Fatality Prevention

Hazards are ever-present in the steel plant environment, and a heightened awareness and emphasis on safety is a necessary priority for our industry. This monthly column, coordinated by members of the AIST Safety & Health Technology Committee, focuses on procedures and practices to promote a safe working environment for everyone.

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Comments are welcome. If you have questions about this topic or other safety issues, please contact safetyfirst@aist.org. Please include your full name, company name, mailing address and email in all correspondence.

The safety of workers is a key focal point for any organization as it works to improve year-over-year business performance. Despite this focus, and regulatory efforts from governmental agencies such as the U.S. Occupational Safety and Health Administration (OSHA), fatalities continue to occur. Preliminary statistics from the Bureau of Labor Statistics (BLS) reported 4,405 fatalities in 2013 in the U.S., resulting in a fatality rate of 3.2 work-related deaths per 100,000 workers. In the iron and steel industry, there were five fatalities in 2013, which was a slight increase from the previous year (Figure 1). Although the iron and steel industry is historically known for having high-risk processes, there has been significant work and success in saving lives; unfortunately, fatalities continue.

Figure 1

8 — 2011
4 — 2012
5 — 2013
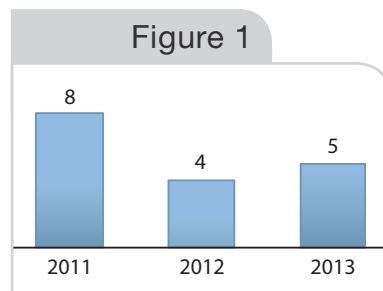
The iron and steel industry reported five fatalities in 2013, an increase from the prior year. Source: U.S. Bureau of Labor Statistics.

To work toward preventing fatalities, there needs to be a focus and drive within the organization starting with the top levels of management and carried throughout all levels down to the shop floor. A strong initiative needs to be present along with an action plan reflecting the company goal, and a prevention program should be the center of this action plan. Key criteria of a successful fatality prevention program are the following: risk identification, research and data analysis, incident reporting standards, employee engagement and training.

Risk identification is a critical tool in fatality prevention. Identification of risk includes recognizing not just physical hazards but also those groups of people posing a higher risk for a fatality. New employees, contractors, experienced/senior employees, temporary employees and employees on overtime are all groups of workers that are more prone to being involved in a fatal incident within the workplace. As an example, according to the BLS, contractors alone resulted in 17% of all fatal incidents in 2013. Analyzing historical incident data provides an organization the ability to determine those groups of employees that are at a higher risk for fatalities. Once those groups of employees have been identified, a stronger focus can then be put on preventing a fatal incident. This is accomplished through group training, education, increased observation and assessments.

In addition to identification of at-risk groups, the jobs and/or tasks containing a high risk for fatal consequences also need to be identified. Both routine and non-routine tasks should be included in the identification process. Recognizing the risk and hazards of highly critical jobs and tasks also

Figure 2
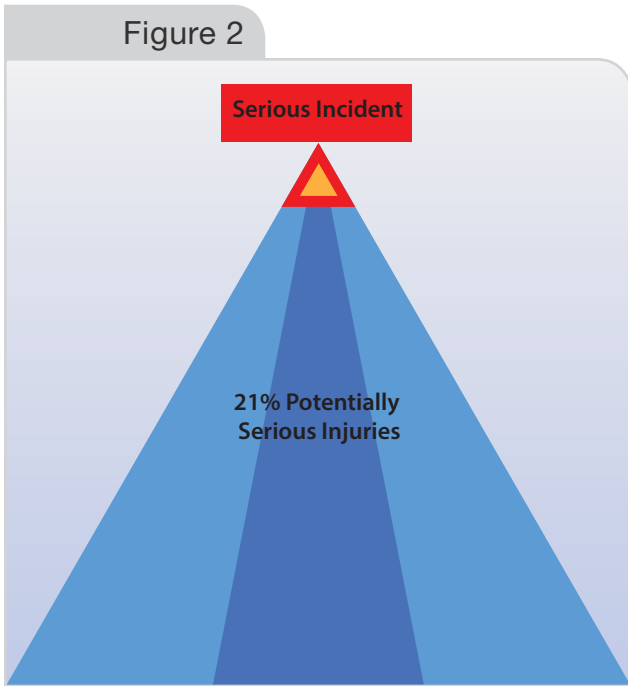
Approximately 21% of safety incidents that occur in the workplace have the potential to be a serious incident.

