

Incorporating a Rescue Plan into Your Fall Protection Program

**Jim Hutter
Senior Training Specialist
Capital Safety
Red Wing, Minnesota**

Introduction

In nearly 40 years of fall protection business Capital Safety has seen many positive changes in our industry. In the past decade we have trained thousands of users in the proper use of fall protection equipment. We have also assisted countless organizations in implementing a comprehensive fall protection program. One common theme in the implementation of these programs is the confusion surrounding rescue after a fall.

Process of Implementing a Rescue Plan

A rescue plan should be simple, safe, and designed to meet the specific needs of your organization. It should include self rescue, assisted self rescue, and mechanically aided rescue when needed. If the need of a formal rescue team is identified, the following is a simple approach to achieving your goals

Industrial Rescue Basics

The motto of this manual and the accompanying course is: “Simple and Safe is Best”. Whenever possible, the least amount of workers should be put at risk during the rescue. Provided the casualty can be safely rescued with minimal assistance from other workers, which is the best approach to take.

Rescue Teams

The size of the rescue team is important. Although only one rescuer is sometimes enough, depending upon the resources and medical condition of the casualty there should always be

enough individuals to effectively and efficiently conduct the rescue (but not so many individuals as to hamper effective control of the situation). Other employees can always be summoned to assist with raising or carrying personnel, but untrained workers should be kept back from the situation until their services are required. An effective industrial rescue team would consist of 4-8 personnel depending upon the nature and difficulty of the rescue. Some possible rescuer combinations are laid out below:

- 1 -Team Leader, see below
- 1-2 Anchor Crew, required to set up anchors for fall arrest and rescue systems
- 1 - Medical/Rescuer, minimum emergency first aid qualification
 - Primary responsibility is the casualty's health and welfare. This individual will also be raised up to the casualty if required
- 1-2 Backup Crew, required to prepare the fall arrest equipment and any belay anchors that may be required below
- 1-2 Stretcher Prep, prepares the litter for evacuation of the casualty

Team Leaders

There should be only one leader who is elected and ultimately responsible for the overall management of the rescue. If a leader is not designated or there is more than one, then during times where important decisions are required, a conflict may result that leads to the failure of the rescue or not completing the rescue in a timely manner. The leader needs to be able to direct all operations, make all critical decisions and thus is responsible for the actions of the team. This does not mean that the leader can not request ideas from other team members, but it is up to the leader to weigh the ideas, provide a solution and plan of attack, as well as direct the operations throughout. There is nothing wrong with delegating leadership roles to other members of the team (i.e. John will be in charge of overseeing the set up of the anchors); however the team leader still has the final say and responsibility.

The leader needs to be in a location to assess and oversee all operations. If it is difficult to see all of the operations, the leader must be positioned in a spot where the most critical operations are taking place and be in constant communication with the other location(s) (see Communication section below). Since it is up to the leader to delegate tasks to other members and oversee the rescue, he/she should not get bogged down with involved tasks that would diminish the leader's ability to effectively manage the rescue operation.

An effective leader will brief the other members of the team prior to commencing the rescue, and ensure that all personnel in the team know what they are responsible for. Remember an assessment of the medical conditions of the casualty should be the number one priority (see below).

The leader does not necessarily need to be the same person for every rescue. Although consistency is preferable, there may be times where the regular leader is not available, so it is good to at least provide training with different leaders in a practice environment.

Medical Considerations

The first consideration of any rescue is the initial assessment of the casualty. This assessment will determine how the rest of the rescue will have to proceed. The urgency and degree of care will

obviously be different in the rescue of a conscious and uninjured worker compared to the rescue for a worker who is in a life-threatening situation.

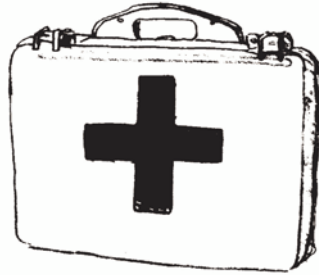


Exhibit 1. Medical Considerations

Even though the worker is at height, unless there is an immediate and grave danger of keeping the casualty in that location, then first aid protocol must take place prior to movement of the casualty. Don't forget your ABC's: Airway, Breathing and Circulation. Other factors to consider, especially following fall arrest are, shock, spinal injury and bleeding. A neck or back injury must always be assumed if the casualty is unconscious or suspended following fall arrest. As a result, all of the precautions to stabilize and support the casualty must be taken throughout the rescue. All rescuers should be trained in emergency first aid. If possible one of the rescuers should have an advanced first aid qualification.

