: 1 2 3 4 5 6 7 8 9 10

These units can be in Days, Months, or Years.

General Conditions		Shows 55% complete
Foundations		Shows 100% complete
Framing		Shows 50% complete and 1 unit behind schedule
Drywall		Shows 25% complete and on schedule
Electrical		Shows 50% complete with and 1 unit a head of schedule
Plumbing		Shows 25% complete and 1 unit behind schedule
HVAC		Shows 60 % complete and 2 units a head of schedule

**Tip!**

**Persist** in a certificate of occupancy by the governing authority prior to contractor receiving final payment. **You'll be assured that work has been completed to code.**

**Tip!**

**Ask** for written confirmation from the contractor stating all inspection list (punch list) items are completed. **Otherwise, items may be missed and re-inspection may be necessary.**

**Tip!**

**Request** a Conditional Waiver and Release Upon Partial Payment Requests from the prime contractor and sub-contractors filing preliminary lien notices. **Your lien exposure will be reduced substantially.**

# Form 10 Sample Invoice For Professional /Construction Services

TO: Client's Name and Address

Invoice Number:

Job No.:

Date:

Project:

Period Ending:

**Change Order Summary:**

Application for payment is shown on line 8 below.

NUMBER	(DEDUCTIONS) ADDITIONS
1	\$
2	\$
3	\$
4	\$
5	\$
6	\$
7	\$
8	\$
Total	\$ Insert in line 2

	COSTS
1. Original contract sum	\$ _____
2. Net change by change orders	\$ _____
3. Contract sum to date	\$ _____
<hr/>	
4. Previous requests	\$ _____
5. Total contract balance before this certificate (line 3 minus line 4)	\$ _____
<hr/>	
6. This payment request	\$ _____
7. Less retainage	\$ _____
8. Current payment due (line 6 minus line 7)	\$ _____

PLEASE REMIT  
AMOUNT ON LINE 8

**Consulting  
Work  
Summary:**

RATE	HOURS	DESCRIPTION	TOTAL
\$			\$

9. Total paid to date including this payment request	\$ _____
10. Total retained	\$ _____
11. Total requested to date (line 9 plus line 10)	\$ _____
12. Total Contract balance after this payment request (line 3 minus line 11)	\$ _____

**Reimbursable  
Summary:**

UNIT COST	UNIT	ITEM	TOTAL
\$			\$

Terms Net \_\_\_\_\_ Days. Past due accounts are subject to a finance charge of \_\_\_\_\_% per month on the unpaid balance.

## Sample Report 1 Progress Report

SITE REVIEW #

PROJECT NAME, STATE

Name of Project Here



*Insert an Overall Project Photo Here*

## SAMPLE COVER LETTER FOR PROGRESS REPORT

Date

*Owner's name*

*Owner's street address*

*Owner's state and zip code*

RE: *Project Name and Payment Application Number*

Dear: *Owner's name here*

Here is the Review for the referenced project and payment request.

This review includes the following:

PROGRESS REPORT

BILLING RECAP

CONTRACTOR'S SIGNED CERTIFIED SCHEDULE OF VALUES

PHOTO ADDENDUM

The work associated with the referenced Application has been completed in a workmanlike manner and it appears to be completed and constructed in accordance with the project plans and specifications.

The amount requested for this Application is \$\_\_\_\_\_

The amount approved for payment is \$\_\_\_\_\_

This review only includes reviewing the general contractor's costs as shown on said Application, not the other project related soft costs.

Please call if you have any questions.

Sincerely,

*Reviewing parties name*

# SAMPLE PROGRESS REPORT

VISIT NUMBER: \_\_\_\_\_

Job Number:

Project:

Inspection Date:

Weather:

Attending:

Work in Progress:

- 1.
- 2.
- 3.
- 4.

Observations:

- 1.
- 2.
- 3.
- 4.

Items to Verify:

- 1.
- 2.
- 3.
- 4.

Action or Information Requested:

- 1.
- 2.
- 3.
- 4.

Narrative and Application Comments:

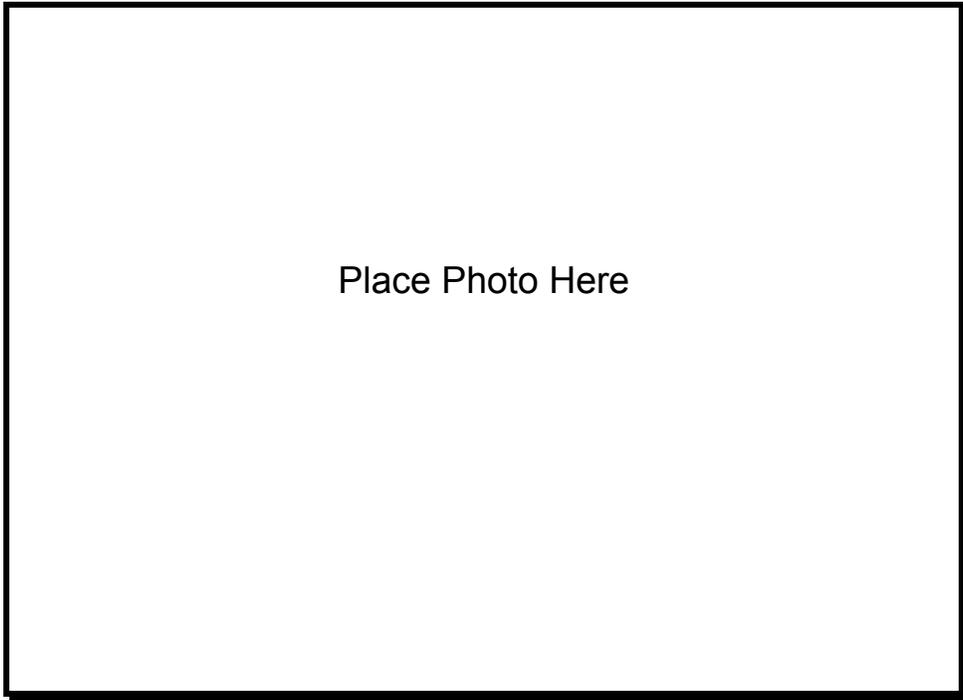


Photo Description:

