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## Chapter 1

# General Scheduling

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*A project has a definite life span described by the contract. Many different temporary activities go on during this life span.*

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Project scheduling enables you to manage the time and the flow of production. With a well organized project schedule you can manage the internal activities of a construction project as well as transition periods between projects.

Proper scheduling keeps life sane for the general contractor and the specialty contractor. It is the best way to keep both personal life and business activities manageable. A chaotic business life negatively affects your personal life.

Scheduling is a balancing act that allows you to attain enough contracts to ensure year round work and still avoid having too much to do.

### **Over-commitment**

Over-commitment can be more damaging to your business's well-being than not having enough work. During slow times, both income and expenses go down. When projects pile up, you may have to break commitments because of scheduling conflicts. That is when your business loses money, just as expenses are peaking.

The danger of a cash shortage is greatest during times of overextension and maximum expense. A cash shortage occurs when the business fails to have the necessary finances to pay bills.

### **Business Image**

The quality of your scheduling affects every aspect of your business's image. Customers, suppliers, and subcontractors can tell how you run your business by the manner in which you maintain the flow of work. Each one wants to know that you can and will do what you say you will do. There is nothing better than a good reputation.

### **Customer's Perspective**

A contractor who has poor scheduling habits rarely has satisfied customers.

A contractor who cannot begin a project on time creates a bad impression that can taint the entire project. Not finishing a project on time because of poor scheduling, which caused delays, is even worse.

Most contractors depend on word-of-mouth advertising along with references from satisfied customers. Bad scheduling is an easy way to destroy a good reputation.

*The journey of ten thousand miles begins with one phone call.*

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### **Supplier's Perspective**

Suppliers want to deliver their materials when you originally call for them. Suppliers often cannot keep items because of lack of storage; they also expect payment on time. If the job has slowed down and payments under the contract terms are delayed to you, the suppliers will still want their money.

### **Subcontractor's Perspective**

Subcontractors will not remain loyal to a general contractor who cannot properly coordinate a project. The general contractor needs to ensure that the project is at the right stage for each of the subcontractors to begin work on time.

It is also the general contractor's responsibility to ensure that subcontractors do not interfere with each other, or interfere with each other's work, while finishing their own part of the project.

## **Master Coordinator**

Scheduling is a coordinating process. The general contractor has to learn to be a master coordinator who effectively blends the schedules of owners, subcontractors, architects, suppliers, bankers, and building inspectors.

While one eye is on the people involved in the contractor's business, the other eye has to focus on the materials needed to finish the project. Special orders have to be arranged well in advance. Timely delivery of materials often dictates the progress of a project.

### **Coordination Through Organization**

Scheduling is a process of organizing production and developing a system for measuring the success of the production process.

A good coordinator is a contractor with an organized scheduling

system. An organized scheduling system evolves from an organized business. If your business is constantly run by the "seat of your pants," it is only a matter of time before chaos (bad scheduling) catches up with you.

An organized contractor develops the framework to produce and maintain an efficient scheduling system for every project.

Beginning with the original estimate and continuing through an organized record keeping system, a contractor has to have the basic means necessary to schedule a construction project.

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*Most trades people do a good job of managing their time while working. However, managing your time and getting others to follow a schedule is a very different situation. As a contractor, you have to look much further ahead and take many more factors into account.*

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## Project Scheduling

Project scheduling includes more than just having the necessary labor, materials, and subcontractors lined up and on the correct project at the right time.

The construction project schedule involves:

- Prompt project completion
- Quality control
- Budget control

A good project plan will include alternative strategies for parts that are difficult or "time critical."

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## Prompt Completion

Good scheduling makes prompt completion more likely and reduces idle or wasted time. The benefits to the general contractor are:

- Keeping your scheduled projects on time
- Keeping your customer happy (the customer could be the owner, the lender or a prospective owner)
- Getting the most out of a building season in terms of volume and profit

## Quality Control

Good scheduling can improve project quality by keeping work flowing. When poor scheduling causes abrupt stops and starts for

employees and subcontractors, project quality suffers. This means:

- Less time for workers to pay attention to detail
- More emphasis on speed
- Greater possibilities for mistakes

## Budget Control

Time equals money. This is a fundamental rule in the construction business. If the project is delayed due to inferior scheduling, it costs you more money to bring the project back on track.

Besides paying overtime to employees and subcontractors, many other factors can increase costs when a project is delayed:

- The cost of supplies and materials can rise.
- If you have ordered the materials but have not completed the project, bills for materials can become due before you can justify billing the owner. Suppliers charge interest on overdue payments.
- Subcontractors cannot wait for you. They may be forced to move on to other projects. The cost of the project increases if you have to use a higher priced subcontractor to replace the one who has moved on.

