

## TIPS FOR SUCCESSFULLY COMMUNICATING WITH ENGINEERS

By James A. Junkin

**Most people know that communication and collaborative thinking within organizations can be a challenge. A critical area where barriers to communication and collaboration must be overcome is between engineering design teams and safety professionals.**

**Failure to effectively** communicate has been determined as a causal factor in many disasters, including the 2005 Texas City Refinery explosion and the 2010 *Deepwater Horizon* explosion and oil spill.

### Commonality in Cause

Fortunately, safety professionals and engineers have something important in common: a focus on a systems approach to design. A systems approach demands that both safety professionals and engineers analyze problems in appropriate contexts and produce solutions that help identify hazards, determine risks, and implement appropriate controls for both mechanical and work system environments. These dynamic environments demand strong safety considerations for the protection of the workers tasked with the system's use, modification, maintenance, and integration into or alongside the system by looking beyond apparent problems to considering the entire system as well as its discrete components. By doing so, designers can expose root causes and avoid the mere treatment of symptoms. Working together, safety professionals and engineers can then tackle deeper problems and be more likely to find effective solutions. Establishing good lines of communication between engineers and safety professionals is essential, as is creating an environment of mutual respect.

### Different Purposes

The disconnect in communication occurs because those system approaches have different end goals and purposes. While safety professionals and engineers share a common focus on a systems approach to design, the purpose behind each approach is different, which can create a communication disconnect.

•To design, build and comprehend complex systems, an engineer must consider all aspects of the system. An engineer must fundamentally know the parts of the system, the functions of those system parts, how the system works, what can go wrong and how to fix it. This requires the ability to think logically and

evaluate and understand each element. Engineers typically look at the design of systems (e.g., machines, processes, workflow) with the goal of eliminating or mitigating hazards primarily thinking about the equipment component and equipment systems interactions.

•Safety professionals typically look at the design of systems with the goal of design



as a purpose to control or mitigate hazards that can potentially end in illness, injury or even death to workers. Safety professionals are focused on regulatory requirements, best practices, and seeking out hazards and hazardous operations that have a high probability of human error potential.

Although the design thinking and priorities might appear vastly different, the driving concept for both engineers and safety professionals is to design out the hazards.

Engineers look at the world differently from others. They are usually logical, pragmatic and direct. Conversely, while safety professionals share many of these qualities, they tend to bring emotional and aspirational components to designing out hazards. After all, saving lives is a highly emotional pursuit and one that safety professionals hold as a primary goal of their employment. Unfortunately, when working together, these different perspectives present unique communication challenges that can slow work, deliver suboptimal results and weaken company culture if not addressed.

### Prevention Through Design Hinges on Collaboration

Prevention through design is the primary way that engineers and safety

professionals can come together to do the most that they can as a team to identify, investigate, mitigate or design out hazards before they become a problem during operations. Through a collaborative process, prevention through design can help an organization formulate an operational risk management system. For example, 20-60-90% design reviews involve input and collaboration between all stakeholders (including safety and engineering) to address critical design features and changes throughout the project.

Collaborating effectively with an engineer—or any other team member, for that matter—means learning to communicate with a common language of respect and inclusion. Observing group dynamics, identifying individual priorities or concerns, and adapting communication style when working with engineers and others is critical to overall hazard identification, risk management and hazard mitigation success.

### Successful Collaboration & Communication Tips

Following are a few basic activities for collaborating and communicating productively with engineers and other varied stakeholders.

•**Formulate a project charter.** A project charter is a short but formal document that describes the design project in its entirety, including the objectives, the stakeholders and a plan of how the communications will flow. A project charter is essential because it is used throughout the life cycle of a project and is formed through the input of all stakeholders (including the safety professionals and engineers). This is the first step in helping the project team see and hear the goals and concerns of their peers.

•**Build trust.** While it may seem obvious, healthy, productive relationships require trust. Trust is built from respect, inclusion, collaboration, listening and talking with team members toward the achievement of a common goal. Trust grows on a daily basis one small win at a time.

•**Collaborative stakeholder brainstorming.** A critically frustrating situation when working on a project for any stakeholder, including engineers and safety professionals, is being told how to do their work or not having their input and concerns equally valued. Excluding or minimizing the contributions or ideas of other team members in favor of our own means that work teams often produce solutions that are not realistic or practical from an engineering perspective or a safety perspective. Using a closed approach to moving a project forward wastes time and money in rework, project delays and extra work after the project is completed.

•**Listen.** Talk with engineers and other stakeholders instead of at them and do not present your ideas and concerns as demands. Ask questions, stay open-minded and be ready to discuss options. Often, the final solutions for systems design and other projects come from the meshed perspectives of many parties with radically different approaches to the problems.

•**Respect each other's time.** Time is precious. To make the most of time spent with an engineer or other stakeholders, it is important to schedule and prepare for the meeting. Make sure you have reviewed plans and documents, and—most importantly—have been active in the day-to-day communication and collaboration going on with the team.

•**Structure meetings.** A structured meeting always runs more smoothly than an unstructured one. Clarify ownership in advance of the meeting so a designated moderator can help others stick to the project charter, timelines and objectives. Send an outline or agenda in advance and get the input from all stakeholders who will be in attendance. This will lay the groundwork for a meeting that is focused, avoids small talk and brainstorm solutions in a timely manner. Options and trade-offs can be brought to light through the expected preparation of everyone involved.

### Conclusion

The workplace today is increasingly diverse. It is important to understand not

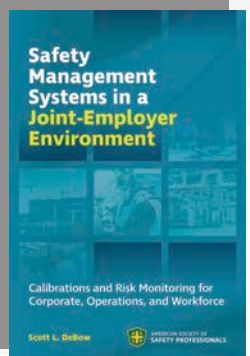
just differences in professional expertise but also the professional cultures and languages that influence communication, interaction and thinking modalities. To effectively communicate with stakeholders, especially engineers, safety professionals need not learn a litany of other languages, but it is helpful to speak the same language on a similar level. **PSJ**

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