

Construction Scheduler - Career Exploration

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Abstract

As an industry, construction is one of the most diversified arenas, requiring a variety of individual specialties working on the same project. The diversification of these experts, however, is not the only facet to be considered, a construction project also requires a wide range of products, methods and systems to be implemented in the process. With this rich variety of products, services, and caliber requirements, students in the field of construction management need to consider, at an early phase, what area they wish to see themselves working in when they graduate. In order for them to make a careful consideration and an informed decision, students need to understand the qualifications necessary for each of these different fields of expertise and the expectations from professionals working at these different areas. As such, the purpose of this paper is to provide a broad view on the skills required to become a planner/scheduler in a construction company, and what it takes to be successful in this area of the construction profession. This paper also includes valuable insights through interviews with two experts already working in this important field.

Introduction

For any construction project to be successfully completed, scope, cost and time for the project must be properly managed as these three are interrelated. Each impact on any of these three main areas of the project parameters will affect the other two. Managing the project timeline must start with a time plan that is set in the beginning of the project by project schedulers. This time plan should reflect the requirements of the owner of the project and scope or how complicated the project is in addition to the available funding and resources. When this time plan is developed and agreed upon among the project stakeholders including the owner, the engineer of record and the contractor, it becomes the reference schedule document that is to be respected and followed by all parties for the project to achieve its goals. Deviations from this time schedule usually leads to disputes between the project stakeholders in addition to possible additional project costs.

Any construction project has a variety of specific tasks which are managed by certain specialists for the project to be successfully completed. As with any other project, scheduling is one of the key elements in a construction project. Construction projects rely on timely delivery of tasks with efficiency and high level of planning. Therefore, it is the scheduling specialists job to ensure that all of these interdependent components are coordinated and managed properly. A construction project depends on schedulers to build a timeline of the project from start to finish, and fill in the details in between, for start of each particular task and the amount of time necessary for it to be completed. As an example of a challenge, a certain working area may be needed by a number of varying activities in the same instance. It is therefore one of the construction schedulers tasks to be able to optimize the facilitation of that work area in a way

that it does not have a negative impact on project performance. These types of situations are also known as ‘space-time’ conflict problem in a construction site environment (Mallasi *et al*, 2009). This is why these activities are sequenced, where one can not initiate without the previous being completed or started if there is clear interdependence between these activities. Another important aspect in construction management is the correct selection and allocation of resources such as; labor, plant or equipment used, these selections also have to take into account the restrictions on the the site and the type of work to be commenced (Jaskowski & Sobotka, 2006).

Responsibilities of Construction Scheduler

The task of construction scheduling is mainly towards activity sequence optimization and resource allocation (Zhou *et al*, 2013). The responsibilities of a typical construction scheduler include creating a master plan for a project, which includes timelines, needed sources, putting the tasks into an order and listing the responsibilities of each team member. As mentioned previously, a project scheduler must be proficient in the use of software applications to record and track the projects progress. Schedulers also make updates to the daily tasks of the construction project, take notes and enter the progress in the software and give feedback to the team regarding the effects each task has on the overall completion and timeline of the project. In addition, the start time of each activity cannot be later than its latest start time in order to finish the project within the demanded duration (Guo *et al*, 2010).

To elaborate more on these responsibilities, schedulers in the construction industry perform various tasks and the different project phases. This starts with the very beginning of any project, the early planning phase, which is done by the project owners or developers to study the project. In this phase the time plan is very conceptual, where the owner or the developer needs a high-level estimate on the time frame of the target project. In this case the scheduler will use his/her experience and use historical records for projects with similar level of complexity and similar built-up area to come up with rough time plan. In this phase, the schedule is very approximate and can vary significantly based on the design of the project. In this case, the scheduler is employed by the owner or the developer company.

When the project goes into the design phase, where the architect and engineers work with owners and developer on schematic design, followed by detailed design and preparation of construction documents or bidding documents, it is common that owners, especially in big and long-term projects, re-examine the time plan that was originally envisioned. This effort of time planning is also at a high level but with more realistic information in hand based on specific designs, systems and project details that can help the schedule develop a work breakdown for the project tasks, where the project construction activities can be broken into main elements like different buildings within a complex or various floors in a building or systems of a building per floor including structural, electrical, mechanical and architectural systems.

When the owner is satisfied with the designs and is ready to float bidding documents in the market to obtain contractors’ proposals, contractors studying the project usually go into another phase of time planning where they examine whether the required time frame is achievable, or they need to advise the project owner otherwise. Depending on the size of the project, how risky

the project is and how important the project is for the contractor to get, the level of schedule detailing at this level will be determined.

If the contractor is awarded the project, then a detailed schedule must be developed. At this phase, all activities of the project must be defined by the scheduler. The scheduler then determines the duration for each activity based on the resources that can be allocated and the productivity rates for the crews and equipment that will be used. After defining the activities and their durations, relationships between activities must be established to identify the right sequencing and understand the critical path, which is the sequence of activities that will take most time and will define the end date of the project. There are various methods that are used to run this process including the Critical Path Method (CPM). Schedulers use software including Primavera and Microsoft Project to help with this process. In many projects, the owners will request certain formatting of these detailed schedules so that they can easily follow them during the project. When this detailed schedule gets approved by the owner and engineer of record, it becomes part of the contract between the owner and the contractor and the different parties should respect and follow that approved schedule. The schedulers are also requested to update these schedules based on the actual scenarios on sites and any changes that can happen to the sequence of works due to any unforeseen reasons.

