

Best Practices for Measuring and Documenting Construction Delays



Why use a construction schedule?

A construction schedule is the focal point of any project for the proper coordination and organization of tasks. This is used as a plan in determining what resources will be needed and whether or not there are enough available to get the job done. A good as-planned schedule helps analyze delays if they occur and the impact they have on completing the project.

Understanding the Ramifications of Construction Delays

The construction industry is a specialized market that shifts with the economy. When there are delays, it costs production time, money and adds an additional strain on the project. Being able to successfully measure the impact with proper documentation will help assess where the deficiencies can be rectified to get the project back on track.

Project delays, especially on commercial projects can lead to substantial loss of productivity which can lead to litigation. In the event this occurs, having detailed documentation through procedures acceptable by the court will be advantageous. There are a number of techniques and methods that can be used to effectively measure and document construction delays.

Why measure and document construction delays?

Construction delays can be costly and each project depends on different phases to sustain the other. Although delays usually happen during a construction project, being able to measure construction delays can assist in reconfiguring projects to meet keep costs low and pinpoint additional resources that may be needed. It is important to document all delays to ensure each party is aware of the underlying issues, and the costs being affected. Having the proper documentation available when needed can help in the event of litigation. Fortunately, the law recognizes time delays and their impact, realizing that someone will be liable in every instance.

Contractors should have specific documentation to address unexpected delays. If they do not wish to be liable for the delay, they should give written notice as the event occurs, document the event, establish and create a separate delay for each event and change the time schedule to reflect the new timeline.

Owners and Architects should always conduct frequent inspections on the work as it commences and throughout the process, making a chronological schedule. Detailed records should be kept on all communications, payments and design specifications to quickly pinpoint inconsistencies and delays.

Having accurate records on both ends will help in rectifying any situations where there is a discrepancy in who is responsible for the delay in question.

Techniques and Methods

Measuring and keeping track of delays is an important part of any construction project. This process can take quite a bit of time, and should be detailed enough to provide accurate results. Here are a few delay analysis methods:

- Hindsight

This method works in conjunction with a schedule that shows dates that have already occurred. Any event that is a delay shows as a stand-out event on this schedule. There are a number of issues that can occur with using this method, such as determining which delays controlled the productivity of the work.

There are two different ways to utilize this method:

1. Allocating the time by deciding which activities were responsible for the delay of the project.
2. Removing the delays caused by one group to determine when they would have finished the task to determine how everyone else working was delayed

- Foresight

This is usually the easiest method. Two approaches are involved:

1. Impacted-as-Planned - Owner-caused delays are documented.
2. Adjusted-as-Planned - Contractor-caused delays are documented.

During this process, the delays are pinpointed and reviewed to decide when and how the revisions should be integrated into the as-planned or base schedule. This formulates an adjusted project completion date which will display the owner's impact on the contractor's schedule. This does not measure the effect of the delay on the actual performance, but rather assumes the as-planned schedule will not change.

This method is not popular among courts, as it ignores the as-built history of the project, produces only theoretical results, does not measure the delay on real-time performance and does not take into account that the as-planned schedule has changed.

- Contemporaneous Method

This method says that in order to fully determine the impact of delays in the project, the project's status must be established when the tasks are occurring. The schedule should be immediately updated when there is a delay and should include any changes in planning which coincide with the contractor's schedule. This creates a freeze-frame picture of the entire project which identifies each event, the impact and the plan moving forward.

The method uses two approaches:

1. Time Impact Analysis - Pinpoints specific times and evaluates chronological segments to evaluate scheduling variations during the project.
2. Window Analysis - Examines a critical path between two varied points of time, assessing the delays as they occur.

Courts allow updates from contemporaneous schedules in evaluating delays because it provides an accurate baseline, the status of the project when the delay occurred, the impact of the delays on remaining work, changes to the critical path and revisions needed for the plan to be completed.

The Critical Path Method

Critical Path Method (CPM) Scheduling

CPM schedules have been found to be the most effective in the evaluation of construction delays. This is a network-based technique where work activities that already have a specified time duration are tied together with relationships to indicate the flow of work. Time durations and logic relationships are identified, allowing mathematical calculations to be performed on the schedule network to determine the earliest and latest date each activity can be performed within the specified framework of the original contract schedule.

Creating a CPM schedule:

- Identify the tasks or activities to complete the project
- Estimate the time needed to complete the activities
- Determine the flow of the work
- Input the information into the system to make numeric calculations for formulating a schedule.

The critical path utilizes two steps:

- Pass calculation of each activity, starting with the first activity on the first day of the project.
- Backward pass calculation, which calculates late start and finish dates for each activity.

How to Prove a Delay Claim Using a CPM Schedule

In litigation, four tests must be satisfied in order to recoup delay costs. The delay has to be:

- Excusable

The delay in the project was the result of something that could not have been avoided and was not anticipated, or if it was caused by someone other than the contractor.

- Compensable

The standing contract should define the parameters in which the damages from the delay will be compensable. The compensation will depend on each circumstance.

- Critical

Reimbursement may not be considered if the event did not impact the completion of the project in a timely manner to qualify as a delay cost.

- Non-concurrent

This deals with the contract language, the relationships occurring from the delay, the state law on concurrent delay damages and other factors.

The critical and non-concurrent tests must use a CPM-based schedule analysis.

Ways to Recover from Delays and Lost Productivity

Although the delays in your project may be properly documented, recovering from those losses may be difficult. One of the reasons is the inability to prove actual amounts. Here are a few ways to determine the productivity lost by delays, carefully evaluating the impacted and un-impacted work.

These steps are using the measured mile approach:

- Define the parameters of the impacted work
- Identify the impacted work
- Specify time periods and locations for both impacted and un-impacted work
- Evaluate the differences between the two time periods of the impacted and un-impacted work
- Find and compile job-cost records
- Specify your analysis: Will hours or dollars be used as a basis?

Keeping Good Records is Key

Having two sets of records works well in monitoring and documenting any delays. There should be a day-to-day schedule, and then a master record kept in the office. All parties involved should have their own set of records to compare notes and establish responsibility when needed. The first rule of thumb: always have everything included in the contract to outline liabilities from the inception of the project. This will keep all parties on the same page and delineate the boundaries of the burden of responsibility for delays.