Reducing Labor Waste With Short Interval Scheduling

BY PERRY DANESHGARI AND HEATHER MOORE

Labor waste is a negative term from both workers' and managers' perspectives. They agree waste should not exist, but they define it differently. For managers, any jobsite activity that can be invoiced but doesn't transfer value to the customer (e.g., rework, unpacking materials or walking to and from work areas) is wasted activity. Field workers, on the other hand, see most of these activities as part of their job, while other things such as planning, tracking or paperwork are considered wasted time. Management sells value; labor gets paid for the hours. To marry these two different perspectives, they both have to be defined quantitatively and qualitatively and made visible for measurements and improvement. Only what is measured gets managed and improved.

One method to bridge this gap is short interval scheduling (SIS®) Developed out of a necessity for short-term planning and based on the daily log book, SIS is a schedule established and measured by the foreman on a short-term basis. SIS allows the foreman to carry out his or her plans for productivity by bringing together the materials and labor needed in the short term, while supporting a coordinated effort of managing all aspects of the job plan. SIS progress reporting helps the foreman, project manager and contractor identify and quantify the actual productive work on the job—allowing the company to better manage the labor, tools and materials.

SIS uses trend monitoring and the science behind statistical process control to allow the contractor, project manager and foreman to take the appropriate and timely action to avoid waste. The reasons for lost productivity become visible, unmasking the job's true requirements for performing the work. The foreman and the project manager can use this information to improve the system-wide causes of lost productivity, revenue and profits.

To set up SIS, the foreman is simply asked to schedule his or her work for the next day and plan the following two days at the basic task levels. The schedule is then scored on a daily basis, with deviations from the schedule identified by a cause.

First, a look-ahead is established as the foreman determines which of the tasks contributing to the completion of the project his or her crew will be working on during the next few days. This form is used to capture the daily activities that the foreman is

Three-Day Look-Ahead Used for Planning Work on the Job

Friday	Today % Complete				
Monday	Day 1 Scheduling	Today % Complete			
Tuesday	Day 2 Scheduling	Day 1 Scheduling	Today % Complete		
Wednesday	Day 3 Scheduling	Day 2 Scheduling	Day 1 Scheduling	Today % Complete	
Thursday		Day 3 Scheduling	Day 2 Scheduling	Day 1 Scheduling	Today % Complete
Friday			Day 3 Scheduling	Day 2 Scheduling	Day 1 Scheduling
Monday				Day 3 Scheduling	Day 2 Scheduling

Report on today's actual completion, schedule three days ahead and adjust the original schedule for the next two days as needed.

planning for the crew for the next three days. The foreman would look ahead two to three days to answer the following questions:
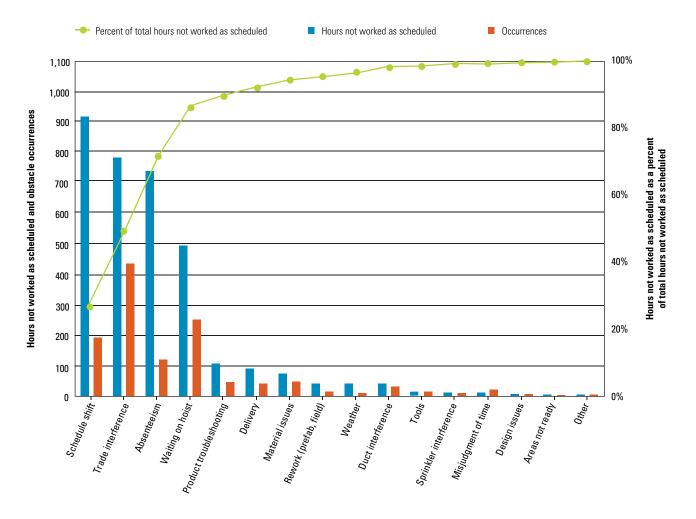
- What needs to be done?
- Who will be doing the tasks?
- How many hours does each worker need to complete the task?

In addition, the foreman can use the SIS form to schedule tools and materials by asking:

- Do my workers have all the materials they need?
- Are the tools in operational form and in place?
- Is any prefabrication needed for their tasks?

The form is filled out by the foreman and distributed to the workers each day. (To make the scoring easier, a list of potential obstacles should be created at the beginning of the job.) At the

end of the day, the foreman will collect the forms and answer a few more questions:

- What did the worker do today?
- Were the tasks finished as scheduled?
- What obstacles prevented tasks from being completed as scheduled?
- If the workers could not finish their tasks, did they do

Identifying Actual Waste in the Field

Legend: — Percent of total hours not worked as scheduled | ■ Hours not worked as scheduled | ■ Occurrences

SIS Objectives

- Making waste visible
- Ranking the waste based on its impact
- Showing the value of planning and scheduling to both managers and field workers
- Improving communication between the crew and supervisory workforce
- Showing field workers that some paperwork can actually help them de-clutter their work

something else? If so, what task was done in place of the scheduled work?

By evaluating the foreman's responses to these questions, a project manager can accurately predict material and manpower needs, track the project plan and improve the bandwidth of communication among everyone involved in the job. Additionally, supervisors can establish the reasons for wasted labor hours and the type of wasted activity by grouping the lost scheduled hours

under the set of waste activities identified at the beginning of the process.

Depending on the company, the leading cause of failure to comply with the short-term schedule could stem from a number of areas: trade interference, rework, insufficient information or design changes to the job. However, the most frequent complaint from the field is that materials are not available. SIS can show that this is a side effect—a direct result of working

on a different task than scheduled—rather than the cause of lost productivity.

The project manager can objectively separate the real cause from the apparent cause. For example, if the crew was forced to work in a different area, the immediately apparent cause may have been that the materials were unavailable, but the underlying cause was that the crew had been forced to change its schedule and work on un-planned tasks. As shown in the chart on page 72, SIS data identifies the actual waste in the field—not only recognizing the portion of work that is not productive, but also assigning a value to it (e.g., identifying the 27 percent of hours going to rework that cannot be seen in the accounting measures, or the 10 percent of hours lost to waiting for other trades to vacate an area).

The ripple effects from increased visibility carry throughout the company. Furthermore, the contractor can determine which types of work and in which situations the company can perform most predictably, putting it in a much stronger position through the entire process—from identifying profitable types of work and correctly estimating costs to managing manpower and materials on the job. **CE**

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