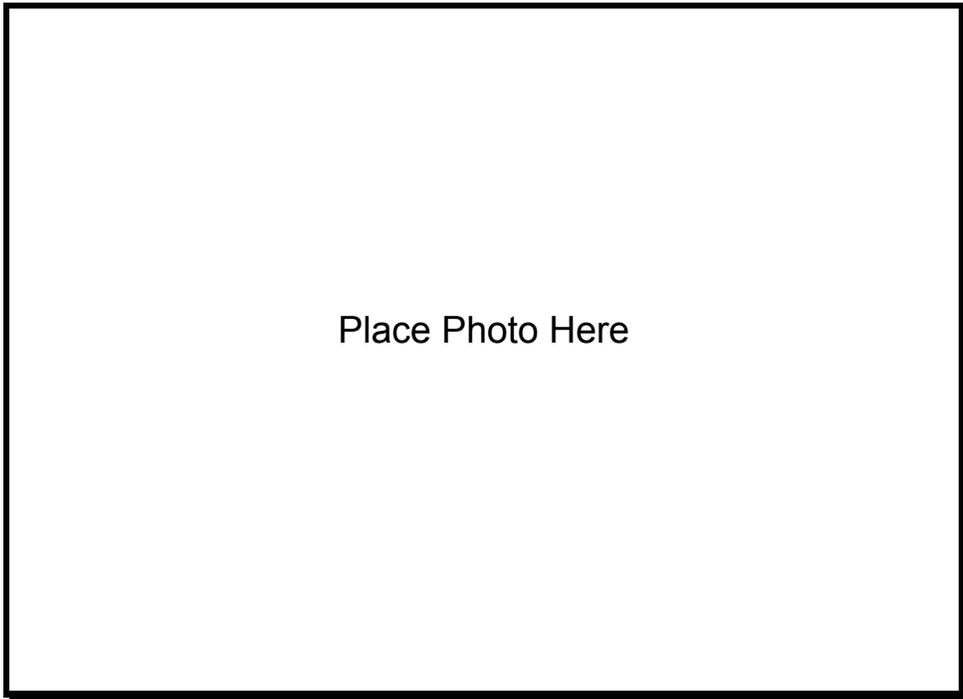


Photo Description:

## Protecting Property Against Liens

### Discharging of Lien(s) or Claim(s)

The following wording can be incorporated into a contract to protect your property against Liens or Claims:

If at any time there is evidence that a claim which is chargeable to CONTRACTOR or a SUBCONTRACTOR, is or may become a lien against the premises, OWNER may retain out of the contract price an amount sufficient to indemnify it against such claim or any lien growing out of such claim and against all costs and expenses (including attorney's fees) which OWNER incurs or may become obligated to pay in connection with said claim or lien or arising out of any action relating thereto.

If payment of the contract price has been made to CONTRACTOR hereunder CONTRACTOR shall immediately reimburse OWNER for all moneys, costs, expenses and disbursements (including attorney's fees) that OWNER may be compelled to pay to discharge such lien or claim on or against said property.

### Procedure for obtaining lien releases during construction covering progress payments

Commencing with the first progress payment request, CONTRACTOR shall submit a CONDITIONAL WAIVER AND RELEASE UPON PARTIAL PAYMENT covering all approved scheduled payments to respective subcontractors, material suppliers, and contractor's general conditions;

Commencing with the second progress payment request and all subsequent progress payment requests, CONTRACTOR, SUBCONTRACTORS and MATERIAL SUPPLIERS shall submit, via the CONTRACTOR, appropriate affidavits and wavers and releases as follows:

Subcontractors and material suppliers shall submit UNCONDITIONAL WAIVERS AND RELEASES evidencing payment by the CONTRACTOR for all labor and materials covering the previous payment request; and

CONTRACTOR shall submit a CONDITIONAL WAIVER AND RELEASE UPON PARTIAL PAYMENT covering all approved scheduled payments to respective subcontractors, material suppliers, and contractor's general conditions.

### Procedure for Obtaining Lien Releases Prior to Making Final Payment

Contractor, Subcontractor and Material Suppliers shall submit, via the CONTRACTOR, appropriate affidavits and wavers and releases as follows:

Subcontractors and Material Suppliers shall submit UNCONDITIONAL WAIVERS AND RELEASES UPON FINAL PAYMENT evidencing payment by the CONTRACTOR for all labor and materials covering and associated with OWNER'S project; and

CONTRACTOR shall submit a CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT covering all approved contract costs.

The foregoing discussion on *Protecting Property Against Liens* and the following WAIVER AND RELEASE forms have been prepared for illustration purposes only. Any such releases and wording associated with liens and lien laws should be reviewed by an attorney prior to incorporating said information into any contract or agreement.

## **Form 11 CONDITIONAL WAIVER AND RELEASE UPON PARTIAL PAYMENT**

For valuable consideration, the undersigned hereby releases the property at \_\_\_\_\_ California, from any liability from lien for all labor or services performed, equipment or materials furnished and/or delivered by it and to or for that said property, for or on account of \_\_\_\_\_ the amount of \$ \_\_\_\_\_ to this date.

This release is conditioned upon the clearance by the bank upon which it is drawn of the check received in payment for the above labor, services, equipment and materials.

**Firm Name** \_\_\_\_\_

**Address** \_\_\_\_\_

**Dated** \_\_\_\_\_

**Authorized Representative** \_\_\_\_\_

**RETURN TO:**

**Your Name**

**Address**

# **Form 12 CONDITIONAL WAIVER AND RELEASE UPON FINAL PAYMENT**

Upon receipt by the undersigned of a final check from \_\_\_\_\_ in the sum of \$ \_\_\_\_\_ payable to \_\_\_\_\_ and when the check has been properly endorsed and has been paid by the bank upon which it is drawn, this document shall become effective to waive and release any mechanic's lien, stop notices, or bond rights the undersigned has on the property of \_\_\_\_\_ located at \_\_\_\_\_

*(Owner's Name)*

\_\_\_\_\_

Job Description: \_\_\_\_\_

Street Address: \_\_\_\_\_

In the City of: \_\_\_\_\_

County of: \_\_\_\_\_

State of California, Zip Code: \_\_\_\_\_

This waiver and release covers the final payment to the undersigned for all labor, services, equipment or materials furnished on the property, except for disputed claims for additional work in the amount of \$ \_\_\_\_\_.

And whereas, the undersigned hereby certifies that his work has been fully completed and all persons who performed labor on, or supplied materials used in, said building project have been fully paid by the undersigned.

**Firm Name** \_\_\_\_\_

**Address** \_\_\_\_\_

**Dated** \_\_\_\_\_

**Authorized Representative (printed name and signature)** \_\_\_\_\_

\_\_\_\_\_

**RETURN TO:**

\_\_\_\_\_

*Your Name and address*

## **Form 13 UNCONDITIONAL WAIVER AND RELEASE**

For valuable consideration, the undersigned hereby releases the property at \_\_\_\_\_, California,  
from any liability from lien for all labor or services performed, equipment or materials furnished and/or delivered by it and to or for that  
said property, for or on account of \_\_\_\_\_ the amount of \$ \_\_\_\_\_ to

*(Owner's name and Address)*

this date.

**Firm Name** \_\_\_\_\_

**Address** \_\_\_\_\_

**Dated** \_\_\_\_\_

**Authorized Representative** \_\_\_\_\_

**RETURN TO:**

*Your Name and Address*

## Check List 4 Simple Project Administration

### Project Administration Check List and Things to Think About

- Contract Documents
- Drawings and Specifications
- Permits vs. Starting Project Without Permits
- Revisions by Contractor vs. Revisions by Owner
- Inspections
- Field Reports
- As-Built (Record Drawings)

## Check List 5 Pre Construction Check List for Contractors and Owner Builders

Obtain the following information before starting construction:

Final list of subcontractors, vendors, material suppliers (anyone who may have lien rights on your property or project)	
Subcontracts typed and ready for signature	
Written "Authorization/Notice to Proceed" with the work from the property owner	
City/County business license for the project location	
Building permit application filed and/or approved	
Construction schedule ready for posting at the job site	
Other items relating to your company or business:	

## Basic Preliminary Check Lists

Here are simple checklists for setting up your projects and reviewing plans or drawings:

Decide whether or not you need or want services or components and check yes, no or maybe. This will help you to have a good understanding of the complexity and basic needs for your project.

