



PLANNING FOR A SAFE WORKING ENVIRONMENT

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Last year, we presented two separate articles on the topic of safety and the correlation between safety and productivity (“A Safe Job Site Is a Productive Job Site” [2016 May/June *Insights*] and “Predict & Prevent” [2016 Sept/Oct *Insights*]). We have already presented the data that shows “why” this connection is important to an electrical contractor, and we have already presented the information that explains “what” needs to be done in order to gather relevant information from the field. In this article, we will dive deeper into “how” to use critical business processes to alleviate the risk of safety-related issues before they occur. Not unlike quality and customer care, the safety of any job site starts with the board of directors. If the executives, manager, and supervisors think safety first, then the job sites will be safer.

Of course, there is no silver bullet; all we can do is present the proven steps and the science behind them. The results

gained are dependent on the individuals present, the people making the decisions, and the workers entering the job site and using the tools. Safe practices and safe business processes start well ahead of an electrician’s involvement – and extend well beyond an electrician’s involvement. At the heart of a safe job site is a complete and effective Process of Project Management (POPM). A POPM that incorporates all of the necessary planning, management, and learning functions is the best way to ensure that each job you take on is running as productively and as safely as can be reasonably expected.

Figure 1 (page 23) shows the eight steps of a typical POPM, divided into three primary functional areas: Management Planning Functions, Project Team Planning Functions, and Project Team Management Functions. Each of these has a unique and critical role in maintaining a safe and productive work environment. In the following sections, we will expand on each of these at

a high enough level that they are not unique to any one company's business model, but are a specific discussion of the principles and what they should look like when properly applied.

MANAGEMENT PLANNING FUNCTIONS

Although the POPM is developed as a means to manage each individual project, the early functions are also very closely tied to business policies. During the initial Management Planning Functions, the project will be described and the team named as well as the high-level scope of work drafted at the contractual level. The item included here that will have the most profound impact on job safety is the selection of the team, not just the internal team, but all stakeholders who will be brought into the project in support of the electrical work. This includes sub-contractors and vendors who will perform work for the electrical contractor or directly in support of the electrical contractor and any whom could be performing work on the job site.

Many electrical contractors have or will soon be engaging in partnership type relationships with their suppliers; and many are beginning to ask these suppliers to provide material in staged deliveries to specific locations on the job site, packaged/kitted or labeled in a specific manner to improve installation productivity. All of this is profoundly good; however, it also raises serious safety concerns if the necessary process steps aren't included upfront. The critical items that should be consistently applied and monitored within the Statement of Work for any vendor partnership include the following:

- Individual point(s) of contact.
- Who from the supplier will be on site and in what capacity.
- What training, PPE, and other safety requirements have been put in place by the supplier.
- What is the mechanism for scheduling and confirming deliveries and how is the supplier notified of access

issues or hazardous conditions on the job prior to arriving.

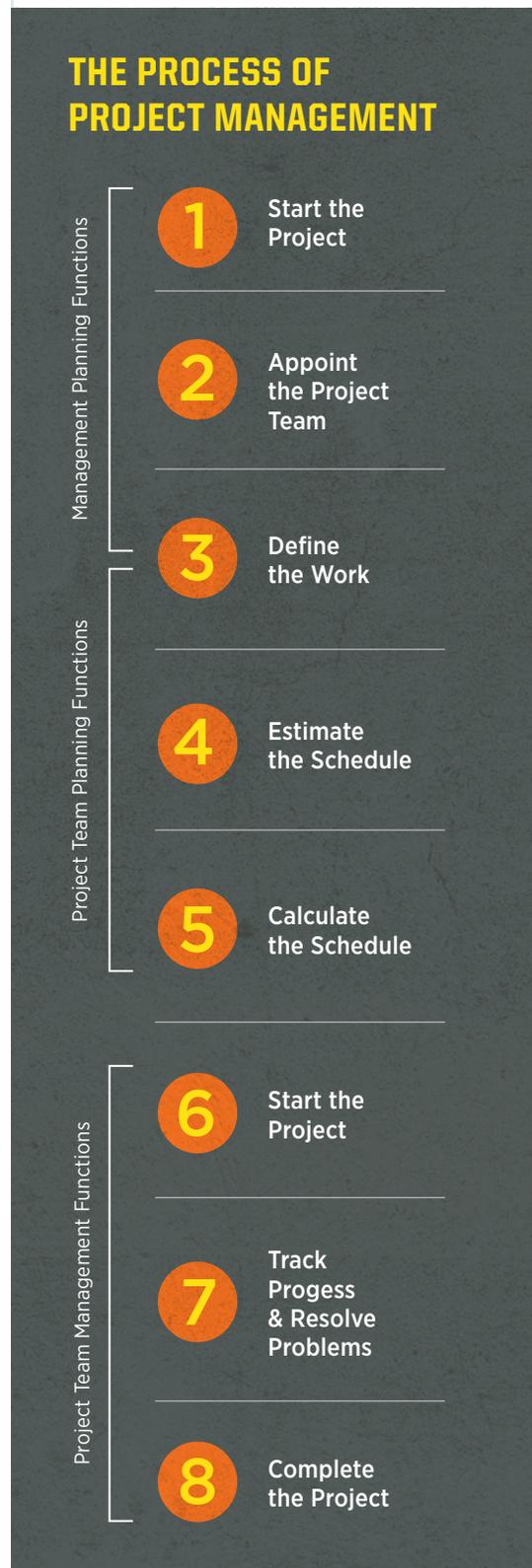
- How will material be delivered and what tools will be required for unpacking and handling.
- What limitations are there for handling, stacking, and storing materials that may need to sit on the job site.
- How are incidents and accidents reported between the two companies and how are observations reported before they result in an incident or accident.
- What types of vehicles will be used for the deliveries and what expectations are there for an electrical contractor to assist with material unloading. How are the contractor's employees to be trained, monitored, and supervised during these activities.

