



Safety Lines



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ENGINEERING SAFETY NEWSLETTER, OCCUPATIONAL SAFETY AND HEALTH SERVICE

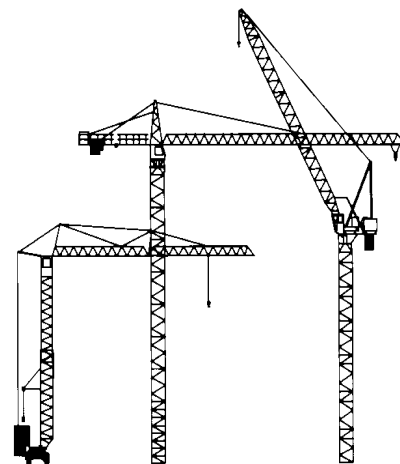
No. 58, June 2003

Tower Crane Fall Recovery

A person falling from the boom of a tower crane (possibly having suffered an injury prior to, or during, the fall) is likely to be prevented from reaching the ground by an AS/NZS 1891 compliant fall-arrest system, if fitted. However, if left suspended in the harness for too long, the victim may succumb to suspension trauma.

Suspension trauma is a name given to a condition, which occurs when the victim is held for a (relatively short) period of time in a vertical or near vertical position. In this position the blood tends to pool in the limbs of the inert body, impeding circulation, and thus depriving the brain of oxygen. The suspended person initially tends to faint (if not already unconscious) and, if not returned to a horizontal position, will soon die. It is essential to take quick action to prevent suspension trauma in a person who is suspended in a fall-arrest harness and unable to effect a self-rescue.

Fletcher Construction have designed (and installed on their tower cranes) a fall-arrest recovery system. This system is designed to be capable of operation by a single person who is fully trained in its use. Another potential use of the system is to assist in the recovery of an incapacitated tower crane operator from the cab of a Liebherr hammerhead tower crane.



Details of the system can be obtained from:

Mark Clayton
Fletcher Construction
816 Great South Road
Penrose, Auckland
phone (09) 571 8431
Fax (09) 525 2072
Mobile 025 319 658

In all such incidents, the emergency services must be notified immediately, providing information about location, seriousness, recovery system availability, and whether or not a rescue attempt will be made.

Crane Code Compliance

Whilst compliance with Approved Codes of Practice is not mandatory, these codes do make mention of items or systems that are essential in certain circumstances. As a specific example, in the *Approved Code of Practice for Cranes* there are items tabled in Appendix A that must be fitted to particular types of crane.

Regulation 10(2) of the Health and Safety in Employment (Pressure Equipment, Cranes, and Passenger Ropeways) Regulations 1999 states 'Every controller must take all practicable steps to ensure that no equipment is operated unless it has a current certificate of inspection'. To obtain a certificate of inspection for a crane, documentation must be provided to the inspection body. The documentation will then be assessed and, if found to be satisfactory, an equipment inspector will make a physical inspection of the crane. At this time the inspector will check for items listed in Appendix A. If any listed item is not present and functional, a certificate will not be issued until the matter is resolved.

So although the code of practice is not mandatory, it can be seen that it is essential to meet key requirements, and highly advisable to follow it in its entirety.

Crane Emergency Stop Button

In the interests of safety it is essential that all cranes can be immediately stopped in an emergency. Many overhead travelling cranes are operated by hand-held controls, such as pendant or radio. To achieve such emergency stopping, the operator must have access to an emergency stop/reset button on the hand-held control. The button needs to be of the type that must be manually reset, not permitting the automatic continuation of a previously selected motion. Because of the convenient location of this type of button, full control is regained quickly after operating the reset.

Some hoists do not have a pendant mounted emergency stop/reset button in standard configuration, and any such hoist used as part of a crane should be modified or replaced.

It is intended to update section 10.2(5) of the *Approved Code of Practice for Cranes* to reflect the above requirement.

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Wellington

Elevating Work Platforms – Major Inspection

The *Approved Code of Practice for Power-Operated Elevating Work Platforms* dictates that elevating work platforms are subject to a major examination after a period not exceeding ten years from new and every five years after that. This inspection is to be in accordance with AS 2550.10-1994 *Cranes - Safe use - Elevating work platforms*.

The code of practice, in section 11.5, emphasises that ‘The thorough examination should include the disassembly and removal of paint, grease, corrosion from critical components to allow a complete and thorough inspection, the detailed visual inspection and tolerance checking of all wear components, and non-destructive testing of all critical areas for evidence of cracking, fatigue and excessive stress.’

