

Construction Plant-hire Association - Tower Crane Interest Group Tower Crane Technical Information Note 013 (TIN 013) Rescue of personnel from height on tower cranes

The CPA has recently updated its guidance on the rescue of personnel from height on tower cranes, Tower Crane **Technical Information Note 013** (TIN013). See <http://www.cpa.uk.net/data/uploads/publications/CPA-TCIG-TIN-013%20Issue%20G-130503.pdf>. heightec was represented on the CPA's Working Group.

Introduction

Wherever tower cranes are being erected, used, altered, maintained, inspected, thoroughly examined or dismantled, the evacuation and rescue of personnel from height, although required infrequently, should be planned for. TIN013 aims to provide guidance on the planning of the rescue of persons from height on tower cranes.

Main issues

The main issues highlighted in TIN013 are:

- Health and safety legislation requires that safe systems of work are in place for all work activities.
- The Work at Height Regulations 2005 (Reg. 4(2)) require duty holders to plan for emergencies and rescue.
- Duty holder's arrangements for emergency and rescue should not rely on the fire brigade¹.
- The primary duty for ensuring that there are adequate resources for carrying out rescue from a height of persons on a tower crane rests with the organization in control of the premises on which any tower crane is sited. In the case of a construction site this is the Principal Contractor as defined by the Construction (Design and Management) Regulations 2007.
- In practice, it is likely that arrangements for rescue during the erection, alteration and dismantling will be planned and implemented by the tower crane supplier; with the responsibility for planning and implementing rescue during use, maintenance and thorough examination lying with the Principal Contractor, who may take advice from the tower crane supplier

Circumstances requiring rescue from height

The circumstances requiring rescue from height fall into *two* categories:

- (a) During erection, alteration and dismantling of the crane when the only people that may require rescue are members of the crane supplier's erection team.
- (b) During use, maintenance and thorough examination of the crane when those that may require rescue are the operator, visitors to the crane (e.g. safety advisors, HSE

¹ See HSE's Operational Circular OC 200/31 on the Work at Height Regulations (Para. 60 et seq.).

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Inspectors, managers, etc.), maintenance personnel and 'competent persons' carrying out thorough examinations.

Planning for rescue from height

Employers must ensure that a safe system of work is in place. They must:

- (a) Identify the task to be undertaken.
- (b) Identify the hazards associated with the task.
- (c) Make an assessment of the risks involved with the rescue operation.
- (d) Identify the required control measures.
- (e) Develop the method to be used, including identification and provision of equipment, identification and training of suitable personnel, availability of appropriate trained persons, and liaison with the local fire and rescue service.
- (f) Record the planning in a method statement.
- (g) Communicate the plan to all those involved.
- (h) Review the plan at intervals, incorporating any changed circumstances and undertake periodic refresher training.

The control measures identified should include arrangements for training of personnel and the inspection and maintenance of the rescue equipment.

Options

There are four options for dealing with an emergency which requires an injured or incapacitated person to be recovered to safety. In order of preference (bearing in mind the immediate aim is to recover the casualty to the nearest point of safety) they are:

- (a) Lowering a casualty;
- (b) Raising a casualty;
- (c) Self rescue by use of emergency equipment; and
- (d) Specialist techniques only undertaken by specially trained personnel, e.g. rescue of another in descent.

Essential planning issues

All rescue planning and operations should address the following:

- Establish the need for rescue in good time, taking into account lone worker issues and procedures.
- Communication requirements to facilitate rescue.
- The safety of the persons carrying out or assisting with the rescue.
- Means of access to the casualty.
- The medical needs that the casualty may have with respect to injury or the effects of suspension².
- The anchor points to be used for any equipment.
- The suitability of equipment, e.g. anchors, harnesses, attachments and connectors, which has arrested already the fall of the casualty for use during the rescue.

² **NOTE:** There should be a first aider on the rescue team who is able to reach the cab promptly.

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- The method that will be used to attach the casualty to the recovery system.
- The direction that the casualty needs to be moved to get them to the point of safety, i.e. raising, lowering or laterally.
- The possible needs of the casualty following the rescue.

Other planning issues

The potential for a casualty to be located over an edge should be considered. Any rescue will be further complicated where edges and obstructions are involved. Recovery over an edge will:

- (a) Increase the effective load in raising operations due to additional friction.
- (b) Create risks of cutting or abrasion of equipment such as ropes, slings and harnesses.
- (c) Interfere with the operation of rescue equipment.

Rescue by stretcher

Certain medical emergencies may require lowering by stretcher. Consideration should be given to:

- (a) The type of stretcher required for the type of rescue envisaged.
- (b) Whether a stretcher should be stored on a tower crane or in a secure and accessible location nearby.
- (c) Security of casualty in stretcher during any transport phase.

Selection and training of personnel

It is essential that all rescue from height on tower cranes is carried out by adequately trained (competent) personnel who should be available on site at all times when rescue may be required. Guidance is given in BS 8454: 2006, *Code of practice for delivery of training and education for work at height and rescue* (For heightec training see [TRE9U](#)).

Attributes of a proprietary casualty rescue system

Rescue systems may consist of some or all of the following:

- A suitable number of rescuer harnesses (For heightec product, see [Phoenix H11](#)).
- A suitable number of casualty harnesses (see [X-it H41](#) or [Delta H43](#)).
- A suitable casualty stretcher (see [Chrysalis MS01](#) and [Lifting Bridle MSB01](#)).
- A reach and recovery mechanism (see [Reach Pole MRM3](#)) that will allow an individual to access and recover a fallen worker and then either lower or raise that person to a point of safety; and/or
- A controlled descent device (see [RG10 D63](#)) which will allow an individual to self-rescue or be rescued by attaching it to a suitable anchor point and controlling the descent of that individual in suspension to the ground.

A rescue kit (see [SkyPackTC WK39](#)) will be compact and simple to use, easily carried and may consist of some or all of the following:

- A locking, extendable rescue pole allowing easy connection to a person hanging suspended after a fall (see MRM03).

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- A controlled rate lowering device with lifting capability and maximum speed limiter, designed to rescue casualties by lifting or lowering (see D63).
- A universal fitting casualty harness (see [X-it H41](#) or [Delta H43](#)).
- A pulley, providing mechanical advantage to raise a load or deviate a rope (see [Pulley P04](#)).
- Sufficient slings suitable for the application ³ (see [Protected Nylon Sling S25N120P](#))

A rescuer harness (see [Phoenix H11](#)) will be quick and easy to fit, taking into account the locations in which it may be required to be donned and will be constructed with:

- Suitable attachment points to allow quick connection to a system for lowering, raising and/or suspension.
- Suitable accessory loops to allow attachment of ancillary equipment such as a torch, radio, etc.

A rescue stretcher (see [Chrysalis MS01](#)) will:

- Meet appropriate standards (**NOTE:** The Chrysalis meets both EN361 and CE 93/42/EEC (Class 1)).
- Be suitable for both horizontal and vertical lowering.
- Provide protection to the casualty.
- Provide security to the casualty (**NOTE:** The Chrysalis stretcher, uniquely, contains an integral full body harness).
- Be sufficiently stiff to support the casualty.
- Where necessary, be able to incorporate spinal immobilisation equipment.
- Be easy to lift whether manually or by crane, e.g. lifting bridle (see [Lifting Bridle MSB01](#)).
- Be easy to wash and disinfect.
- Be easily stored and transportable.

Useful reference

Work at Height Safety Association, Technical Guidance Note 5, *Guidance on rescue during work at height* ([WAHSA](#)).

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³ In this respect, heightec recommends strongly that these are protected.