These are only a handful of the considerations and factors that should be included in any Statement of Work prior to proceeding with the selection of a vendor or sub-contractor to join a project team. In addition to the vendor selection, the internal project team should be selected from people who are known to be qualified to perform the work and also maintain a safe work environment for the entire crew. This often means selection of a project management team that has been trained in management and supervision duties; not simply demonstrated a high level of individual performance. The company should have a training process that prepares and identifies individuals suitable for leading a project team safely and effectively.

PROJECT TEAM PLANNING FUNCTIONS

The primary role of the project team planning functions is to establish a complete Work Breakdown Structure (WBS) (How to Manage Your Job Using Work Breakdown Structure [2014 May/June *Insights*]), a detailed schedule and a functional project model. These are used throughout the project to plan and coordinate all work on the project to ensure that it is performed productively;

Figure 1: Eight Steps of a typical Process of Project Management and the functional groups



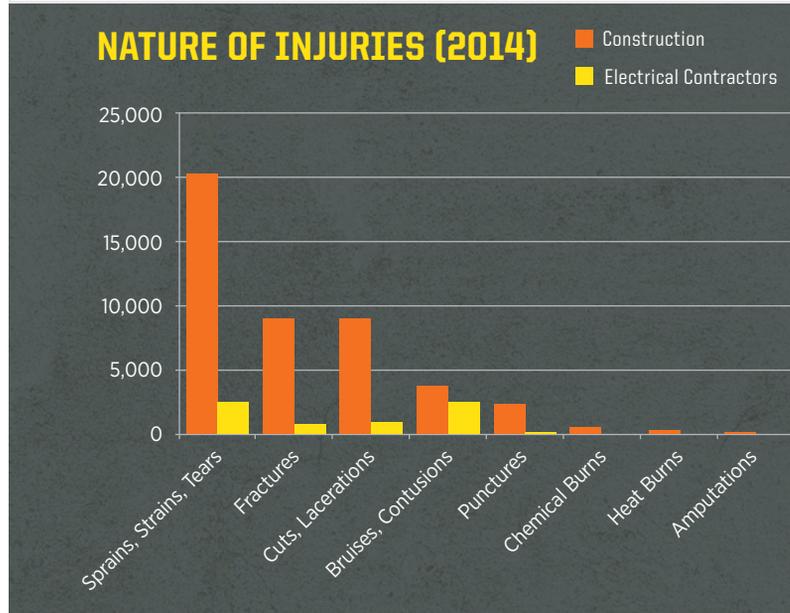
timely; profitably; and most important, safely. At the job level planning, a WBS can be used to evaluate risk on activities, locations, phases, or other elements of the project. Once the work is visible, the project team can evaluate risk overall and specifically evaluate safety risk. When creating a WBS, the project team must consider the work of maintaining a safe environment and a motivated crew. If these activities are not recognized and planned for by the project team, then they are just nuisances and will not be seen as part of the required work. These activities will be secondary to just “getting the work done,” which is what leads to elevated safety risk and increased safety issues. Some of the critical elements that should always appear on a WBS are items similar to the following:

- Weekly toolbox talks
- Daily task analysis for safety hazards
- Stretch & flex
- Make-safe activities
- Communication of hazards to all team members not on site

PROJECT TEAM MANAGEMENT FUNCTIONS

There are also two key areas in the Project Team Management Functions that will significantly impact safety. First is proper measurement from the correct source and the second is proper analysis to yield good learning. In the 2016 Sept/Oct *Insights* article, “Predict & Prevent,” we extensively outlined the use of feedback from the field as a source of information directly related to safety concerns and potential root causes of incidents. Only through effective use of both Short Interval Scheduling (SIS®) and Job Productivity Assurance and Control (JPAC®), can an electrical contractor be assured that they are capturing both qualitative and quantitative information about their job performance. Additionally, only by analyzing both the qualitative and quantitative data can a contractor properly identify and segregate the special causes from the common causes of increased risk and reduced productivity on the job site.

Figure 2: Number of injuries in electrical construction vs. all construction



This combination of ongoing measurement and job performance tracking, along with the effective system level learning, is the only way to ensure that the job is responding to mitigate identified risks and also to learn and adapt the business system to reduce the likelihood of reoccurrence in the future. It is essential that common causes of increased risk are not misinterpreted to be special causes or rare coincidences. It is typical to believe that if one can identify why something happened, then it isn't common. In reality, the majority of all construction injuries are in fact simple, minor, and very common. Figure 2 shows the relative occurrences of injuries to construction workers and electrical construction workers.

IN CONCLUSION

Policies, planning, and proper training are all key factors in creating a safe work environment. Breaking down your work into manageable, visible segments will help discern what needs to be done, when, and by whom to maintain a safe work environment throughout the life of a project. Safety precautions need to be implemented before work gets started to be effective – they must be part of the preplanning for every job. Using JPAC®

to track a job's progress in real time along with the use of SIS® throughout the job will help identify the obstacles that slow you down or get in your way. This will allow you to quickly respond and schedule accordingly; keeping you and your team out of harm's way.

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