

Every contractor wants to build a project on time and within budget.

To meet this goal, a contractor must have not only

a complete understanding of the construction process, but also effective scheduling and project management.

Every Step Counts

In Successful

PROJECT MANAGEMENT

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Successfully managing a construction project includes a four-step process: the parties must establish a project plan, develop a project schedule, monitor the project schedule and manage change events. Each step requires dedication and commitment from each team member.

STEP 1: ESTABLISH A PROJECT PLAN

First, establish a game plan for executing the work. Planning should be thought of as completing a puzzle. This process involves establishing the time and cost for each piece, leading to the total time and cost of the project.



The construction parties also must determine any local labor procedures and regulatory issues, as well as obtain all necessary building permits.

STEP 2: DEVELOP A PROJECT SCHEDULE

Scheduling work tasks is the most critical aspect of the construction management process. The project schedule not only divides the work by activities, but it also allows other parties to know what activities need to be performed and when. All construction parties should be involved in planning the schedule and buy into the project sequence before construction begins.

A schedule can be as simple as a bar chart or as sophisticated as a 3-D model, but it must be developed and utilized. (See Figure 1, p. 36.)

Typically, construction schedules are electronic. Multiple software programs can produce reliable schedules, with most utilizing the critical path methodology (CPM) technique for developing and displaying project progress.

Using CPM, each work activity is assigned a duration, start date and end date, and sequenced to follow and precede another activity. This sequence of events becomes a construction path. Generally, multiple paths are created, and many can occur simultaneously or independently from one another. But, one continuous path occurs from the beginning of the project to the end; this path is considered the critical path. Delays to non-critical work activity paths generally do not delay the overall project; however, delays to the critical path do.

Planning and scheduling project activities with CPM software creates a logic diagram or network that can be displayed graphically.

In a successful construction project, the schedule becomes the project roadmap that all parties can review to determine when their respective work is sequenced. This allows parties to plan accordingly and ensure they have the required materials, labor and equipment available to perform their work.

The schedule also informs construction parties what work precedes, follows and occurs simultaneously with their work,

and it allows the owner, architect, engineer and contractor to plan decisions or approvals based on certain project items or deliverables.

STEP 3: MONITOR THE PROJECT SCHEDULE

Once construction begins, the schedule becomes a dynamic tool that can change often depending on progress. The contractor must ensure the schedule is frequently updated by recording activity dates and completions.

The contractor should instruct the construction parties how often to update their own work tasks. A schedule should be updated at least monthly to keep pace with payment applications.

The schedule identifies all activities that should have started, that are under way and that should have been completed. By performing these updates, any activity that is not on schedule is recognized and evaluated.

An activity may not be on the schedule for a number of reasons, including a design change or work that was added or subtracted. Whatever the reason, the schedule must be updated and reissued to the involved parties.

Additionally, it is important to analyze all of the scheduled and executed activities to determine whether the updates will affect the project completion date. If a delayed activity was not on the critical path, it might not affect the timely completion of the project. However, if a delayed activity was on the critical path, the entire project will be delayed. If this occurs, the contractor must investigate the work activities and mitigate the situation.

STEP 4: MANAGE CHANGE EVENTS

Changes inevitably will occur. Managing the schedule to account for changes is different than monitoring progress and reflecting that progress in an updated schedule.

Whereas an “updated” schedule reflects progress of the ongoing work and the date

The owner, architect, engineer and contractor develop the plans and specifications for the project, as well as the overall sequence of construction activities. Each construction activity is then assigned to a construction party, which identifies what is (and what is not) included in its scope of work.

During the project planning phase, the project price is established using several methodologies; the contract documents are reviewed, approved and executed; and product suppliers and manufacturers are assigned.

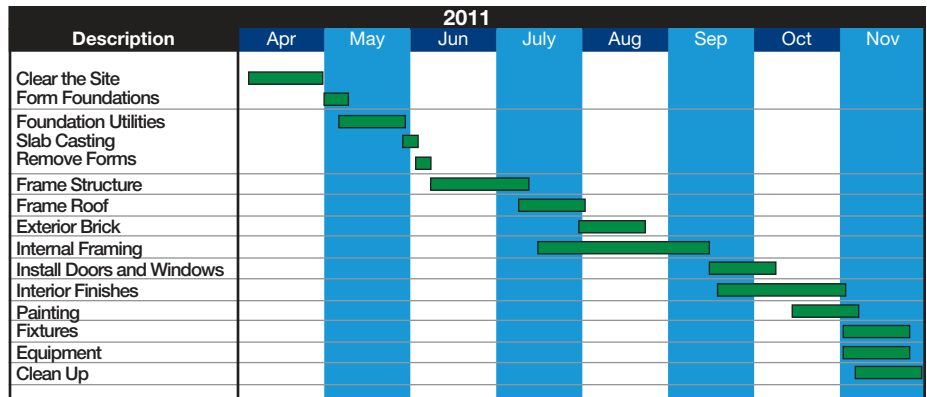
changes as appropriate, a “revised” schedule includes modifications to future baseline schedule work components or activities. These modifications can include work activities broken down into refined tasks to describe the sequence of events more precisely.

An example of a refinement could be breaking the foundation work into several activities, such as surveying for footing locations, drilling the footings, assembling reinforcement steel cages, casting concrete for the footings and setting foundation anchor bolts. A change to a specific activity such as this describes future work in more detail and is considered a revision to the schedule.

Once construction begins, it may be necessary to re-sequence certain activities to reflect the project more accurately.

Other changes to planned activities could include modifying durations. After a project begins, a certain activity planned to take two weeks to complete may be determined to actually take three weeks. For this change not to affect the final project completion date, the schedule must be adjusted to absorb the additional week

Figure 1: Sample Bar Chart Schedule



duration. Or, if no other activity timeline can be compressed, the change must remain, and additional manpower or man-hours must be scheduled to compensate.

Other changes involve uncommon and common events. Uncommon events can include unusual weather, labor disturbances or outside events that neither the owner nor contractor can control. Common change events include design changes, owner-added change orders and incomplete designs that have since been completed.

Any changes that affect the future project schedule must be documented. Fur-

thermore, these changes must be evaluated to determine the most appropriate revision to the planned schedule. All parties involved in the project must buy into the change; if not, the revised construction activity must be modified.

If a contractor or its subcontractors delay their work based on their own actions or inactions, the schedule should reflect the extended duration, and the cause of that extension should be documented. The contractor must assess the cause of the delay and pursue a solution. If labor, materials or equipment are insufficient to execute the work, the contractor must determine if additional resources can be utilized.

If a contractor’s subcontractor is delayed, it must help resolve the reasons for the delay. The contractor ultimately is responsible, and it must provide the necessary resources to put the project back on track.

Any revisions or routine updates to the construction schedule must be republished, distributed and communicated to all parties. If the planned completion date has been affected, the contractor must evaluate the project sequencing and determine how to avoid seeking a later completion date unless a schedule extension is granted.

It is the contractor’s duty and the owner’s right to be continuously informed of construction progress. Adhering to these best practices will ensure a successful relationship among the owner, contractor and subcontractors, as well as ensure a successful completed project.



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