Another task that can be requested from the scheduler, depending on the owner's requirement, the company's own procedures and the complexity of the project, is loading the resources that are needed to complete each activity to the software that is used. This means that the scheduler needs to define the number of crews required, sometimes the materials and cost, for each construction activity and link them to the respective entry at the software. This helps the scheduler to run reports that show the project status periodically throughout the project for time and cost control.

Pay and benefits for a scheduler

According to Payscale.com, the salaries for a construction scheduler range anywhere from \$47 thousand to \$120 thousand, and the median salary is \$75,821 in 2017. Top 15% of professional scheduler can expect to earn anywhere from \$100 thousand to \$120 a year (Payscale.com, 2017).

Interviews with two professional schedulers, scheduler A and B

This section includes interviews with current professional construction schedulers A and B, who were asked to share their opinions and expertise.

Both professionals were inquired about the amount of time they have been in this industry. Scheduler A replied that he has been working in the field of construction for little over six years, while scheduler B indicated that he had been working as an estimator for two years before becoming a scheduler, and he has been a scheduler for two and a half years now.

They were then asked about their typical work day and to provide an overview of their daily tasks. Both schedulers described their typical work days in varying fashions, but both had similarities when it came to the dynamics of their typical work hours. Both have to be at constant contact with project managers and suppliers to work through scheduling dilemmas, which

according to scheduler B could take up anywhere from 10-100% of a scheduler's work week. Nonetheless, Scheduler A emphasized the task of being detail-oriented and sequence planning and stated that *"if there is a typical day within scheduling it is working within a team of Project Managers and Supers developing detail to better define a sequence of work on that project"*.

About the challenges both have faced as schedulers in construction projects, both scheduler A and scheduler B emphasized the importance of communication and understanding, and the value of easily comprehensible information. Moreover, scheduler A stressed that when schedules are created, the true owners of the schedule are the project teams, and underlined importance of them understanding the schedule. Scheduler B, on the other hand, mentioned the fact that while schedulers come up with a plan, the information is compiled from many varying sources, therefore this information needs to be clear and understandable for a number of different people; owners, subcontractors, construction management, project controls. Scheduler B states that *"if someone picks up your schedule, they should be able to clearly understand where the project is current at."*

It is important that an individual enjoys doing his or her job, hence when enquired about the aspects that bring satisfaction, both scheduler A and scheduler B noted, that they get it from working with their peers on the sequencing of a particular project and when the superintendent of the project shows gratitude for providing help to manage the progress in the field. Scheduler B added *"Another highlight is the opportunity to look through the drawings and understand the challenges of so many projects at once. Most of the schedulers at Hunt have 4-6 projects at once."*

Scheduler A and scheduler B discussed the skills and competencies required to become successful in the field of scheduling for construction projects, naming several critical areas students need to focus on. Both have underlined the importance of effective communication both verbal and written, time management, problem solving, attention to detail ability to correctly read the drawings and specs, being able to read contracts and understanding construction processes. Scheduler A added *"Also the understanding that protecting the companies risk is also what you are evaluating as well. Keeping your company out of litigations from a scheduling stand point is key."*

When asked about the importance of having interpersonal skills in their field of work, both Scheduler A and scheduler B agreed that in order to be successful in the field of scheduling, it is very useful to have good interpersonal skills. Having these skills paired with the ability to effectively communicate the progress of the project to a number of different parties, and being able to work with different groups of people at the same time is greatly useful.

Scheduler A and scheduler B were then asked about the key competencies recommended to the students in the CM. Both specialists recommended focusing on verbal and non-verbal communication skills, software knowledge, presentation skills, time management, enhanced with ability to read and understand specs and drawings.

Both specialists then talked about the challenges in the industry, they mentioned several aspects. The schedulers work involves compiling information from different sources, which means working with people from different industries and personalities and working through the schedule as these individuals understand it differently and have their own perspective. It is important to work towards being on the same page when it comes to small details. Scheduler B also noted the challenge of balancing act of “*working for project controls and working with the operations team. You are a layer of oversight while also working with the operations team*” he went on to mention, that this particular aspect can be tough at times.

Conclusion

The task of efficient scheduling and execution processes for a construction project is challenging (Konig & BeiBert, 2009). These tasks and responsibilities are immensely important, because they deal both with the budget and timeframe. Thus, there is always a huge demand for skillful schedulers who will work closely with the construction manager and the team, to make sure that everything is executed properly. Scheduling is undoubtedly a challenging task, but it also comes with high rewards in the forms of satisfaction of being able to see how a well-organized and scheduled project runs smoothly, how one can intervene and adjust and make corrections to make sure that the project is completed.

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