The Role of Hazard and Risk Assessments in Accident Prevention

The hazards you and your workers are up against depend on factors such as the type of job, how it’s done, and the environment in which it’s carried out. As a supervisor part of your responsibility lies in identifying exposure to hazards and finding ways to protect workers from them. One of the best ways to do this is by conducting hazard and risk assessments.

Let’s start by defining hazard and risk.

- **Hazard** – a condition or activity that can cause harm (injury, illness, property, environmental, etc.) if it is not controlled.
- **Risk** – how likely a hazard is to cause harm and how bad the outcome will likely be.

Conducting hazard and risk assessments helps identify hazards and assess risk levels to help you protect workers and comply with regulations. Workplace hazards can be grouped into six categories which will be discussed in more detail shortly.

Be a Better Supervisor

A hazard assessment is a systematic approach to identifying hazards and ways to control them. A hazard assessment is similar to a job hazard analysis (JHA) or job safety analysis (JSA), but there are a few differences.

- A JSA is done at a micro level and looks at a specific task in a job to identify the hazards for each step in the task and ways to control these hazards and reduce the risk to a worker.
- A hazard assessment is done at a macro level and takes a wider view of hazards related to an activity, operation, or process.

The outcomes are the same for both – hazard control and risk reduction.

A hazard assessment is most successful when you use a team to help you identify the hazards. Your team should include people who have different roles and perform different jobs. Each member of the team will have a unique perspective and insight which helps to ensure the most hazards are identified.

Plan of Attack

It’s important to conduct a hazard assessment in an organized way. Decide if the assessments will be done based on location, position, or process. For example, is

your team going to go from one department to the next performing assessments or does it make more sense to group similar processes or job roles together? Decide on the plan with your team and stick to it.

ID Activities

Now you're ready to identify and list all the activities going on in an area or with an activity, operation, or process.

Think about the different duties for each job or the different people who might be in a certain area and what they will be doing. Are deliveries being made? Are contractors working in the area? Don't forget to look at what needs to be done before and after an activity – there could be hazards associated with those activities too.

ID Hazards

As a reminder, hazards have the potential to cause harm, including injury, illness, property and environmental damage. When looking for hazards remember to look for hazards in each of the six categories.

1. **Safety** – moving parts, electrical, confined spaces, slips, trips, and falls
2. **Biological** – viruses and bacteria, blood and other body fluids, plants, animals, and insects, fungi and mold
3. **Physical** – noise, pressure, radiation, temperature extremes, ultraviolet rays (sun)
4. **Ergonomic** – forceful exertions, awkward postures/positions, repetitive tasks, incorrect workstation setup
5. **Chemical** – liquids (paints, solvents, acids), vapors and fumes (welding, carbon monoxide), flammables (gasoline, explosive chemicals), unlabeled or mislabeled chemical containers
6. **Psychosocial** or **Work Organization** – workload demands, workplace violence, harassment, no control or say about things

You must also look for hazards associated with emergency and nonroutine situations.

The hazards and response in an emergency will likely be different and require special protocol and additional procedures.

Determine Risk

Once the hazard assessment is complete you can begin the risk assessment. Risk is based on **likelihood** and **severity** – how likely a hazard is to cause harm and how bad the outcome will likely be. Here's an example from L.L. Bean that shows their hazard and risk assessment rating scale and matrix.

Likelihood

1. Frequent (5) Likely to occur Repeatedly (Weekly)
2. Probable (4) Likely to occur several 3mes (Monthly to several times a year)
3. Occasional (3) Likely to occur some3me (1 – 5 years)
4. Remote (2) Not likely to occur (5 to 20 years)

5. Improbable (1) Very unlikely – may assume loss will not happen (20 to 100 years) > 100 Years = LOW Risk

Severity

1. Catastrophic (4): Death or permanent total disability, significant business impact over mul6ple days or (property/environmental damage over $1,000,000)
2. Critical (3): Extended Disability/lost time, significant business impact or (property/ environmental damage between $500,000 and $1,000,000)
3. Marginal (2): Minor injury requiring medical treatment, OSHA recordable, minor business impact or (property/ environmental damage between $10,000 and $500,000)
4. Negligible (1): First Aid, non-reportable, no business impact or (property/ environmental damage up to $10,000)

	Catastrophic – 4	Critical – 3	Marginal – 2	Negligible – 1
Frequent (5)	HIGH: Operation not permissible (20)	HIGH: Operation not permissible (15)	SERIOUS: High Priority Remedial action (10)	MEDIUM: Take Remedial action at appropriate time (5)
Probable (4)	HIGH: Operation not permissible (16)	HIGH: Operation not permissible (12)	SERIOUS: High Priority Remedial action (8)	MEDIUM: Take Remedial action at appropriate time (4)
Occasional (3)	HIGH: Operation not permissible (12)	SERIOUS: High Priority Remedial action (9)	MEDIUM: Take Remedial action at appropriate time (6)	LOW: Risk Acceptable – Remedial Action Discretionary (3)
Remote (2)	SERIOUS: High Priority Remedial action (8)	MEDIUM: Take Remedial action at appropriate time (6)	MEDIUM: Take Remedial action at appropriate time (4)	LOW: Risk Acceptable – Remedial Action Discretionary (2)
Improbable (1)	MEDIUM: Take Remedial action at appropriate time (4)	LOW: Risk Acceptable – Remedial Action Discretionary (3)	LOW: Risk Acceptable – Remedial Action Discretionary (2)	LOW: Risk Acceptable – Remedial Action Discretionary (1)

2015 L.L. Bean RISK Assessment Matrix and Target Timeframe Adapted from the ANSI Z10 2012 Standard, p.52

Make it Safe

Once the hazard and risk assessments are completed prioritize the hazards based on their risk and determine a timeline for correction and control. The Hazard Prevention and Control Workplan discusses prevention and control measures.