

We Are About You!®

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We make your company more productive by applying: Lean Engineering, Manufacturing, and Service Processes

Making Productivity Visible to Everyone®

SIS® - Foreman's Tool to Diagnose Daily Work Obstacle

To all SIS® users,

The Construction job site is so fluid that unpredictable obstacles occur almost every day. To stay prepared for these obstacles, daily kick-off meetings and look-ahead schedules become increasingly important for field personnel (project manager, foremen and crew leaders). Using SIS® (Short Internal Scheduling) can make our scheduling more effective than ever by giving us the ability to respond to the **work obstacles** in a more visible manner.

Incentives to Identifying Work Obstacles

One way that we can handle the “uncertainty” of work obstacles effectively, such as weather, site conditions, and design issues is to document, track and measure them until we ensure they are under control. During this process, better understanding of these obstacles and how we can handle them are established between the field and office:

- For electricians, their value lies in clearly knowing where their job stands as various issues continue to come up every day. To address these daily job issues faster, why not transfer your knowledge, experience and observation of the job to a visible data format that can be exchanged, shared and utilized to its advantage?
- For project managers, knowing what holds up the job from the field's perspective is always desirable. How we get the data in a timely and consistent manner becomes key to help the field to tackle problems.
- For estimators, one of their major responsibilities is to build a knowledgebase for more accurate pricing in various work scenarios. Quantified data from the field can be used by an estimator as a reference to establish a realistic “buffer” (hour and price) to cover additional costs for similar jobs in the future.

Daily work obstacles are most critical field data captured by SIS®. It is also imperative to identify the pattern and impact of this data, from a statistical perspective.

Pareto chart – Presenting Outcome from SIS® Data

The Pareto chart and its associated principle, named after Vilfredo Pareto, an Italian engineer, sociologist, and economist, were built on his observation that 80% of the land in Italy was owned by 20% of the population.

The same principle applies to most other social aspects including construction process.

- The 80-20 Rule
 - 80% of the effect can be explained by 20% of the causes
 - The “vital few” and “trivial many”





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The purpose of the Pareto chart is to highlight **the root cause** of work obstacles among a typically large set of problem factors. The root causes should be clearly addressed in different issue categories.

The left vertical axis is the measure of impact or cost (hours NAWAS, or occurrences, in SIS®). The right vertical axis is the cumulative percentage of the total number of those particular measurement units.

Leading Indicators in SIS®

Please keep in mind that SIS® data is designed to indicate the effectiveness of your original schedule, more importantly, guide you to improve scheduling by focusing on some measurable factors, including:

- Reason code

Not every perceived problem should be considered as a potential reason code because that problem may be just a “symptom” caused by a root cause. For instance, “schedule shift” could be a symptom when you are shifted to another task because drywall is not completed as scheduled. In this case, the real reason code turns out to be trade interference instead.

- Quantity

Some may question the necessity to fill out the quantity for each scheduled task (ex: safety orientation, job meetings) or feel it is difficult to determine an accurate quantity, such as in linear footage. Actually, the objective here is to set a baseline goal for your work in a typical day, so that you can determine if it has been done or not by the end of the day. Rough estimation of the quantity (ex: conduit from beam A to beam D) is totally acceptable.

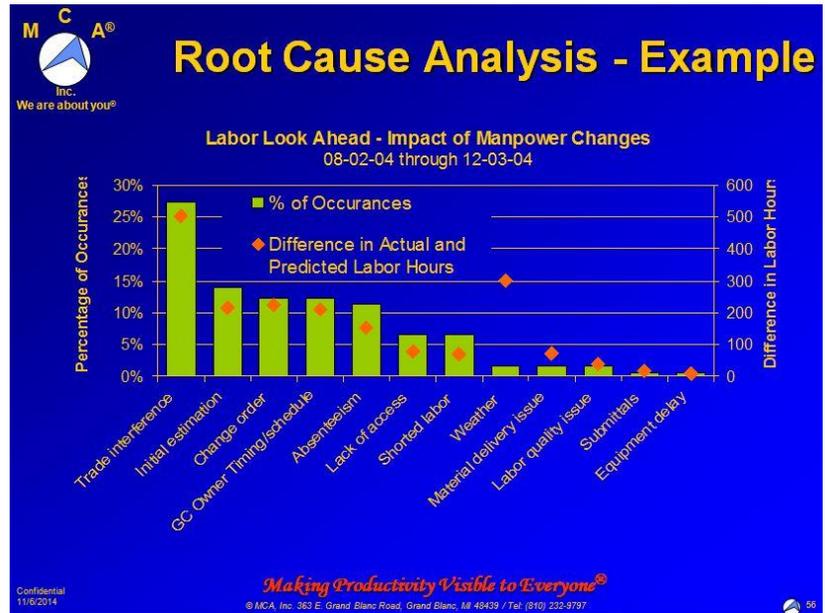
- % Complete

This is a measure of how much of the work as originally scheduled was actually completed. Advantages to knowing this include:

- Helping to capture the obstacles that keep us from getting the work done completely; and
- Reminding ourselves to schedule the incomplete work for the following days

- Hours NAWAS

This is one of the best views to see the impact of the obstacles, and the further measurement of the percentage complete mentioned above. One thing to remember is that you never “lose” hours as long as you complete a full-time workday. The difference is that the opportunity of doing the work as planned was lost since we spent some or all the scheduled hours on something else, as you were diverted from your original schedule.



Short Interval Schedule (SIS®) - Acme Bldg Tenant Reno

Day/Date	Job	Scheduled Task	Quantity	Scheduled Hours	% Complete	Reason Code for % Comp.	# of Hours Not/As Sched.	Notes
Tue 9/2	34567	Run conduit in Room A (John, Flag)	200 ft	16	90%	7	2	
		Hang main panel (Flag)	1	1	100%			
		Install gear in panel (Flag)	6	3	100%			
		Hang boxes in Room A (Flag)	24	4	100%			
Wed 9/3		Pull wire in Room A	600 ft	4				
		Hang remaining boxes in Room A						
		Terminate device in Room A						
Thu 9/4		Run conduit in Room B	200 ft	16				
		Hang boxes in Room B	50	8				

% Complete for today's tasks, usually assessed in terms of what part of scheduled quantity was completed.

For tasks less than 100% complete, the Primary Reason Code that best explains the cause.

For tasks less than 100% complete, how many of the hours scheduled were not worked as scheduled.

Explanatory notes. "Detailed Reason Codes" can be put here or in space provided below.

Reason Code (Please write in as many detailed descriptions)	Detailed Reason Code	Primary Reason Code	Detailed Reason Code
1. New reason code		11. Labor Access / No work entry	
2. Schedule change by customer		12. Customer Calls	
3. Schedule change by Hand		13. Dock Congestion	
4. Conduit not ready		14. Absenteeism	
5. Delivery Issues		15. Other	
6. Wrong Material		16. Design Change in field	
7. Conflict with other trades	Ceiling guy in the way	17	
8. Job cancelled		18	
9. Trouble call / EMI or other job		19	
10. Scope out work		20	