*You don't want  
\$2.00 parts  
stopping a  
\$70,000 project.*

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## Setting a Realistic Schedule

The first step in developing a project schedule is realism. A realistic schedule is one that is workable and sequential.

A workable schedule is based on a realistic workday, and the actual number of workers involved with the project. Scheduled operations cannot exceed the ability of your workers to accomplish the work.

A sequential schedule is based on the logical order of building or installation work that a particular construction project should follow.



### **Note**

For your convenience, we have inserted at the end of this chapter, a "Residential Construction Outline" of the sequence of events for a typical residential construction project.

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These concepts are basic to any scheduling system. Although these rules may seem obvious, many schedules collapse because of unrealistic work schedules that cause some activity to be scheduled out of sequence.

A schedule made within basic parameters will be more functional. This is a good workable starting point for your own scheduling.

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*Not matter what your trade or how many trades you know, your work speed and quality level of performance is not the same as a trades person you may hire. In all cases you have to predict how they will perform. You have to use their performance levels in your schedule.*

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## Scheduling Basics

There are many formal scheduling systems. An overview of these methods is in Chapter 2: "Dealing with Others on the Project." Regardless of what system or method you use, the initial steps are always the same:

- Break the project down into phases
- Determine how long each phase will take
- Determine the proper construction sequence of these phases

This is the foundation from which even the most elaborate systems are developed. The process becomes more elaborate as the size and complexity of the project increases.

## Basic Tools

You already have various tools available for building a schedule. Many projects already have the following:

- Estimating sheet (see Exhibit 1, p. 19)
- Project specifications document (Exhibit 2, p. 20)
- Proposal and agreement (see Exhibit 3, pp. 21- 23)

These are good indicators for what many of the tasks on your project will involve.

You can't keep trouble from coming, but you needn't give it a chair to sit in.

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## Begin With the Estimating Sheet

The estimating sheet is where the initial task breakdown occurs. It breaks the project into specific phases and items for estimating the direct costs of a project.

Direct costs are related to those materials, labor and subcontract work used on a construction project. Indirect costs include overhead expenses, business profit, and the time a contractor spends coordinating work activities.



### Note

The *Advantage Contractor Business Success Series* course, *Cash and Finance in Construction Contracting*, focuses on pricing systems that separate "direct costs" from "indirect costs."

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A project can move quickly, sometimes very quickly. This is not the case for all projects, however.

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Your scheduling process for a particular project begins with the categories already identified on the estimating sheet.

Your estimate sheet is especially useful if you have designed it so that the *cost* categories are listed in the logical construction sequence. For example:

- Permit process
- Site survey
- Excavation
- Foundation
- Framing; etc.

## Cost vs. Time

Your estimating sheet may not contain enough detail to schedule everything. Some parts may involve certain processes or details that are not listed on a cost estimate.

An example of this is the curing time needed for a concrete foundation before forms can be removed. These activities are easy to overlook when developing a schedule because they are not in the cost estimate.

Scheduling involves a different focus than cost estimating. When figuring the cost of a project, waiting periods are not as crucial as they are with the scheduling process. A prime example of this is waiting for permits. The waiting period for a permit can be from

A schedule done on time will usually be on budget. You get the benefit of both when the project stays on schedule.

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three weeks to three months or longer. However, the monetary cost may be nothing.

## The Construction Contract

Include your construction contract as one of your resources for developing a project schedule. The construction contract will outline important criteria that your project schedule has to meet. Some of these criteria are:

- Start and completion dates for each major project task
- Clauses requiring special protection of the owners' property
- Conditions governing debris removal
- Clauses that will spell out any liquidated damages assessed if the project is not completed on time



### Note

"Liquidated damage" is money that the owner may be entitled to if a project takes longer than promised in the contract.

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## Plans and Specs

Combine the initial project breakdown list from your estimating sheet and any special criteria from your construction contract with the information available from any plans and specifications of the project.

With these resources, continue dividing the project into its ordered parts to determine:

- How much work is required
- How big the crew will be
- How many worker-hours are needed for each task
- How many subcontractors are involved
- How you will schedule the work to best use your crew, equipment, and subcontractors.

## Critical Scheduling Items in the Schedule

Critical items are those materials, supplies, and/or services that have to be ordered or planned well in advance of actual construction

or installation. Critical items include:

- Specialty products with long order periods such as:
  - ◆ Appliances
  - ◆ Cabinets
  - ◆ Doors
  - ◆ Windows
  - ◆ Special moldings
  - ◆ Carpet
  - ◆ Fixtures; etc.
- Subcontractors that require more lead time for a project
- Weather sensitive installations and closures such as:
  - ◆ Roofing applications
  - ◆ Exterior painting procedures
  - ◆ Landscaping

"Have no fear of  
perfection - you'll  
never reach it."  
Salvadore Dali

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*Most changes to your schedule will involve subcontractors and suppliers. If a subcontractor's schedule is altered by another project, or if a supplier gets a back-order on some item, changes have to be made. Your job is to learn of changes as soon as possible.*

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## Crystal Ball

Sometimes knowing when to order and arrange for delivery of critical items is a "tricky" part of scheduling. Contractors often require the equivalent of a crystal ball to pinpoint the exact date a critical item may be needed.

