

Working at height – construction sector

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Overview

Falling from height is the number one cause of fatal injuries to workers accounting for 25% of all fatalities and additionally 12% of major injuries reported in 2007/08.

58% of the fall from height fatalities and 29% of major injuries occurred within the construction industry. This equates to 34 fatalities and 938 major injuries, due to falling from height in the construction industry, in 2007/08.

The construction industry has inherent risks from tasks such as roof work, scaffolding and use of ladders and it is these agents that account for the largest proportion of all work at height fatalities. Across all industries the main agents for major injuries are ladders - 28% and vehicles and plant - 22%. Falls from height are often perceived as "high level falls" and it is perhaps surprising that 74% of the major injuries are attributable to falls less than two metres.

In this forum we examine the main agents and causes of these falls, relevant to the construction industry and suggest practical controls to assist with compliance of the Work at Height Regulations 2005.

Insurance impact

The impact of falls from height on insurance costs can be significant e.g. the costs associated with a young person who is rendered quadriplegic from a fall can run to millions of pounds. As can be expected the severity of falls from height is more significant than other workplace accidents. Excluding our largest losses QBE has observed the average cost of a fall from height claim is circa £15,000.

A fall from height is often due to poor physical control over an activity or environment and management failings. In recent years QBE have defended on average 24% of fall from height claims, demonstrating that claims can be defended if management have in place all reasonable and appropriate controls. Conversely, the opportunity to defend these is often limited, typically due to inadequate investigation, insufficient evidence, poor quality documentation and lack of management control of unsafe practices.

Indirect costs such as penalties, loss of bonuses, HSE prosecutions and fines, and loss of reputation can also be significant. QBE recommends all policyholders thoroughly assess their work at height exposures.



Legal duties

Notwithstanding employers and employees duties under the Health and Safety at Work Act and Management of Health and Safety at Work Regulations, in April 2005 specific Work at Height Regulations (WAH) were introduced. These consolidated elements of the existing Workplace (Health, Safety & Welfare) Regulations, the Construction (Health, Safety and Welfare) Regulations and Provision and Use of Work Equipment Regulations (PUWER).

A key part of the WAH Regulations was the removal of the two metre rule and its replacement with a requirement to assess risks where "a person could fall a distance liable to cause personal injury". This includes falls from any height and also those from ground level in to hazards like trenches, lift shafts and manholes.

The WAH regulations require best management practice. An organisation will need to ensure their health and safety management system:

- Enables them to plan all work at height.
- Applies the "hierarchy of control measures" (see figure 1).
- Selects the right people and equipment for the task.
- Trains persons doing the work.
- Inspects and maintains the equipment used.
- Ensures supervision and monitoring of work as per method statements, work instructions and tool box talks.