Practice / Refresher Training

Practice is critical to the success of any rescue team, as well as the maintenance of skills and techniques learned. Rescuers and teams that do not practice prior to actual rescues can forget critical components of the rescue system or fail to assess the situation correctly. The more a team practices the more effective the results on the day of the emergency. Practice identifies shortcomings in a non-emergency situation and leaves time for correction. Practices should take place at a minimum of once a month. It may include just a refresher session with the equipment, or an actual mock rescue. A practice in different locations and with differing scenarios is important to plan for a various number of potential accidents or situations.

Refresher training is also important, not only for maintenance of skills and to reassess the effectiveness of the team, but to potentially learn about new techniques and equipment. Refresher training should take place no less than once every 2 years.

Anchoring

As with any fall arrest system, the anchor system in a rescue is critical. The entire system is only as strong as the weakest link. The anchorage should be a very secure structure, such as a beam, column or large truss above the casualty. Try to select an anchorage other than what may have been used to arrest the fall of the casualty, as it may have been compromised. If the casualty is in a location between two anchors then they both should be used to center the rescue system over the casualty. Note: the angle between the two anchors should not be greater than 45 degrees.

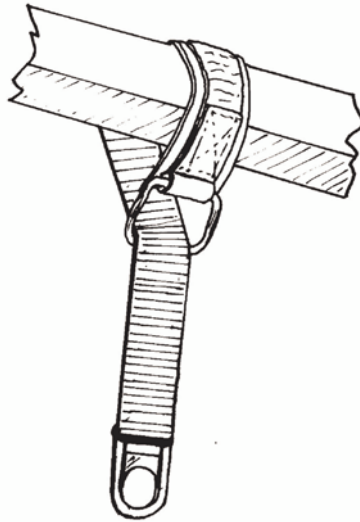


Exhibit 2. Anchorage

The strength requirements of a raising and lowering system does not necessarily need to be as strong as a fall arrest system, but fluid carrying pipes, conduits and duct work should never be used. A separate (independent) anchor system should be set up for each fall arrest system and each lowering or raising system required. Please refer to the Anchorage section in the Fall Protection manual for further details, and selection and use of anchorage connectors.

Any anchorage that would normally be used for fall arrest could be used to support a rescue system. If there is a location where workers enter a location with the high probability for rescue, then certified anchor points should be installed for fall arrest and rescue use.

Back Up Fall Protection

Fall protection (backup) for the rescuers is just as important as it is for the casualty. Primary systems typically include lowering and raising devices, while secondary systems include the fall arrest systems. Whenever possible and practical an industrial fall arrest system should be used to “backup” the rescuer(s) and casualty. A simple method includes installing a self retracting lifeline (SRL) above the rescue area for each worker requiring secondary protection. Fall protection should also be used by rescuers while climbing and working at height in preparation for the rescue (please refer to the fall protection guide). In some situations a belay system will have to be set up. It may be required when the rescue is too high for an SRL, or if the SRL would have to be used in an unsafe manner if it is employed.

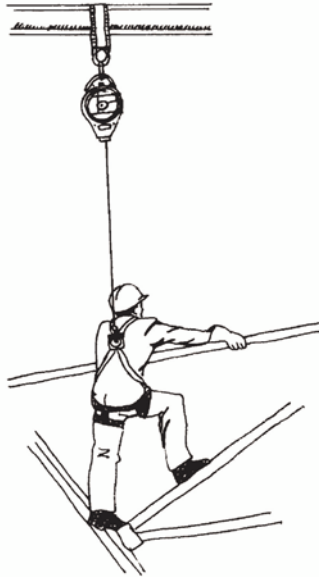


Exhibit 3. Back Up Fall Protection

You are no good to the casualty if you fall and become a casualty yourself!

A belay is a backup system that consists of a climbing rope that is attached to the worker requiring protection, and then manned by another individual. A hitch or mechanical device is used to create enough friction on the rope to support the worker in the event of a fall or failure of a primary system. In an industrial environment we would always recommend a mechanical device that has a back up braking system, in the event that the worker manning the belay lets go of the rope. Further, a mechanical device is easier to install because it has instructions written on the side. One of the best mechanical belay devices is the Petzl and Grigri.