By acknowledging that these items exist and will have to be dealt with in advance, you have already correctly read into the future.

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*A schedule lists events in a timely order, or chronologically. Many times an item has to be dealt with long before it is needed to go into place. Your schedule has to list the date for ordering so the item is ready for installation on time.*

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## Controlling The Process

As a general contractor, you are responsible for the success of a project. You are the captain of the team and often the only one who knows the entire game plan for the project.

While keeping the scope of the project in mind, you also have to pay close attention to all the small details.

### **Small Details**

Ignoring any of the many small details of a project can be a primary cause for delay. The small details that you should pay attention to include:

- The color and style of the roofing material
- The exact manner in which the corners will be trimmed on the siding
- The finish texture on the drywall
- The style and color of doorknobs
- The placement and type of electrical switches and outlets throughout the project

### **Decisions, Decisions, Decisions**

These aesthetic details are important to the scheduling process because each choice of color, texture or style represents a decision the owner and designer both have to make.

The act of ordering certain materials and supplies depends on these cosmetic decisions. As the person with the entire project in mind, it is up to you to anticipate the decision making process and keep the project moving.

### **Details, Details, Details**

When you think of it, a construction project is built on details. Not only are there numerous cosmetic decisions, but each person connected with the project requires unique preparations and decisions to finish their part of the project.

As a general contractor, you need specific details particular to the project from the following parties:

- The architect or designer
- The owner
- Your work crew
- Subcontractors
- Suppliers

This includes, but is not limited to:

- Work item numbers
- Item descriptions

If you wait until you are sure your project will come out perfectly, you are likely to wait a very long time.

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- Units of measurement (cubic yard, square foot, pound, ton, each, etc.)
- Quality of work to be performed (specification standard)
- Relation of each item to the whole in terms of work to be performed (such as percentage of the total work required for each item)
- Units of time used in the schedule (days, hours)
- Starting date
- Time required for each item
- Completion date

## Staying Organized

Staying organized means that you are keeping track of all these details and taking the extra time to write down the decisions for all the details. Keeping the details of a project tightly organized is the only way to guarantee a smooth flowing project. This means you'll have a project that is:

- More efficient
- Likely to be completed on time
- Able to be completed within the budget



### **Note**

You can never be too organized. Organization takes extra time. However, the time you spend organizing is more than repaid the first time you have to track down a detail that you "know you have somewhere." Organization reflects your professionalism.

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*Scheduling should be boring; that is, no surprises. Good routines produce solid schedules.*

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## Progress Reports

Progress reports are a special ingredient in the formula for a successful scheduling system. They are the best way to monitor the progress of the project. A progress report helps a general contractor perform three basic steps in monitoring a project:

- Comparing actual progress against the planned schedule
- Finding the cause of any difference between actual and scheduled progress
- Taking immediate action to either correct, balance, or reschedule activities to stay on, or close to, the original schedule

"You've got to be very careful if you don't know where you're going, because you might not get there."  
Yogi Berra

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### Daily Reports

Some general contractors request daily progress reports from their supervisor or employees and all subcontractors. A daily report provides a continuous, running check on the progress of the project. A daily report is useful to describe work to be done the following workday.

Progress reports help everyone keep up-to-date on their part of the project. As a general contractor, you can keep everyone on the project reporting progress to you through these daily reports.

### Completion Reports

Another popular way to track progress is to monitor production rate. Naturally, this only lends itself well to work that easily shows measurable progress or can be measured by the worker-hour, number of bricks laid, or squares of roofing installed, for example.

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*People in the field know the most about the day-to-day progress and problems of a project. You are not likely to know the most about your projects unless you have way to debrief the field people. The sooner you know about problems, the better.*

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Time standards have been developed for certain construction activities and are found in time estimating books. These books are similar to the ones an auto mechanic would use to price work.

However, construction work is best calculated by the experienced workers and contractors who can keep you up-to-date. Your best long-term strategy is to know for yourself the time it takes to complete most projects. Use the expertise of your subcontractors to estimate the time it takes to complete those parts of the project that you are unfamiliar with.

Actual worker-hour totals can be compared against your estimates. Keep records of project time totals for your own use in scheduling. Tailor a method that enables you to collect enough information to catch problems early, but does not make reporting information an obstacle.

