



Scheduling



Scheduling Process

Last Updated: 10/17/2024

1 PURPOSE

The purpose of construction scheduling is to plan, organize, coordinate and communicate all the activities involved in a construction project to ensure its successful and timely completion.

2 INTRODUCTION

The project manager is responsible for producing a detailed schedule to ensure the project's timely completion, with input from the superintendent and subcontractors.

Excerpt from CCDC2 Contract:

GC 3.5 CONSTRUCTION SCHEDULE

3.5.1 The *Contractor* shall:

.1 prepare and submit to the *Owner* and the *Consultant* prior to the first application for payment, a construction schedule that indicates the timing of the major activities of the *Work* and provides sufficient detail of the critical events and their inter-relationship to demonstrate the *Work* will be performed in conformity with the *Contract Time*;

.2 monitor the progress of the *Work* relative to the construction schedule and update the schedule on a monthly basis or as stipulated by the *Contract Documents*; and

.3 advise the *Consultant* of any revisions required to the schedule as the result of extensions of the *Contract Time* as provided in Part 6 of the General Conditions - CHANGES IN THE WORK.

An effective construction schedule will incorporate project-specific hierarchy and sequencing in varying levels of detail as information becomes available. Variables such as weather, availability of personnel, design quality and selection of materials are assessed and incorporated in the schedule. The schedule is usually based upon predecessor and successor relationships and durations for each activity. Given the interdependencies of activities, a detailed schedule will usually have deviations between planned and actual dates that may or may not impact summary dates for global activities. Deviations will be managed by the Keller in collaboration with the project team to incorporate advancements or delays.



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The complexity and format of a construction schedule should reflect the project and project team members' needs. Differing level of detail will be required by various stakeholders for their specific needs. For a schedule to be an effective monitoring tool, measurable results should be included for each stakeholder. Schedule content should incorporate durations and milestones contributed by parties directly responsible for each activity. If direct input is not possible, reasonable assumptions can be made, depending upon the experience of Keller's Project Manager and Superintendent.

3 PREPARING A CONSTRUCTION SCHEDULE

Review Contract Documents:

- Thoroughly review the Construction Contract, incorporating preconstruction and design considerations as appropriate.

Define Project Scope:

- Utilize information from the preconstruction, design phases and construction related activities to define the project scope and timeline accurately.

Identify Critical Path:

- Determine the critical path by considering preconstruction and design activities along with construction-related dependencies.

Resource Allocation:

- Determine resource needs based on both construction and design requirements.
- Coordinate with design professionals to align resource allocation with design milestones.

Sequence Activities:

- Ensure all project deliverables regardless of Ownership are identified and tracked in the project schedule.



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- Sequence activities logically, integrating design and preconstruction milestones.
- The complexity of schedules will vary from project to project, however a consistent structure should be adhered to in most instances. Ensure schedule elements are captured under the following summaries bars:
 - Milestones
 - Owner Deliverables (land acquisition, utilities, rezoning, tenant info, etc.)
 - Preconstruction (design, permitting, tendering, etc.)
 - Procurement (Submittals, lead time, etc.)
 - Construction
 - Commissioning & Closeout (M&E Commissioning, Arch/Eng. Inspections, C-Schedules, City inspections, etc.)
- Establish the logical relationships and dependencies between activities.
- Determine which activities must precede or follow others.
- All activities must have a Predecessor and Successor assigned.

Duration Estimation:

- Estimate durations for both construction and design activities, considering their interdependencies.

Develop Gantt Chart:

- Create a comprehensive Gantt chart that visualizes the entire project timeline, incorporating preconstruction, design, and construction phases.

Include Contingency:

- Factor in contingency time for unforeseen issues during preconstruction, design, and construction.
- Factor in time for **seasonal weather impacts and holidays**. Ensure that time is protected from erosion by other unrelated impacts throughout construction.