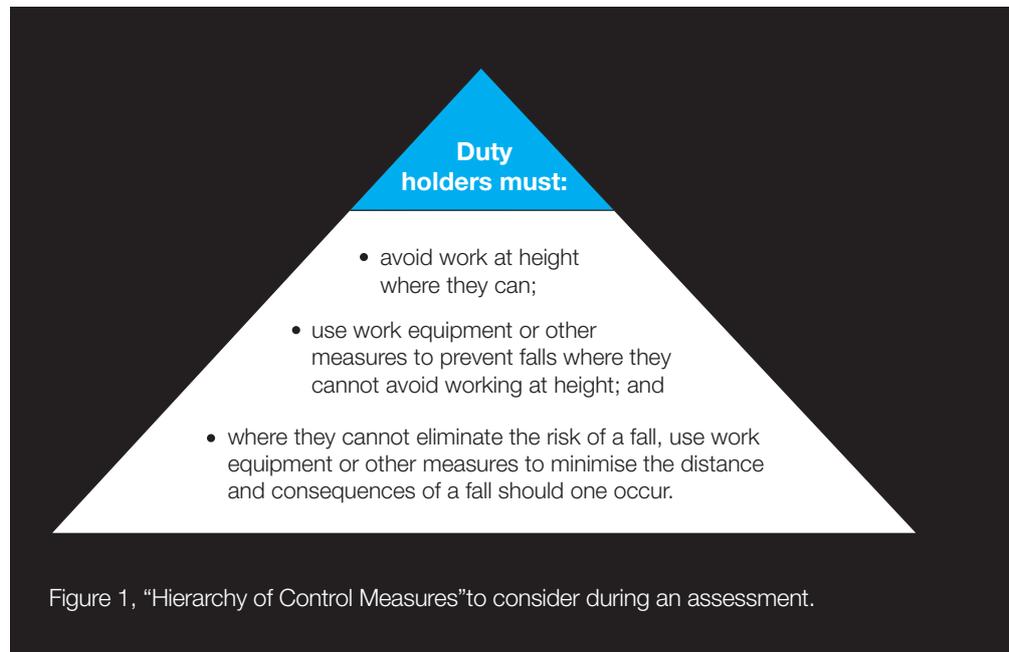


Figure 1, "Hierarchy of Control Measures" to consider during an assessment.

In the context of legal liability the WAH regulations impose an absolute duty to manage the risk by consistent use of the word "shall" with regard to aspects such as planning, competence and supervision. "Reasonably practicable" only appears in relation to the fact that work at height must be "carried out in a manner which is so far as is reasonably practicable safe".

To potentially defend a fall from height claim, it is necessary to critically examine whether it was not reasonably practicable to apply a better control measure in line with the hierarchy of control.



Practical control measures

Considering the hierarchy principles, consideration should be given to common risks encountered within the construction industry together with appropriate control methodologies. This list is not exhaustive and specific controls will need to be identified as part of your risk assessment.

Avoidance of work at height

- Identify innovative solutions at the planning and design stage to avoid work at height e.g. manufacture beams that allow edge protection to be installed at ground level before they are lifted in to place.
- Use forklifts and cranes to unload vehicles.
- Shrink wrap pallets/vehicle loads at ground level rather than manual sheeting on vehicle.

Prevention of falls

- Identify and utilise an existing safe place of work at height before considering additional equipment.
- Make safe existing structures with suitably adequate edge protection i.e. guard rails at least 950mm above the edge, fit toeboards and intermediate guard rail so no gap is greater than 470mm.
- Design edge protection to create permanent barrier e.g. roll over barriers when lifting goods onto mezzanine areas.
- Work from mobile elevated working platforms such as cherry pickers or scissor lifts or use podium steps or tower scaffolds. (Working from ladders should be seen as a last resort).
- Ensure scaffolds are designed and erected in accordance with TG20:08
- Maintain high housekeeping standards.

Minimise consequence of fall

- Introduce protective equipment to reduce the distance and consequences of a fall.
- Use collective protection to protect all workers in preference to personal protective equipment. e.g. netting and crash mats in preference to fall arrest lanyards.
- Inspect and maintain personal and collective protective equipment.

Other measures when prevention and mitigation of falls is not reasonably practicable.

- Training and toolbox talks e.g. ladders, tower scaffold erection, use of mobile elevated working platforms.
 - Warning notices e.g. for fragile roofs.
 - Making edges highly visible when physical edge protection is not practicable.
 - Foot and hand holds to aid secure vehicle access and egress.
 - Suitable emergency rescue procedures for a suspended person.
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Ladders and step ladders

Ladders, step ladders and other equipment such as trestles neither prevent nor mitigate the consequence of a fall. Accidents from such equipment could expose you to allegations of failing to properly consider the hierarchy of control measures. In the event of an accident, you may need to demonstrate why it was not reasonably practicable to have avoided the task altogether or why more appropriate equipment was not used. For example cherry pickers, tower scaffolds, platform steps with guard rails etc.

Guidance within HSE INDG402, "Safe Use of Ladders and Stepladders" states that a ladder or stepladder should only be used:

- In one position for maximum of 30 minutes.
- For light work (carrying less than 10kg).
- Where a handhold is available.
- Where you can maintain 3 points of contact with the ladder.