Descending / Lowering

There are a great variety of techniques available for descending or lowering a casualty. Many of the techniques and equipment include a form of rappelling. Although exciting, rappelling can be a very dangerous procedure which requires a great deal of practice and training. We do not normally recommend that industrial rescue teams rappel or use rappelling devices for lowering individuals. With the right equipment, a traditional rappel should never be required.

Whenever practical, rescuers should start at the ground and go up, rather than starting above the casualty and going down (see Ascending below). When required (e.g. lowering a stretcher) a pre-rigged rescue system should be used. This type of system provides backup, mechanical advantage (up to 5:1), is easy to use, and will allow raising of the casualty and/or rescuer as well as providing lowering capabilities. An excellent device for this purpose is the DBI-SALA Rollgliss Rescue System. This system is stored in a bag ready to be pulled out at a moment's notice and be put into action. Remember that during lowering or descent, a backup fall arrest system must also be used.

Ascending / Raising

Rather than rappelling or descending to the casualty, in most cases, rescuers should ascend or raise a worker up to the casualty from below. There is much less chance of accidentally overloading the rescue system when coming up from below. (Obviously, if a safe descent to the casualty is only 10 feet, and an unsafe 100 foot ascent is required, then the choice would be clear.)

There are many mountaineering and rescue techniques available for ascending or raising workers, however many of them include complicated rope and pulley techniques and systems. Ascending to or raising a casualty and/or a rescuer in an industrial environment should be accomplished with a pre-rigged rescue system. Once again the DBI Rollgliss® Rescue System can be used for this purpose. Limiting the techniques and amount of equipment reduces the potential for error.

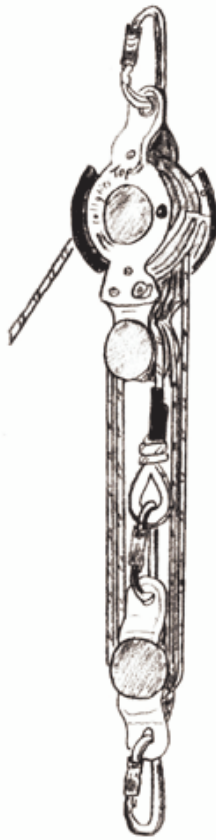


Exhibit 4. Rollgliss®

Ascending to a suspended worker should only be done if other simpler rescues can not be performed (i.e. using a pick-off pole, ladder or man lift etc).

Communication

Effective communication is very important for safety and coordination in any industrial rescue. Workers on the ground must be aware of what is happening above them. Prior to any actions,

rescuers should inform the rest of the crew of the impending move and not act until acknowledgement is received.

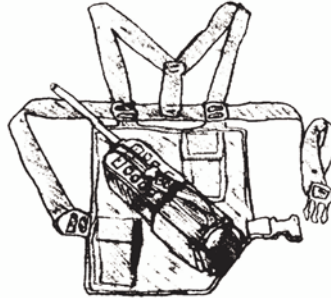


Exhibit 5. Communication

Normal communications may be difficult within industry because of adjacent noises or the distance between rescuers. Hand signals are often used when lowering and raising casualties, but radio communications are definitely an asset if available. Some radios can be carried in chest radio harnesses for hands free convenient storage.

Falling Objects

Falling is obviously one of the greatest risks during high angle rescue operations. Falling objects that fall on to workers below can be just as hazardous. A carabiner falling 50 feet onto a worker below can severely injure if not kill. Care must be taken when working with equipment at height.



Exhibit 6. Falling Objects

Whenever possible, all equipment should be secured to the rescuers harness until it has been secured to the anchorage or is attached in the system. Further, only one object should be in any one rescuer's hand at any one time. Working with multiple objects or performing multiple tasks leads to the possibility of accidentally dropping one of the objects. All rescuers should be wearing an approved hard hat (helmet) with three-point chinstrap to minimize potential injury.

Calling "911"

The fact that you have this means your company has decided that it is important to develop in-house rescue skills and/or a team, and to not just rely on the local rescue professionals (fire

department). The motivation could stem from the rural location of your company, the apparent risk, or even the fact the local or volunteer department does not have the resources to affect a safe and efficient high angle rescue on your site. Whatever the reason, it does not mean that the local department or professionals should be kept out of the loop. Many fire departments have extensive training and resources at hand. As a result, they should, at a minimum, be consulted to assist in evacuation plans, potential rescue ideas and resources. Furthermore, as a component of your written rescue procedures the local fire department/EMS should be immediately notified for the eventual casualty care, treatment and evacuation from the site.