

**SECTION 01 32 00**

**CONSTRUCTION PROGRESS DOCUMENTATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preliminary schedule.
- B. Construction progress schedule, with network analysis diagrams and reports.
- C. Daily construction reports.
- D. Material location reports.
- E. Field condition reports.
- F. Special reports.

**1.02 REFERENCES AND RELATED REQUIREMENTS**

- A. AGC (CPSM) - Construction Planning and Scheduling Manual; Associated General Contractors of America; 2004.

**1.03 SUBMITTALS**

- A. Preliminary Schedule: Within fourteen (14) days after date of Owner's Notice of Intent to Award the Contract, submit preliminary schedule defining planned operations for the first sixty (60) days of Work, with a general outline for remainder of Work.
  - 1. Submit native electronic file(s) to Architect and Owner for review.
  - 2. If preliminary schedule requires revision after review, submit revised schedule within ten (10) days.
- B. Construction Schedule: Within fourteen (14) days after date established in Notice to Proceed, submit draft of proposed complete schedule for review.
  - 1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.
  - 2. Not less than ten (10) percent of the initial Application for Payment may be withheld until a complete Construction Progress Schedule has been submitted in a form acceptable to Architect and Owner.
  - 3. Neither Owner or Architect shall be responsible for review of the entire substance of the Progress Schedule.
  - 4. Within sixty (60) days after dated established in Notice to Proceed, submit complete schedule.
  - 5. Submit approved updated schedule including native electronic files with each Application for Payment.
  - 6. Submit native electronic file(s) to Architect and Owner for review and approval.
- C. Daily Construction Reports: Submit at monthly intervals with Application for Payment.
- D. Material Location Reports: Submit at monthly intervals with Application for Payment.
- E. Field Condition Reports: Submit at time of discovery of differing conditions.
- F. Special Reports: Submit at time of unusual event.

**1.04 QUALITY ASSURANCE**

- A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with five (5) years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within forty-eight 48 hours of request.

- B. Develop and portray in a manner consistent with Architect's and Owner's ability to interpret the information conveyed by the Schedule. Make any and all format or other changes required by Architect and Owner to facilitate their interpretation of the Schedule.

### **1.05 SCHEDULE FORMAT**

- A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- B. Diagram Sheet Size: Maximum 30 x 42 inches or width required, unless approved or requested by Architect or Owner.
- C. Scale and Spacing: To allow for notations and revisions.

## **PART 2 PRODUCTS**

### **2.01 PRELIMINARY SCHEDULE**

- A. Prepare preliminary schedule in the form of a preliminary network diagram.
- B. Content
  - 1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
  - 2. Identify each item by specification section number.
  - 3. Identify work of separate buildings, floors, systems and other logically grouped activities as approved by Architect and Owner.
  - 4. Include conferences and meetings in schedule.
  - 5. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
  - 6. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, Products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.
  - 7. Coordinate content with schedule of values specified in Section 01 20 00 - Price and Payment Procedures.
  - 8. Include not more than thirty (30) calendar days for punch list and final completion, unless otherwise indicated.
  - 9. Provide legend for symbols and abbreviations used.
- C. Logic: Schedule shall use retained logic during the development and updating of the schedule. Any function that would cause the retained logic of the logic network to be overridden is prohibited unless approved, in writing and in advance, by the Architect and Owner.

### **2.02 NETWORK ANALYSIS**

- A. Prepare network analysis diagrams and supporting mathematical analyses using the Critical Path Method.
- B. Schedule shall include date of Notice to Proceed, date of Substantial Completion, and date of Final Completion in accordance with Contract Documents.
  - 1. Critical Path shall be clearly indicated on Schedule.
  - 2. Not more than twenty (20) percent of the progress activities shall be on the Critical Path at any one time.
  - 3. Not more than five (5) percent of the total individual activities may exceed \$20,000 or twenty (20) calendar days (per activity) without prior approval of Architect and Owner.
- C. Illustrate order and interdependence of activities and sequence of work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.
- D. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using working days, and identify for each activity:

1. Preceding and following event numbers.
  2. Activity description.
  3. Estimated duration of activity, in maximum twenty (20) day intervals.
  4. Earliest start date.
  5. Earliest finish date.
  6. Actual start date.
  7. Actual finish date.
  8. Latest start date.
  9. Latest finish date.
  10. Total and free float; float time shall accrue to Owner and to Owner's benefit.
  11. Monetary value of activity, keyed to Schedule of Values.
  12. Percentage of activity completed.
  13. Responsibility.
- E. Analysis Program: Capable of compiling monetary value of completed and partially completed activities, accepting revised completion dates, and recomputation of all dates and float.
- F. Milestone completion dates shall be clearly shown on the Schedule.
- G. If abbreviations are used on the Schedule, a legend shall be provided to define all abbreviations.
- H. Required Reports: List activities in sorts or groups:
1. By preceding work item or event number from lowest to highest.
  2. By amount of float, then in order of early start.
- I. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
1. Utilize Primavera Project Planner V3.1 or equal alternative approved by Architect and Owner.
- J. Schedule shall accurately portray intended methodology of construction at all times. Use appropriate relationship associations between all activities (start-to-start, finish-to-start, start-to-finish and finish-to-finish) as well as adjustments to relationships (lead/lag).
- K. All activities save the first and last activities shall be linked to other activities both before (predecessors) and after (successors) to the activity.
- L. Logic network, including predecessors/successors, relationship associations and lead/lag durations, shall not be changed following Architect and Owner approval of the Construction Schedule without written advance approval by both Architect and Owner.

### **2.03 SCHEDULE - DRIVEN REQUIREMENTS**

- A. A schedule for the purchase, delivery, and receipt of critical items required for performance of the Work, showing lead times between purchase order placement and delivery dates, shall be integrated with the Construction Progress Schedule. Neither the Architect nor the Owner shall be deemed to have approved or accepted any such material, or its schedule, nor deemed to have waived this requirement if some or all of the material is not received.
- B. Should the Contractor fail to meet any scheduled date as shown on the current Construction Progress Schedule, the Contractor shall, if requested, be required at its own expense to submit within ten (10) days of the request an updated Construction Progress Schedule. If the Contractor's progress indicates to the Owner that the Work will not be Substantially Completed within the Contract Time, the Architect and Owner may require the Contractor develop a Recovery Schedule that adequately demonstrates how the Contractor will, at its own expense, increase its work force and/or working hours to bring the actual completion dates of the activities into conformance with the Construction Progress Schedule and Substantial Completion within the Contract Time. The Recovery Schedule shall not be in excess of fifteen (15) working days without the expressed written approval of Architect and Owner. Neither the Owner nor the

Architect will, however, be obligated to review the substance or sequence of the Construction Progress Schedule or otherwise determine whether it is correct, appropriate or attainable.

- C. Schedule Float Utilization:
1. Any float time to activities not on the critical path shall belong to the Project, and may be used by the Project to optimize its construction process. Any float time between the end of the final construction activity and the final completion date shall belong to the Owner, and may be used by the Owner in determining if additional contract days are to be awarded for changes in the contract or for delays to the contract caused by the Owner. The Contractor will not be entitled to any adjustment in the Contract Time, the Construction Schedule, or the Contract Sum, or to any additional payment of any sort by reason of the Owner's use of float time between the end of the final construction activity and the final completion date or by reason of the loss or use of any float time, including time between the Contractor's anticipated completion date and end of the Contract Time, whether or not the float time is described as such on the Construction Progress Schedule.
- D. Closeout and Commissioning: In the Contractor's Construction Schedule provide key activities required under Sections 01 77 00 - Closeout Procedures, 01 78 00 - Closeout Submittals and 01 91 13 - General Commissioning. These activities will be cost-loaded to a cumulative total of not less than 2 percent of the contract value.

## 2.04 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
  2. List of separate contractors at Project site.
  3. Approximate count of personnel at Project site, by trade and subcontractor.
  4. Equipment at Project site.
  5. Material deliveries.
  6. High and low temperatures and general weather conditions, including presence of rain or snow.
  7. Accidents.
  8. Meetings and significant decisions.
  9. Unusual events (refer to special reports).
  10. Stoppages, delays, shortages, and losses.
  11. Orders and requests of authorities having jurisdiction.
  12. Change Orders received and implemented.
  13. Construction Change Directives received and implemented.
  14. Services connected and disconnected.
  15. Equipment or system tests and startups.
  16. Partial completions and occupancies.
  17. Substantial Completions authorized.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.
- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

## 2.05 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

### **PART 3 EXECUTION**

#### **3.01 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with Architect and Owner at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within five (5) days.

#### **3.02 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Update diagram to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.

#### **3.03 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

**END OF SECTION**