### Check List 6 Basic Building Planners Checklist

DESIGN, ENGINEERING, CONSTRUCTION MANAGEMENT AND SUPPORT PROFESSIONALS SERVICES	YES	NO	MAYBE
Construction Manager			
Architect			
Interior Designer			
Landscape/Irrigation Architect			
Data/Voice Consultant			
Sound/Acoustical Engineer			
Electrical Engineer			
Mechanical Engineer			
Civil Engineer			
Testing Engineer			
Surveyor			
Traffic Engineer			
Energy Compliance Consultant			
OFF-SITE IMPROVEMENTS			
Curbs and gutter Work			
Traffic controls			
Street widening or dedications			
ON-SITE IMPROVEMENTS			
Demolition Work			
Clearing, Grading, fill or dirt removal			
Parking and traffic markings, driveways			
Pedestrian walkways			
Retaining walls			
Fencing			
Screening for mechanical equipment and trash enclosures			
Other			
EXTERIOR UTILITIES AND CONNECTIONS TO BUILDINGS			
Temporary power and utilities to job site during construction			
Power requirements to the building(s)			
Gas service and main meters			
Water service and main meters			
Storm and sanitary sewers			

	YES	NO	MAYBE
Grease interceptors			
Telephone and data service			
Other			
<b>EXTERIOR IDENTIFICATION AND LIGHTING</b>			
Signs and locations			
Wiring for signs			
Area lighting			
Parking lot lighting			
Bumpers and protection for the above			
Other			
<b>BUILDING SHELL-GENERAL</b>			
On grade			
Raised floor			
Structural framing clear span			
Interior posts will interfere with operations			
Special hardware requirements			
Insurance considerations for different roof and wall systems			
Special door or window requirements			
Mezzanine needed			
Delivery docks			
Gutter and downspout requirements			
Exterior facade and finish requirements			
Special ventilation requirements			
Other			
<b>BUILDING SHELL - FLOORING, CEILINGS, PARTITIONS, INTERIOR PAINTING</b>			
Tile floors			
Carpeted floors			
Hardened concrete with painted surfaces			
Light weight concrete toppings			
Terrazzo floors			
Other			
Gypsum board ceilings			
Suspended ceilings			
Metal studs for walls			
Wood studs for walls			
Sound attenuation requirements			
Other			
Wall protection systems (corner guards?)			
Maintenance considerations when selecting paint			
Other			
<b>MECHANICAL AND ELECTRICAL</b>			
Data wiring			
Voice wiring			
Special electrical wiring			
Special floor or wall outlet mounting			
Special meter or transformer locations			

	YES	NO	MAYBE
Special light fixtures			
Foot candle requirements			
Equipment wattage requirements			
Other			
Elevator(s) needed			
Power conveyors needed			
Gravity conveyors			
Escalators			
Other			
Insurance considerations for Fire Sprinklers			
Fire or burglar alarm(s)			
Public address or background music system			
Special fans or pumping systems			
ENERGY COSTS			
Consider installed costs versus life cycle costs for heating and cooling equipment			
Other			
INTERIOR FINISHING AND FURNISHINGS			
Special decor for each room			
Special wall treatments, murals, drapes, curtains			
Blending of walls finishes with furniture			
Special furniture, fixtures and equipment placement			
No Smoking signs			
Fire extinguishers			
Lockers			
Restroom furnishings and equipment			
Other			
LANDSCAPING			
Special types and positions of trees, shrubbery and flowers			
Automatic sprinkler system			
Other			
MATERIALS AND EQUIPMENT-GENERAL			
Any long lead time items			
HOME IMPROVEMENT ITEMS FOR SELLING			
New front door			
Computer match paint touch up			
Rent live plants for interior decoration			
Store miscellaneous furniture to eliminate clutter			
New carpets			
Improve quality of landscaping			
Order termite inspection and complete repairs			
Other			

## Check List 7 Site Plan Check List

ITEM #	ITEM DESCRIPTION	YES	NO
1	North arrow pointing to top of page or not more than 45 degrees off		
2	Metes and bounds shown with dimension lines in decimal equivalent		
3	Transverse and longitudinal string of dimensions through the site		
4	Buildings located from property line		
5	Location and indication of receiving dock and ramp		
6	Curb cuts located from property line		
7	Typical parking dimensions		
8	Dimension and indication of future expansion area shown		
9	Buildings identified with heights and square footage noted		
10	Concrete walks identified		
11	Arrows shown indicating one and two-way drives and isles		
12	Parking lot lighting shown		
13	Pylon signs shown		
14	Property lines identified		
15	Set back lines shown		
16	Future road widening shown		
17	Utility and other easements shown		
18	Grades - existing, proposed and finish floor elevations shown		
19	Retaining walls with heights indicated		
20	Street names, their width, paving type, number of lanes and posted speed limits shown		
21	Medians shown		
22	Signals shown		
23	Stop signs shown		
24	Street lights and power poles shown		
25	Adjoining property noted "Not a Part" when applicable and owners name indicated		
26	Vicinity map shown		
27	Typical parking shown		
28	Area summary shown		
29	Parking requirements shown		
30	Landscaping requirements shown		
31	Transform location shown		
32	Off site improvement requirements shown		
33	Area of "Prohibitive taking area" shown when applicable		

## Check List 8 Basic Drawings Check List

ITEM #	DESCRIPTION	YES	NO
1	Cover sheet with list of all drawings and their respective sheet numbers		
2	All drawings sequentially numbered		
3	All drawings dated		
4	All drawings signed and approved by the respective professional(s) of record		
5	All revisions noted and dated on the respective sheets		
6	All details adequately dimensioned and labeled		
7	All <i>Room Finish Schedules</i> included		
8	All <i>Door and Window Schedules</i> included		
9	All window fenestration information included		
10	All project drawings included and adequately cross referenced		
11	All cross sections shown and adequately cross referenced to the plans and elevations		
12	Finish floor elevation shown on sections and plans		
13	Roof pitch/slope(s) shown		
14	Exterior elevations included		
15	Interior elevations included		
16	Other		





## Glossary

**Activity** (1) A scheduling term (2) The smallest work unit within a project; the basic building block of a project. (see Project)

**ADA** The Americans with Disabilities Act which gives civil rights protection to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, State and local government services, and telecommunications.

**Addendum** (Addenda) Written information adding to, clarifying or modifying the bidding documents. An addendum is generally issued by the owner to the contractor during the bidding process and as such, addenda are intended to become part of the contract documents when the construction contract is executed.