### Anticipate Problems

Anticipate problems that may affect the project such as:

- Adverse weather conditions

- Vacations for employees and subcontractors
- Specific deadlines of owners or suppliers
- Unusually difficult aspects of the project for workers

<b>Project Control Element</b>	<b>What Might Go Wrong?</b>	<b>How and When Will I Know?</b>	<b>What Can Be Done About It?</b>
<b>Project Time Line</b>	<b>1. Weather Delay</b> <b>2. Roofing Sub</b>	<b>Watch Weather Report</b>  <b>Confirm When Available</b>	<b>Prepare For Cover</b>  <b>Dry-in Roof Ourselves</b>
<b>Project Budget Amount</b>	<b>Finish Labor on Staircase</b>	<b>When Finish Carpenter Makes Firm Bid After Rough Finish</b>	<b>Negotiate to Hold to First Estimate</b>
<b>Project Quality Issue</b>	<b>Drywall on Tallwall and Vaulted Ceiling</b>	<b>When Sun Shines Through Skylights on Finished Joists</b>	<b>Talk to Drywall Sub About Joints on Wall and Ceiling</b>

### Alternatives

Sometimes, no matter how well you plan, schedule, and monitor, delays come up. In this case, the schedule may have to be pushed back.

When the schedule requires major adjustment, be certain that all those affected are informed promptly with a written progress report.

Notify all the affected parties, such as owners, subcontractors, architects, suppliers, loan institutions, and the owners of the next construction project, that you are experiencing a delay.

### Dispute Resolution

Schedule conflicts with owners and subcontractors may arise when drastic, or even moderate changes are necessary in a project. It is important to develop good negotiation skills to resolve these conflicts.

"Experience is the name everyone gives to their mistakes."  
Oscar Wilde

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## Residential Construction Outline

This section contains a general construction flow outline. Not all residential projects necessarily proceed in the same sequence. In addition, this outline is not detailed enough to be a Project Breakdown and Duration Checklist as described in Chapter 3: "Scheduling Systems."

This outline can, and should be used as a reference when you formulate a checklist and set up a schedule for residential projects.

### Preliminary Work

- Obtain the necessary building permits. Do not start construction without them.
- Site mapping. Locate and mark any items on the site for which special care will be required. This could include the following items:
  - ◆ Underground utilities such as:
    - Sewer lines
    - Electrical lines
    - Irrigation lines
  - ◆ Trees and vegetation that have to be preserved.
- Contact the servicing power company to install a temporary powerpole and hook up the electricity. If this is not to be done, make other arrangements for electricity for your power tools.
- Arrange for water hook up, temporary or otherwise. This means contacting the plumber and coordinating with public utilities. Permanent water hook up is not done until after foundation walls are constructed.
- Construct a shed to store tools and equipment.

### Construction Process

- Begin transit work and project layout. This can include setting up batter boards, stakes, and strings.
- Begin excavation by removing topsoil you can save for later use. The excavator prepares the site according to

the plans and the transit layout. Included in this process is:

- ◆ Preparing footing trenches.
- ◆ Excavating the basement if required.
- ◆ Completing other trenchwork, including drainlines, sewer/waste water management, etc.

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*Payment schedules equal project schedules. If the project schedule is on time, payments can be on time. If payments slow or come to a stop because of delays in the project, cash flow can suffer greatly. Slow cash flow is one of a contractor's greatest causes of failure.*

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- Complete form work and steel reinforcement work. This may happen in stages or as one large production. This depends on whether the footings and stem-walls are going to be laid separately or as a monolithic pour.

**Inspection:** Check forms before pouring concrete.

- Footings and foundation walls are completed by the concrete contractor.
- Proper curing time has to be allowed before forms are removed and other construction begins.
- The plumber and electrician have to install any subsoil pipe lines and/or conduit.
- Draintile (perforated pipe) is installed around footings.
- Drainpipes have to be laid to handle water from gutters.

How can I make scheduling "brainless"? How can scheduling become routine enough that those involved can follow routines without "remembering".

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*More and more suppliers are being forced to set firm delivery schedules so that materials and supplies are at the project site on time and as needed. Find out what a supplier can do about delivery on all your orders.*

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**Inspection:** Underground installations such as pipelines, draintile, and conduit have to be inspected before backfilling.

- Any waterproofing of the exterior of the foundation walls has to be done before backfilling occurs.
- Backfilling around the foundation is now possible. However, the decision to do it now or after framing is up to the contractor.

There is often a need for access to the subsurface area around the footings (maybe another waterline needs to be run). For this and

other reasons it is not always desirable to backfill at such an early date.