Whilst this is sensible guidance for ladders used for simple tasks of short duration, QBE would recommend you exercise caution on routinely applying the 30 minute and 10kg guidance. All ladder work should be subject to a risk assessment as the hierarchy of control within the regulations will take precedence over this guidance in a legal liability context.

Where it has been determined that ladders and stepladders are the most appropriate equipment for the task you should ensure users are provided with training, and that safe working procedures are established, communicated, and employees' understanding validated and documented. As a minimum HSE INDG405, "Top tips for ladder and stepladder safety" states:

- Inspect ladder before use.
- Secure ladder and ensure it cannot slip.
- Ground should be firm and level.
- Ensure ladder angle of 75 degrees (1 unit out for every 4 units up).
- Maintain 3 points of contact.
- Do not work from the top 3 rungs.
- Ensure ladder extends 3 rungs or 1 metre above the place of landing to which it provides access.
- Do not use step ladders side on.





Case studies – accident examples

Unsecured ladder

A construction worker fell 2.3 m from a ladder whilst accessing a scaffold. The ladder was not secured or footed and the worker was carrying an unreasonable load for the task. The construction company had not assessed material handling on the scaffold and had not produced a method statement. The injured man had received no health and safety induction when he arrived on the site. The resultant claim was successful.

Unprotected loading ramp

An operative fell off the loading ramp, whilst being given instruction on the use of a palm computer to download data from an excavator. He was standing on the ramp alongside the machine when he stepped backwards and fell to the ground. He was escorted to the canteen and then to hospital where a subsequent medical examination confirmed he had suffered a fractured hip. The accident highlighted that significant injuries can be sustained from low level falls and that controls to protect such edges or raise awareness of them is required.

Hazardous conditions and inadequate design of scaffolding

A scaffolder aged 33 was working at a height of 30 feet during strong winds when the scaffold collapsed. He was wearing a harness and was attached to the scaffold. He sustained multiple fractures to both legs and hips together with head and neck injuries and is unlikely to return to work in a manual capacity. The accident highlighted poor working practices and procedures together with poor communication and a lack of supervision.

