

# HEIGHT SAFETY REVIEW

January 2011

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Worldwide initiatives in  
safe working at height



## Fall prevention leads safety agenda around the globe

Height safety  
on cranes – See  
pages 3 and 4

**Safe working at height is the hottest topic in workplace safety right across the world.**

**Across North America, Europe and Asia safety leaders recognise that preventing workers from falling from height is the surest way to bring down the global toll of serious and fatal workplace injuries. Here we present a roundup of statistics and initiatives. On later pages we present a solution for crane owners.**

### USA

Official statistics confirm that falls are the biggest killer in the US construction industry accounting for one in every three construction fatal injuries, and 8% of all workplace fatalities across all industries.

In recent years, the overall death rate of construction workers has declined, but deaths from falls remain stubbornly high. More than 300 construction workers, iron workers and riggers fell to their deaths in 2009 (the latest full year for which figures are available).

The good news is that the number of fatal falls in US workplaces in 2009 was down by 12%. The bad news is that this decrease was significantly less than the overall reduction in industrial accidents.

Overall workplace fatalities were down 17% in 2009 and construction industry fatalities decreased 16%. These seemingly welcome statistics are attributed largely to a significant reduction in economic activity – you don't get hurt at work if you have no job to go to.

Most falls are not fatal, of course. The most recent report on Injuries, Illnesses and Fatalities by the US Bureau of Labor Statistics (BLS) found that in 2008 about a quarter of all industrial injuries that led to time off work were caused by falls. In total, there were 260,610 fall-related non-fatal occupational injuries.

In 2002 the National Safety Council estimated that workers' compensation and medical costs associated with occupational slip and fall incidents totalled \$70 billion a year.

Fall protection must be provided at 4ft in general industry, 5ft in maritime and 6ft in construction. However, regardless of the fall distance, fall protection

must be provided when working over dangerous equipment and machinery.

Fall protection is also addressed in the new Cranes and Derricks in Construction Rule published in 2010 by the Occupational Safety & Health Administration. Section 1926.1423 requires that new equipment provide safe access to the operator work station, using devices such as steps, handholds, and grab rails. Some new lattice-boom equipment must be equipped with boom walkways. The final standard also contains fall-protection provisions tailored to assembly and disassembly work, and to other work.

With fall protection requirements on cranes now set down in law, equipment owners are advised to ensure that they at least comply and perhaps even seek to surpass them by adopting state-of-the-art fall protection systems, if not for the sake of their employees, then at least to protection themselves from litigation.

Sources: OSHA; Centers for Disease Control and Prevention

### UK

Falls from height accounted for three out of every five fatal accidents in the construction industry in the UK last year and two out of every five major injuries.

While the overall accident rate is falling in the construction industry, the proportion of accidents accounted for by falls from height is on the increase.

The Health & Safety Executive and its Construction Industry Advisory Committee (CONIAC) have therefore made height safety a primary target.

CONIAC's membership encompasses employers' groups, trade associations, trades unions, clients and contractors. Its Safety Working Group has agreed that its long term aim over a 25-year time frame should be to make injury from falls from height "socially unacceptable".

It has set up five sub-groups to cover the issues of training, equipment, communications, stakeholder engagement and behavioural safety. These groups will initially identify what work has already been done in these areas and what other work is underway.

New Work at Height Regulations were introduced into the UK in 2005. In summary, they demand that working ⇨



**Height safety on cranes**  
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at height should be avoided. If that is not possible, then steps should be taken to prevent falls by either working from a permanent, safe place of work at height, or by selecting the most suitable temporary equipment. Any remaining risk of a fall should be minimised, for example, by using fall arrest equipment and/or erecting guard rails. Despite these regulations, 25 of the 41 workplace fatalities in construction in the year to April 2010 were caused by falls from height.

HSE statistics show that in the year 2009/10 there were a further 2,585 reported major injuries to employees in the construction industry. Of these, 1,019 (39.4%) were caused by falls from heights. More than half of these falls (612) were from a height of just two metres or less.

An additional 733 construction industry employees suffered falls that, while not classed as major injury incidents, required them to have more than three days off work. And these are just the accidents that were reported. HSE estimates that as many as half of all incidents go unreported. There are also around 2,000 accidents a year reported in the UK where people have fallen from vehicles during loading or unloading.