If backfilling is delayed until after framing, the workers have to contend with working around excavation piles. This means walking across planks, and setting ladders and scaffolds from within the foundation trench. Risk of injury is greatly increased when having to work around such obstacles.

In addition, working under these conditions (especially in wet weather) increases the time to complete framing and other activities.

- Start floor framing.
- Install any "rough" plumbing, electrical, and mechanical work.

**Inspection:** Check plumbing, electrical, and mechanical work before covering up.

**Clean-up:** Schedule a general underfloor cleanup.

- Install underfloor insulation. (Assuming, a wood frame floor.)

**Inspection:** Check insulation and floor framing before covering with subflooring.

- Frame the wall, ceiling, and roof. Be sure to schedule time for straightening and bracing walls before ceiling joists and trusses are installed.
- Build chimney and fireplace after rough framing has been completed.
- Rough-in plumbing, electrical, and mechanical work can occur as soon as basic "dry-in" has been accomplished, (the roofing felt or actual roofing has been applied.)
- Frame exterior doors, windows, and do other special framing during rough-in work.

**Inspection:** Check all rough-in work and framing before covering up with drywall or anything else.

**Clean-up:** Schedule a clean-up.

- Install insulation.

*A happy customer is an informed customer, even when things are going bad.*

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**Inspection:** Check wall and attic insulation before covering.

- Drywall or plaster contractor installs wallboard. Schedule time to apply heat ventilation to dry out the structure. This is especially true if:
  - ◆ Nails are used instead of screws to hang wall board
  - ◆ Green, instead of kiln-dried lumber is used for walls and ceilings
  - ◆ There has been wet weather

If it weren't for the last minute a lot less would get done.

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*In many cases a permit may not be required. Repairs and replacements of roofing, siding, windows, painting and floorcovering are some examples. Remember that you could lose valuable legal rights if work is done without a permit, when required, and there is a problem.*

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**Clean-up:** Plastering is messy business. This is a good time to schedule a cleanup.

**Inspection:** The installation of wall (and ceiling) board will have to be inspected prior to applying "mud."

- Continue exterior carpentry during the drying and plastering process.
- If a basement exists, complete the concrete basement floor before interior finish work.

**Clean-up:** Clean up scraps made during exterior carpentry.

- Painters apply primary and base coat where feasible after drywall or plaster has fully dried, (The painter may have already moved in to pre-paint items such as windows and doors.)
- Complete the interior. The sequence of the interior work activities is typically in the following order:
  - ◆ Underlayment
  - ◆ Unfinished wood flooring
  - ◆ Interior door frames are hung
  - ◆ Wood paneling
  - ◆ Cabinets
  - ◆ Interior trim, including door and window trim, and most other trim work

**Note**

Baseboard and base shoe may be held off until applying finish flooring. Typically, baseboard is applied before carpeting. However, the need to do painting touch-up should be expected.

Project scheduling is a key part of construction management. It can also be considered part of the company administration or doing your "contractor work".

- Painters are typically on the project on a regular basis at this point. Weather permitting, they can be doing outside work while inside carpentry is happening. They could also be pre-finishing interior trim before it is applied.
- Complete tile work at this time. Decide exactly when this work should be scheduled. For example, tile work in a bath could be the last activity. However, paint jobs on walls and cabinets are subject to damage. If the tile work is scheduled first, schedule time for proper curing.
- Finish electrical work, such as:
  - ◆ Installing final switches and outlets
  - ◆ Installing cover plates
  - ◆ Hanging fixtures
- Finish plumbing. This includes installation of:
  - ◆ Sinks
  - ◆ Faucets
  - ◆ Showerheads
  - ◆ Toilets
- Finish flooring, carpeting especially, is best done last. The same is true for applying the finish coats of urethane to wood floors.
- In certain cases this is not possible. For example, the finish flooring needs to be installed in the bathrooms before the plumber can set the toilet.

**Inspection:** Check to see if the nailing of the underlayment has to be inspected before covering with finish flooring. If so, schedule an inspection.

- Finish grade the exterior while the interior is being completed. Install concrete flat-work, such as sidewalks and driveways. Consider if any of this work will affect entering or exiting the building.

**Inspection:** As with the foundation, check forms and steel work before pouring concrete for sidewalks and driveways.

**Clean-up:** Schedule at least two substantial clean-ups during the finishing process.

- Landscaping is often the final process of the construction project. However, final grading sometimes has to happen before pouring sidewalks and driveways.

**Clean-up:** Schedule a final clean-up. Make sure that the windows and house are as clean as possible and that all scrap material has been removed.

- Schedule a final inspection, after which a Certificate of Occupancy is issued.