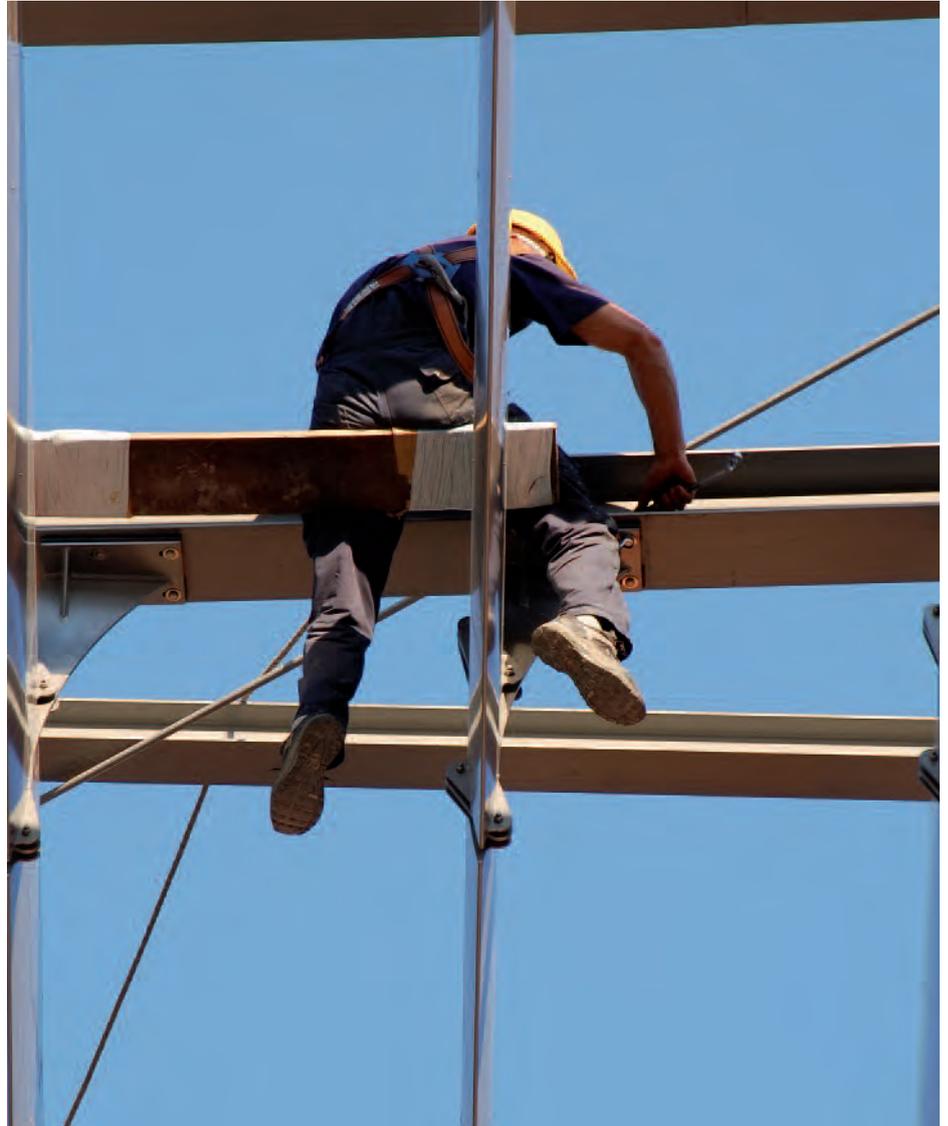
Scaffolding company owner jailed

A scaffolding company owner was jailed for breach of a prohibition notice to ensure his men were trained and competent to erect scaffold and work at height safely. He had a scaffold collapse, resulting in prosecution, a custodial sentence and a significant claim.

Conclusion

HSE statistics show that falls from height are the main cause of workplace fatalities. The Work at Height Regulations require all work at height, where a person could fall a distance liable to cause personal injury, to be assessed.

With a clear hierarchy of control measures and need for effective management procedures within the regulations, QBE recommends all policyholders formulate strategies to identify all tasks where work at height is required, seeking to avoid such work wherever possible or introduce equipment or procedures that prevent falls and/or minimise the consequences of falls.



References/useful information

Publication	Download/further information
IND(G) 401 Working at height a “brief guide”	www.hse.gov.uk/pubns/indg401.pdf
Work at Height Solutions Database	www.hse.gov.uk/falls/solutions.htm
IND(G) 402 Safe use of ladders and stepladders	www.hse.gov.uk/pubns/indg402.pdf
IND(G) 405 Top tips for ladders and stepladders safety	www.hse.gov.uk/pubns/indg405.pdf
IND(G) 395 Avoiding falls from vehicles	www.hse.gov.uk/pubns/indg395.pdf
IND(G) 367 Inspecting fall arrest equipment	www.hse.gov.uk/pubns/indg367.pdf
HSC Falls from height Statistics	www.hse.gov.uk/statistics/pdf/rhsfall.pdf
HSE Working on Roofs	www.hse.gov.uk/shatteredlives/workingonroofs.pdf
NASC SG4:05 Preventing Falls in Scaffolding and Falsework	www.nasc.org.uk/index.shtml
NASC TG20:08 Scaffolding with Tubes and Fittings	www.nasc.org.uk/index.shtml



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Jon Lawrence joined QBE in 2001 and has over 20 years experience within the insurance industry primarily in the field of liability risk management. Jon specialises in health and safety management systems and assists clients to reduce their risk exposures and to mitigate potential losses. Jon takes a keen interest in the area of slips, trips and falls and has contributed to publications and represents the insurance industry on HSE stakeholder groups.

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