involves research. Research should be conducted, including a review of all past fatalities (including those in similar organization types) so as to provide critical information for identification of at-risk groups.

Several actions should be included in the identification process:

1. Conducting a risk assessment to evaluate the hazards and the current controls and layers of protection for these hazards. During these risk assessments, it is important to analyze root causes.
2. Identifying deficiencies in the systematic controls that could lead to a fatal incident.
3. Implementing the appropriate layers of protection by following the hierarchy of controls to mitigate the fatality potential.

The ultimate goal is to find solutions and use countermeasures that eliminate potential hazards. When hazard elimination is not technically feasible, or is not reasonably practical, the hazards need to be managed and controlled by a combination of reducing employee exposure and/or limiting the severity of a hazard. All levels of the organization should be involved in these reviews. There must be an expectation in the organization that everyone must work proactively to identify, eliminate or control potential hazards by going beyond regulatory compliance to actively looking for ways to reduce risk and save lives.

A company should review its past performance and/ or similar industry performance and determine the most common problem areas. According to BLS reports, the most common types of fatal incidents in 2013 included transportation-related injuries, contact with objects, slips/ trips/falls and explosions/fires.

Another significant element in fatality prevention is reviewing not only incidents where fatalities occurred but also incidents that had the potential to be fatal. These include less severe incidents, such as minor injuries (first aids), property damage or near misses that had the potential of a severe outcome. Current thinking suggests that approximately 21% of all incidents that occur within a business have the potential of a possible serious outcome (Figure 2). By reporting and analyzing the less severe incidents, deficiencies can be identified and proper controls can be proactively implemented prior to a potentially serious incident. Therefore, by controlling the causes behind minor incidents, serious incidents will also be minimized and possibly eliminated. Employees should be encouraged to report incidents regardless of the final outcome. Examples would include first-aid treatment, property damage and near-miss incidents. The reporting of all incidents, whether injury-free or injury-resulting, is a critical component of fatality prevention. By utilizing the Heinrich Pyramid as a ratio to judge reporting efficiency, an organization can have a better idea if all incidents are being reported. The Heinrich Pyramid illustrates a ratio that for every 1 fatality (or lost time), there have been historically 10 severe injuries (medical treatment cases), 30 first aids and up to 600 near misses (Figure 3).

Success in fatality prevention lies in the ability to systematically forecast and eliminate deficiencies within the organizational system. When a serious incident occurs, there was most likely a failure in the system. It is common for blame to be placed on the employee involved in the serious incident; however, deficiencies in systems and controls within that organization are typically the root cause of the serious incident.

In order to better predict and assess risk with the highest potential, an organization should focus on leading indicators (pre-incident measurements) rather than the

Figure 3
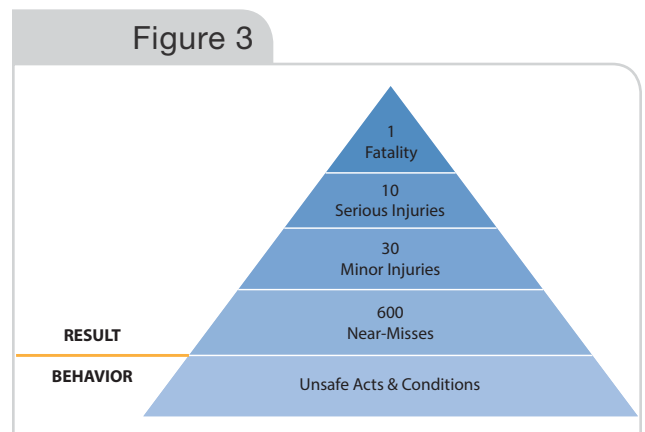
Using a Heinrich Pyramid structure, an organization can determine if it is efficiently reporting all incidents.

