

SECTION 01 3200 – CONSTRUCTION PROGRESS DOCUMENTATION

Maintain Section format, including the UH master spec designation and version date in **bold** in the center columns of the header and footer. Complete the header and footer with Project information.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission.
 - 2. The University of Houston's *Supplemental General Conditions and Special Conditions for Construction*.

1.2 SUMMARY

- A. A Construction Project Management (CPM) schedule is a mutually-agreed construction plan that demonstrates to the Owner that the Contractor has considered all elements of the construction process, has conformed to the requirements of the Contract, and can and will execute the activities within the contractual time frames. The CPM schedule also may be used as a tool for communication, re-examination of methodology and settlement of disputes.
- B. Section includes administrative and procedural requirements for CPM project scheduling.

1.3 DEFINITIONS

- A. Owner's Designated Representative (ODR): As defined in the Uniform General Conditions (UGC). This term is used interchangeably with "Owner."
- B. Architect/Engineer: As defined in the UGC.
- C. Contractor: As defined in the UGC. The Contractor is generally the responsible party for maintaining the Schedule as defined in this document and in the contract agreement.

1.4 ORGANIZATIONAL STRUCTURE (OS)

- A. The OS defines scheduling team members and provides a hierarchy based on each team member's role. The organizational breakdown follows this structure:

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1. Owner's Designated Representative (ODR)
 - a. Architect/Engineer (A/E)
 - b. Contractor

PART 2 - PRODUCTS

2.1 SOFTWARE

- A. Microsoft Project and Oracle Primavera P6 are the only acceptable methods for providing scheduling data to the Owner.
- B. Certain terms may be used in the scheduling sections that only apply to a specific scheduling software and are clearly identified.

PART 3 - PROJECT SCHEDULE (DETAILED REQUIREMENTS)

3.1 OVERVIEW

- A. Develop the schedule using the Critical Path Method.
- B. Represent the work for each phase or area by at least one summary activity that cumulatively indicates the entire Construction Schedule.
- C. Clearly identify and adhere to milestone dates on the schedule.
- D. Do not change milestone dates without written approval of the Owner.
- E. Do not include constraints unless specifically allowed in this specification. Submit any use of constraints that are unavoidable in writing for the Owner's approval.
- F. Clearly identify in the schedule the activities necessary to accomplishment of the time(s) for completion of the Project and set forth in the Contract. If the schedule indicates earlier completion time(s) than set forth in the Contract, the difference between the schedule and Contract dates shall be considered part of the total float available. This float is a resource available to both Owner and Contractor or as otherwise defined in the applicable Owner-Contractor agreement.
- G. Incorporate 10% float into the schedule as a single activity at the end of all construction activities and just preceding Substantial Completion. Submit a written request to the Owner for approval prior to use of float time.
- H. The Contractor is responsible for assuring that applicable work activities, as well as those of consultants and trade contractors at all sub-tiers, are included in the schedule.

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- I. Show in the schedule the sequence and interdependence of activities required for complete performance of the Work. The Contractor is responsible for assuring that all work sequences are logical and the schedule shows a logical plan of work and critical path.
- J. Consider and include normal weather conditions in the planning and scheduling of all work influenced by high or low ambient temperatures, wind and/or precipitation to ensure completion of all work within the contract time. In assessing normal weather conditions, refer to average historical climatic conditions based on locality as maintained by the National Oceanic and Atmospheric Administration (NOAA) for the William P. Hobby Airport. Use NOAA data as the basis for determining the number of weather days permitted in the schedule.
- K. Proposed durations assigned to each activity shall be the best estimate of time required to complete the activity considering the scope and resources planned for the activity.
- L. If using Primavera P6, define each activity with as many activity codes as applicable. The global activity codes will be preset and will not be modified unless the scheduling group agrees to those changes.
- M. If requested by the Owner, furnish a written narrative of the determination of durations for critical activities. Include the number of crews, crew composition, number of shifts per day, number of hours in a shift and the number of workdays per week. Provide a list of the major construction equipment intended for use during operations including types, number of units, unit capacities and the proposed time each piece of equipment will be on the job. Key the equipment list to the activities that the equipment will support.

