

have previously written about proper document management as a means to minimize risk on a construction project. An accurate project schedule that is maintained throughout the course of performance is one of the key documents to maintain. According to a report by the Federal Highway Administration, "A sincere commitment to the development and maintenance of an accurate schedule is essential if it is to serve as a meaningful document. Proper maintenance includes the monitoring and periodic updating of the schedule."

LIVING DOCUMENT

An accurate project schedule can be more appropriately characterized as a *living document*, because it should constantly evolve as the construction progresses—whether you are ahead or behind your projected completion. Using a schedule that has not been updated is analogous to using a 1997 Microsoft Word manual for drafting a thesis paper in 2012. You may no longer be able to use certain characters or function keys, and with the newer software, you may have better alternatives to drafting, editing, and finalizing your paper. Of course, you would want the most current version of the software manual to help you complete your work most efficiently. Likewise, the basic premise of using an "updated"

schedule" allows you to reschedule the work using the current project status as a starting point for redetermination. If you do not update the schedule, the original progress of the work can become inaccurate and unrealistic due to undocumented changes, slippages, and other logic.

LEGAL ISSUES

Not only will an updated schedule benefit the work, updating schedules can have legal significance. There are numerous court and Board of Contract Appeals cases where the evidentiary value of the "as-built" schedule was discounted because of the failure of the contractor to update the schedule during construction. For example, consider the following:

- In Natkin v. Fuller, the federal court in Missouri stated "the critical path plan may become obsolete unless it is kept current."
- In *Continental Consolidated Corp.*, the Board of Contract Appeals noted that the failure to incorporate changes in the work and time extensions will not reflect the current status of the work. As a result, it cannot represent the actual manner in which the project was constructed.

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- In Lane-Verdugo, the Board of Contract Appeals rejected the critical path method (CPM) analysis because updates made no change in the initial estimates of time actually required to accomplish the work. Also, logic changes made to reflect field conditions were made without changing the initial estimates of activity durations.
- In E.C. Ernst, Inc. v. Koppers Co., the federal court in Pennsylvania rejected the contractor's schedule analysis because neither restraints nor durations were updated.

CRITICAL PATH ANALYSIS

The decision in Fortec Construction v. United States illustrates the need for an updated, critical path analysis. In that case, the court recognized that control of the project—as well as the time extension process—is lost if the parties do not properly update the critical path diagram to reflect delays and time extensions. Fortec, which built an aircraft fuel maintenance facility, brought suit against the U.S., seeking extensions of time for work performed beyond the contract requirements, additional compensation, and relief from liquidated damages assessed by the government. The contract required a CPM network analysis system. During construction, both parties failed to use the CPM for scheduling purposes.

At trial, the government claimed that the additional work Fortec was required to perform did not justify any contract time extensions because the CPM schedule did not show that any of the additional work was on the project's critical path. In support of its position, the government relied entirely upon the one and only revision that had been made to the CPM schedule. That revision did not show the critical path actually followed during construction. In fact, it showed "removal of telephone poles" to be on the critical path, when actually the removal of telephone poles was deleted from the work.

The court ruled that because changes in contract performance were not integrated into the CPM schedule, it was impossible to determine which activities were on the critical path. As a result, the court refused to permit the government to use the schedule to assert that a particular activity was

critical or non-critical, on schedule or behind.

DON'T DELAY

As illustrated by the above-mentioned cases, the reason courts and Boards of Contract Appeals discount the evidentiary value of the "as-built" schedule when there have been no

updates during construction is the feeling that the "as-built" prepared after the fact is inherently less reliable than updates during construction. Courts and Boards of Contract Appeals realize that "judgments" will have to be made in determining the sequence and start and finish dates of various activities in the after-the-fact "as-built" schedules.



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