With a total of 1,777 construction workers injured or killed by falls from height last year, this means that, on average, every hour of every working day somewhere in the UK a construction worker is likely to be injured – or worse – by falling from height, and probably not even a very great one.

Source: Health & Safety Executive

## Singapore

Singapore's Ministry of Manpower reports that, here too, falls from height is the top killer in workplaces, accounting for almost 30% of all fatalities since 2006. In 2010 the figure was as high as 40%, with 10 deaths from fatal falls in the first six months. More than half of workplace fall injuries happen in the construction industry.

Though a small country, with a total work-age population of about 3.5 million, Singapore is highly developed and rigorously seeks to ensure best practice in construction safety. A National Work at Height Safety Taskforce was created in August 2009 by the Ministry of Manpower (MOM) and the Workplace Safety and Health Council. Its target is to halve current fall fatality and injury rates by 2013 and reducing them further by 2018. It plans to do this by implementing Fall Protection Plans at all construction work sites and shipyards by 2012 and at all workplaces by 2015.

The task force will be exploring new technologies and work methods that can eliminate the risks of work carried out at heights during projects' design and planning phase. A new Code of Practice for Working Safely at Height has been introduced and national competency

standards are under development.

At the same time, the MOM has stepped up its enforcement activities, with blitz campaigns on construction sites. On one day in October 2010, 39 sites were visited, 151 violations were discovered and eight "stop work" orders were issued.

MOM's Commissioner for Workplace Safety and Health, Mr Ho Siong Hin, has said: "The repeated fatalities at construction worksites, especially those fatalities involving falling from heights, are a serious concern for MOM. Our investigations show that many of these cases could have been prevented if the contractor had taken basic safety measures. Such disregard for safety and lives is unacceptable."

In a separate initiative, the MOM is also targeting the crane sector as its other top priority. It has set up a crane safety task force of industry experts to make recommendations to improve the safety of crane operations. Initiatives include a review of crane regulations and legislation, the development of an Approved Code of Practice on Safe Lifting Operations at Workplaces, and the introduction of mandatory training for operators of truck loader cranes.

Source: Ministry of Manpower

## Canada

WorkSafe British Columbia reports that in its region falls are also the biggest cause of construction accidents. A study of accidents between 2006 and 2008 found that 25% of all construction accidents were caused by falls, and these accounted for 46% of all claim costs.

The second most common cause was "overexertion" (23%), and then "struck by an object" (22%).

Source: Worksafe BC

## Australia

More than 4,000 serious injury claims a year are made by construction workers in Australia. But although the overall accident rate has been coming down, fall injuries have remained at a steady level. Falls-from-height claims have jumped from 8% of all construction industry claims in 2004 to 14% by 2009, reaching 540 serious injuries for falls from height. In other industries, the proportion of claims for falls from height has been steadily reducing.

Construction workers claim workers' compensation for injuries sustained by falling from height at three times the national average.

In 2008 the Australian government published a National Code of Practice for the Prevention of Falls in General Construction. At a minimum, a risk assessment and method statement are required for any work at a height of 2 metres or more.

Source: Australian Safety & Compensation Council





## Terex Cranes adopts TRAM for height safety

Recognising the hazards of working at height, Terex Cranes is removing the need to work at height on its newest mobile crane designs. For example, on its new Challenger 3160, a 55-tonne capacity truck crane, all the rigging can be assembled from ground level. On larger cranes, the same principles are being applied, although it is not possible to totally eliminate the need for riggers to work at height.



TRAM on the  
Terex AC 350-6

On the 350-tonne capacity all terrain AC 350-6, Terex is incorporating a fall prevention solution using Standfast's Travel Restraint Access Module (TRAM). One of the first customers for this new model is Ainscough Crane Hire of the UK, which has four units on order.

Ainscough is already familiar with the TRAM, having retrofitted it to one of its 500-tonne Liebherr LTM 1500 telescopic boom cranes.

Other crane manufacturers are also aware of their responsibility to eliminate the risks associated with working from height. Standfast is now in discussions with other manufacturers about having the TRAM incorporated in their designs. □



Boom Logistics was the first to install a TRAM on a mobile crane

### WHAT IS TRAM?

**TRAM stands for Travel Restraint Access Module.**

It is a movable total restraint system that prevents falls from height. TRAM is designed to provide the user with an ideal system of mobility, stability and restraint. Originally developed to offer a safe system of work on oil tankers, it has now been developed for use on cranes of all types, and other machinery.

