

Measuring Productivity to Increase Profits

Do Manpower Surveys, Time Card Notations and Sampling Really Work?

In today's construction market, staying competitive is a matter of survival. Remaining on top requires construction companies to ensure that operations are efficient and productive. One way to accomplish this is to track productivity and minimize lost time.

If you need to recover lost dollars on a project, inefficiency and loss of productivity cost calculations are easier if a system is in place to measure jobsite performance. A reporting system that contemporaneously records labor usage is an accurate and reliable method of improving productivity, which is defined as the difference in the rate at which work is accomplished over time. However, all construction performance measurement methods have drawbacks and implementation and maintenance costs.

A variety of methods for measuring productivity at a project site exist. An analysis of the relative merit of manpower surveys, time card notations and work sampling follows.

Manpower Surveys

The manpower survey method is performed daily by using a standard form, typically completed by the foremen or superintendents. The most successful survey forms list the common causes of delays, which makes using the form easier and promotes consistent reporting. The forms may have blanks that can be filled in – spaces where multiplication can be completed and the final numerical extensions made.

Project field personnel making the extensions get immediate feedback regarding lost time. However, tabulating extensive results takes time away from their work.

The other option is to have management perform the calculations. When the calculations are performed by management, they see how time is being spent on the projects for which they are responsible. When the data is compiled from the surveys and the cause of lost productivity is isolated, a plan to eliminate the cause must then be developed.

When used as performance measurement tools, manpower surveys take little time to implement. The primary disadvantage is that they can become routine, and if action isn't taken to correct problems, jobsite personnel might lose interest in the effort. Manpower surveys or delay surveys

are tedious to analyze because of the amount of data involved. In addition, the results can be subjective and biased.

If management takes action to eliminate or, at the very least, address the causes of losses in productivity, a manpower survey is an effective way to segregate and associate the loss in productivity to a cause with some measure of certainty.

Time Card Notation

The time card notation method uses the time cards of individual craftsmen and allocates time to specific cost codes, recording how time was actually spent. Each time card lists the possible cost codes that can be used to record how hours were spent on a particular day. The foremen record the lost time of workers they supervise and note the causes for lost time on the bottom of the card – common causes for lost productivity can be listed on the card by number and circled or checked off.

The time card method takes a conscientious effort and is time consuming. Further, because it is continuous, the paperwork related to it is also perpetual and must be maintained.

Still, the time card method is also the most accurate method to track and accumulate productivity losses.

If the foremen are made to feel threatened or believe the information collected will be used to reprimand them, the information reported – if it is reported at all – will be skewed. However, if the data is used reasonably and rationally by management, the foremen will see that the reporting system is beneficial and can help them do their jobs better.

If pre-determined codes are established, recoverable lost time can be assigned to specific categories (defective design document, delayed materials, requests for clarifications, rework, etc.)

If the cause of the lost time originates outside the company (e.g. the owner, architect or a subcontractor), the responsible party can see the actual costs of any actions or inactions. Early notification of the actual costs creates the opportunity to rectify the situation and mitigate or minimize costs.

When the system is in place and the data compiled, the relationship between inefficiency and productivity losses and the standard unit rates can be determined.

Work Sampling

Work sampling is a statistical method used to collect information regarding the effects of lost time, productivity losses, idleness and inefficiency. Work sampling requires trained staff observe and record work activity on the project. Work sampling is not the same as the time and motion productivity studies performed in an industrial or manufacturing setting. Observations of how work is being accomplished are made randomly, and activities are classified according to a preset, limited field. For example, an observer might record an entry of “working- installing conduit,” “working-unloading material” or “non-working travelling.” Occasionally, video recording equipment is used to enable the observers to study the project and analyze the movements of the work force.

As observations are made, activities are generally categorized as productive or non-productive, or as primary, secondary or recoverable lost time. Conclusions can be drawn and changes made to improve productivity and reduce lost time from the data. Work sampling, however, does not explain the reason(s) for lost time. For example, why the worker was idle, waiting or engaged in nonproductive travel is not explained by work sampling.

Sampling Data

Segregating and isolating the costs of inefficiency to the actions of only one of the project team members is difficult using this method. The samples contain only limited information relative to true jobsite productivity. To draw meaningful conclusions from work sampling, accurate inferences must be made. These can be highly subjective and open to argument.

Craftworkers can be remarkably creative and sometimes mischievous in their attempts to maintain the status quo. Work sampling can be viewed as espionage if it is not handled correctly.

Implementing Productivity Measures

Implementation and maintenance costs are involved in developing and initiating a productivity improvement and reporting system. The system requires attitude and habit changes, training, and, most importantly, discipline. The benefits include improved productivity, improved project control, accurate tracking and accumulating costs of changes, delays and disruptions and improved relationships between line and staff personnel.

If change is seen as threatening, the effort to derail improvements will intensify. The implementation of any of the three methods of measuring productivity takes effort. The entire organization must have a stake in the outcome of productivity improvement to overcome the natural resistance to change. Management must recognize that there will be an adjustment period; new problems will be created and new costs will appear. But the benefits will soon outweigh the costs of installing a productivity improvement and measurement system.

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