3.2 LEVEL OF DETAIL REQUIRED.

- A. The level of detail shall be a function of the complexity of the work involved. The total number of activities shall be subject to approval by the Owner.
- B. Activity Durations:
 - 1. The smallest increment of time allowed is one (1) full day or is represented as a milestone with a zero (0) day duration activity.
 - 2. Construction activities shall represent the continuous work of a definable crew in a defined work area or location and have a duration not longer than ten workdays, unless deviation is approved by the Owner. Non-construction activities (such as design, procurement, fabrication, etc.) may have durations in excess of ten workdays.
- C. Procurement Activities:
 - 1. Include activities associated with the submittal, approval, procurement, fabrication and delivery of long lead materials, equipment, fabricated assemblies and supplies. Long lead procurement activities are those with an anticipated procurement sequence of more than 90 calendar days.
- D. Mandatory Detail
 - 1. Overall Milestones: At minimum, list the following activities at the top of the schedule:

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Contract Dates – Activity to be linked to Contract Start and Completion milestone

Contract Start Date – A constrained milestone

Contract Duration Base Bid & Alternates

Contract Completion Date – Substantial Completion, a constrained milestone

Contract Delay Claimed by Contractor

Contract Delay Awarded by Owner

Current Contract Completion Date by Owner – Linked to Contract Completion Date and Contract Delay Awarded by Owner

Current Project Completion Date by Contractor – Linked to Contractor’s actual progress schedule

2. Owner Milestones:

Design Review Meetings

Design Approvals

UH Fire Marshal Inspection

UH Fire Marshal Approval

Substantial Completion Inspections

FFE Installation

Move-In

Artwork Installation

3. Design Milestones: Include at a minimum the following milestones.

Schematic Design:

Start of Schematic Design Phase

100% SD Submission

Owner Design Review (two weeks)

Design Review Meetings (one week)

Owner Approval of 100% SD Package

Design Development:

Start of Design Development Phase

50% DD Submission

Owner Design Review (two weeks)

Design Review Meetings (one week)

Owner Approval of 50% DD Package

100% DD Submission

Owner Design Review (two weeks)

Design Review Meetings (one week)

Owner Approval of 100% DD Package

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Start of Construction Documentation Phase

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50% CD Submission
Owner Design Review (two weeks)
Design Review Meetings (one week)
Owner Approval of 50% CD Package
90% CD Submission
Owner Design Review (two weeks)
Design Review Meetings (one week)
Owner Approval of 90% CD Package
Issuance of Construction Package

4. Construction Milestones: Include at minimum the following milestones:

GMP:

GMP Submittal
Approval of GMP

Trade Contractor Procurement:

100% CDs (Finish Milestone)
Bid Day

Submittal/Material Procurement:

Submittals Complete
Doors, Frames, Hardware Approved
Door Frame Delivery
Windows Approved
Curtain Wall Approved
Steel Approved
AHUs Approved

Structure:

1st Pier Pour
1st Slab Pour
Concrete Structure Top Out
Tower Crane Up
Tower Crane Down
Man/Material Hoist Up
Man/Material Hoist Down
Structural Steel Top Out

Dry-In:

Exterior Wall Start
Window Start

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Curtain Wall Start

Roof Start

Temporary Dry In

Dry In

Interior Construction:

MEP Overhead Start

Interior Studs Start

Permanent Power

Conditioned Air On

1st In Wall Inspection

1st Wall Cover-Up Approval

1st Overhead Inspection

1st Overhead Cover Up Approval

Elevator Temporary Use Start

Completion:

1st Contractor Punch List

1st A/E Punch List

TAB Start

Commissioning Start

Substantial Completion

Owner Move-In

Final Completion

3.3 LINKAGE REQUIREMENTS:

- A. The following requirements are meant to eliminate duplication of data and possible inconsistencies, while maintaining data integrity and responsibility.
- B. Links within an Individual Schedule File: The Contractor shall create and update predecessor and successor links within an individual schedule. These links will be subject to review by the parties outlined in the Organizational Structure above. No activity shall have less than one predecessor and one successor, unless it is the first or last activity in the entire schedule.
- C. Use of Lag: Do not use Start-to-Finish relationships.
- D. Use of Negative Float: Do not include Negative Float in the baseline schedule.

3.4 STATUS SCHEDULES

- A. Submit schedules as to their current status by updating the latest data as often as the responsible party feels necessary to maintain accurate records and presentations, but no less frequently than the timeline and requirements below.

