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Construction Scheduling Today - An Industry View

What is the state of construction scheduling today? How often are schedules being used properly or misused on construction projects today? Are they being used for project planning purposes and to define the project's critical path or to support claims? Do contractors typically comply with the project's scheduling specifications? To answer these questions and others, a survey was conducted at the Construction Management Association of America's (CMAA) National Spring Conference held in Boston in May 2004. Most of the industry's leading construction management firms from across the country were in attendance. The survey respondents were overwhelmingly proficient or experts in construction scheduling with many years of experience and represented a diverse mix of firms, geographic regions, and project types. The following is their view of construction scheduling today.

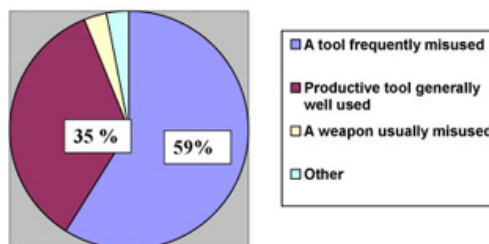
A Tool Too Often Misused

*"The mechanic that would perfect his work must sharpen his tools."
--Confucius*

Eighty-five percent of those who responded to the survey stated they are practicing construction managers and 70% of them described their job duties as primarily or frequently involving issues of schedule management. Almost 70% of the respondents have 20 years or more experience with none having less than 10 years experience. The respondents' self-assessment of their scheduling knowledge and skills showed that almost 70% consider themselves to be proficient or expert at schedule management. Sixty-six percent of the respondents were either "self-taught" or gained this skill and experience "on the job." The balance of respondents learned scheduling from formal instruction or training. In short, while limited in size, the respondents represented an authoritative and diverse survey pool of today's construction scheduling practitioners.

The State of Project Scheduling Today

Our survey asked this question, "How would you characterize the state of project scheduling today?" The response was as follows:



Some in the survey pool have had good experiences with project schedules, but they were the minority (35%). Overall, the respondents generally had a pessimistic view of the state of project scheduling today with a clear majority of



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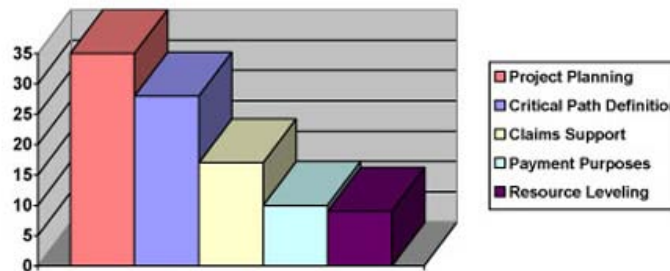
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Mr. Seibold has authored many articles and has been a featured presenter on project management and claims resolution topics. He has been a member of the Construction Management Association of America since 1987, has served on the national board for the last five years as a director and is currently president. Mr. Seibold has a BE in civil engineering magna cum laude from Manhattan College, New York. He is a registered professional engineer in California, New York, and Colorado.

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them reporting that schedules are frequently misused on their projects (59%). That said, the majority of our survey pool also view schedules as a valuable tool when properly used. Unfortunately, these respondents also indicated that they are frequently disappointed in the usefulness of the schedules they receive.

When asked to name the primary uses of schedules on projects today, we received the following responses:



Overwhelmingly, the expectations of organizations toward the enforcement of scheduling specifications were either "reasonable enforcement" or "strict enforcement" (83%). Despite this overwhelming expectation, our respondents reported that the majority of the time (56%), compliance with scheduling specifications is only "occasionally" or "seldom" achieved. Conversely, approximately 40% of the respondents reported that scheduling specifications were "frequently" complied with and believed their counterparts, the contractors, viewed the schedule as "a management tool." When asked to identify the specific areas of non-compliance, the respondents identified "content and completeness" 44%, "timeliness" 29%, and "accuracy" 18% as the most frequently occurring problems.

The majority of construction managers (85% of our respondent pool) believe that contractors on their projects generally did not view adherence to the scheduling requirements as a priority, only occasionally or seldom complied with those requirements and then used schedules as either weapons to pursue claims or viewed them as unnecessary. When asked what they believed their counterparts perspective to be on the primary use of schedules, 57% of the respondents believed that their counterparts viewed schedules as either a "weapon to support or defeat claims" or "an unnecessary requirement."

