

## CONSTRUCTION PROJECT DOCUMENTATION

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. Specified Herein: General Requirements for standards for Scheduling Programs and Progress Reporting.

## 1.2 ORGANIZATION AND SCHEDULES

- A. Personnel: Each Contractor shall:

1. Employ, establish and identify all administrative, supervisory and operational personnel, personnel responsible for coordination of the work and necessary for the adequate performance of the Work.
2. Submit list of key personnel for acceptance by the Architect. Do not change or replace established key personnel, except for just cause as permitted by the Architect during the conduct of the Work.
3. Furnish to the Architect in writing, the name, addresses and telephone numbers of responsible persons employed who are to be contacted in the event of an off-hours emergency at the construction site.
4. Before starting the work, prepare complete progress schedule for the work, in accordance with Supplementary Conditions, established delivery and installation dates of essential materials, items of work, and adjust said schedule to the satisfaction of the Architect so that the Project completion date is properly established. Conduct the work and activities in conformance with schedule as approved by the Architect. Keep records of actual compliance with schedule and submit current updated copies with each monthly Application for Payment.
5. Prepare a schedule, in accordance with Supplementary Conditions which schedule shall be subject to changes from time to time in accordance with the progress of the work, fixing the dates for the submission of shop drawings, for the beginning of manufacture, delivery, and installation of materials.

- B. The General Contractor will arrange and schedule progress meetings as specified in Division 1 Section "Project Management And Coordination."

## 1.3 CONSTRUCTION SCHEDULE, PROGRESS AND MONITORING REPORTS

- A. If the Contractor does not have an established computer generated project management program in place that is acceptable to the Architect, the following procedures will satisfy the requirements for this section.
- B. The Contractor shall pursue the necessary steps of development and analysis so that the first full network diagram can be accepted and placed into unrestricted use no later than 90 days following the notice of award and will:

1. Train and inform key project personnel including contractor's personnel, in the proper methods of providing data and utilizing the progress schedule information.
2. Establish regular procedures for monitoring, updating and reporting, coordinated with progress meeting dates and payment request dates.
  - a. He will not make non-essential changes in the logic before updating unless reviewed with the concerned parties.
  - b. He will update when, and as often as, it is no longer possible to utilize the established critical plan of work.
  - c. Engage, or employ, a consultant (Programmer) who is a recognized expert in CPM scheduling and operations, to assist with the progress scheduling procedure. When the Architect, and the Engineer are satisfied that personnel are sufficiently skilled, experienced and equipped for CPM scheduling, the requirements for an engaged consultant will no longer apply.
- C. The General Contractor will coordinate schedules for individual Contracts within ninety (30) days after conclusion of bidding and will, along with the Owner, establish and approve a detailed fabrication and construction schedule based on a critical path analysis of construction activities and sequence of operations needed for the orderly performance and completion of any separable parts of any and all work in accordance with the Contract. The schedule shall be Critical Path Method (CPM) type in the form of a precedence network diagram and activity listings. The network diagram shall show in detail and in order sequence all relevant activities, completing all work and any separable parts thereof. Three activity listing printouts shall be provided to the Architect and all prime contractors no later than 15 days after acceptance of the network diagram. One listing shall be sorted by work items; one shall be sorted by "late start" work items; and one shall show the following information for each activity on the network diagram:
  1. Identification by work item number
  2. Duration (by work day schedule)
  3. Description
  4. Earliest start and finish dates
  5. Latest start and finish dates
  6. Total float time
- D. The Programmer shall select and use a recognized commercial program of EDP software and hardware of sufficient capacity to run programs that will provided adequate output data, is intended for building construction progress schedule management, and is acceptable to the Architect, and the Engineer.
- E. Minimum Procedures: Establish procedures and processing routines and include data to whatever extent is consistent with the complexity of the work, and necessary to achieve the required degree of effectiveness and accuracy in the development of an "optimum" progress schedule. Use "one day" as a unit of time.