**Agent** One authorized by a client (principal) to act in his/her stead or behalf and owes the client a "fiduciary duty" (Trust). Example: Construction Manager for fee but classified as an independent contractor for tax purposes. A construction manager for fee does not have any financial responsibility whereas a construction manager at-risk does have financial risk similar to a general contractor.

**Agreement** An arrangement between the parties regarding a method of action.

**Alterations** (1) A term used to describe partial construction work performed within an existing structure (2) Remodeling without a building addition.

**Alternate Bid** Amount stated in the bid to be added or deducted from the base bid amount proposed for alternate materials and/or methods of construction.

**Application for Payment** Contractor's written request for payment for completed portions of the work and, for materials delivered or stored and properly labeled for the respective project.

**Architect** One who designs and supervises the construction of buildings or other structures.

**Architects Basic Services** A recognized series of phases performed by an architect as follows: 1<sup>st</sup> Schematic Design Phase, 2<sup>nd</sup> Design Development Phase, 3<sup>rd</sup> Construction Document Phase, 4<sup>th</sup> Bidding or Negotiated Phase, 5<sup>th</sup> Construction Phase.

**Architect-Engineer** An individual or firm offering professional services as both architect and engineer.

**Architectural Drawing** A line drawing showing plan and/or elevation views of the proposed building for the purpose of showing the overall appearance of the building.

**As-Built Drawings** (also known as Record Drawings) Contract drawings marked up to reflect changes made during the construction process. It is good practice to make *As-Built drawings* by marking the changes on reproducible drawings such as sepia for duplication purposes later.

**Bid** (1) An offer or proposal of a price (2) The amount offered or proposed.

**Bid Bond** A written form of security executed by the bidder as principal and by a surety for the purpose of guaranteeing that the bidder will sign the contract, if awarded the contract, for the stated bid amount.

**Bid Date/Time** The due date and time set by the owner, architect or engineer for receiving bids.

**Bid Form** A standard written form furnished to all bidders for the purpose of obtaining the requested information and required signatures from the authorized bidding representatives.

**Bid Opening** The actual process of opening and tabulating bids submitted within the prescribed bid date/time and conforming to the bid procedures. A Bid Opening can be open (where the bidders are permitted to attend) or closed (where the bidders are not permitted to attend). (See Bid Date/Time)

**Bid Price** The stipulated sum stated in the bidder's bid.

**Bidding Documents** The published advertisement or written invitation to bid , instructions to bidders, the bid form and the proposed contract documents including any acknowledged addenda issued prior to receipt of bids.

**Bidding Period** The calendar period allowed from issuance of bidding requirements and contract documents to the prescribed bid date/time. (See Bid Date/Time)

**Bidding Requirements** The written minimum acceptable requirements set forth by the owner to the contractor during bidding process. The owner usually reserves the right to reject a bid if the Bidding Requirements are not met. (See Bidding Documents)

**Bid Shopper** A buyer or client who seeks to play one proposed supplier or subcontractor against the other for the purpose of reducing a purchase price.

**Bid Tabulation** A summary sheet listing all bid prices. (See Bid Form)

**Bid Time** (see Bid Date/Time)

**Bond** (see Bid Bond; Contract Bond; Contract Payment Bond; Contract Performance Bond; Labor and Material Payment Bond; Performance Bond; Subcontractor Bond; surety)

**Bonding Company** A properly licensed firm or corporation willing to execute a surety bond, or bonds, payable to the owner, securing the performance on a contract either in whole or in part; or securing payment for labor and materials.

**Budget (Construction Budget)** (1) An itemized summary of estimated or intended expenditures for a given period of time (2) The total sum of money allocated for a specific project.

**Building** (1) To form by combining materials or parts (2) A structure enclosed within a roof and within exterior walls housing, shelter, enclosure and support of individuals, animals, or real property of any kind.

**Building Code** The legal requirements set up by the prevailing various governing agencies covering the minimum acceptable requirements for all types of construction. (See Codes)

**Building Envelope (Sometimes referred to as Building Shell)** (1) The waterproof elements of a building, which enclose conditioned spaces through which thermal energy may be transferred to or from the exterior. (2) The outer structure of the building. (See Tenant and Leasehold improvements for building interiors)

**Building Inspector/Official** A qualified government representative authorized to inspect construction for compliance with applicable building codes, regulations and ordinances. Courts have ruled that building inspections are exempt from errors and omissions liabilities.

**Building Permit** A written document issued by the appropriate governmental authority permitting construction to begin on a specific project in accordance with drawings and specifications approved by the governmental authority.

**Building Process** A term used to express every step of a construction project from its conception to final acceptance and occupancy.

**Change Order** A written document between the owner and the contractor signed by the owner and the contractor authorizing a change in the work or an adjustment in the contract sum or the contract time. A change order may be signed by the architect or engineer, provided they have written authority from the owner for such procedure and that a copy of such written authority is furnished to the contractor upon request. The contract sum and the contract time may be changed only by change order. A change order may be in the form of additional compensation or time; or less compensation or time known as a Deduction (from the contract) the amount deducted from the contract sum by change order.

**Change Order Proposal (See Change order)** A change order proposal is the written document before it has been approved and effected by the Contractor and Owner. A change order proposal can be issued by either the contractor or the owner. The change

order proposal becomes a change order only after it has been approved and effected by the Contractor and Owner.

**Change Order Request** A written document issued by the owner requesting an adjustment to the contract sum or an extension of the contract time; generally issued by the architect or owners representative.

**Codes** Prevailing regulations, ordinances or statutory requirements set forth by governmental agencies associated with building construction practices and owner occupancy, adopted and administered for the protection of public health, life safety and welfare. (See Building Code)

**Construction Documents** All drawings, specifications and addenda associated with a specific construction project.

**Construct** To assemble and combine construction materials and methods to make a structure.

**Construction** The act or process of constructing.

**Construction Cost** (1) The direct contractor costs for labor, material, equipment, and services; contractors overhead and profit; and other direct construction costs. Construction cost does not include the compensation paid to the architect and engineer and consultants, the cost of the land, rights-of-way or other costs which are defined in the contract documents as being the responsibility of the owner. (See Soft Costs)

**Construction Documents** A term used to represent all drawings, specifications, addenda, and other pertinent construction information associated with the construction of a specific project.

**Construction Documents Phase** The third phase of the architect's basic services wherein the architect prepares working drawings, specifications and bidding information. Depending on the architect's scope of services the architect may assist the owner in the preparation of bidding forms, the conditions of the contract and the form of agreement between the owner and contractor.

**Construction Document Review** The owners review of the borrowers construction documents (plans and specifications), list of materials, and cost breakdowns for the purpose of confirming that these documents and estimates are feasible and are in accordance with the proposed loan or project appraisal.

**Construction Inspector (see Project Representative)**

**Construction Management** Organizing and directing men, materials, and equipment to accomplish the purpose of the designer.

**Construction Management Contract** A written agreement wherein responsibilities for coordination and accomplishment of overall project planning, design and construction are given to a construction management firm. The building team generally consists of the owner, contractor and designer or architect.

