Session No. 690

Managed Fall Protection Programs: A Case Study

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Introduction

Many safety professionals struggle with where to start when implementing the elements of a managed fall protection program, as outlined by the ANSI/ASSE Z359.2-2007 standard. This paper will provide background on the standard, and a case study focusing on the journey one organization is taking to implement an effective program.

ANSI/ASSE Z359.2, *Minimum Requirements for a Comprehensive Managed Fall Protection Program,* and provides valuable guidance to organizations regarding the key elements of a successful program. As it has done for the U.S. Army Corps of Engineers, it provides a "roadmap" that can guide you through the critical elements of a fall protection program.

Elements of ANSI/ASSE Z359.2 Standard

The program elements outlined in the ANSI/ASSE Z359.2 standard include:

- Policies, duties and training
- Fall hazard survey report
- Fall protection procedures
- Eliminating or controlling fall hazards
- Incident investigations
- Evaluating program effectiveness

These elements are foundational for creating a program that reduces risk and enhances employee safety. When one or more of these elements is missing, a program can become stalled or be deemed ineffective. As shown in Figure 1 below, certain aspects build on others to ensure that the appropriate measures are in place to enhance success.

After reviewing the primary elements of the ANSI/ASSE Z359.2 standard, this paper will chronicle how the U.S. Army Corps of Engineers (USACE) has incorporated these elements for its vast and diverse organization.

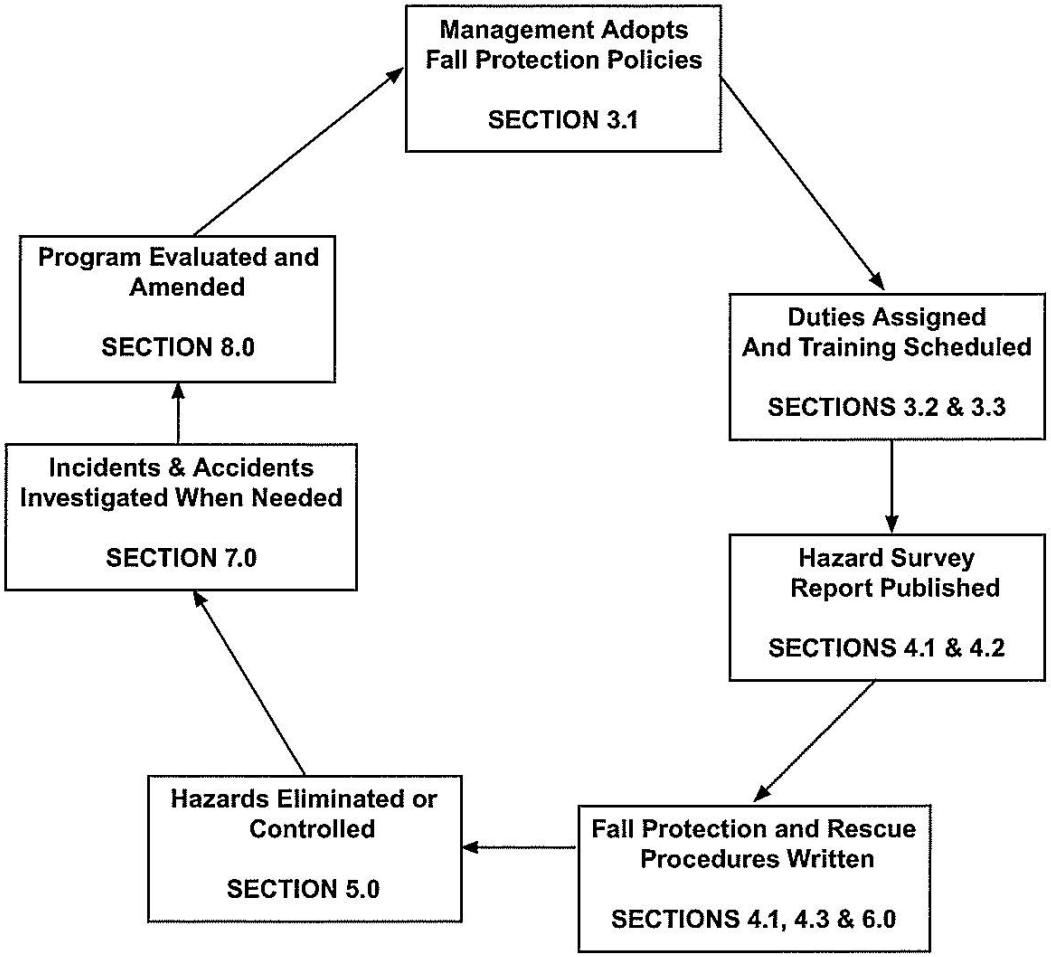

Figure 1. This chart illustrates the primary elements of a managed fall protection program, as well as the corresponding references in the ANSI/ASSE Z359.2-2007 standard.