1. **Activities:** Before attempting to produce a network diagram, prepare a listing of activities involved; include every activity having a possible bearing on the time required to complete the work. List each activity's estimated time duration, and document its interface or sequencing requirements in relation to other activities; impart the best logic which can be foreseen for the whole construction process.
  2. **Organization:** Utilize the preliminary progress schedule (if any), and sketch the first anticipation of a skeleton network to help understand the essence of a probable critical path.
  3. **Processing:** Input the prepared data to the EDP program and process to produce the output data or computer-drawn network (hand drawn network is acceptable). Revise data, reorganize necessary sequences, and reproduce as many times as necessary to produce an optimum arrangement within the limitations of the Contract time. Display full network on a single (or pieced together) sheet, with critical path marked and located near center of network, and located paths with most float near edges. Sub-networks are permissible on separate sheets for activities clearly off the critical path.
  4. **Initial Issue:** Prepare initial issue of progress schedule network from a listing of straight "early start-total float" sort. For identified and described activity, show associated events, duration, float, and dates for early start/finish and late start/finish. In listing, identify which items are critical. Produce a listing of dollar-volumes of total work performed calculated at intervals matching the projected times for payment requests.
- F. The Programmer shall promptly inform the Architect of any proposed change in the schedule and shall furnish a revised schedule within ten calendar days after approval of such change. The schedule shall be kept up to date, taking into account the actual progress of work and shall be revised, if necessary, every thirty calendar days. The revised schedule shall be sufficient to meet the requirements for the completion of the several parts of any and all work as set forth in the Contract.
- G. During the performance of any work, the Programmer shall submit, to the Architect, monthly progress reports in duplicate on the actual progress. Such progress reports shall include the following:
1. A copy of the construction schedule outlining progress to date for the various major items of work.
  2. A manpower and equipment forecast for the succeeding thirty calendar days.
  3. A narrative summation indicating the status of the work performed and other pertinent activities including the actual percentage of work completed and an estimate of the percentage of work completion in the succeeding thirty calendar days.
- H. In addition to the above, each Contractor shall, within fifteen (15) calendar days from and after receipt of written notice of award, and before the first progress payment is made, submit and obtain approval of a manhour schedule and equipment and materials quantity schedule for the duration of the Contract period. Thereafter each Contractor shall resubmit an update of these schedules on a monthly basis. Format for submittals shall be as directed.
- I. In preparing the manhour schedule and equipment and materials quantity schedule, the Contractor shall utilize the subdivision of work activities developed in the construction schedule. The selection of specific activities and details of these reports will be mutually agreed so as to avoid having Contract keep two sets of books. As part of the above items each prime Contractor shall submit the following data on a weekly basis:

1. Actual man hours expended during the previous week in the same subdivision of work activities as originally scheduled.
  2. Actual quantities of materials installed during the previous week in the same subdivision of work activities as originally scheduled.
- J. Submittal and Distribution: The Programmer shall
1. Submit initial issue for acceptance.
  2. When authorized, distribute copies to the Architect, Engineers, all Prime Contractors, their principal subcontractors and suppliers or fabricators, other identified (by the Contractors) with a need-to-know schedule responsibility, and other parties as directed by the Development Manager.
  3. Post copies in project meeting rooms and field (temporary) offices.
  4. Whenever revisions are completed, distribute and post subsequent updated issues to the same entities except those who have completed assigned work and are no longer involved in performance of scheduled work.
  5. Each network diagram and its corresponding activity listings shall be clearly identified and correlated by issue number and date.

#### 1.4 COORDINATION

- A. Examination: Before starting the Work, and from time to time as the work progresses, each Prime Contractor and each designated major subcontractor shall examine the work installed by others insofar as it applies to his work and shall promptly notify the Architect if any conditions exist that will prevent him giving satisfactory results in his own work. Should the work be started without such notification, it shall place upon him the responsibility for replacing any of his work that it may be necessary to remove, in order to correct such faults.
- B. Ordering of Materials: The Contractor shall place orders for materials and equipment to be employed in the work, other than those designated herein to be furnished by the Owner, as soon as possible after the award of the Contract.
- C. Availability of Specified Materials: The Contractor shall keep the Architect informed as to the availability of all specified materials and equipment, advise them promptly in writing of all orders placed, and of such materials and equipment as may not be obtainable for purposes of the Contract, whether due to conditions of the market or other limiting and governing factors. The Owner reserves the right to require, as a condition precedent to acceptance of a substitute material, an unqualified full value guarantee.

#### 1.5 COOPERATION WITH OTHERS

- A. Other Contractors and other Sub-contractors will be working at the site during the performance of this Contract, and each Contractor's work may be interfered with as a result of such concurrent activities. The Architect will use its best efforts to coordinate the work of all Contractors so as to minimize interference with or suspension of work of any Contractor, consistent with orderly and expeditious performance and completion of the project as a whole.

- B. Each Contractor shall fully cooperate with other Contractors to avoid any delay or hindrance of their work. The Architect may require that certain facilities be used concurrently by the Contractor and others.

**\*\*END OF SECTION\*\***

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