**Construction Phase** The fifth and final phase of the architect's basic services, which includes the architect's general administration of the construction contract(s).

**Consultant** One hired by the owner or client to give professional advice.

**Cost Breakdown (see Schedule of Values)**

**Cost Codes** A numbering system given to specific kinds of work for the purpose of organizing the cost control process of a specific project.

**Cost of Work** All costs incurred by the contractor in the proper performance of the work required by the plans and specifications for a specific project.

**Cost Plus Contract** (see Cost Plus Fee Agreement)

**Cost Plus Fee Agreement (Cost-Plus)** A written agreement with the owner under which the contractor or the architect and engineer is reimbursed for his/her direct and indirect costs and, in addition, is paid a fee for his services. The fee is usually stated as a stipulated sum or as a percentage of cost.

**Contract** (1) An agreement between two or more parties, especially one that is written and enforceable by law (2) The writing or document containing such an agreement.

**Contract Administration** The contractual duties and responsibilities of the architect and engineer during the construction phase of a specific project.

**Contract Bond** A written form of security from a surety company, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing complete execution of the contract and all supplemental agreements pertaining thereto and for the payment of all legal debts pertaining to the construction of the project.

**Contract Date (see date of agreement)**

**Contract Documents** A term used to represent all executed agreements between the owner and contractor; any general, supplementary or other contract conditions; the drawings and specifications; all addenda issued prior to execution of the contract; and any other items specifically stipulated as being included in the contract documents.

**Contract Over-run (under-run)** The difference between the original contract price and the final completed cost including all adjustments by approved change order.

**Contract Payment Bond** A written form of security from a surety company to the owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing payment to all persons providing labor, materials, equipment, or services in accordance with the contract.

**Contract Performance Bond** A written form of security from a surety company to the owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing the completion of the work in accordance with the terms of the contract.

**Contract Period** The elapsed number of working days or calendar days from the specified date of commencing work to the specified date of completion, as specified in the contract.

**Contract Sum** The total agreeable amount payable by the owner to the contractor for the performance of the work under the contract documents. (see Change Order)

**Contract Time** The time period set forth established in the contract documents for completing a specific project; usually stated in working days or calendar days. The contract time can only be adjusted by valid time extensions through change order.

**Contractual Liability** The liability assumed by a party under a contract.

**Contractor** A properly licensed individual or company that agrees to furnish labor, materials, equipment and associated services to perform the work as specified for a specified price.

**Contractor's Option** A written provision in the contract documents giving the contractor the option of selecting certain specified materials, methods or systems without changing in the contract sum.

**Contractor's Qualification Statement** A written statement of the Contractor's experience and qualifications submitted to the Owner during the contractor selection process. The American Institute of Architects publishes a standard Contractor's Qualification Statement form for this purpose.

**Contracting Officer** An official representative of the owner with specific authority to act in his behalf in connection with a specific project.

**Critical Path** The set of activities that must be completed on time for the project completion date to be met. Activities on the critical path have no slack time.

**Critical Path Method (C.P.M.)** A planning scheduling and control line and symbol diagram drawn to show the respective tasks and activities involved in constructing a specific project.

**CSI** Construction Specification Institute

**CSI Master Format** The CSI Master Format is a system of numbers and titles for organizing construction information into a regular, standard order or sequence. By establishing a master list of titles and numbers Master Format promotes standardization and thereby facilitates the retrieval of information and improves construction communication. It provides a uniform system for organizing information in project manuals, for organizing project cost data, and for filing product information and other technical data.

**Currant Date Line** A vertical line on the chart indicating the currant date.

**Daily Construction Report** A written document and record that has two main purposes: (1) they furnish information to off-site persons who need and have a right to know important details of events as they occur daily and hourly, and (2) they furnish historical documentation that might later have a legal bearing in cases of disputes. Daily reports should be as factual and impersonal as possible, free from the expression of personal opinions and feelings. Each report should be numbered to correspond with the working days established on the progress schedule. In the event of no-work days, a daily report should still be made, stating "no work today" (due to rain, strike, or other causes). The report includes a description of the weather; a record of the total number of employees, subcontractors by name, work started and completed today, equipment on the job site, job progress today, names and titles of visitors, accidents and/or safety meetings, and a remarks column for other job related information.

**Date of Agreement** (1) Usually on the front page of the agreement (2) If not on front page it may be the date opposite the signatures when the agreement was actually signed (3) or when it was recorded (4) or the date the agreement was actually awarded to the contractor.

**Date of Commencement of the Work** The date established in a written notice to proceed from the owner to the contractor.

**Date of Substantial Completion** The date certified by the architect when the work or a designated portion thereof is sufficiently complete, in accordance with the contract documents, so the owner may occupy the work or designated portion thereof for the use for which it is intended.

**Demising Walls** The boundaries that separate your space from your neighbors' and from the public corridor.

**Design** A graphical representation consisting of plan views, interior and exterior elevations, sections, and other drawings and details to depict the goal or purpose for a building or other structure.

**Design-Build Construction** When a Prime or Main contractor bids or negotiates to provide Design and Construction services for the entire construction project.

**Design-Construct Contract** A written agreement between and contractor and owner wherein the contractor agrees to provide both design and construction services.

**Design-Development Phase** The second phase of the architect's basic services wherein the architect prepares drawings and other presentation documents to fix and describe the size and character of the entire project as to architectural, structural, mechanical and electrical systems, materials and other essentials as may be appropriate; and prepares a statement of probable construction cost.

**Detail** (1) An individual part or item (2) A graphical scale representation (drawing at a larger scale) of construction part(s) or item(s) showing materials, composition and dimensions.

**Direct Cost (or expense)** All items of expense directly incurred by or attributable to a specific project, assignment or task. Direct Costs, Hard Costs, and Construction Costs are synonymous. (See Construction Costs and Hard Costs)

**Drawings** (1) A term used to represent that portion of the contract documents that graphically illustrates the design, location and dimensions of the components and elements contained in a specific project (2) A line drawing.

**Duration** The length of an activity, excluding holidays and other non-working days.

**Engineer** (see Professional Engineer)

**Estimate** (1) To calculate approximately the amount, extent or value of something (2) To form an opinion of estimated costs.

**Estimate of Construction Cost, Detailed** A calculation of costs prepared on the basis of a detailed analysis of materials and labor for all items of work, as contrasted with an estimate based on current area, volume or similar unit costs. \*195

**Estimating** A process of calculating the amount of material, labor and equipment required for a given project necessary to complete the work as specified.

**Fast Track Construction (Fast Tracking)** A method of construction management, which involves a continuous design-construction operation. When a prime or main contractor starts the construction work BEFORE the plans and specifications are complete. (See Design-Build Construction)

**Field Order** A written order effecting a minor change or clarification in the work not involving an adjustment to the contract sum or an extension of the contract time.

**Field Report** (see Daily Construction Report)

**Field Work Order** A written request to a subcontractor or vendor, usually from the general or main contractor, site for services or materials.