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- B. Design Schedule: Update the design schedule by the last Friday of the month. The data date to be used shall be at least the first of the month, if not more current. The Architect/Engineer shall perform the design schedule update.
- C. Baseline Schedule: Include data about the Project that represents its state before the work actually began. In Microsoft Project, a baseline is a copy of the Start, Finish, Work, and Cost for all the Resources and Assignments, plus Duration for all the Tasks in the Project.
- D. Preconstruction Schedule: Update the preconstruction schedule by the last Friday of the month. The data date to be used shall be at least the first of the month, if not more current. The Contractor shall perform the update.
- E. Construction Schedule: Update the construction schedule by the last Friday of the month. The data date to be used shall be at least the first of the month, if not more current. The Contractor performs the update:
 - 1. Provide a narrative describing the changes from the previous month's version
 - 2. Should the schedule fall behind, submit an appropriate recovery plan in addition to the requirements above.
- F. Current Schedule: Once a month, the scheduling team shall meet to update the schedule. All schedules shall be opened and updated. This process will not change the data date of the individual files, but will incorporate all changes from all schedules.
 - 1. The purpose of these meetings is to analyze the overall changes to the schedule and determine the cause of the variances.
 - 2. Should the schedule fall behind, the Contractor shall submit an appropriate recovery plan.
- G. GMP Milestone Schedule: Include major project activities and significant project milestones in the GMP milestone schedule.

3.5 CALENDARS

- A. Three calendars may be considered for use. The Contractor shall designate which calendar is used when submitting the baseline schedule. Additional calendars may be added as the need arises, subject to Owner approval.
- B. Working Calendar: A 5-day/work week calendar, including all holidays. Use this calendar for all activities not affected by inclement weather. All design and Owner activities will use this schedule. Generally, all construction activities taking place within the confines of an enclosed building will use this schedule.
- C. Weather Calendar: A 5-day/work week calendar, including all holidays and weather days. Use this calendar for all activities that could be affected by inclement weather. This schedule is reserved exclusively for the use of the construction team.
- D. Contractual Calendar: A 7-day/week calendar. Use this calendar for all activities whose durations are defined by the language of the Contract.

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3.6 APPROVALS

- A. Schedules will be reviewed and approved as part of Project development. This section describes those approvals, based on the type of schedule. Schedules will not be considered approved unless the Owner has provided a letter to the Contractor or design professionals. Upon approval, the schedule will be established as the baseline and may not be altered without the Owner's written approval. All submissions require submittal of the following reports in electronic PDF format and two hard copies.
 - 1. Predecessor/Successor Report
 - 2. Total Float Report
 - 3. Complete Schedule with Critical Path Outline
- B. Design Schedule Approval: The Architect/Engineer shall submit a detailed design schedule to the Owner within 10 calendar days of the Notice to Proceed for design.
- C. Construction Schedule Approvals: The Contractor shall submit all construction schedules to the Owner for review prior to approval of the first payment application at the appropriate corresponding phase of the Project. Schedules required for submission are:
 - 1. Preconstruction/Design Schedule
 - 2. GMP Milestone Schedule(s)
 - 3. Detailed Baseline Construction Schedule

3.7 SCHEDULING SUBMITTALS

- A. Design Schedule: The Architect/Engineer shall submit for the Owner's review and approval an updated, detailed design schedule.
 - 1. The detailed design schedule shall include:
 - a. Design Milestones (as outlined in the contract documents)
 - b. Document submissions for review and approval by the Owner
 - c. Document submissions to the Contractor for bidding and construction
 - d. Critical deadlines for Owner approvals
 - e. Scheduled interactions with Owner
 - f. Anticipated Design Review Sessions with Owner
 - 2. If the schedule has the potential to affect Substantial Completion, the team shall determine possible mitigation strategies including fast tracking and multiple bid packages.
- B. Preconstruction Schedules: The Architect/Engineer or Contractor, as applicable, shall submit a Preconstruction Schedule for the Owner's review and approval. The Preconstruction Schedule shall be updated monthly, consistent with Section 3.3.
 - 1. The Preconstruction Schedule shall cover the following phases and activities:
 - a. Proposed Preconstruction activities prior to issuing the GMP
 - 1) Identify activities including budgeting, GMP Pricing and approvals, and subcontractor procurement in a format sufficient to directly relate to the current Design Schedule.

