

## **Making the Most of Your Fall Protection Investment**

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Finding effective and cost-conscious methods of preventing fall fatalities is a significant challenge for organizations and safety professionals—especially in today’s difficult economy. Combine this challenge with the fact that the number of fall fatalities to a lower level for all industries has increased 28% since the implementation of 29 CFR 1926 Subpart M, and it is clear that many safety professionals are trying to do more with less.

The objective of this presentation is to demonstrate how following the process of identification → evaluation → control can have a dramatic impact on a fall protection program’s effectiveness. Assuming the goal of a fall protection program is to reduce risk and increase safety, this presentation describes some of the key elements that will allow employers to make the most of their available resources.

So, how do you make the most of your investment in fall protection? What you do and when you do it makes a significant difference.

### **What You Do**

One of the most common mistakes made when confronting a fall protection issue within an existing facility or process is to simply abating the most obvious hazard presenting itself. Often, the solution decided upon is to simply buy some personal protective equipment. According to the Hierarchy of Control (HOC), however, fall restraint and fall arrest systems should be secondary options, since they are the least effective and most “defeatable” forms of fall protection (see Exhibit 1).

Still, the prevalence of fall protection equipment on the market and perceived ease of use and relatively low cost often leads organizations to choose equipment as the solution for all hazards. Although fall protection equipment has many applications, it is frequently viewed as being synonymous with fall protection, at the detriment of other, more effective abatement methods.

So, why isn’t it sensible to just buy fall protection equipment? The process for abating any hazard, and specifically fall hazards, is to identify → evaluate → control. Simply purchasing equipment skips the critical steps of identifying all hazards and evaluating their associated risk. In many cases, immediately purchasing equipment to mitigate risk bypasses a more effective method for defeating hazards. For example, rather than forcing the use of equipment, a thorough

evaluation of options may lead to a more effective passive fall protection control, such as guardrail or platforms.

Many organizations jump to purchasing fall protection equipment due to its perceived low cost. Although initial costs may be reduced, the potential “hidden costs” and recurring costs associated with equipment can often cost more in the long term. The costs of proper system design, training for personnel and long-term maintenance must be factored into equipment purchasing decisions. In addition, choosing a PPE-centered abatement method without first evaluating other options and involving stakeholders, may cause you to choose a solution with increased residual risk. By not minimizing risk to the full potential, you are not making the most of your investment in fall protection.



**Figure 1. The Hierarchy of Control relates hazard abatement options in terms of effectiveness and ability to be defeated.**

As required by the ANSI Z359.2 standard, a fall hazard survey report can be an extremely valuable tool for identifying the location of existing fall hazards. Conducting a wall-to-wall facility survey allows you to identify all hazards and document their unique characteristics. The report records the severity and probability associated with each identified fall hazard. The severity of a fall hazard is typically quantified by the fall distance and the likelihood of striking an object during the path of the fall. The probability is measured by factors such as frequency and length of exposure, number of workers exposed during the work activity, and other environmental conditions.

By thoroughly identifying and evaluating your hazards, you can make wiser use of your fall protection investment. You are able to more intelligently evaluate and select abatement methods—rather than just purchasing a PPE solution, which may not be the most effective from a safety or a cost standpoint. Using data from the report also allows you to prioritize projects with risk and other factors considered. Once you understand the magnitude of fall hazards and potential risks associated with them, an initial validated budget can be created, as well as an implementation phasing plan. All this information allows you to document what risk you are abating to confirm that you are, in fact, reducing the most possible risk with your available resources.

**When You Do It**

Although it can be easier to identify hazards in an existing facility, it is generally safer and more cost effective to implement safety measures before facilities or processes are built. By using this proactive approach to safety, engineering controls can be put in place in the early stages of construction, resulting in the mitigation of potentially dangerous or fatal accidents.

In addition to the safety benefits of addressing safety concerns early in the design process, doing so can have significant cost implications. A study conducted by an international consumer-goods company showed that implementing safety measures during the programming and schematic design phases of a project resulted in substantially lower costs than if the same systems were installed during or after construction. Although these numbers can vary depending on the specific circumstances, the trend of this data will match most experiences.