Robert M Penny of Southern Quality Assurance Ltd offers the following additional important comments:

1. In-situ testing is limited by a number of factors. With ultrasonic testing, defect detectability is affected by part geometry, defect position and defect orientation. The correct method of MPI is independent of these factors and offers defect detectability increased by several orders of magnitude over UT. Ultrasonic testing is sometimes used to detect whether partial or complete fractures have occurred in situations

where pin or bolt failure would be neither life-threatening nor catastrophic.

2. Some inspection bodies require removal of pins for the visual inspection required by the code. Previous pin failures have been attributed to problems with the lubrication of pins and bearings, and subsequent excessive wear. Such wear may or may not be ultrasonically detectable depending on shape and extent.
3. NDE serves as an adjunct to good sound visual inspection, and is definitely not a substitute for it. Without a thorough visual inspection of the pin and bearings, both MPI and UT can at best produce inconclusive results, since no information would be available about wear, corrosion and lubrication.

OSH requires that major examinations of elevating work platforms be conducted according to the standard. If any manufacturer’s recommendation is more rigorous than the standard, it must be met. The examination must include a detailed visual inspection of all wear components, supplemented by appropriate NDE of all critical areas such as structural components and welds. Care must also be taken that hidden corrosion does not go undetected.

Research Reports

The Health and Safety Executive, a British Government agency, makes a number of research reports freely available on its web site. The index to these reports is located at:

www.hse.gov.uk/research/subject/index.htm

One example, of possible interest to some *Safety Lines* readers, is *Pressure Test Safety* by Saville, Richardson, and Skillerne de Bristowe. This report is concerned with safety to testing personnel and others in the vicinity of pressure testing.

The report can be reached from the above site by first selecting ‘P’ in the index, and then ‘Pressure Tests’. Alternatively it is possible to go directly to the document location at:

www.hse.gov.uk/research/subject/p/pressuretests.htm

Finally, the document can be downloaded by right clicking on the link: CRR 1998:168 Pressure test safety and choosing ‘Save Target As...’.

Web Article Replaces *Safety Lines* Article

An article has been added to the Engineering Safety Web site, entitled *Pressure Testing of Equipment and Setting of Safety Valves*. This is an updated replacement for an article of the same title which appeared in *Safety Lines* No. 53 (March 2002). To access this article, go to the Engineering Safety Web site at:

www.osh.dol.govt.nz/touch/eng-safety
and select ‘Articles’.

Friction Anchors and Tilt-Up Concrete Panels

Last year, OSH published a construction bulletin entitled *Friction Anchors to Support Tilt-Up Concrete Construction Panels*. This followed an investigation carried out by OSH, which reviewed controls for the temporary propping of tilt-up concrete panels during construction.

Two examples of the acceptable load controlled anchors are shown in figure 1 of the bulletin. Experience gained since publication of the bulletin indicates that use of the high-load slip anchor (on the left) is preferable.

The construction bulletin can be found at:

www.osh.dol.govt.nz

by selecting in turn, 'Health and safety Publications', 'Bulletins/Series' (under 'Publications Subject list'), and 'Construction Bulletins (series)' (under 'Series/Bulletins etc'). The bulletin is number 22 near the top of the list.

Further information is contained in the *Approved Code of Practice for Safe Handling, Transportation*

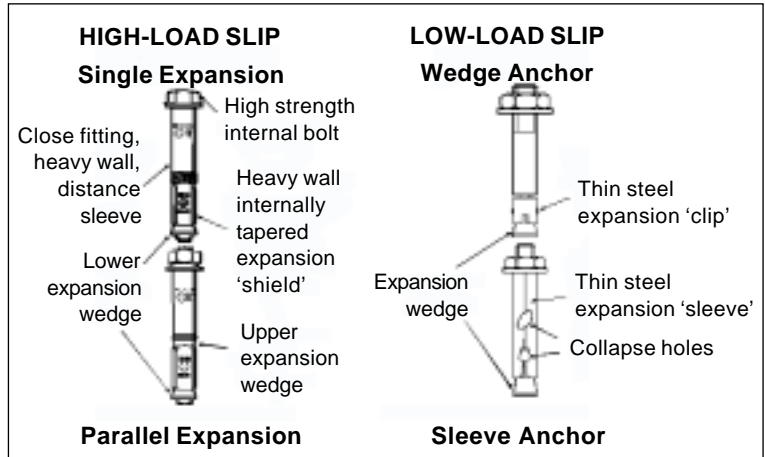


Fig 1: Load Controlled Anchors

and *Erection of Precast Concrete*, which is also available on the OSH web site. It can be reached by going to the previously given address and selecting in turn, 'Health and safety Publications', and 'Approved Codes of Practice (ACOP)'. The code is located near the bottom of the list headed 'Approved Codes of Practice (ACOP)' and is given there as '*Pre-Cast Concrete - Approved Code of Practice for the Safe Handling, Transportation and Erection of*'.