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- 2) At each successive design milestone (100%SD, 50% DD, 100% DD, 50% CD and 90% CD), update the preconstruction activities to coincide with the current direction on the design package.
 - b. Proposed Procurement activities to be accomplished during the first ninety (90) calendar days after the GMP
 - 1) Identify activities including mobilization, key shop drawings, sample submittals, fabrication and delivery of long-lead elements. Dates should reflect realistic durations.
 - 2) Incorporate procurement activities into the GMP Schedule including all requested revisions.
 - c. Construction Summary activities to be accomplished during the construction phase(s)
 - 1) Identify activities necessary to properly indicate the approach to scheduling the work areas or phases of the work.
 - 2) Show the approximate duration for each summary activity.
 2. Owner shall use the Preconstruction Schedule in the preliminary review of time extension request(s) while the GMP Schedule is being developed.
 3. Within fourteen (14) calendar days after receipt by the Owner, the Owner shall notify the appropriate party of its acceptance or concerns. The Architect/Engineer or Contractor, as appropriate, shall respond to the concerns to the satisfaction of the Owner before submittal of the GMP Milestone Schedule.
- C. GMP Milestone Schedule: With each submission of a GMP (whether stand alone or part of multiple GMPs), the Contractor shall submit a GMP Schedule for Owner review and approval.
- D. Detailed Baseline Construction Schedule: Within seven (7) calendar days following the Notice to Proceed for construction, the Contractor shall submit to the Owner a detailed Baseline Construction Schedule in precedence format (as described in Section 5) for the construction work scope.
1. Schedule shall conform to the requirements outlined in the technical requirements in Part 3.
 2. The Construction Schedule shall be reviewed in the following manner:
 - a. Within fourteen (14) calendar days after receipt by the Owner, the Owner shall notify the Contractor of any comments or concerns.
 - b. Within seven (7) calendar days after receipt of the Owner's request for revisions, with adequate justification, activities, durations, manpower or cost loading, the Contractor shall submit a revised schedule, to the satisfaction of the Owner.
 - c. The Owner will have final review and acceptance of the schedule.
 - d. Upon acceptance of the Contractor's Construction Schedule, the Owner shall issue a baseline schedule acceptance letter.
 - 1) This letter will outline acceptance of the construction schedule for use as the baseline for evaluation of all Work to be performed.
 - 2) Accepted activities shall not be deleted from the construction schedule. In the event that an activity is no longer appropriate, either by change order or otherwise, the activity shall be given a status with zero (0) duration as of the date such determination is made.

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3. The Contractor shall submit an electronic copy of the schedule to the Owner with each presentation. In addition, the Contractor shall submit accompanying schedule reports and graphics as specified in Section 3.8, Required Reports.

3.8 REQUIRED REPORTS

- A. As part of the Detailed Construction Schedule submittals, as well as for each schedule update, the Contractor shall submit the following reports and graphics as indicated (unless otherwise requested by the Owner):
- B. Graphics:
 1. Detailed CPM Schedule with critical path highlighted (Initial Submittal and Revisions)
 2. Executive Summary bar chart (Initial Submittal and Monthly Updates)
 3. Short-Interval bar chart including one week look back and three-week look ahead (Weekly)
- C. Schedule Reports:
 1. Activity listing report showing all schedule activities, sorted by activity number (Initial Submittal)
 2. Milestone Summary Report showing both Contract Milestones and Interim Milestones (Initial Submittal)
 3. Precedence Report including activity predecessors and successors, sorted by activity number (Initial Submittal and Revisions)
 4. Total Float Report sorted by total float (Initial Submittal and Monthly Updates)
 5. Early Start Report grouped and sorted by early start date. (Monthly Updates)
 6. Variance Report comparing current dates to baseline dates (Monthly Updates)
- D. Narrative Schedule Report:
 1. Description of the actual work accomplished during the reporting period (Monthly Updates)
 2. Description of any problem areas (Initial Submittal and Monthly Updates)
 3. Description of current and anticipated delays with recommended corrective actions to mitigate delays (Monthly Updates)
 4. Digger Report (only applies to Primavera P6 scheduling) including a list of explanations of proposed modifications, addition, deletions and changes in logic to the approved construction schedule. If modifications are proposed, submit a revised schedule demonstrating the effects of such modifications. (Monthly Updates)

3.9 SCHEDULE MEETINGS

- A. Monthly Schedule Meetings: Once monthly, on a day mutually agreed to by the Owner, Architect/Engineer and Contractor, conduct a meeting to assess the progress achieved during the previous month. The Contractor shall submit a progress schedule listing all the activities completed and in progress for the previous month and activities schedule for the succeeding three weeks. A bar chart directly derived from the Detailed Construction Schedule shall be used to generate the three-week window. Use the same activity numbers and descriptions in

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the Short Interval Schedule as shown in the Construction Schedule. The Contractor may add further details to monitor this Short Interval Schedule.

