

SECTION 01325

CONSTRUCTION SCHEDULE REQUIREMENTS

1.1 CONSTRUCTION SCHEDULE / PROGRESS DOCUMENTATION

A. Master Construction Schedule

1. General Requirements –
 - a. Submit and maintain Critical Path Method (CPM) schedule for the Work. Computerized network diagram shall serve as 'Master Construction Schedule' for Project, giving mathematical analysis (printout) of that network, which verifies and validates logic and planning and defines critical path. Display accepted schedule in site construction office at all times and review with Subcontractors each week. Schedule shall be acceptable to Architect and Owner.
 - b. Utilize CPM schedule for planning, organizing, and directing the Work, for reporting progress, and for requesting payment for work completed. Review schedule each month in progress meeting.
 - c. Clearly explain abbreviations used in CPM schedules in legend of symbols, either separate or attached.
2. Schedule Requirements –
 - a. CPM schedule shall clearly show sequential interdependencies, with activity duration and float clearly represented. Sequence(s) of activities with no float shall be clearly identified as Critical Path(s).
 - b. Scheduling system shall be capable of baseline comparison analysis. Upon development and acceptance of schedule, 'freeze' initial schedule as baseline schedule. As work progresses, provide graphics displaying actual progress bars versus baseline or target bars.
 - c. Activity durations shall be in work days.
 - d. Activity Content –
 - 1) CPM schedule shall include but not be limited to following activities as they apply to Project.
 - a. Pre-Construction tasks.
(To be listed separately from the actual Construction tasks under a Pre-Construction summary bar)
 - b. Construction tasks
(To be listed separately from the Pre-Construction tasks under a Project Duration summary bar)
 - c. Shop drawings Submittal and approval process.
 - d. Ordering, fabrication, and delivery of major materials and equipment.
 - e. Check-out, start-up, and test and balance of major equipment
 - f. Submittals of record drawings and maintenance manuals.
 - g. Cleanup and punch out tasks.
 - h. Critical coordination activities required to insure timely support and inspections.
 - i. Owner purchased/installed items and Owner's separate Contract work.
 - j. Pre-final, final inspections and substantial completion.
 - k. Final payment.
 - l. Owner occupancy.
 - 2) Schedule Submittal activities to allow sufficient time for work to be procured and installed, even if submittal is unacceptable and re-Submittal is required.
 - 3) CPM schedule shall reflect anticipated delays, such as electrical power change overs. Also, such items as weather delays, allowing for normal weather conditions as agreed upon by Owner and Contractor.

SECTION 01325

CONSTRUCTION SCHEDULE REQUIREMENTS

3. Submittals –
 - a. Submit initial submittal, complete revisions, and periodic reports in three hard copies, one reproducible and two prints or plots, and one copy on 3.5 inch floppy discs.
 - b. Submit completed network program consisting of GANTT, and mathematical analysis within 20 days after receipt of Notice to Proceed. Allow 10 days for Architect's review.
 - c. Submit schedule of submittal activities extracted from master schedule within 30 days after receipt of Notice to Proceed.
 - d. During preparation period, review with Owner and Architect development status of network CPM schedule. This review shall occur weekly until final submittal of schedule.
 - e. Submittals to Owner of initial and monthly CPM schedule charts shall include three sets of all reports as outlined below. Plots shall be color, blue-line, printed or photocopied prints and, if segmentally generated, fully assembled. Highlight critical path when the critical path is not clearly defined.
 - f. Participate in Architect's review and evaluation of submitted network diagrams and mathematical analysis of diagrams. Resubmit revisions necessary due to review within 10 days after review.
 - g. Contractor and major Subcontractors shall review network CPM schedule before final submittal.

4. Report Formats –
 - (a) Standard set of reports submitted each month including initial submittals shall consist of following –
 - 1) Graphics –
 - a. GANTT chart of entire project. Progress bar chart shall include target or baseline comparison bars. Bar positions shall be early start / early finish with float clearly defined.
 - b. GANTT charts shall include tabulation of each activity. Furnish following information for each activity on GANTT charts. Sequencing of columns on GANTT chart shall match following and in order as listed –
 - (1) Initial / Submittal Schedule
 1. Related Specification Code #
 2. Responsibility – List each responsible contractor, individual or supplier directly related to the task. If there is no current responsibility for a particular task item it should be left blank with the understanding that the related task item is not fully resolved.
 3. Activity / Task Description
 4. Estimated duration of activity / task
 5. Start date by calendar date.
 6. End date by calendar date.
 7. Latest start date by calendar date.
 8. Latest end date by calendar date.
 9. Total slack or float time in calendar days
 10. Gantt view shall show the current schedule bar.
 - (2) Progress Schedule Updates
 1. Related Specification Code #
 2. Responsibility – List each responsible contractor, individual or supplier directly related to the task. If there is no current responsibility for a particular task item it should be left blank

