Job Tracking: Scheduling Part II

by Sal Alfano

Since every client wants to know when their project will be finished, every builder has to have a reliable system for predicting progress. Ideally, this system is easy to establish and maintain, and incorporates features that allow the builder to adjust to the inevitable delays.

Even the smallest construction projects require the coordination of a great many variables. Materials must be ordered in advance, delivered on time, and unloaded. Sufficient manpower must be supplied with the necessary equipment to complete the day's work and prepare for subcontractors, who themselves must have the information they need to supply the proper materials at the appropriate time. None of this should be left to chance.

A good scheduling system accounts for two basic kinds of tasks. Administrative tasks include ordering materials and equipment, selecting products (this often involves helping the owner make choices), and scheduling other tasks, including subcontractor work. Field tasks include all of the work that is performed in the actual construction of the building: framing, sheathing, siding, trim, and so on.

Each of these broad categories can be broken down into smaller subdivisions, and each builder must decide on the level of detail required. As the detail increases, so does the accuracy of the schedule, but it becomes increasingly difficult and more time consuming to maintain. Once the information is assembled, how do you keep track of it? Let's use a simple example: a small exterior deck with a new door from the existing house. The tasks might break down as follows:

Administrative

- Design
- Schedule excavator
- Schedule material delivery
- Select new entry door
- Order new entry door
- Select new exterior lights
- Order new exterior lights
- Schedule electrician
- Select paint and stain
- Schedule painter

Field

- Excavate for piers
- Place footings and piers
- Framing
- Lay deck boards
- Build bench and railing
- Build stair and railing
- Break through new doorway
- Install new door
- Trim and punchout
- Cleanup
- Install new exterior lights
- Paint and stain

Start with a List

The simplest way to develop this schedule on paper is to first put each task in the proper order, and attach a date to each subcategory. This results in a re-shuffling of the original list. You might also want to note who is responsible for, or involved in, the performance of each task. (See Figure 1.)

Figure 1 shows a simple listing, providing the rudiments of a schedule. It shows every task related to the job, when it starts, and who will perform the work. But it leaves a little to be desired. For one thing, it takes some analysis to figure out why the gaps in the dates are there, and again to figure out when certain portions of the work will be complete. It's also difficult to see the interdependency of the tasks.

A more visual presentation often solves these problems. Using a piece of 1/4-inch graph paper or similarly ruled ledger paper, you can display the same information more graphically and in in many ways more clearly (see Figure 2).

Figure 2 can be read and understood at a glance. It's now obvious that the gap between 9/2 and 9/8 is the lead time required to schedule the excavator, and the reason "Task 14, Lay deck board" takes four days is because a weekend

Figure 1

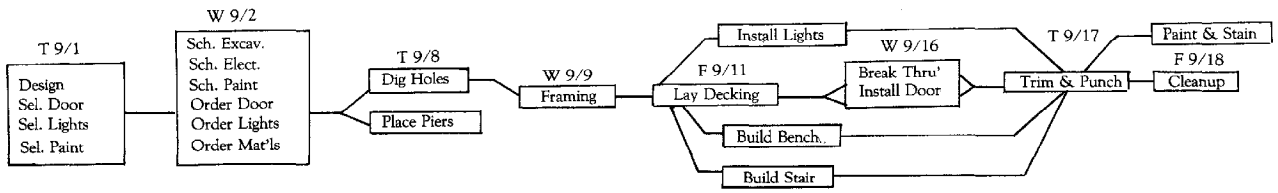
	Task	Date	Personnel
1.	Design	9/1	Office
2.	Select new entry door	9/1	Office
3.	Select new exterior lights	9/1	Office
4.	Select paint & stain	9/1	Office
5.	Schedule excavator	9/2	Office
6.	Schedule electrician	9/2	Office
7.	Schedule painter	9/2	Office
8.	Order new entry door	9/2	Office
9.	Order new exterior lights	9/2	Office
10.	Order material delivery	9/2	Office
11.	Excavate for piers	9/8	Excavator
12.	Place footings and piers	9/8	Crew #1
13.	Framing	9/9	Crew #1
14.	Lay deck boards	9/11	Crew #1
15.	Build bench and railing	9/14	Crew #1
16.	Build stair and railing	9/14	Crew #1
17.	Break through new doorway	9/16	Crew #2
18.	Install new door	9/16	Crew #2
19.	Install new exterior lights	9/16	Electrician
20.	Trim and punchout	9/17	Crew #2
21.	Paint and stain	9/18	Painter
22.	Cleanup	9/18	Crew #2

Figure 2

Task	T 1	W 2	T 3	F 4	S 5	S 6	M 7	T 8	W 9	T 10	F 11	S 12	S 13	M 14	T 15	W 16	T 17	F 18	Personnel
1. Design	X																		Office
2. Select new entry pool	X																		Office
3. Select new exterior lights	X																		Office
4. Select paint and stain	X																		Office
5. Schedule excavator		X																	Office
6. Schedule electrician		X																	Office
7. Schedule painter		X																	Office
8. Order new entry door		X																	Office
9. Order new exterior lights		X																	Office
10. Order material delivery		X																	Office
11. Dig holes for piers								X											Excavator
12. Place footings and piers								X											Crew #1
13. Framing									X	X									Crew #1
14. Lay deck boards											X			X					Crew #1
15. Build bench and railing														X	X				Crew #1
16. Build stair and railing														X	X				Crew #1
17.Break through new doorway																X			Crew #2
18. Install new door																X			Crew #2
19. Install new exterior lights																X			Electrician
20. Trim and punchout																	X		Sam
21. Paint and stain																		X	Painter
22. Cleanup																		X	Sam

Notes:
11. Send transit to site.
17. Remind Sam to check for buried wires.

Figure 3



intervenes. Start and finish dates are shown as well, and as a task is completed, it can be shaded or colored to show the job's progress. There's also plenty of room to revise the schedule. If it rains on Wednesday 9/9 and the framing has to be postponed, it's easy to move everything down a notch. Again, using different colors for revised start and finish days will help keep things straight. You'll also end up with a clear record of when the job was delayed and how it affected the completion date. Notes can be appended, footnote style, to the bottom, or written alongside the appropriate block.

This kind of chart can also be set up on a magnetic board, using markers of varying color and shape which can be easily rearranged. The same effect is accomplished with different colored 3x5 cards or self-sticking labels.

Another method of tracking a job, shown in Figure 3, portrays the schedule as a "strip" which shows all the tasks in their proper sequence. This allows for a better grasp of where tasks might overlap.

With the strip it's easy to see, for example, that the electrician can begin his work any time after the holes are dug, as long as he's finished before the trim begins. And the bench and stairs can be started after the deck is laid as long as they finish before punchout.

Mix and Match

Any of these methods can be combined or modified depending on what you're comfortable with, the size of the project, and the number of jobs you have to schedule in a given period. The basics are a list of tasks, some way to assign them to days of the week, and a simple method of re-assigning them as the need arises. A graphically laid out schedule will greatly improve your ability to visualize how the job falls together and to make adjustments before it starts to fall apart. ■

Sal Alfano is a general contractor from East Calais, Vt.