

## **UK's new Work at Height Regulations – what the new fall protection hierarchy means in practice.**

by

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When they came into force the Work at Height Regulations (WAHR) implemented the Temporary Work at Height Directive<sup>1</sup> in the UK. The key elements of the development approach taken by HSE in the drafting of the Regulations were:

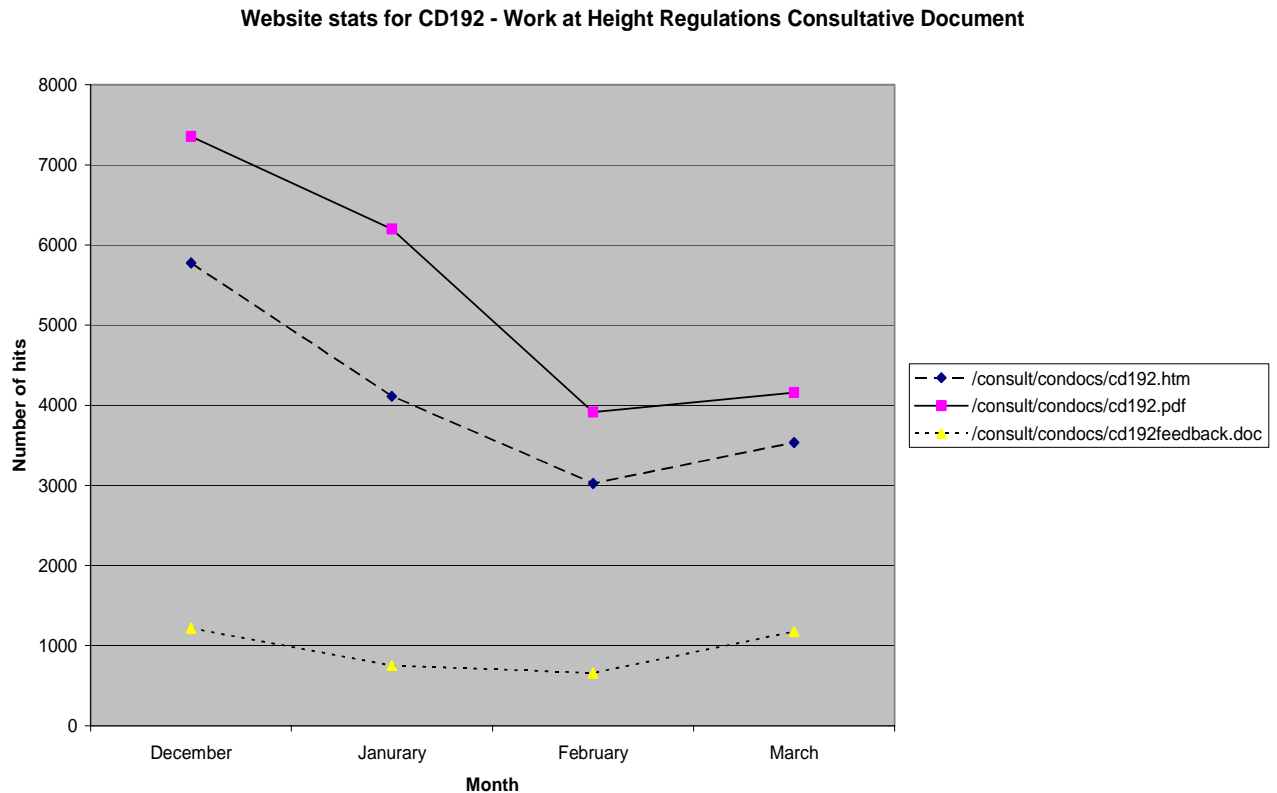
- To take an opportunity to try to reduce the numbers of deaths and major injuries caused by falls from height in the workplace. (Falls from height are the biggest single cause of fatal injuries, and the second biggest cause of major injuries, caused by accidents at work).
- To bring together all the current legal requirements related to safe work at height, into a cohesive, single set of goal-setting Regulations which would be flexible enough to apply to all industries and still allow for technical innovation to take place. (Many regulations currently apply, they contain an unnecessary degree of overlap and some are so prescriptive they stop development of new products and ideas).
- To ensure that the Regulations are practical and tackle high-risk work whilst avoiding unworkable requirements. (They do not ban the use of ladders but correctly require justification for their selection and use)
- To adopt a risk-based approach, so that measures taken to comply with the Regulations are proportionate to the risks involved, and can build upon existing good practice in the various industries they will apply to and compliance with the current law. (They enable the use of the most appropriate work equipment for the task at hand taking all factors into account).