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*You can promote better scheduling if you build in bonuses and penalties with your subcontractors. On time, or ahead-of-schedule, performance means a bonus. A delay means a penalty. Your bargaining factor in this type of arrangement is your prompt payment. People will do a lot for you in exchange for prompt payment.*

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## Summary

This chapter has discussed the importance of scheduling for completing a project in a timely manner. Some of the important factors to remember are:

- Organization is the key to success in scheduling. As a general contractor, you have to manage all the pieces of the project. Your organizing skills are critical to the success of a scheduling system.
- Being realistic in what can be done. There is no point in setting a schedule that cannot be maintained. Your information about the worker's and subcontractor's ability to keep up with your schedule has to be accurate.
- Do not overlook waiting periods and inspection requirements. Your schedule has to include all of the pieces of the project. Be sure to identify all waiting times and required inspections.

*"The world is moving so fast these days that the man who says it can't be done is generally interrupted by someone doing it."*  
Harrey Emerson  
Fusdick

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**Exhibit 1: Estimate/Cost Summary**

<b>Estimate/Cost Summary</b>					
Owner: _____					
Address: _____					
Today's Date: _____ Projected Start: _____ Finish: _____					
Item	Material	Labor	Subs.	Total	Actual \$
Permits					
Plans					
Excavation					
Demolition/Removal					
Concrete					
Forms					
Insulation					
Masonry					
Rough Carpentry					
Decks or Detached					
Finish Carpentry					
Roofing					
Flooring					
Plumbing					
Heating					
Sheet Metal					
Electrical					
Plaster/Drywall					
Paint and Decorating					
Glass and Glazing					
Cabinets					
Ceramic Tile					
Counter Tops					
Appliances					
Equipment Rental					
Clean Up					
Light Fixture Allowance					
Finish Hardware Allowance					
Bath Hardware Allowance					
Doors Including Garage					
<b>Total Direct Cost</b>					
Markup					
<b>Grand Total</b>					
Extras					

**Exhibit 2: Project Specifications**

<b>Project Specifications</b>																									
<p><b>Contractor's Name</b>  <b>Address</b>                      City _____ State _____ Zip _____                      Phone _____                      Prepared by _____</p>	<p><b>Owner's Name</b>  <b>Address</b>                      City _____ State _____ Zip _____                      Job Address _____                      Phone _____                      Date _____ Job No. _____                      Waste _____                      Steam _____                      Floor _____                      Removal _____                      Other _____</p>																								
<p>Contractor proposes to provide the building permit, labor, materials and equipment necessary to complete installation of the following:</p>																									
<p><b>Construction Requirements</b></p> <p>Removal _____                      Addition _____                      Other: _____</p> <p><b>Plumbing Requirements Description</b></p> <p>Removal _____                      Supply _____</p> <p><b>Walls</b></p> <p>Removal _____                      Tub area _____                      Other _____</p> <p><b>Ceilings</b></p> <p>Removal _____                      Finish _____                      Other _____</p> <p><b>Ventilating</b></p> <p>Fan _____                      Venting _____                      Other _____</p> <p><b>Accessories</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 15%;">Finish</th> <th style="width: 15%;">Number</th> <th style="width: 55%;">Description</th> </tr> </thead> <tbody> <tr> <td>Matched tile</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Tub trim</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Other</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table> <p><b>Heating/Cooling</b></p> <p>Heating _____                      Size _____                      Other _____</p> <p><b>Electrical &amp; Lighting</b></p> <p>Removal _____                      Service entrance _____                      Other _____</p> <p><b>Tops ( ) As per drawing attached</b></p> <p>Material _____                      Style _____                      Other _____</p>		Finish	Number	Description	Matched tile	_____	_____	_____	Tub trim	_____	_____	_____	Other	_____	_____	_____	<p><b>Medicine Cabinet(s)</b></p> <p>Quantity _____                      Other _____</p> <p><b>Fixtures &amp; Fittings Color Description Cost</b></p> <p>Tub _____                      Other _____</p> <p><b>Vanity No. 1</b>                      <b>Vanity No. 2</b></p> <p>Cabinet style _____                      Other _____</p> <p><b>Enclosures</b></p> <p>Description _____                      Other _____</p> <p><b>Storage</b></p> <p>Type _____                      Other _____</p> <p><b>Lavatories</b></p> <p>Quantity _____                      Other _____</p> <p><b>Contractor will do the following demolition and dispose of items removed:</b></p> <p><input type="checkbox"/> Vanity    <input type="checkbox"/> Top    <input type="checkbox"/> Lavatory    <input type="checkbox"/> Tub    <input type="checkbox"/> Commode  <input type="checkbox"/> Shower enclosure    <input type="checkbox"/> Radiator    <input type="checkbox"/> Medicine Cabinet  <input type="checkbox"/> Bath fittings    <input type="checkbox"/> Deteriorated pipe    <input type="checkbox"/> Flooring</p> <p><b>Contractor will make the following repairs:</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Item</th> <th style="width: 50%;">Description</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>_____</td> </tr> </tbody> </table> <p>Owner will furnish labor and material as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Item</th> <th style="width: 50%;">Description</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>_____</td> </tr> </tbody> </table> <p>These are the total and complete specifications for this job. Only the items checked or for which a cost is indicated are included in this job.</p> <p>Contractor _____ Owner _____                      Date _____</p>	Item	Description	_____	_____	Item	Description	_____	_____
	Finish	Number	Description																						
Matched tile	_____	_____	_____																						
Tub trim	_____	_____	_____																						
Other	_____	_____	_____																						
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_____	_____																								
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_____	_____																								

