

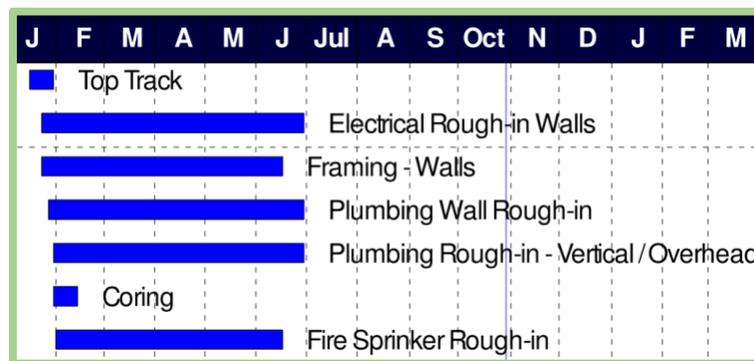
Linear Scheduling: Effective with a Bend of Your Mind

Executive Summary

Gantt charts have long been the established norm for construction scheduling. Linear scheduling is not nearly as common, especially in America, but can be a great tool.

The Gantt chart – the norm.

Everyone has seen a Gantt chart, whether they knew it by name or not. Here's an example:



In this graphical display, the time runs from left to right and activities are represented by bars. The length of the bar is the length of the construction activity. So, for example at the bottom of the chart above, the fire sprinkler rough-in work lasts about 4.5 months from February 1 to June 15.

Simple stuff.

What's missing from the Gantt chart?

Although the above inset only shows a portion of the schedule, nowhere in a traditional Gantt chart-type schedule is there any graphical representation of the project. You cannot see graphically where in the project you are. For example, you may know from a header above a series of activity descriptors that you're in Surgery Room #1, but are you in the southeast corner of the building? Are you adjacent to the pedestrian bridge between two buildings? Are you three floors underground? A Gantt chart only provides words as descriptors and bars which show time duration.

What's missing is a graphical representation of the *geographical* sequence of the work.

Linear scheduling – bend your mind.

You've probably seen one of those animated bridge construction videos where they show you piece-by-piece how a bridge is constructed.



Here's a great one on segmental bridge construction linked to this QR code. [QR]

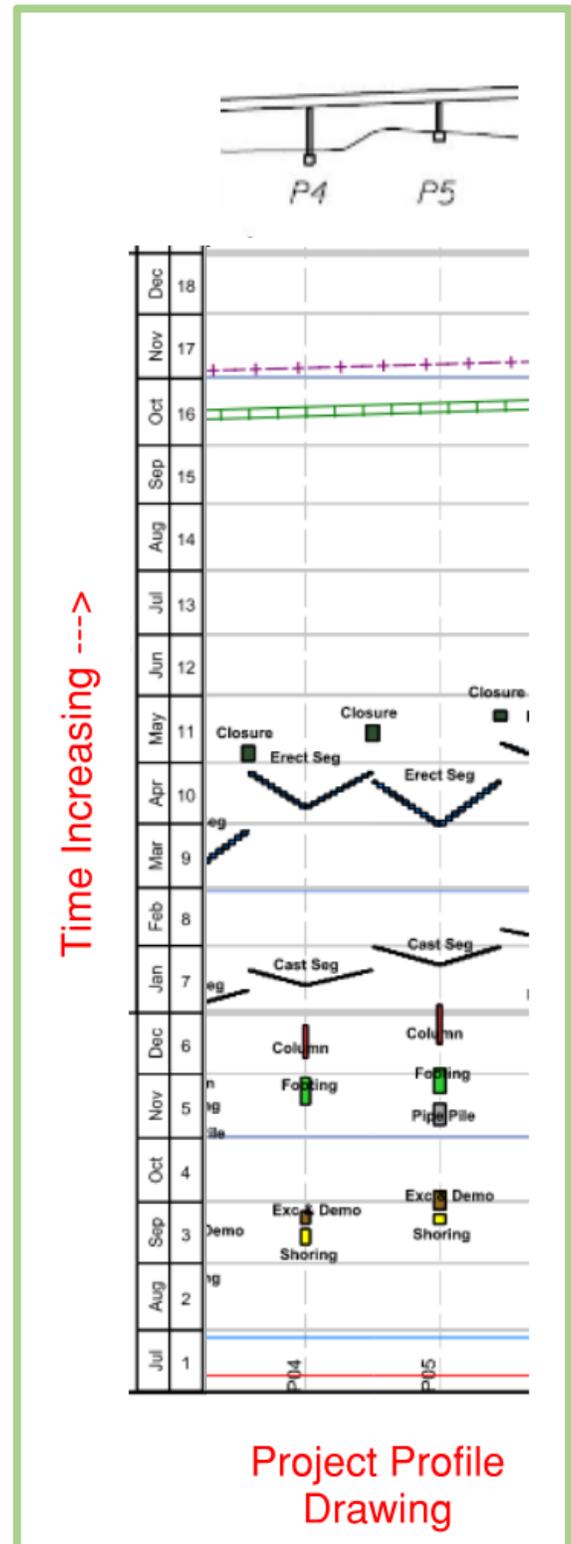
Linear scheduling presents data in a similar way. Notice in this example of linear scheduling at right, in this segmental bridge construction project, that time travels on the vertical axis and the project is shown horizontally in pictorial format along the horizontal axis. This snip shows piers 4 and 5 being built from shoring through final segment erection and closure pour. If you could zoom in to the bridge segments you would see that one segment to the right of Pier 5 is set and then the other one to the left of pier 5 is set in an alternating pattern.

Why is this called linear scheduling?

This method of display shows best in a linear project. This project at right is a multi-span bridge; this method would also be great for a mainline pipe project. These jobs usually start at one end and terminate at the other and are built from left to right along the top of the paper.

What are other benefits?

Imagine at right if you had twenty piers to build and this graph showed one footing then the next



footing then the next footing then the next footing. Then all of a sudden, no footing because you ran into an unknown underground conflict. This is a powerful graphic in showing this disruption.

We recently considered (are still considering) use of this method on a mainline water distribution project. It would be a great display of the hopscotching from one end of the project to the to the other. Imagine the power in graphically showing production inefficiency from jumping between phases of work or jumping around within a phase of work. The power to show an initial schedule with order and logic, and then the as-built schedule of chaos and lack of repetition could be very convincing to a trier of fact: "wow, it looks like the Contractor had a method in place and you disrupted it Ms. Owner. The labor efficiency relied up on at bid time was disrupted by this change in site conditions which was not the Contractor's doing. You better get out your check book."

My Story

I'm trying hard to find a perfect fit and perfect client for this method of scheduling. I was recently on a team for a 100-mile rail job where linear scheduling was used, but because it's not commonplace in America, I'm still trying to build a resume on this method!

Work Safe!