The WAHR, will apply to virtually<sup>2</sup> all sectors of the UK industry, and bring together principles relating to work at height already enshrined in existing legislation such as the Construction (Health, Safety and Welfare) Regulations 1996 (CHSWR), the Workplace Regulations 1992 and certain other current legislation, whilst reiterating some parts of the Provision and Use of Work Equipment Regulations 1998 (PUWER 98) and Lifting Operations and Lifting Equipment Regulations (LOLER).

As with all new legislation the Health and Safety Executive consulted industry on the proposed regulations. This was done in two ways. Firstly, during the drafting phase, by discussion with an external working group of 27 members representing major industry players involved in work at height, and secondly by public consultation, when the proposed regulations were published for anyone to comment on them.

The regulations actually attracted considerable interest during the consultation period, as is shown the graph of internet 'hits' on HSE's web site shown in Figure 1. This

plots by month the number of users looking at the consultation document and the electronic response forms



**Figure 1 - plot of website hits**

Despite this apparent interest, however, in total only 751 comments<sup>3</sup> on the consultative document were actually received.

Consultees raised a range of concerns about the draft regulations. Some saw them as unnecessary and unworkable for their particular industry and wished to be exempt from their application, whilst others saw their goal setting nature as lowering existing standards and wanted more prescription. Reconciling these strongly divergent views has proved challenging and led to a delay in implementation of the final regulations. The Regulations finally came into force on the 6<sup>th</sup> April 2005

### **What will the new fall protection hierarchy mean in practice?**

Fundamental to the regulations is the new hierarchy of requirements for fall protection. ( Regulations 6) This is goal setting in nature and was designed to be technology independent to avoid stifling innovation and future product development<sup>4</sup>.

I do not intend to reiterate the regulation in this article but instead will give the intended concept behind the wording.

Any work at height activity should be considered in the following order.

1. Don't work at height unless you have to . If there is some other reasonably practicable way of doing the work which avoids working at height then do it that way.

2. If you have to work at height then do it from an “existing place of work”<sup>5</sup> if you can . This is a new concept which is best thought of as a “safe” place of work – i.e. somewhere where you don’t need the use or add of any additional work equipment to remove the risk of a fall from height occurring . In other words if you have to add or use anything to deal with the risk of a fall from height it is not an “existing place of work”.

An “Existing place of work” may be transitory. An example could be the fourth floor of a building undergoing demolition. During the soft strip when the windows are in place there will be no risk of a fall occurring - thus this could be a safe [ “existing “] place of work. However as soon as the windows are removed the openings created will give rise to the risk of a fall occurring - the situation changes, barriers are needed across the opening created - therefore this place of work is no longer an “existing place of work” under the regulation.

3. If you cant work from an existing place of work then you will need work equipment/method to protect against the fall . These are selected based on reasonably practicability grounds in the following order.
  - a. Use work equipment/method which prevent any fall occurring
  - b. Only when you can’t do (a) use work equipment /method which minimise the height and the consequences of any fall
  - c. Only when you can’t do(b) then use work equipment/method which minimise the consequences of any fall
  - d. Only when you can’t do (c ) then use work equipment/method which do none of the above and minimise the risk of the fall occurring through instruction, training and supervision.
4. Finally at each stage all work equipment/methods must be selected taking into account the risks associated with the installation, use, dismantling and rescue associated with such equipment/method giving collective measures priority over personal measures. ( This is covered in regulation 7)

*Collective* measures are usually passive (i.e. they require no action by the user to work effectively e.g. a guardrail or a net) and will protect more than one worker at a time.

*Personal* measures are generally active (i.e. they require the user to do something for them to work effectively e.g. a PPE lanyard must be clipped on to an anchorage point at all times ) and will only protect one user at a time. [Note: mutli-user standing line systems will be classified as *personal* not *collective* measures as each individual user will have to clip onto them ]

Two key concepts are :

1. There is little point in putting more people at greater risk installing and dismantling the fall protection measure than it will protect whilst it being used. E.g. Providing a barrier at a roof edge might put two people at considerable risk installing it and may take half a day to put it up. If it is only providing protection for say one hour whilst one person works on say a roof vent then a personal work restraint system may be the appropriate and justified solution.

2. The rescue requirements related to the use of work equipment and the procedures and time limitations this imposes. This is an extremely important issue particularly where PPE is concerned. All too often method statements require the use of fall arrest PPE as a means of fall protection with no consideration of what will happen if it is brought into use. The assumption seems to be that somehow the fall has been ruled out by this provision or the local emergency services are stated to be rescue provider. But:- How long before suspension trauma sets in<sup>6</sup>? How will rescue of the suspended individual take place? Can the individual self rescue? What happens if he is injured? If the emergency service are being relied upon do they actually know this, can they respond in time and do they actually have the equipment to effect the rescue? ( In many cases the answer to this question is an emphatic No)

Additionally the Regulation 6 hierarchy also works within itself to drive work equipment to be used in the most effective way and enables any work equipment to ranked according to it's actual in use performance .