**Final Acceptance** The action of the owner accepting the work from the contractor when the owner deems the work completed in accordance with the contract requirements. Final acceptance is confirmed by the owner when making the final payment to the contractor.

**Final Inspection** A final site review of the project by the contractor, owner or owner's authorized representative prior to issuing the final certificate for payment.

**Final Payment** The last payment from the owner to the contractor of the entire unpaid balance of the contract sum as adjusted by any approved change orders. (see Final Acceptance)

**Finish Date** The date that an activity or project is completed.

**Fixed Fee** A set contract amount for all labor, materials, equipment and services; and contractors overhead and profit for all work being performed for a specific scope of work.

**Fixed Limit of Construction Costs** A construction cost ceiling agreed to between the owner and architect or engineer for designing a specific project. (See Budget)

**FF&E** (1) An abbreviation for furniture, fixtures and equipment (2) Items classified as personal property rather than real property (3) An abbreviation generally associated with interior design and planning of retail stores or office facilities.

**Gantt Chart** The schedule of activities for a project. A Gantt Chart shows start and finish dates, critical and non-critical activities, slack time, and predecessor relationships.

**General Conditions** A written portion of the contract documents set forth by the owner stipulating the contractor's minimum acceptable performance requirements including the rights, responsibilities and relationships of the parties involved in the performance of the contract. General conditions are usually included in the book of specifications but are sometimes found in the architectural drawings.

**General Contractor** Properly licensed individual or company having primary (prime) responsibility for the work.

**General Contracting (the traditional method)** When a prime or main contractor bids the entire work AFTER the final design, plans and specifications are complete and have been approved by the owner. (See Design-Build Construction and Fast Track Construction)

**Hard Costs (see Construction Costs and Direct Costs)**

**Independent Contractor** One free from the influence, guidance, or control of another or others and does not owe a "fiduciary duty". Example: architect, engineer, prime or main contractor, construction manager at-risk.

**Improvements** (1) A term sometimes used to describe TI'S or Tenant Improvements. (2) Improvements can be in the form of new construction or remodel work. (see TI'S)

**Indemnification** (1) The act of indemnifying. (2) The condition of being indemnified.

**Indirect Cost (or expense)** A contractor's or consultant's overhead expense; expenses indirectly incurred and not chargeable to a specific project or task. The terms Indirect costs and soft costs are synonymous. (See Soft Costs)

**Inspection** (1) The act of inspecting. (2) An official examination or review of the work completed or in progress to determine its compliance with contract requirements.

**Inspection List (punch list)** A list prepared by the owner or his/her authorized representative of items of work requiring immediate corrective or completion action by the contractor.

**Inspection Report** Sometimes used to describe an *Inspection List*. (see Inspection List)

**Inspector** One who is appointed or employed to inspect something.

**Interior Finish** A term used to represent the visible elements, materials and applications applied to a building's interior excluding furniture, fixtures and equipment. (See FF&E)

**Invoice** A list sent to a purchaser containing the items and charges of merchandise. (See Statement)

**Labor and Material Payment Bond** (1) A written form of security from a surety (bonding) company to the owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing payment to the owner in the event the contractor fails to pay for all labor, materials, equipment, or services in accordance with the contract. (see Performance Bond and Surety Bond)

**Leasehold Improvements** A term used to mean *Tenant Improvements*. Generally, this term is used when building in retail stores as contrasted with the term *Tenant Improvements* which are generally associated with office buildings. The terms are often used interchangeably. (See TI'S)

**Lien, Mechanic's or Material** The right to take and hold or sell an owner's property to satisfy unpaid debts to a qualified contractor for labor, materials, equipment or services to improve the property. (See Preliminary Lien Notice)

**Lien Release** A written document from the contractor to the owner that releases the Lien, Mechanic's or Material following it's satisfaction.

**Lien Waiver** (1) A written document from a contractor, subcontractor, material supplier or other construction professional(s), having lien rights against an owner's property, relinquishes all or part of those rights. (2) Lien waivers are generally used for processing progress payments to prime or main or subcontractors as follows: Conditional Lien Waiver, Unconditional Lien Waiver, and Final Lien Waiver.

**Lump Sum Agreement** (See Stipulated Sum Agreement)

**Lump Sum Bid** A single entry amount to cover all labor, equipment, materials, services, and overhead and profit for completing the construction of a variety of unspecified items of work without the benefit of a cost breakdown.

**Lump Sum Contract** A written contract between the owner and contractor wherein the owner agrees to pay the contractor a specified sum of money for completing a scope of work consisting of a variety of unspecified items or work.

**Meeting Attendance Form** A form consisting of three columns (individuals name, individuals title, and company the individual represents). This form is given to all persons attending any meeting. Each person attending the meeting will fill in their respective information. The date of the meeting should be included for reference.

**Meeting Notes** A written report consisting of a project number, project name, meeting date and time, meeting place, meeting subject, a list of persons attending, and a list of actions taken and/or discussed during the meeting. Generally, this report is distributed to all persons attending the meeting and any other person having an interest in the meeting.

**Milestone** An activity with a duration of zero (0) and by which progress of the project is measured. A milestone is an informational marker only; it does not affect scheduling.

**Owner** (1) An individual or corporation that owns a real property.

**Owner-Architect Agreement** A written form of contract between architect and client for professional architectural services.

**Owner-Builder** A term used to describe an *Owner* who takes on the responsibilities of the general contractor to build a specific project.

**Owner-Construction Agreement** Contract between owner and contractor for a construction project.

**Owner-Construction Management Agreement** Contract between construction manager and client for professional services.

**Performance Bond** (1) A written form of security from a surety (bonding) company to the owner, on behalf of an acceptable prime or main contractor or subcontractor, guaranteeing payment to the owner in the event the contractor fails to perform all labor, materials, equipment, or services in accordance with the contract. (2) The surety companies generally reserve the right to have the original prime or main or subcontractor remedy any claims before paying on the bond or hiring other contractors. (See Labor and Material Payment Bond and Surety Bond)

**Performance Specifications** The written material containing the minimum acceptable standards and actions, as may be necessary to complete a project. Including the minimum acceptable quality standards and aesthetic values expected upon completion of the project.

**PERT** An abbreviation for Program Evaluating and Review Technique. (See Activity; Critical Path Method)

**PERT Schedule** A diagram that illustrates, charts and reports a projects estimated start and completion times; and work in progress.

**Plan** (1) A line drawing (by floor) representing the horizontal geometrical section of the walls of a building. The section (a horizontal plane) is taken at an elevation to include the relative positions of the walls, partitions, windows, doors, chimneys, columns, pilasters, etc. (2) A plan can be thought of as cutting a horizontal section through a building at an eye level elevation.

**Plan Checker** A term sometimes used to describe a building department official who examines the building permit documents.

**Planner** A person who forms a scheme or method for doing something; an arrangement of means or steps for the attainment of some object; a scheme, method, design; a mode of action.

**Plans** A term used to represent all drawings including sections and details; and any supplemental drawings for complete execution of a specific project.