lagging indicators (post-incident measurements) in order to predict and better assess where the highest risk for a fatality lies. Leading indicator actions include audits, assessments, inspections, near-miss incident reports and observations. Defining and tracking leading indicators should be an objective within every organization striving to improve its safety performance. The more an organization focuses on the leading indicators, the more gaps and deficiencies within the systems will be identified and corrected prior to a potentially serious incident occurring. Being proactive rather than reactive will help bring success in preventing serious injuries in any organization.

Safety research suggests that one of the most important leading indicators within an organization is the level of employee engagement and involvement. All areas of a company need to be actively engaged in order for a prevention program to be successful. Employees and management can get involved in a variety of ways, including safety committees, engagement programs, risk assessments and company safety improvement projects. The level of employee engagement will also increase by encouraging employees to report incidents regardless of the outcome. The program should promote proactive risk recognition and response for both management and employees. Employees that are involved and feel valued by their company are more likely to participate and believe in a prevention program. Engagement helps workers feel that they are a part of something that is valued and meaningful in a company and will add success to the overall injury prevention program within a company.

Finally, training is an important part of any successful safety program. A fatality prevention program needs to include that same mindset. Both employees and management should be trained on what causes incidents and how they can be prevented. All levels of an organization should be knowledgeable of the fatality prevention program's policy, goal and objectives. Members of the organization should also be aware of their responsibilities in the program. Employee responsibilities will differ from line management responsibilities, and line management responsibilities will differ from top management responsibilities, but all play an important role. If employees are unaware of their company's safety goals in trying to prevent major/minor incidents, then they cannot be expected to have the same mindset or goal as the company's leadership. Engagement and involvement in fatality prevention efforts are more likely to increase if all levels of an organization understand the foundation of the program.

No employer or employee ever wants to experience a serious occurrence in the workplace. Establishing a fatality prevention program with a primary goal of zero workplace fatalities can help prevent these occurrences through setting clear objectives and creating a strong action plan. The program needs to be driven from top management down through the organization by actively requiring and involving participation from all levels of the organization. Fatality prevention is an initiative that should be embedded in every company's safety culture.

References

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3. "Census of Fatal Occupational Injuries Summary, 2013," *U.S. Bureau of Labor Statistics*, U.S. Dept. of Labor, accessed 1 January 2015.   ✦

Did You Know?

First Customers Join SSAB's My Inner Strenx Program

SSAB launched Strenx, its new high-strength structural steel product brand, earlier this year. The first customers are now joining SSAB's "My Inner Strenx" program, which provides members with wide-scale technical support and innovative design methods using Strenx high-strength steel.

"We are pleased to welcome our first My Inner Strenx members from Castleton Industries, Canada, but also from KH-Kipper and Feber Grupa Intercars from Poland. The new members are all forerunners in using high-strength steels in their applications," said Gregoire Parenty, SSAB's head of market development.

SSAB's new My Inner Strenx program is targeted to companies with a drive to make industry-leading products using Strenx steel. The purpose of the program is to optimize design solutions and production techniques to meet the high expectations of customers using steel structures for demanding applications.

Joining the My Inner Strenx program gives members priority access to SSAB's technical services and resources, from priority technical support to training, design and technical seminars. Member companies also can benefit from SSAB's extensive marketing support, such as exhibitions, brochures and digital marketing tools for Strenx.

My Inner Strenx is also a quality designation; members can stamp the My Inner Strenx logo on their products to show that they were developed with advanced design, using Strenx high-strength steel and produced with SSAB's approved manufacturing methods for uncompromised performance. Certified products will carry the My Inner Strenx sign upon delivery to customers.

Find out more about the My Inner Strenx program at strenx.com.