*“Minimising the height and consequences of the fall”* means personal fall arrest equipment to be used in Fall Factor<sup>7</sup> (FF) 0 in preference to FF1 in preference to FF2 and collective fall arrest equipment ( e.g. nets ) should be suspended as close as possible under the work surface.

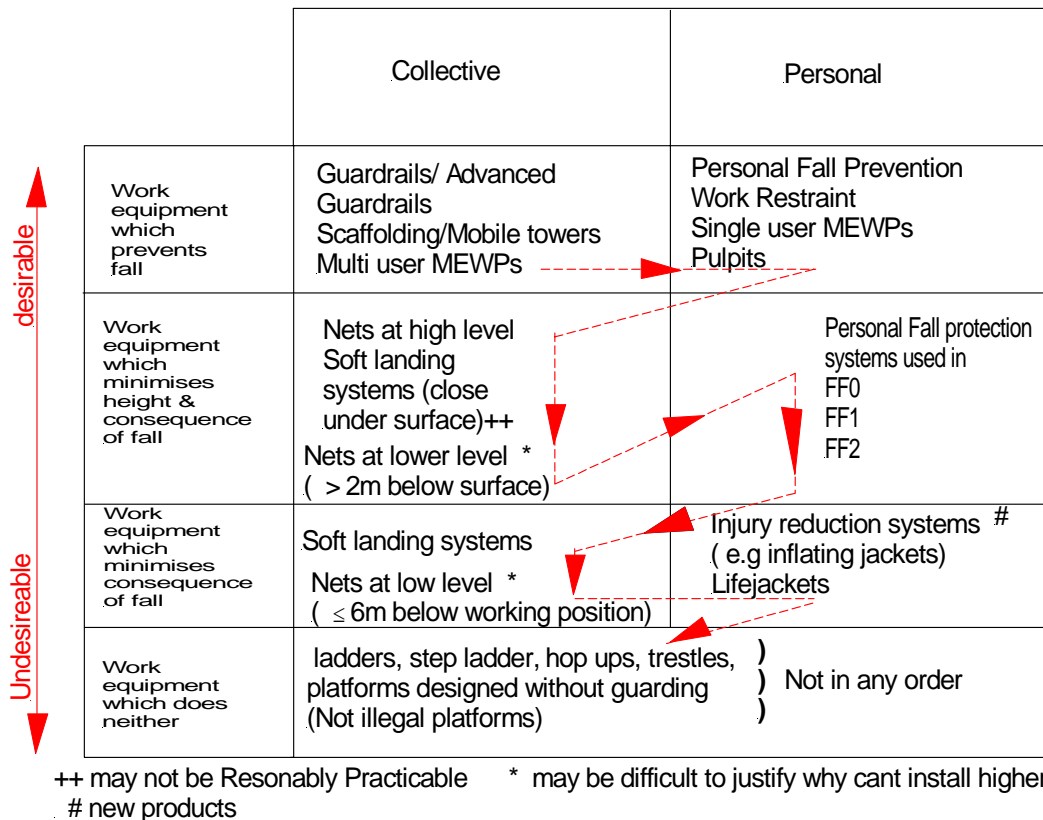
Similarly *“minimising the consequences of the fall”* places soft landing systems (collective fall arrest such as air bags and bean bags) correctly within the overall technical framework of fall protection measures when used correctly (i.e. not stacked one on top of the other). Their inclusion is important because they allow people in extraordinary occupations such as stunt workers to work legally – stunt men may not want to limit the height they fall. On the personal side it also allows other equipment to have a place, which until now would never have been legally accepted ( e.g. inflating injury protection systems) or which at first glance would not appear to have anything to do with a fall from height. (e.g. life jackets - when working with a low fall height over still or slow flowing water it might be impracticable to prevent the fall into the water or use fall arrest, but the consequences of the fall need to be considered and dealt with ( in this case drowning).

For the first time the hierarchy also enables the appropriate use of work equipment which does not provide any protection against a fall but which on reasonably practicable ground may be justified to use. (e.g. ladders, stepladders, stilts etc. )

The correct selection of work equipment for any work at height activity means being able to justify why “safer” alternatives required by the hierarchy have been ruled out.

This implies following a selection process such as suggested in Figure 2 .

Thus to use any particular work equipment everything above it on the dotted red line must have been considered and ruled out as being “not reasonably practicable “ to use. Note: The examples of work equipment shown is not exhaustive – any work equipment you can think of can be categorized within the framework shown.



**Figure 2 –an example of work equipment selection preference**

Additionally, as indicated previously, the hierarchy covers all work at height activity therefore the process must also be used for selecting the work equipment needed to install or dismantle the work equipment provided for the task. Thus if the process results in a net being selected to provide fall protection during roofwork, the equipment selected to install the net itself also need to follow the same justification procedure e.g. if it was decided to install the net using ladders then all work equipment above ladders on the red line in Figure 2 must have been ruled out for some reason.