**Pre-Construction Planning and Team Building** A process used for the purpose of establishing below market dollar budget(s), overall project scheduling and design criteria; also identification and selection of the most feasible planning, design and construction team.

**Predecessor** An activity that must be completed before another activity can begin.

**Preliminary Drawings** (1) The drawings that precede the final approved drawings. (2) Usually these drawings are stamped or titled "PRELIMINARY"; and the "PRELIMINARY" is removed from the drawings upon being reviewed and approved by the owner.

**Preliminary Lien Notice** A written notice given to the property owner of a specific project by the subcontractors and any person or company furnishing services, equipment or materials to that project. The notice states if bills are not paid in full for the labor, services, equipment, or materials furnished or to be furnished, a mechanic's lien leading to the loss, through court foreclosure proceedings, of all or part of the property being so improved may be placed against the property even through the owner has paid the prime contractor in full. The notice explains how the owner can protect himself against this consequence by (1) requiring the prime contractor to furnish a signed release by the person or firm thus giving the owner notice before making payment to the prime contractor or (2) any other method or device which is appropriate under the circumstances. The state of California mandates that a *Preliminary Lien Notice* must be given to the property owner not more than 20 days after starting the work on the specific project.

**Pre-qualification of prospective bidders** A screening process wherein the owner or his/her appointed representative gathers background information from a contractor or construction professional for selection purposes. Qualifying considerations include competence, integrity, dependability, responsiveness, bonding rate, bonding capacity, work on hand, similar project experience, and other specific owner requirements.

**Prime Contract** A written contract directly between a prime or main contractor or subcontractor for work on a specific project.

**Prime Contractor** (1) Any contractor having a contract directly with the owner. (2) Usually the main (general) contractor for a specific project.

**Principal** (1) The leading participant of professional practice.

**Professional Engineer** One who is professionally engaged in a branch of engineering.

**Program** An ordered list of events to take place or procedures to be followed for a specific project.

**Progress Payment** A payment from the owner to the contractor determined by calculating the difference between the completed work and materials stored and a predetermined schedule of values or unit costs. (See Schedule of values; Unit Costs).

**Progress Schedule** A line diagram showing proposed and actual starting and completion times the respective project activities. (See Activity)

**Project** A word used to represent the overall scope of work being performed to complete a specific construction job.

**Project Cost** All costs for a specific project including costs for land, professionals, construction, furnishings, fixtures, equipment, financing and any other project related costs.

**Project Directory** A written list of all parties connected with a specific project. The list usually includes a classification or description of the party (i.e., Owner, Architect, Attorney, General Contractor, Civil Engineer, Structural Engineer, etc.); name, address, telephone and FAX numbers opposite their respective classifications or description. It is particularly important that the emergency or after hour telephone numbers are included. These numbers should be kept confidential if requested by the respective parties.

**Project Manager** A qualified individual or firm authorized by the owner to be responsible for coordinating time, equipment, money, tasks and people for all or specified portions of a specific project. (see Construction Manager)

**Project Manual** A organized book setting forth the bidding requirements, conditions of the contract and the technical work specifications for a specific project. (See Specifications)

**Project Representative** A qualified individual authorized by the owner to assist in the administration of a specific construction contract.

**Project Site** (see Site)

**Proposal** A written offer from a bidder to the owner, preferably on a prescribed proposal form, to perform the work and to furnish all labor, materials, equipment and/or services for the prices and terms quoted by the bidder. (See Bid)

**Proposal Form** (See Bid Form)

**Purchase Order** A written document from a buyer to a seller to purchase materials, services, equipment or supplies with acceptable purchase terms indicated.

**Punch List** (See Inspection List)

**Qualified** An individual or firm with a recognized degree, certificate, or professional standing; or who by extensive knowledge, training and experience, has successfully demonstrated his/her abilities to identify and solve or resolve problems associated with a specific subject matter or project type.

**Record Drawings** (See As-Built Drawings)

**Release of Lien** A written action properly executed by and individual or firm supplying labor, materials or professional services on a project which releases his mechanic's lien against the project property. (See Mechanic's Lien)

**Reimbursable Expenses (or Costs)** Amounts expended for or on account of the project, which in accordance with the terms of the appropriate agreement, are to be reimbursed by the owner.

**Resident Architect** An architect permanently assigned at a job site who supervises the construction work for the purpose of protecting the owner's interests during construction.

**Resident Engineer (inspector)** An individual permanently assigned at a job site for the purpose of representing the owner's interests during the construction phase. (See Owner's Inspector)

**R.F.I.** (1) An abbreviation for Request for Information. (2) A written request from a contractor to the owner or architect for clarification or information about the contract documents following contract award.

**Roll Out** A loose term used to describe the rapid succession (completion) of similar projects over a given time period.

**Safety Report** The Occupational Safety and Health Act of 1970 clearly states the common goal of safe and healthful working conditions. A Safety Report is prepared following a regularly scheduled project safety inspection of the specific project.

**Schedule** A plan for performing work or achieving an objective.

**Schedule of Values** A statement furnished by the contractor to the architect or engineer reflecting the portions of the contract sum allotted for the various parts of the work and used as the basis for reviewing the contractor's applications for progress payments. \*455

**Schematic** A preliminary sketch or diagram representing the proposed intent of the designer.

**Schematic Design Phase** The first phase of the architect's basic services in which the architect consults with the owner to ascertain the requirements of the project and prepares schematic design studies consisting of drawings and other documents showing the scale and project components for the owner's approval.

**Scheme** (1) A chart, a diagram, or an outline of a system being proposed (2) An orderly combination of related construction systems and components for a specific project or purpose.

**Scope of Work** A written range of view or action; outlook; hence, room for the exercise of faculties or function; capacity for achievement; all in connection with a designated project. (See Performance Specifications)

**Slack Time** The flexibility with non-critical jobs that allows their start dates to be adjusted without affecting the project completion date.

**Site** The place where a structure or group of structures was, or is to be located (a construction site).

**Soft Costs** Soft Costs are cost items in addition to the direct Construction Cost. Soft Costs generally include architectural and engineering, legal, permits and fees, financing fees, construction Interest and operating expenses, leasing and real estate commissions, advertising and promotion, and supervision. (See Construction Cost)

**Specifications** A detailed, exact statement of particulars, especially statements prescribing materials and methods; and quality of work for a specific project. The most common arrangement for specifications substantially parallels the CSI (Construction Specification Institute) format. (See CSI)

**Special Conditions** A section of the conditions of the contract, other than the General Conditions and Supplementary Conditions, which may be prepared for a particular project. Specific clauses setting forth conditions or requirements peculiar to the project under consideration, and covering work or materials involved in the proposal and estimate, but not satisfactorily covered by the General Conditions. (See General Conditions)

**Standard Details** A drawing or illustration sufficiently complete and detailed for use on other projects with minimum or no changes.

**Standard Dimension** A measurement unique to a specific manufactured item.

**Standards of Professional Practice** A listing of minimum acceptable ethical principals and practices adopted by qualified and recognized professional organizations to guide their members in the conduct of specific professional practice.