- B. Project Schedule Review Meetings: Review each project schedule in depth as part of the Project's periodic (weekly or biweekly, depending on the project) Owner/Architect/Contractor meetings. Schedule issues left unresolved during these meetings will be elevated to discussion at the Monthly Schedule Meetings.

3.10 SCHEDULE MODIFICATIONS

- A. If the Construction Schedule no longer represents the actual execution and progress of the Work, the Owner may require the Contractor to submit a revision to the Construction Schedule.
- B. The Contractor may also request revisions to the Construction Schedule in the event that planning for the Work is revised. If revisions to the Construction Schedule are required, the Contractor shall submit the proposed changes along with a written narrative of the proposed changes. Such revisions to the Schedule shall not alter any of the Project Milestone dates. If accepted by the Owner, the Contractor shall incorporate the changes into the Construction Schedule.
- C. Submit schedule revisions using a copy of the updated Construction Schedule, modified with proposed changes and a narrative explanation of the change(s).
- D. Upon acceptance of a revision, the revised Construction Schedule shall be the basis for evaluating future status, impact and/or changes. The Owner shall confirm acceptance in a formal letter to the Contractor.
- E. Updating the Construction Schedule to reflect actual progress shall not be considered a revision to the Construction Schedule.

3.11 SCHEDULE IMPACTS, DELAYS AND TIME EXTENSIONS

- A. During the course of the Project, it may be appropriate to revise the schedule to incorporate impacts or delays into the Project Schedule. If the Contractor feels there is a schedule impact that warrants a time extension, the Contractor shall notify and present to the Owner a proposed revised Schedule supporting the claim within forty-eight (48) hours of the occurrence causing the proposed change.
- B. Adhere to the following procedure for incorporating impacts into the schedule:
 1. Create a schedule activity (or activities) that represent the scope of the change or delay
 2. Assign durations to the new activity or activities
 3. Determine appropriate schedule logic ties for activities. Assign predecessors and successors to tie into the existing schedule activities. Every effort to mitigate the potential delay by either isolating the impact of the delay or planning "work-around" approaches to the work shall be considered and incorporated where effective.

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4. Load these activities into a copy of the updated schedule that immediately preceded the impact issue's time frame. For instance, if an impact issue occurs during mid-April, enter the new activities into the March 31 (status date) update.
 5. After the Schedule is recalculated with these impact activities, the Owner shall review the effect on the Project Milestones to determine if the time extension is merited.
- C. Submit the impacted Schedule, along with the narrative describing the new schedule activities and logic ties that comprise the impact or delay issues, to the Owner for review and approval. If approved, these impact or delay issues will become a permanent part of the Project Schedule.
- D. The Contractor may not unilaterally change the Project Schedule to justify schedule impacts without the approval of the Owner.
- E. Activity delays shall not automatically mean that an extension of the Contract Time is warranted or due to the Contractor. It is possible that an impact or delay will not affect the critical activities or cause non-critical activities to become critical. An impact or delay may result in absorbing a part of the available total float.
- F. Float is not for the exclusive use of the Contractor. The Owner will grant contract time extensions only to the extent that equitable time adjustments to the activity (activities) affected by the impact or delay exceeds the total float along the critical path of activities at the time of the delay. The Contractor shall request use of float in writing for approval by the Owner in accordance with the Contract Documents.
- G. Weather Days not used in previous months may be allocated for the purpose of mitigating the schedule. The Contractor shall use Saturday as a make-up for approved rain day impacts.

3.12 SCHEDULE LOGS

- A. Maintain a schedule log that outlines the following:
1. Identifies conflicts and deviations from the Baseline Project Schedule for the selected package.
 2. Provides justification for deviations from the Baseline Project Schedule for the selected package.
 3. Aids in the creation of a mitigation plan for recovery of the Baseline Project Schedule.
- B. Update the schedule log for review by the Owner, Architect/Engineer and Contractor on a monthly basis.

END OF SECTION 01 3200