ARC 226 Construction Scheduling

Chapter 4

Bar Chart Schedules

Introduction/History

- Most common method for scheduling in the construction industry
- Used in conjunction with other methods
  - May be used as a stand-alone method
- Visual or graphic representation of the project plan
  - Activities, durations, dates
  - Forces detailed analysis of the project
- Easily read and understood
  - Frequently the primary method used to communicate the project plan
- Also referred to a Gantt chart or Gantt schedule

Creating Bar Charts

- Use graph paper
- Write the calendar across the top
  - Work days only
  - All days, with non-work days grayed out
- List the first activity on the left
  - Indicate the days on which that activity will take place, using a bar
- List the subsequent activities in order with their corresponding bars
  - If two items start on the same day, list the earlier finishing item first

Bar Charts, cont.

- Use a computer generated chart to improve clarity
- Length of the bar represents the duration of the activity
  - The durations should be based on historical data, not a guess
  - Take info from the quantity takeoff and apply a productivity rate
- Consult with other members of the management team during the creation of the schedule
  - Make a preliminary list of activities and their durations
  - Input into the chart format

Determining the Level of Detail

- What level of detail should be used for the chart?
  - Should the footings and foundation be one activity or separated?
- Keep in mind the goals of the schedule
  - Force detailed thinking about the project
  - Communicate that plan to others involved
- Use a level of detail appropriate for the goals of the project
  - Don't make the schedule too detailed
  - Give enough detail to provide control of the job

Updating Bar Charts

- Can be problematic for bar charts
- When an activity is ahead or behind, dependent activities are not automatically updated
  - Will be much easier with a computer CPM schedule

Showing Progress on a Bar Chart

- Comparing the scheduled dates with the actual dates
  - Helps reward outstanding performers
    - Motivation
- Choose a unit that is applicable to the material involved
  - C.y. for concrete (per person)
- Create a bar chart with the intended durations
  - Leave space below the intended durations to show the actual durations
  - Display the results and update regularily at the jobsite to use as a motivator

Three Week Look-Ahead Charts

- Create a chart that documents the activities for the upcoming three weeks
  - Activities are typically shown in greater detail
  - Used to analyze the needed workers, tools, equipment, and materials that will be needed
  - Often done by the on-site superintendent
- Must be in agreement with the master schedule with respect to durations and milestones
- Also called a short interval production schedule or construction activity plan

Bar Charts with Excel

- Calendar across the top of the sheet
- Activities along the side
- Shade cells according to the duration
  - Leave a space between activities to keep track of actual results
- See examples with the book cd

Computer Generated Chart Examples

- See the accompanying cd for examples of bar charts using Excel, Sure Trak, and P3
- See pgs. 39-41

Conclusion

- Bar chart advantages
  - Can be a good management tool
  - Easy to get a "big picture" perspective of the project
  - Forces detailed thinking and planning
  - Familiar format
  - Provides goals and can measure progress
- Bar chart disadvantages
  - Does not automatically show changes
  - Does not identify critical activities
  - Difficult to see the effects of changes
- Most of the disadvantages are overcome by using CPM methods