**Start Date** The date that an activity or project begins.

**Statement** A copy or summary of any account covering a stated period. (See Invoice)

**Statute of Limitations** The period of time in which legal action must be brought for an alleged damage or injury. The period commences with the discovery of the alleged damage or injury; or in construction industry cases with completion of the work or services performed. Legal advice should be obtained.

**Stipulated Sum Agreement** A written agreement in which a specific amount is set forth as the total payment for completing the contract. (See Lump Sum Contract)

**Structural Design** A term used to represent the proportioning of structural members to carry loads in a building structure.

**Structural Systems (frames)** The load bearing assembly of beams and columns on a foundation. The beams and columns are generally fabricated off site and assembled on site. Other systems such as non-load bearing walls, floors, ceilings and roofs are generally constructed within and on the structural system.

**Structure** (1) Something constructed (2) A building put together based on specific plans and specifications.

**Sub** An abbreviation for Subcontractor.

**Subcontract** A written form of agreement between the prime or main contractor and another contractor or supplier for the satisfactory performance of services or delivery of material as set forth in the plans and specifications for a specific project.

**Subcontractor** A qualified subordinate contractor to the prime or main contractor.

**Subcontractor Bond** A written document from a subcontractor given to the prime or main contractor by the subcontractor guaranteeing performance of his/her contract and payment of all labor, materials, equipment and service bills associated with the subcontract agreement.

**Sublet** To subcontract all or a portion of a contracted amount.

**Substantial Completion** (See Date of Substantial Completion)

**Substitution** A proposed replacement or alternate offered in lieu of and represented as being equivalent to a specified material or process.

**Substructure** The supporting part of a structure; the foundation.

**Sub-subcontractor** An individual or firm having a written contract with a subcontractor to perform a portion of the work.

**Sub-surface Investigation** (1) A term used to represent an examination of soil conditions below the ground. (2) Investigations include soil borings and geotechnical laboratory tests for structural design purposes.

**Successor** (1) One that succeeds another (2) A scheduled activity whose start depends on the completion of one or more predecessors.

**Superstructure** The part of a building or other structure above the foundation.

**Supervision** (1) The act, process, or function of supervising construction materials, methods and processes for a specific project (2) Hands on field direction of the contracted work by a qualified individual of the contractor.

**Supplemental Conditions** (See Supplementary Conditions)

**Supplementary Conditions** A written section of the contract documents supplementing and qualifying or modifying the contracts general conditions. (See Conditions of the Contract)

**Supplier** An individual or firm who supplies and/or fabricates materials or equipment for a specific portion of a construction project but does not perform any labor on the project. (See Vendor)

**Surety** (see Bonding Company)

**T&M** (1) An abbreviation for a contracting method called Time and Materials (2) A written agreement between the owner and the contractor wherein payment is based on the contractor's actual cost for labor, equipment, materials, and services plus a fixed add-on amount to cover the contractor's overhead and profit.

**Tenant's Rentable Square Feet** Usable square feet plus a percentage (the core factor) of the common areas on the floor, including hallways, bathrooms and telephone closets, and some main lobbies. Rentable square footage is the number on which a tenant's rent is usually based.

**Tenant's Usable Square Feet** The square footage contained within the demising walls. (See Demising Walls)

**TI'S (Tenant Improvements)** TI'S is a term used to define the interior improvements of the project after the Building Envelope is complete. TI'S usually include finish floor coverings; ceilings; partitions; doors, frames, hardware; fire protection; HVAC consisting of branch distribution duct work, control boxes, and registers; electrical consisting of lighting, switches, power outlets, phone/data outlets, exit and energy lighting; window coverings; general conditions; and the general contractor's fee. The cost of tenant improvements are generally born by the tenant and the costs of tenant improvements will vary with every building, and with tenant requirements. (See Work Letter)

**Time (as time of the essence associated with a construction contract)** A provision in a construction contract by the owner that punctual completion within the time limits or periods in the contract is a vital part of the contract performance and that failure to perform on time is a breach and the injured party is entitled to damages in the amount of loss sustained.

**Time-and-a-half** A term meaning any individuals normal billing hourly rate is increased by a multiple of 1.5 following predetermined normal working hours.

**Timely Completion** Completing the work of the contract before the date required.

**Time of Completion** The date or number of calendar or working days stated in the contract to substantially complete the work for a specific project. (See Date of Substantial Completion)

**Transmittal** A written document used to identify information being sent to a receiving party. The transmittal is usually the cover sheet for the information being sent and includes the name, telephone/FAX number and address of the sending and receiving

parties. The sender may include a message or instructions in the transmittal. It is also important to include the names of other parties the information is being sent to on the transmittal form.

**Travel Time Wages** Wages paid to workmen under certain union contracts and under certain job conditions for the time spent in traveling from their place of residence to and from the job.

**Underwriter's Laboratories Label (UL)** A label on a product or manufactured item showing the material is regularly tested by, and complies with the minimum standards of the Underwriter's Laboratories specification for safety and quality.

**U.B.C. (Uniform Building Code)** The Uniform Building Code is one of the family of codes and related publications published by the International Conference of Building Officials (ICBO) and other organizations, such as the International Association of Plumbing and Mechanical Officials (IAPMO) and the National Fire Protection Association (NFPA), which have similar goals as far as code publications are concerned. The Uniform Building Code is designed to be compatible with these other codes, as together they make up the enforcement tools of a jurisdiction.

**Uniform System** (See CSI Format)

**Unit Price Contract** A written contract wherein the owner agrees to pay the contractor a specified amount of money for each unit of work successfully completed as set forth in the contract.

**Unit Prices** A predetermined price for a measurement or quantity of work to be performed within a specific contract. The designated unit price would include all labor materials, equipment or services associated with the measurement or quantity established.

**Verbal Quotation** A written document used by the contractor to receive a subcontract or material cost proposal over the telephone prior to the subcontractor or supplier sending their written proposal via mail or facsimile.

**Vendor** One that sells materials or equipment not fabricated to a special design.

**Work** The successful performance of the entire scope of the project being performed for a specific construction project including labor, materials, equipment, and other associated items necessary to fulfill all obligations under the contract.

**Working Drawing** A drawing sufficiently complete with plan and section views, dimensions, details, and notes so that whatever is shown can be constructed and/or replicated without instructions but subject to clarifications. (See Drawings)

**Work Order** A written order, signed by the owner or his representative, of a contractual status requiring performance by the contractor without negotiation of any sort.

**Work Letter** A written statement (often called Exhibit B to a lease or rental agreement) of the specific materials and quantities the owner will provide at his own expense. The work letter defines the building standards, including the type of ceiling, the type and number of light fixtures, the size and construction of the suite-entry and interior doors. Building standards define the quality of tenant spaces. Generally, a Work Letter is associated with the leasing or renting of office space by a tenant within a Building Envelope. (See TIS and Building Envelope)

**Zoning** Restrictions of areas or regions of land within specific geographical areas based on permitted building size, character, and uses as established by governing urban authorities.

**Zoning Permit** A document issued by a governing urban authority permitting land to be used for a specific purpose.

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