

Using Data to Increase Job-Site Efficiency

How to minimize obstacles and chaos on the job site

By Dr. Perry Daneshgari, Dr. Heather Moore, MCA, Inc.

Everyone likes order, predictability, and a stable environment. However, electrical professionals all know that is further from reality in any job site today than you can imagine. You like to have order, but you're not always willing to pay the price for it. MCA Inc.'s Dr. Perry Daneshgari mentions in his lectures to the industry, "Chaos is the norm, and order is the exception." Obstacles are plentiful on construction job sites. The chaos on the job sites is created due to a multitude of degrees of freedom that have to line up for the building to be built.

In addition to the job-site chaos, electricians face obstacles daily in their work environment. The obstacles not only slow down the job progress but also exacerbate the existing chaos due to multi-trade coordination by the general contractor (GC). The truth is that electrical professionals don't have to live with both of them at the same time. If you can manage one, you can help the other one. To manage the obstacle impacts on the project's progress, like anything else, they have to be made visible. In other words, you have to record, report, and take action about the job-site obstacles. To do that, you need to have a reference point that will allow you to know when something has become an obstacle to the job progress.

Since you have to live with chaos as part of the job site, do you have to live with obstacles as well? The answer is yes and no. When you try to bring together manpower, material, tools, information, and the money required to do all that, there will always be some losses; but how much loss you want to accept is a choice. The way to reduce obstacles comes neither



through drastic change nor brute force. Rather, it is part of a continuous improvement by studying and responding to the signals sent from job sites using data.

Next time you walk the job site, see if you can find any examples of the following:

1. Absenteeism
2. Trade interference
3. Area not ready/available for work
4. GC/customer-caused shifts in work sequence
5. Material issues

These are a sample of the top five obstacles measured and reported annually by MCA, Inc.'s R&D department from its Short Interval Scheduling (SIS) process and data across thousands of jobs and millions of hours over the past 20 years and found in "The Secret to Short Interval Scheduling," which appeared in *EC&M's*

May 2009 issue and be read at <https://ecmweb.com/20889745>. However, without this codification and process in place to measure, analyze, and improve on the obstacles, chaos tends to ensue. Thinking of the same five obstacles above, consider what process you have in place to know:

1. Where are they happening?
2. Why are they happening?
3. How big of an impact do they have?
4. What has been done to resolve them?

If your answer is, "We don't really have a process," you're not alone. Here is how the obstacles are typically reported, according to Dr. Heather Moore's "Exploring Information Generation and Propagation from the Point of Installation on Construction Jobsites: An SNA/ABM Hybrid Approach":

1. Not at all (50%+ of the time)
2. Verbally to a supervisor or project manager
3. Verbally in some type of meeting, with no notes or capture
4. If at all formal, typically via email, text, or a photo taken with a smartphone

Bringing order to the chaos can happen by taking small, simple steps to gather data about obstacles in a way that they can be resolved. These (and more) are part of the SIS process that provides job-site intelligence. If you don't have a process, start with one step at a time. In just a matter of weeks, you'll have more information than emails, texts, and phone calls can provide.

Step 1: Schedule what needs to be done for the day.

Step 2: Score the results (vs. schedule) daily.

Step 3: Categorize the obstacles.

Step 4: Review the results at various levels of the feedback loop.

Each step builds a habit that, on its own and despite the data it generates, will also bring order to the daily

Bringing order to the chaos can happen by taking small, simple steps to gather data about obstacles in a way that they can be resolved.

work environment and the challenges of trying to just "get the job done" in the midst of all the obstacles and chaos. Scheduling what needs to be done can be the biggest eye opener for your crew leads, sometimes recognizing that they may not know exactly what is needed, if they have what they need to accomplish that schedule, or

how to quantify "what done means" (other than when the clock hits 2:30 p.m.). The easiest habit to return to is chaos, just like your laundry piling up, grass growing, or kid's closet after a good spring cleaning. It takes energy

to bring order, and the steps above are small ones in the right direction to reduce the obstacles.

EC&M

Dr. Perry Daneshgari is president and CEO of MCA, Inc., Grand Blanc, Mich. He can be reached at perry@mca.net. Dr. Heather Moore is vice president of operations. She can be reached at hmoore@mca.net.