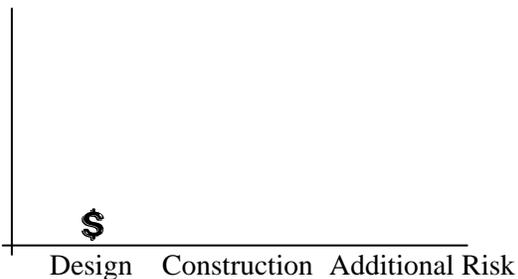
The table below summarizes the cost required to achieve the same level of safety for a given hazard based on when the hazard is abated during the design and construction process. If hazard abatement is not addressed until after the contractor leaves the site of a new facility, a factor of 10,000 could be the cost implication to provide the same level of safety. So, in the present economy, it's unlikely that the same level of safety will be achieved, leading to unnecessary compromises in the battle between safety and cost.

**Table 1. Cost Required for Safety When Hazard Abated During Design and Construction**

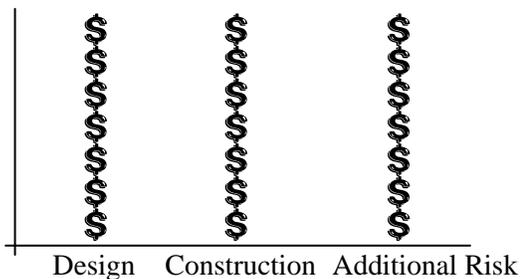
<b><u>Design/Construction Stage</u></b>	<b><u>Cost Factor</u></b>
Programming/Schematic Design.....	\$1
Construction Documents.....	\$10
Construction/Installation.....	\$100
Commissioning.....	\$1,000
Renovation.....	\$10,000

As illustrated in Figure 2, implementing safety measures after construction crews have finalized a project adds the most to the base cost. If fall protection is implemented after the fact, the design and construction costs are increased, and you may have to select an abatement method that presents additional risk, due to irreversible or cost-prohibitive environmental factors.

### Cost Comparison – Schematic



### Cost Comparison – Renovation



**Figure 2.** These graphs represent the cost implications that can be realized if safety hazards are not abated until after the contractor leaves the site, rather than at the schematic design phase.

When evaluating cost implications, the question is not, “How much will it cost if I wait until the end?,” but rather, “How little will it cost if I implement it during design?” By incorporating safety into the design process, business owners will yield a positive impact on not only worker safety, but also on quality and productivity. Costs are lowered, task performance is improved and life-threatening work hazards are reduced.

For existing facilities, where the hazards already exist, working through the identification and evaluation phases allows you to make better judgments when selecting hazard control methods. As stated above, when you identify your hazards through a facility- or organization-wide fall hazard assessment, you develop a clear picture of all hazards – not just the obvious ones. Basing decisions on accurate accounts of your overall fall hazard situation helps you avoid spending valuable time and money on solving problems that do little to reduce the actual risk of injury.

#### Realities of PPE

When evaluating fall protection, it is tempting to wait until your processes are in place and to purchase equipment in a manner similar to other personal protective equipment, such as eye or hearing protection. But, workers typically don’t need significant instruction to properly use standard safety equipment, like safety glasses or a hard hat. On the other hand, using a safety harness in a way that will save a person’s life, is just not as intuitive. Evidence of this misuse of fall protection equipment is abundant and can be seen at nearly any construction site, among other places.

When determining whether to use PPE, building owners need to consider total cost for hazard abatement, including short-term and recurring costs. Short-term costs include installation of systems such as walking/working surfaces, personal fall arrest systems and equipment, as well as employee training. Recurring costs include additional time for equipment inspections or modifications, retraining personnel, and productivity gains and losses due to the type of abatement method used. Despite popular perception, PPE can be the most expensive when life-cycle costs are considered.

Another unfortunate reality when simply purchasing equipment is a false sense of security. If fall protection equipment is not the most effective solution or workers are not properly trained to use it effectively, safety hazards can actually be increased. When workers think they are protected but are not, they may be less diligent about safety than if they were not protected at all. It is not uncommon to see authorized persons performing tasks while unprotected due to improper fitting of harnesses, insufficient fall clearances, inadequate anchorage strength and equipment compatibility.

## **Conclusion**

When it comes to fall protection, safety professionals have the critical task of providing safe access and protection for employees working at heights. Despite the importance of the task, the job does not come with unlimited resources. In order to make the most of your investment in fall protection, it is critical to work through the identify → evaluate → control process and establish a method and priorities for creating a manageable and sustainable program. Doing so delivers cost-effective solutions and a consistently safe environment for workers.