**Exhibit 3: Proposal and Agreement****Proposal and Agreement**

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

Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Agreement with: \_\_\_\_\_

Project Address: \_\_\_\_\_

The undersigned agrees to furnish materials, tools, equipment and supplies, and to execute in a substantial and workmanlike manner according to accepted trade practices the following listed work on the property noted above:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The following listed documents are a part of this agreement:

The following items are specifically excluded from this agreement and are to be furnished by others or treated as additional work:

**Allowances:** The following amounts are included as allowances for the items listed. In event costs are less than an allowance the difference shall be credited to the Owner. If costs are more than an allowance the Contractor shall be reimbursed the excess.

Light fixtures and chimes: \_\_\_\_\_ \$ \_\_\_\_\_ .

Finish hardware: \_\_\_\_\_ \$ \_\_\_\_\_ .

Bath accessories: \_\_\_\_\_ \$ \_\_\_\_\_ .

Item: \_\_\_\_\_ \$ \_\_\_\_\_ .

Item: \_\_\_\_\_ \$ \_\_\_\_\_ .

**Note:** Finish hardware is interpreted to include all knobs, pulls, hinges, catches, locks, drawer slides, accessories or other items that are normally installed subsequent to final painting. Light fixtures are interpreted to include only those that are surface-mounted. Bath accessories are interpreted to include medicine cabinets, towel bars, paper holders, soap dishes, etc.

In consideration for materials, labor, and services specified above, Owner agrees to pay Contractor the sum of \$\_\_\_\_\_ to be payable as follows: \$\_\_\_\_\_ upon signing of this agreement; the balance in this manner:

As Owner's failure to make prompt payments will cause a financial hardship on the Contractor, it is necessary to impose a finance charge if payments are not promptly made. Accordingly, Owner agrees to pay a finance charge on amounts not paid within 30 days based on the rate of 1½ per month, or an annual rate of 18%.

Contractor agrees to commence work on or about \_\_\_\_\_ and to diligently pursue work through to completion. Completion to be approximately \_\_\_\_\_. (Please note #7 of the "General Conditions")

In view of changing labor and material conditions, this agreement is subject to review unless accepted in writing and this or other mutually acceptable agreement is signed within 30 days of date above.

By: \_\_\_\_\_

Contractor's Name: \_\_\_\_\_ Business #: \_\_\_\_\_

**Acceptance:**

Contractor is authorized to proceed with the work listed in this agreement according to the terms and conditions on the reverse side hereof, which are acknowledged as part of this agreement.