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Last Updated: 10/17/2024

Regular Monitoring and Updating:

- Project Schedules must be updated monthly within Outbuild or as dictated by the construction contract. Monthly schedule updates should be published to Procore from Outbuild.
- Project schedules are to be updated with direct feedback from the project Superintendent. This feedback should happen in person ideally or virtually when in person is not practical.
- Project Superintendents are to maintain 2-week look ahead schedules or work plans which breakdown the Project Schedule into greater detail for site communication and coordination.
- The project Manager is responsible to implement a system for regular monitoring and updating of the schedule with close coordination with the Superintendent, considering the dynamic nature of the preconstruction and design phases.
- Each project schedule is to be Baselined to best measure performance and track variances.
- Significant changes (scope and/or weather) that impact overall project duration must be added to the project schedule and communicated to all stakeholders.

Communication:

- The success of any project schedule relies heavily on the detailed understanding of its elements by project stakeholders. Its critical that Project Managers are presenting the schedules in a manner that ensures clear understanding by all.
- Regularly communicate the integrated schedule to all stakeholders, emphasizing the importance of design and preconstruction milestones as the situation dictates. It is critical to communicate the impact(s) of delays as it relates to design or Owner decisions as well as construction activities.
- When conditions change that impact or may impact the schedule, communicate the impact as early as possible to all stakeholders.



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Excerpt from CCDC Contract:

GC 6.5 DELAYS

6.5.1 If the *Contractor* is delayed in the performance of the *Work* by the *Owner*, the *Consultant*, or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the *Contract Documents*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.

6.5.2 If the *Contractor* is delayed in the performance of the *Work* by a stop work order issued by a court or other public authority and providing that such order was not issued as the result of an act or fault of the *Contractor* or any person employed or engaged by the *Contractor* directly or indirectly, resulting in the failure of the *Contractor* to attain *Ready-for-Takeover* by the date stipulated in Article A-1 of the Agreement – THE WORK, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The *Contractor* shall be reimbursed by the *Owner* for reasonable costs incurred by the *Contractor* as the result of such delay.

6.5.3 If the *Contractor* is delayed in the performance of the *Work* by:

.1 labour disputes, strikes, lock-outs (including lock-outs decreed or recommended for its members by a recognized contractors' association, of which the *Contractor* is a member or to which the *Contractor* is otherwise bound),

.2 fire, unusual delay by common carriers or unavoidable casualties,

.3 abnormally adverse weather conditions, or

.4 any cause beyond the *Contractor's* control other than one resulting from a default or breach of *Contract* by the *Contractor*, then the *Contract Time* shall be extended for such reasonable time as the *Consultant* may recommend in consultation with the *Contractor*. The extension of time shall not be less than the time lost as the result of the event causing the delay, unless the *Contractor* agrees to a shorter extension. The *Contractor* shall not be entitled to payment for



Scheduling Process

Last Updated: 10/17/2024

costs incurred by such delays unless such delays result from actions by the *Owner*, the *Consultant* or anyone employed or engaged by them directly or indirectly.

6.5.4 No extension shall be made for delay unless *Notice in Writing* of the cause of delay is given to the *Consultant* not later than 10 *Working Days* after the commencement of the delay. In the case of a continuing cause of delay only one *Notice in Writing* shall be necessary.

6.5.5 If no schedule is made under paragraph 2.2.12 of GC 2.2 – ROLE OF THE CONSULTANT, then no request for extension shall be made because of failure of the *Consultant* to furnish instructions until 10 *Working Days* after demand for such instructions has been made.

Compliance with Contract Requirements:

- Ensure that the developed schedule, updating and reporting complies with the requirements of the Contract.

Documentation:

- Maintain detailed documentation of the entire project lifecycle, from preconstruction through construction.

END OF DOCUMENT

| Revision History | | |
|------------------|------------------|--|
| Version No. | Effective Date | Description |
| 1 | October 17, 2024 | Original Document Created by Peter Jonkman |
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