GUIDANCE NOTE	Fall Arrest Rescue Procedures	Code: G109	Issue: B

INTRODUCTION

The use of fall arrest equipment is now commonplace with operatives relying upon harnesses and other associated devices to save their lives in the event that work at height goes wrong. A failure to properly plan for this event could have potentially fatal consequences.

The Work at Height Regulations requires employers to ensure that all work at height is properly planned and to make provisions for rescue arrangements where any work at height is carried out. This guidance note addresses issues relating to the rescue of an arrested operative following a fall and assumes that the hierarchy of controls laid down by the Work at Height Regulations have been properly observed.

KEY HAZARDS

Some key hazards associated with an arrested fall are listed below. This list is not exhaustive:

- Injury sustained resulting from striking objects during the fall.
- Injury sustained during the fall arrest resulting from poorly fitting harness.
- Suspension trauma resulting from the operative being suspended in an upright position and not being rescued in time.

KEY CONTROL MEASURES

Once a fall has occurred a rapid response is essential. Even if the operative is conscious and un-injured suspension trauma will set in rapidly resulting in the operative becoming unconscious. It is essential that:

- A work at height rescue plan is in place.
- Those affecting the rescue, including self rescue, are fully trained.
- The correct equipment has been identified and is readily available for use.
- Rescuers are not placed in unnecessary danger.
- First aiders are aware of how to treat suspension trauma.

SUSPENSION TRAUMA / TOXIC SHOCK

Suspension trauma is a condition brought on by an individual being suspended in a vertical position in a harness and can be deadly. Once a person becomes suspended circulating body fluids begin to pool in the lower limbs. This can reduce the blood flow to the heart which in turn can reduce the blood flow to the brain resulting in unconsciousness. Once the casualty becomes unconscious the condition is compounded by the loss of movement of the limbs and the straps of the harness restricting blood flow. At this stage the blood circulating around the system can be so reduced as to cause oxygen starvation to the brain resulting in death or damage to other vital organs such as the kidneys.

It is worth noting that where a person has suffered an injury during the fall then the speed with which suspension trauma sets in is likely to increase. Other issues such as the physical fitness, age and even weather conditions can also have an effect.

To avoid the onset of suspension trauma the casualty should be encouraged to exercise their legs by raising them up and down slowly stimulating the flow of blood. Also, suspension trauma relief equipment is now available from some manufacturers. Both are only effective with conscious casualties and must not delay the rescue.

Once an operative has been rescued it is important that those taking part in the rescue and those administering first aid understand the dangers posed by **toxic shock** which is also potentially fatal. This results from the blood which has been pooled in the body becoming de-oxygenated and heavily contaminated with carbon dioxide and toxins. If the stale blood is allowed to rush back to the heart the casualty could suffer a heart attack or organ failure which can occur several days later.

To avoid toxic shock the casualty should be placed in a sitting position with the knees drawn up toward the chest. Any operative who has been suspended in a harness for more than 5 minutes should be taken to casualty for treatment. If suspension trauma is possible then the casualty may need dialysis to protect their kidneys.

THE RESCUE PLAN

All rescue plans should aim to recover a casualty within ten minutes to avoid the risk of suspension trauma. It is important that a rescue plan is available for each different type of work at height that is taking place on any given site. It is not sufficient to have a generic plan in place as this may not suit each different circumstance. Managers, supervisors and operatives who are to be involved in attempting a rescue must be trained to a suitable standard and the rescue plan should be periodically rehearsed. No rescue should rely upon the emergency services. The rescue plan should be a written document and should contain the following:

- Site address / location of work
- Names of operatives involved in work at height operations.
- The nature of the work.
- Names of managers, supervisors and operatives who will be involved in the rescue.
- Competency of rescuers including details of training especially relating to any rescue equipment being used.
- Communications i.e. how the alarm will be raised, how the rescue team will be summoned and how they will communicate during the rescue.
- First aid availability and who will summon the emergency services.
- The rescue methodology.
- Nature of the rescue equipment including availability and serviceability.
- Conscious casualty procedure.
- Unconscious casualty procedure.
- Any unusual considerations such as the structure, weather conditions etc.

RESCUE METHODS

There are so many methods of rescue that it is not possible to list them all off. When considering the method of rescue that is most suitable, each unique situation from which a casualty may need to be recovered from must be considered. The type of fall protection equipment in use will also need to be considered.

In some cases the rescue could be very simple such as where a scaffolder falls and is suspended it may be possible for him to self recover back into the scaffold. This situation would however change substantially if the scaffolder were to suffer an injury or become unconscious. A further example is the use of a man-rider cage suspended from a crane. Here a rescuer can be attached to the cage, be lowered adjacent to the suspended casualty, open the gate and recover the casualty. But what if the crane could not operate because of high winds, or the casualty had fallen through a gap not accessible by the man-rider.

It is essential that the risk assessment process be applied to each situation and that each unique situation is considered. Only then can the method of rescue be determined.

GENERAL CONSIDERATIONS

- The rescue plan must take into consideration the potential situation from where the casualty may need to be recovered from. It should also consider the type of equipment being used by the casualty and its condition if it has been damaged during the fall.
- There must be sufficient additional anchor points available for rescue equipment. These will also need to be correctly positioned.
- The potential loading of anchor points or devices and associated rescue equipment should be pre-planned and their suitability for purpose confirmed.
- Consider the potential for abrasions to equipment suspending the casualty and to the rescue equipment.
- Rescue equipment should be maintained similarly with other work at height equipment. It is recommended that the equipment is checked by a competent person each day of its potential use.
- Any operative required to use a harness as part of his work should be provided with sufficient information and training to ensure its correct use and maintenance. Harnesses and associated devices must be used and maintained in accordance with manufacturer’s instructions.

REFERENCES

Other Guidance sheets that may be of use:

- G100 Working at Height
- G111 Safety Nets and Safety Harnesses
- G117 Roof Work
- G111 Rope Access Techniques

Other useful sources of information:

INDG401 The Work at Height Regulations 2005 (as amended) A brief guide. (HSE)

The Work at Height Association Technical Guidance Notes

NASC Guidance notes SG4:15 and SG19:17