Author Commentary - Owners Good Intentions Not Achieved

As scheduling software systems have become more sophisticated and widespread, scheduling specifications that require their use have likewise become more sophisticated. As a result, many owners for their major capital projects now use detailed scheduling specifications that require sophisticated high-priced software and significant effort by the contractor. It is not uncommon to see scheduling specifications that are 30 or more pages long, whereas just a few years ago such specifications were only a few paragraphs.

As we all know, disputes involving issues of time can be extremely costly. It is therefore logical that owners are "tightening" their scheduling specifications and requiring the sophisticated scheduling software now available. We have observed an unintended result of this trend; owners have increased their involvement in schedules to such an extent and demanded so much information that just the task of forcing compliance has become a major issue on many projects. As backed up by the survey results, contractors often view these scheduling specifications as burdensome owner requirements or use the sophisticated scheduling tools required by the owner to advance claims, hardly the intent of what most owners are trying to accomplish.

We have also found that scheduling specifications are sometimes poorly matched to the project needs and that there is the potential for overkill. For example, a typical public works general contractor may not be experienced in managing complex project control systems as compared to a large EPC contractor. To use a sophisticated scheduling specification on a mid-size public works project may be adding challenges to a contracting community ill equipped to execute such requirements. It should come as no surprise that the scheduling specifications are frequently not complied with in these situations.

Many owners "strengthen" the scheduling requirements for their projects in the belief, and hope, that the added requirements will increase the probability that their projects will be completed on time without surprises. In our view, too many mistakenly equate more schedule data with better control of a project. In fact, as the survey showed, the reverse is often true. It's not our intention to discourage owners from striving to improve and strengthen their scheduling specifications, but suggest that it only be done when the project needs demand it and only after careful consideration of the potential unintended consequences.

When using sophisticated scheduling specifications, owners need to be aware that they pay more for their projects because prudent contractors will price the adherence to the complex scheduling requirements in their bid; or worse, the owner may end up with a contractor that for all practical purposes ignores these requirements and proceeds on a business as usual basis in breach of its contract from day one. When this happens, the owner will usually battle the contractor from the project outset over the contractor's non-compliance with the scheduling specifications. Ironically, owners generally choose to use these complex scheduling specifications primarily due to their desire to avoid disputes.

Contractor Considerations

Does a contractor's non-compliance with the scheduling specifications mean bad intentions? Not necessarily. Faced with the challenges of actually building the project, contractors are inclined to focus their attention during the early stages of the project on buying out subcontractors, hiring project staff, mobilizing materials and equipment, preparing shop drawings, and other critical project start-up activities. Often, low on the priority list is the preparation of the schedule. With limited resources, the contractor will tend to assign the most experienced staff to those activities which in their view are most critical to the project's success (risk management, profit) and the least experienced staff to those activities perceived to be less essential, such as complying with owner's burdensome scheduling requirements.

As a result, frequently the role of the project scheduler is filled by individuals with little or no practical experience, who instead are "computer literate" and perceived to be the best suited to use the "complicated" CPM scheduling programs. Rather than devote skilled professionals to this important role, it is filled by individuals often "in-training." Compounding this problem is the fact that many projects are now planned and implemented "just in time," with little or no margin for schedule slippage. Tight budgets and uncertain authorizations cause the project schedule to squeeze all available options much earlier in the program.

Many professional associations, including CMAA, have established certification programs for Construction Management practitioners. However, despite a number of organizations working on establishing standards for the practice of construction scheduling, there is no industry recognized certification program for construction schedulers. Hence, at least today, there is a corresponding lack of consensus on the standards of practice for scheduling. Additionally, as the importance of scheduling in construction projects continues to grow, there is a growing shortage of skilled schedulers necessary to meet the needs of the industry.

These problems have created a scheduling crisis on many projects today. As indicated by the survey, too frequently these days, contractors are not adhering to the scheduling specifications; the project schedule is not used for the planning, management, and monitoring of the work, but rather for the justification of claims and counter-claims. These results are consistent with our direct experience in the investigation and resolution of construction disputes where the primary issue time and again involves the schedule.

The project schedule is a tool too often misused. Our survey showed in no uncertain terms that it is time for the industry to follow Confucius' advice. To perfect our work, we must sharpen our use of construction scheduling on our projects. In our next edition of the PinnacleOne eNewsletter, we will provide several recommendations aimed at making the schedule the useful tool it was intended to be instead of a potential weapon that our survey indicated it is often being used as today.

EDITOR'S NOTE -- This series of articles was adapted from a paper titled "Project Schedules - A Tool or Weapon?" presented to the Construction Management Association of America (CMAA) 2004 Annual Conference in San Antonio, Texas by PinnacleOne's Joe Seibold, P.E.

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