Policies, Duties and Training

Establishing organizational fall protection policies, assigning duties and ensuring properly trained staff are baseline aspects of a managed fall protection program. Unfortunately, it is quite common to find flaws or inadequacies in employers' policies, duties and training programs. For example:

- The company policy on fall protection is not clearly stated or adhered to.
- The roles and responsibilities within the program are not properly defined.
- Workers and supervisors are expected to do their jobs safely without proper training.

When developing a policy statement, OSHA regulations should be followed for legal requirements, but an effective policy statement provides overall program guidance and "…emphasizes management's commitment to providing a safe workplace for employees exposed to fall hazards," (ANSI/ASSE Z359.2, Section 3.11).

The Z359.2 standard explicitly outlines the specific duties of employers and their employees within each role of a fall protection program. While the standard provides more detail on each role, a simplified version of the major roles can be interpreted as follows:

- Program administrator manages the program;
- Qualified person designs the program;
- Competent person supervises the program; and
- Authorized person uses the program.

The standard contains a great deal of content regarding the training needed for each role in the program. Competent persons need to be trained with the following information, and should be provided with re-training every two years:

- Background knowledge, including regulations and standards
- Recognition and identification of fall hazards
- Selection of abatement solutions, systems and compatibility of systems
- Inspection and approval of personal protective equipment
- Development and application of system use and rescue procedures

Likewise, qualified persons require similar training, with additional detail on selection of fall protection systems, designing anchorages or complex active fall protection systems, and determining fall clearances and swing fall or other impact forces. On the other hand, authorized persons should receive training on similar topics, but with less detail on abatement solutions and more focus on equipment inspection/use and recognition of hazards.

Fall Hazard Survey Report

After (or even while) the baseline items above are addressed, another critical early step in a managed fall protection program is the identification and evaluation of fall hazards. Rather than immediately purchasing personal protective equipment (PPE) to abate one obvious hazard, it is more effective, from both the cost and risk standpoints, to gain a thorough understanding of all hazards and their associated risk.

In its procedures section, the ANSI Z359.2 standard describes a fall hazard survey report as a written document identifying the location of existing fall hazards. The report also documents the severity and probability associated with each identified fall hazard. 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. Probability is measured by factors such as frequency and length of exposure, number of

workers exposed during the work activity, and other environmental conditions. The primary goals of conducting a fall hazard survey are to:

- Identify and record fall hazards
- Prioritize fall hazards
- Document hazards with pictures
- Determine exact location of fall hazards
- Develop possible abatement solutions

Fall Protection Procedures

In many cases, authorized persons are not included in the decision to procure fall protection system design or equipment. However, they are the ones who use the resulting safety systems. The aim of creating and using system use procedures is to provide enough information so that the worker can maintain 100% fall protection at all times. The following aspects should be included to ensure authorized persons have a complete understanding of system use.

- **Common misuses of equipment**. Highlights common misuses of equipment and proper inspection techniques
- **Reference information**. Includes any outside reference documents that may be applicable to the system, as well as information on the initial installation and certification dates of the system
- **System reference images**. Presents graphics or photos that represent proper use of the system.
- **Rescue procedures**. Describes the steps required for performing a rescue if a fall takes place.
- **System use procedures**. Describes in detail what the worker(s) are required to do during the use of the fall protection system.
- **Design parameters**. Includes information used in designing the system and indicates design limitations.

Procedures should be developed for all systems, including scaffolding, aerial lifts, portable ladders, fall arrest and travel restraint systems.

Eliminating and Controlling Fall Hazards

Once fall hazards are identified, the evaluation phase focuses on determining the appropriate priorities and measures for abating the hazards. The Hierarchy of Control (HOC), referenced in Figure 2, can play a significant role in evaluating the appropriate abatement methods. Clearly, the goal is to select the most effective solution that is the least likely to be defeated within the physical environment.

Figure 2. The Hierarchy of Control relates hazard abatement options in terms of effectiveness and ability to be defeated.

After fall hazards have been identified and evaluated, the next step is to control the fall hazards. It is important to evaluate where the solution falls within the Hierarchy of Control. When considering an active fall protective system, the type of system and corresponding anchorage must be evaluated. Because of the variety of types and uses, designing and using anchorages can be complex. It is, however, critical to understand different anchorages, and the ANSI Z359 standard provides helpful information on this topic. It should be noted that the frequency of the task should also be considered when evaluating the best solution. OSHA regulations provide guidelines as to which abatement solutions are appropriate, depending on the frequency of tasks.

