

I recently completed a renovation project at my home. The project contained the components of a typical home construction project. There was some framing, electrical, HVAC, sheetrock, painting and flooring. My spouse and children offered wanted and unwanted assistance during the project. An example of their assistance is the case study for this article.

The rough carpentry portion of the project contained the construction of knee walls, rough openings for doors and the installation of plywood sub flooring. The tongue and groove sub floor was installed similar to any other plywood sub floor, glued and screwed. I utilized a long handled 15lb sledgehammer to “persuade” the tongue and groove plywood together. I used a screw gun to screw the plywood sheets to the framing after the joints in the plywood were hammered closed. My six-year old enthusiastic son, who weighs 50lbs, thought it would be a good idea to sledge hammer in the screws to secure the plywood sheets. What’s the problem?

- A 50 lb six-year old is no match for a 15lb sledge hammer, regardless of what the six-year old thinks.
- I suppose you could drive a screw into a piece of wood with a sledgehammer. I doubt you would obtain the desired results.
- A sledgehammer is not a screw gun.
- There are probably others, you can let me know if you think of any.

What does this have to do with construction scheduling? Believe it or not, plenty.

Construction scheduling has evolved over the last couple of decades. Today, there are many buzzwords and terms of art used in construction scheduling. There are technical terms like critical path, longest path, free float, total float, progress override, retained logic, etc. The latest software packages allow contractors and owners the ability to evaluate schedules, document history and create hypothetical scenarios. Mountains of data are created and manipulated with the click of a mouse. Scheduling software is selected and contract-scheduling requirements are created with the best of intentions and have the potential to be wonderful tools for managing a project. However, if used improperly a scenario can develop where an owner, contractor or any project participant is effectively trying to use a 15lb sledgehammer to hammer in a screw. We are going to explore some considerations and functions of a construction schedule on a summary level.

## THE PURPOSE OF A SCHEDULE

The purpose of a schedule is not to act as wallpaper in a field office. A schedule should not be so difficult to create, update and interpret that only the extremely skilled practitioner can understand it. A schedule should also not be so vague that it fails to adequately address the conditions on the project at any point in time. Understanding the needs of the project and the purpose of a schedule is critical if the schedule is to be used a valuable project tool.

## COMMUNICATING THE PLAN

The initial, as-planned or baseline, schedule usually begins as a document created by the contractor. Typically, a scheduling specification will state that the baseline schedule is to communicate or demonstrate the contractor’s intent for progressing and ultimately finishing the project within the contract time. **Communicate** is the key word. After all, if the schedule does not communicate effectively, it fails. Owners should pay special attention to this concept when they are drafting their scheduling specification. Ask the question; how much documentation and information do you **need** communicated to you in order to be certain that the contractor has adequately considered how the project will be built in accordance with the plans and specifications. Is a CPM schedule with detailed logic required to build a doghouse? If insufficient detail is included in the as-planned schedule the project participants will be uninformed. Superfluous information will slow down the initial review and approval of the schedule at project startup. This can effectively leave the project without a schedule for months. Neither scenario is good. Search for the balance the serves the needs of the project.

## INFORMS PARTICIPANTS OF PROGRESS AND STATUS

A schedule generated by the contractor and hung on the field office wall is not useful. A schedule that is updated regularly and incorporates project changes can be a powerful tool for all project participants. But only if it is shared. There are many subcontractors, design professionals, owner’s reps, and third parties who all may have a stake in a project. Often it is the actions or inactions of these third party participants that lead to late completion issues. Keep all the participants **informed**. Take updates of all kinds seriously. If the project warrants schedule update meetings participate in them with a sense of purpose.

## TRACKS STATUS OF OFF-SITE AND ONSITE WORK ACTIVITIES

**Tracking** off-site activities is typically one of the most neglected components of a schedule. Key materials for a project may require elaborate shop drawings and sophisticated fabrication techniques. Long lead times may be the norm. On time delivery of structural steel or an HVAC component may be the critical activity for finishing the job on time. Give these activities the proper consideration in the schedule. Actively seek out the information from subs and suppliers. The natural thought process is out of sight, out of mind and what you cannot see cannot hurt you.

Equally important and less predictable is the potential impact from third party participants. Before a road is reconstructed, utilities may need to be moved. Permits may need to be obtained prior to commencement of the work in a certain area. Historical societies and government officials may have the ability to significantly impact urban projects. The threat of liquidated damages or exposure to a delay claim is usually not a concern to these parties. The financial risk of delays to these parties is minimal yet they can significantly impact yours.

## FACILITATES TIMELY ACTION AND FOLLOW-THROUGH

The schedule should be a tool of the project. A good schedule incorporates the required actions, responses and **follow-through** of all the parties. It is important for owners to understand the volume and timing of submittals for review. This requires input

from the entire project team. The general contractor, architect / engineer, owner and third parties should all have an understanding of what will be required and when.

### **DOCUMENTS PROJECT HISTORY**

Litigation sometimes is an unfortunate product of a construction project. Key to resolving any kind of dispute is first answering the question of what happened and when. A schedule that accurately **documents** when events took place will help to remove opinion, bias and interpretation of the facts.

### **PREDICTS THE FUTURE IMPACT OF CHANGES**

One of the most powerful aspects of today's scheduling software is its ability to allow the operator to insert various data and ultimately make **predictions**. Hypothetical data can be inserted into the schedule and a new project completion date predicted. This type of tool has obvious advantages. Project parties are now able to consider the potential future impact of any event.

### **CHOOSING WISELY**

There is a saying I am familiar with that I believe is a good closer for this article:

“The main thing is to keep the main thing the main thing.”

It sounds silly at first. After giving it some thought, it makes perfect sense. This saying can be applied to the most significant things of life and to subjects such as the purpose of a construction schedule. When creating, updating, reviewing, modifying and analyzing schedule keep in mind what you are trying to accomplish and ask the question, “Am I trying to use a 15lb sledge hammer to drive in a screw.”

### **ABOUT THE AUTHOR-**

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