TRAM provides a secure handhold that moves along a rail installed at foot-level rail. A lanyard or pair of lanyards attach to the TRAM and to the operator's harness. Unlike other systems that are based on fall arrest and can leave the user dangling in the air, the TRAM user has no distance to fall in the event of a slip.

A deadman's brake ensures that the operator holds the TRAM for support when moving. The movement of the TRAM and the length of the lanyards ensure that the operator is not restricted but is always safe. The handhold can also pivot and turn if required.

**TRAM can be used on all types of cranes – telescopic boom, lattice boom, tower cranes, gantry cranes and electric overhead travelling (OET) cranes.**

### TRAM CAN BE WELDED OR BELTED

Previous TRAM installations have been welded to the crane boom, with the assistance of engineers from the OEM to approve methodology. On the Ainscough installation, a new method was devised to tie the TRAM rail securely to the boom using metal bands.

### RETROFIT EXPERIENCE

Other leading crane owners pioneering the use of TRAM include Australian hire company Boom Logistics.

Boom Logistics was the first to use TRAM on a telescopic boom crane – a 160t-capacity Terex all terrain.

It was prompted by a need to meet the strict height safety requirements of a major client, the international mining company BHP Billiton. □



## TRAM delivers height safety on lattice boom cranes

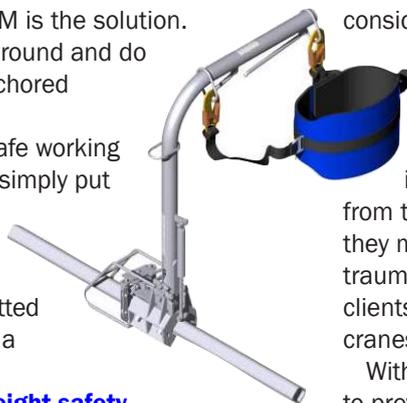
When working on lattice boom cranes the risk of falling is ever present. As shown in the photographs below, TRAM is the solution.

Riggers are free to move around and do their work, but are safely anchored to prevent any falls.

If your client demands a safe working method statement, or if you simply put the safety of your workforce at the top of your agenda, then TRAM is the answer.

TRAM can be easily retrofitted to any lattice boom crane at a surprisingly low cost.

**If you are looking for a height safety solution, TRAM is your answer.**



## Tower cranes

### TRAM lets you walk the jib in total safety

In the old days, walking the jib was part of a tower crane operator's daily inspection routine. These days it is considered an unjustifiable risk.

However, there are still times when walking the jib has to be done. TRAM offers the ideal fall prevention solution.

Other fall arrest systems being developed in the industry leave the operator or inspector dangling from the crane at a great height, in need of rescue. While they may prevent the victim hitting the ground, severe trauma injuries can still be caused by fall arrest. Some clients are specifying special rescue systems on tower cranes to deal with this eventuality.

With TRAM the harness is firmly anchored at waist level to prevent any fall from the jib. **That is why if you need to walk the jib of a tower crane, you need TRAM.**



**Standfast is ready to roll out TRAM as the best height safety solution for all types of cranes – both for retrofit and for OEMs.**

**For inquiries anywhere in the world:**

**email: [hq@standfastusa.com](mailto:hq@standfastusa.com)**

**call: +1 877 850 TRAM (8726)**

**YOU KNOW**  
FALLS FROM HEIGHT  
ARE THE MOST  
COMMON CAUSE OF  
INDUSTRIAL ACCIDENTS.

**YOU KNOW**  
YOU HAVE A DUTY TO  
PROTECT YOUR TEAM.  
BUT MAYBE YOU  
DIDN'T KNOW HOW...

**NOW**  
**YOU KNOW.**

# TRAM

FALL PROTECTION

SYSTEMS



The TRAM system is designed for use on all crane types – telescopic or lattice boom, gantry or tower – and most other construction machinery.

For inquiries anywhere in the world:  
Email [hq@standfastusa.com](mailto:hq@standfastusa.com)  
Call +1 877 850 TRAM (8726)

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