Incident Investigations and Evaluating Program Effectiveness

When an incident occurs, the typical response is that the program has failed. Once the immediate needs of the worker are attended to, a true comprehensive managed fall protection program response is to launch a thorough incident investigation. This investigation provides an opportunity to evaluate the work practices occurring at heights and all aspects of the overall program to determine what is and is not working properly. Elements of a thorough incident investigation include a review of duties, policies, procedures and training, as well as an evaluation of the fall protection systems, anchorages and equipment in use at the time of the incident, including inspection logs and communication during the incident.

As an element of continuous improvement, an evaluation of the program's effectiveness should be conducted at least biannually. This is one of the responsibilities of the program

administrator, but, a team approach involving employees and management is preferred. The team approach is specifically referenced when recommending action steps to be taken as a result of the program evaluation.

Case Study: U.S. Army Corps of Engineers

With the release of the ANSI/ASSE Z359.2-2007 standard, each organization has had the opportunity to evaluate the best way to develop and implement a managed fall protection program, one that complies with the standard and works with the intricacies of its unique functions.

An organization as vast and diverse as the U.S. Army Corps of Engineers (USACE) certainly had to apply the elements of a managed fall protection program in a manner that fit its complex needs. USACE has always had a strong safety culture, with significant safety requirements for contractors. Still, that has certainly not made the organization immune to safety challenges.

Some of the challenges that will be highlighted in the case study include:

- Enforcing policies for employees vs. contractors
- Managing programs across a variety of sites and exposures
- Ensuring compliance with a geographic dispersion of staff
- Developing methods for soliciting feedback from stakeholders

<u>USACE Challenges</u>
For an organization that employs approximately 40,000 civilians and 800 military personnel, communicating and enforcing safety policies is an obvious challenge. In the past five years, USACE project sites have seen 12 deaths and 10 disabling injuries, with all but one incident involving contractors. In addition to the 60,000 contracts typically awarded each year, additional projects are being funded with stimulus monies in fiscal years 2010 and 2011. This means that contractors that have not previously worked with the USACE or understand its safety requirements will be on USACE project sites.

In addition to the diversity of personnel, the USACE has to manage safety across a variety of geographic locations, industries, exposure types, and cultures. With sites in every U.S. state and 26 countries abroad, differences in culture, language, and values make it challenging to properly communicate safety requirements. These sites can vary from construction to navigation locks and dams to centers and laboratories.

Acknowledging this diversity of personnel and location, it is critical for the USACE to solicit feedback from stakeholders. Some of the methods to improve communication that have increased stakeholder involvement include:

- Involve stakeholders in the process of implementing safety solutions
- Establish open communication pathways for honest feedback
- Encourage suggestions via website, other channels
- Investigate safety issues with representative groups

Overcoming Challenges

For the U.S. Army Corps of Engineers, one of the first steps taken in its approach to managed fall protection was the creation of EM-385-1-1, Section 21. This new document essentially consolidated all requirements concerning fall protection into a central location, making it easier for personnel to find.

The basic contents of this document on fall protection are:

- General information
- Training
- Fall protection program
- Fall protection systems, such as covers, nets, personal fall protection systems, ladder-climbing devices
- Rescue plans
- Procedures
- Working over or near water

The USACE not only changed the fall protection program document, but also how it does business in general. Foundationally, the organization is focusing on education, training, and basic enhanced skills to improve design, system implementation, and equipment use. A renewed focus has been placed on appropriate design, since it has become evident that better designs enhance multiple attributes, including safety and sustainability. By addressing fall protection during the design phase of a project, fall hazards can often be eliminated. If they can't be eliminated, they can be addressed earlier in the project, which leads to less money being spent to prevent a fall hazard. By employing more open communication with stakeholders referenced above, USACE also has been able to empower all employees, closely follow safety issues, and maintain closer partnerships with sister agencies, such as NAVFAC.

The primary steps the USACE is taking to manage its fall protection program are:

- Empower workers, provide training and skill level necessary to identify hazards at all levels, from design through construction to user and O&M
- Properly implement system safety program
- Establish/clarify requirements
- Assist by providing guidance and toolbox items to all employees ,and contractors
- Provide and use incident reports to learn from past accidents/incidents
- Constantly re-evaluate program requirements and effectiveness

Conclusion

Each element of a managed fall protection program is foundational for creating a program that reduces risk and enhances employee safety. When one or more of the elements is missing, a program can become stalled or be deemed ineffective. Certain aspects of a program build on others to ensure that the appropriate measures are in place to enhance success. As it has done for the U.S. Army Corps of Engineers, the ANSI Z359.2 standard can provide a helpful "roadmap" to guide you through the critical elements of an effective fall protection program.