SECTION 01325

CONSTRUCTION SCHEDULE REQUIREMENTS

- with the understanding that the related task item is not fully resolved.
3. Activity / Task Description
 4. Actual Start of activity / task
 5. Actual Finish by calendar date.
 6. Percentage of activity achieved.
 7. Remaining Duration in calendar days.
 8. Gantt view shall show the current schedule bar in relation to the baseline schedule bar.
 9. Optional upon request;
Depending on the information requirements at the time, additional fields may be necessary, i.e. Early Start, Early Finish, Late Start, Late Finish, Total Slack, Total Float, Etc.
- (3) Schedule / Schedule Of Values Requisition For Payment
1. Related Specification Code #.
 2. Responsibility – List each responsible contractor, individual or supplier directly related to the task. If there is no current responsibility for a particular task item it should be left blank with the understanding that the related task item is not fully resolved.
 3. Activity / Task Description
 4. Total Activity Cost
 5. Cost Completed To Date
(Percentage of Cost Complete must equal the percentage of work complete)
 6. Gantt view shall show the current schedule bar in relation to the baseline schedule bar.
- c. Program or means used in making mathematical computation shall compile total value of completed and partially completed activities. Program shall also accept revised completion dates as modified by Change Order time adjustments and accompanying recomputations of float dates.
- b. Graphics outlined above shall comply with following criteria unless noted otherwise.
- 1) Sheet size of diagram shall be 11 by 17 inches minimum and time scaled in month as the major timescale and weeks as the minor timescale unless approved otherwise.
 - 2) On each page include title block containing as minimum following information –
 - a. Project Title
 - b. Project Number
 - c. Contractor's Business Name
 - d. Date of Submittal and Revision
(The Date shown must clearly show the current preparation date and separately the revision date of the current schedule - this is a hard dated entered and not an auto or status date)
 - e. Submit a separate Legend Page of Symbols and Abbreviations as applicable.
 - 3) Prepare and submit to Architect upon request additional charts, reports, and current copy on disk of Project program.
5. CPM Schedule Implementation And Monitoring –
- a. Monthly CPM schedule charts and reports shall accompany Contractor's pay request for work completed. A schedule of values representing the activity

SECTION 01325

CONSTRUCTION SCHEDULE REQUIREMENTS

- line item cost shall be used in the review and payment for work completed. The percentage of cost complete must equal the percentage of work complete.
- b. Where Contractor is shown to be behind schedule, provide accompanying written summary, cause, and explanation of planned remedial action.
 - 1) CPM schedules shall reflect those instances, Modifications or other alterations to schedule, which have impact on final completion or interim target dates within schedule.
 - 2) Payments or portions of payments may be withheld by Owner, upon failure to maintain scheduled progress of the Work as shown on accepted CPM schedule.
 - c. Failure to prepare, submit and maintain CPM schedule as specified shall be cause for rejection of other schedules submitted and for possible delay of payment.
 - d. Float time belongs to Project, not to Contractor or to Owner, and may be utilized by both parties.
6. Schedule Changes And Updates –
- a. Update CPM Schedule and submit for review weekly at minimum. Weekly update is required unless agreed upon otherwise. Monthly submittal of CPM schedule and acceptance by Owner is a prerequisite to payment for work for which payment is requested.
 - 1) Correlate Schedule of Values graphically with CPM schedule for evaluation of Payment Request – the percentage of cost complete must equal the percentage of work complete.
 - 2) Manner by which correlation is accomplished shall be subject to review Owner.
 - b. Include additional activities added to CPM schedule by Contractor submitted schedule charts. It is Owner's intent that Project be managed and operated by CPM schedule. Payment Requests may be held up until CPM schedule is brought back into compliance with Contract Document requirements.
 - c. Once CPM schedule is submitted and accepted, identify modifications to activity durations, logic, values, or descriptions and submit to Owner in writing. Such adjustments shall not impact contracted finish date.
 - d. Any time extension shall be negotiated, for time only, with Owner, Architect, and Contractor.
 - e. If alterations from this method of developing, maintaining, and presenting schedule, notify Architect in writing for approval to do so, stating reason for change.
7. Approved Project Management Software Programs
- a. Microsoft Project 2000 or higher
 - b. Primavera P3 Project Planner
 - c. Primavera Suretrak Project Scheduler

END OF SECTION