HERA Courses

HERA Training Centre is offering the following courses during the remainder of 2003:

Course	Dates
Surface methods	4-7 August
Welding inspection	1-5 September 10-14 November
Radiographic theory and Interpretation of radiographs	8-12 September
Coatings inspection: Home study Block courses	All year 11-12 September
Ultrasonic testing theory and Inspection of welds	22-26 September
Management appreciation in non-destructive testing	15 October
Professional Development Seminar on Pressure Equipment Inspection, covering PECPR Regulations, Code of Practice for Pressure Equipment, AS/NZS 3788 Pressure equipment - In-service inspection, AS 4037 Pressure equipment - Examination and testing, AS/NZS 4481 Pressure equipment - Competencies of inspectors	22 October

The venue for these courses is:

HERA House
17-19 Gladding Place
Manukau City (South Auckland)

Note: Enrolment closes 7 days before start of course.

For further details contact:

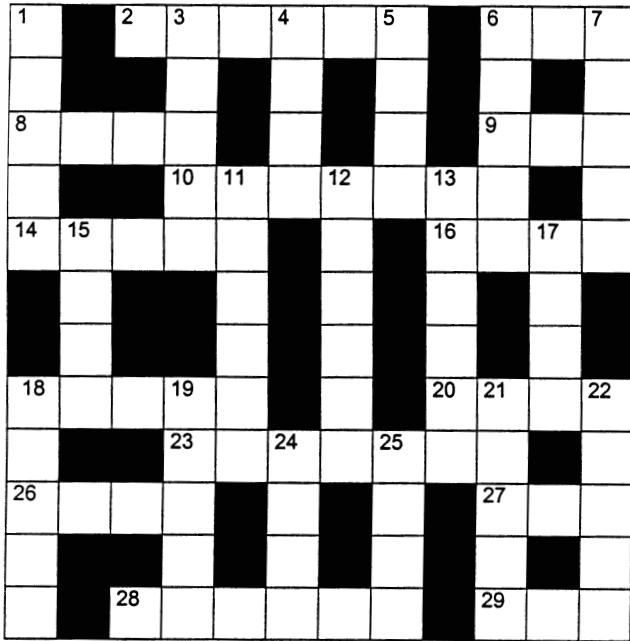
HERA Training Centre
PO Box 76134
Manukau City
Phone: (09) 262 2885
Fax: (09) 262 2856
email: admin@hera.org.nz

Correction to *Safety Lines 57*

Name of inspection body:

Plant and Building Safety Ltd
PO Box 19789
Christchurch

Puzzle Place



Answers include abbreviations and acronyms.

ACROSS

- 2 Container leak
6 Government safety agency
8 Signifying 1,000
9 NZ parrot
10 Type badly
14 Becomes twisted
16 Lithe insects
18 Out of date
20 Above tenor
23 Tremulous musical effect
26 Impel
27 Father
28 Entertained
29 Organ

DOWN

- 1 Awry
3 Tread heavily
4 Matures
5 Bad feeling through others' fortune
6 Made of oak
7 Piles
11 Publisher
12 Belief in God
13 Unit of pressure
15 Long song
17 Pester customers
18 Pummel
19 Gaseous H₂O
21 Deposit
22 Command
24 Trees
25 Was obliged to pay

Answers can be obtained by email from:

robin.bain@osh.dol.govt.nz

Answers to *Safety Lines* 57 Crossword

Across

1 Fahrenheit, 8 Skewered, 11 RAM, 14 ACOP, 16 Selects, 17 Purposes, 19 Balloon, 20 Droughts, 25 Set, 27 Dejectedly.

Down

2 Auk, 3 Raw, 4 Nor, 5 End, 6 Tar, 7 Ohm, 8 Standard, 9 Ego, 10 Elephant, 12 Antipope, 13 Reville, 15 Pips, 18 Mho, 21 Rue, 22 Ute, 23 Hot, 24 Sad, 25 Say, 26 Tat.

Announcements

The following organisation has been recognised under the PECPR Regulations as an Inspection Body for fabrication inspection of pressure vessels:

HRL Services Pty Ltd
trading as **ETRS Pty Ltd**
677 Springvale Road
Mulgrave VIC 3170
Australia

There has been a change of name of an overseas inspection body. The company previously known as Zurich Certification Ltd now trades as Zurich Risk Services. The company's address is not changed.

A full list of recognised inspection bodies and known contact details can be viewed at the Engineering Safety website:

www.osh.dol.govt.nz/touch/eng-safety/index.shtml

Safety Lines is a publication of the Engineering Safety Unit of the Occupational Safety and Health Service, Department of Labour, PO Box 3705, Wellington.

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