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

## Terms and Conditions of Contract

1. **PROTECTION OF OWNER'S PROPERTY.** Owner agrees to remove or to protect any personal property, inside and out, including shrubs and flowers which cannot be protected adequately by contractor, and contractor shall not be held responsible for damage to or loss of said items.
2. **PERMITS.** Contractor shall obtain and pay for all permits required by government bodies unless otherwise specified. Owner shall gain approval from any group, association, or society which may have to approve the project as part of a prior covenant.
3. **TERMITE WORK.** Contractor shall not be obligated to perform any work to correct damage caused by termites or dry rot unless noted specifically in agreement.
4. **PROPERTY LINES.** Owner shall furnish, at their expense, evidence of property lines and is responsible for their accuracy unless otherwise agreed to.
5. **FILLED GROUND, ROCK OR SPRINGS.** In the event filled ground is encountered or rock (or any other material not removable by ordinary hand tools), owner shall pay cost plus 18% contractor's fee. If springs are encountered they will be dealt with at owner's expense after discussion with building inspector and owner.
6. **ACCESS TO WORK.** Owner agrees to grant free access to work areas for workers and vehicles, and designate areas for storage of materials and rubbish. Owner shall take care to keep driveways clear for parking during work hours. Contractor agrees to take care to protect property of owner and adjacent property but shall not be responsible for damage to driveways, shrubs, lawns, trees, or movement of trucks unless due to gross negligence of contractor. Contractor agrees to secure repair for any damage caused by workers on the project and return the landscape as close to the original as possible. Owner agrees to take into consideration time of year and condition of soil for the reasonableness of the finish grade.
7. **INSURANCE.** Prior to commencement of construction, Owner shall have Contractor listed as loss-payee on fire and comprehensive insurance policy by means of endorsement and shall furnish waiver of subrogation for fire and those items covered under comprehensive policy including vandalism; or shall purchase separate policy to protect Contractor's interests. In event Owner fails to do so, Contractor may procure such insurance and Owner agrees to reimburse Contractor in cash for the cost thereof. Contractor shall carry at his own expense workmen's compensation and public liability insurance at least to the minimum requirements of existing laws.
8. **TOILET FACILITIES.** Owner agrees to make toilet facilities available to all workers or compensate Contractor for cost of rented units.
9. **ELECTRICAL SERVICE.** Contractor does not include the cost of changing electrical service unless specifically noted in agreement. The determination of what is to be done to provide the most efficient electrical service is the responsibility of the electrical sub-contractor.
10. **UNDERGROUND PIPES.** Contractor shall not be held responsible for damage to, or removing of pipes, sprinkler lines, water or sewage disposal systems or conduits in areas of excavation, grading, paving or construction. Contractor agrees to take all reasonable care to protect those specific underground items that are pointed out and located by markers by the owner.
11. **DAMAGE TO PROPERTY.** Contractor shall not be held responsible for damages caused by owner or owner's agent or owner's employees, act of god, soil slippage, earthquake, fire, riot, civil commotion or acts of public enemy.
12. **MATERIALS REMOVED - RUBBISH.** All materials removed from the project during the course of alterations will be disposed of by the contractor except those items designated by the owner prior to the construction commencement. The project will be kept clean to the extent reasonable for the conditions, and the premises will be left broom clean prior to departing the project. Owner agrees to inform contractor prior to start of construction if there be any other requirements for cleanliness and to compensate if they be other than above.
13. **EXTRA TIME.** Contractor agrees to diligently pursue the timely completion of the project. Owner agrees not to hold contractor responsible for delays due to the following; acts of neglect or omission by the owner or owner's employees or agents, acts of god, stormy or inclement weather, strikes, lockouts, boycotts, or other labor union activities, and further that any delays caused by inspections, corrections, or changes ordered by owner are included.
14. **WORK STOPPAGE.** Should the project be stopped by any public authority for a period of thirty days or more, through no fault of the contractor, or should the work be halted by an act or because of neglect of the owner for a period of fifteen days, or should the owner fail to pay the contractor any payment within fifteen days after it is due, then the contractor upon seven days written notice to the owner may stop work or terminate the contract and recover from the owner payment for all work completed and any loss sustained plus reasonable profit and damages.
15. **EXTRA WORK.** Should the owner desire to add items to be done after the start of construction, the amount for such extra work will be determined in advance if possible. If not determined in advance the owner agrees to pay contractor for actual cost of labor and materials plus 18% contractor's fee. All sums for extra work are payable at completion of the work requested. This item is not to be confused with a change order which is reduced to writing and involves deviations from the plans and specifications of the original agreement.
16. **MATCHING MATERIALS.** Contractor calls to the owner's attention that there sometimes are limitations in the ability to match plaster, stucco, concrete, masonry and roofing material. Although contractor will make every effort to match textures, colors, and planes, exact duplication is not promised.

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17. **LICENSING.** Contractor informs owner that the company is licensed under the laws and statutes of this state or with a local agency.
  18. **CANCELLATION OF AGREEMENT.** In the event of the cancellation of this agreement by the owner prior to start of construction the contractor shall be compensated by the owner for all expenses incurred to that date plus five percent of the contract price as liquidated damages and not as a penalty.
  19. **LIENS AND ASSESSMENTS.** Contractor shall not be held responsible for any bonds, liens or assessments on existing real estate belonging to owner, nor to any sewer or utility assessment not yet a lien on the owner's property.
  20. **SIGN.** Contractor is authorized to display his or her sign in a tasteful manner during the course of the project.
  21. **CONTRACT.** The owner is not to sign the agreement in blank and will be offered a copy at the time it is signed.
  22. **GUARANTEE.** All work done in the course of fulfilling this agreement and that work designated as extra or done under a change order is guaranteed for one year following substantial completion. Those items guaranteed by the manufacturer are covered by their written warranty. Full payment to contractor must precede these guarantees. Contractor makes clear his intent to diligently and promptly respond to make necessary repairs and corrections to work performed.
  23. **NOTICE TO OWNER.** Materials, supplies and labor are being provided by contractor pursuant to the owner-contractor agreement. Contractor is entitled to place a lien against your property under Construction Lien Laws as described by state law.