This is part of the process of justifying the initial selection in the first place considering the risks involved in installation, use, dismantling and rescue. Thus if a façade scaffold had been selected the actual erection process of the scaffolding would need to justify why scaffolders were using fall arrest PPE ( which might minimize the height and consequences of a fall ) during it's erection procedure instead of an advanced guard rail solution ( which might prevent the fall ).

The regulations as drafted include a definition of “personal fall protection systems” but they do not define the constituent meaning of the sub systems<sup>8</sup> included in that definition. There are however detained schedules containing the performance requirements that such sub systems must achieve.

It is important to note that items of PPE and other work equipment when combined together can be used in a variety of way. It is the way that the equipment is actually being used, i.e. the functionality achieved, which determines which of the schedules needs to be complied with. E.g. Many protective systems use ropes during the work activity but just because you are using a rope does not mean that you will actually be

doing “rope access” within the meaning of the regulations. If you are using a bosun's chair this will fall under “work positioning”, if you are doing lead climbing this will fall under “fall arrest”.

It is fundamentally important therefore to understand the meaning of these terms that will be implied under the regulations. I will therefore list the meanings<sup>9</sup> I currently use when talking about these terms.

### **personal fall protection system**

An assembly of components for protection against falls from a height at work when the risk of a fall exists, generally but not always including at least a body holding device connected to a reliable anchor

### **fall prevention system**

A personal fall protection system in which the onset of a fall is physically prevented from occurring.

An example would be a valley walker frame used for accessing the valley gutters of a fragile roof

### **work restraint system<sup>10</sup>**

A specific form of personal fall prevention system by which a person is prevented from reaching zones where the risk of a fall exists

An example would be a harness and lanyard/rope system adjusted so that it prevents the user from getting to the edge of a roof say

### **work positioning system**

A personal fall protection system which enables a user to work supported in tension or suspension in such a way that a fall is prevented or restricted .

An example would be a bosun's chair

### **rope access and positioning techniques**

A personal fall protection system, which specifically uses two static<sup>11</sup> separately secured sub-systems, one as the means of support and the other as a safety back-up for getting to and from the place of work, and which can be used for work positioning systems

Fundamental to this is the concept of the static ropes – the user moves and down the ropes rather than the rope moving with the user. If the rope moves with the user it is not rope access but work positioning.

### **fall arrest system**

A personal fall protection system by which a fall is arrested to prevent the collision of the user with the ground or structure

Examples would be the traditional harness + lanyard incorporating energy absorbance or alternatively lead climbing using dynamic rope

### **rescue system**

personal fall protection system by which a person can carry out a rescue, rescue himself/herself or be rescued from a height or a depth by pulling, lifting or lowering

The WAHR will require those who work at height to be competent . I use the following definition of competence as it enables an individual to be assessed relatively easily.

*A **competent person** is a person who can demonstrate that they have sufficient professional or technical training, knowledge, actual experience, and authority to enable them to:-*

- a. carry out their assigned duties at the level of responsibility allocated to them;*
- b. understand any potential hazards related to the work (or equipment) under consideration;*
- c. detect any technical defects or omissions in that work (or equipment), recognise any implications for health and safety caused by those defects or omissions, and be able to specify a remedial action to mitigate those implications.*

The level of responsibility will dictate the degree of competence required e.g. more will be expected of managers and supervisor/foremen than a worker. To actually work at height the above definition implies that you ought to be able to demonstrate that:

- you know (at least) what the regulations require of you as an individual;
- you understand what the equipment you are using is actually designed to do;
- you know how the equipment should be used and checked before use,(and if you personally look after it how it should be stored, maintained and when it should be formally inspected); and
- you are able to recognize safe and unsafe situations associated with the work you are doing and the equipment you are using. ( preferably before they occur !).

### **Advisory Committee for Work at Height Training (ACWAHT)**

In anticipation of what this would mean in practise, representatives from a broad spectrum of trade associations, equipment manufacturers/suppliers and public agencies engaged in the delivery of work at height training were invited by HSE's Corporate Topic Group to form a committee in June 2003. It was formed primarily to deal with reviewing and harmonizing training standards of people working at a height and to bring together all industries involved in delivery such information to try to achieve a common approach to the subject.

Currently a draft specification / code of practice setting the standards for the delivery of training and education for work at height and rescue is nearing completion. This will be a new British Standard ( BS8454) and it is hoped that the draft document will soon be available for public comment. Additionally a draft ACWAHT training syllabus is being developed. It is agreed that this common syllabus will be delivered by ACWAHT member organisations within their existing training courses and is intended to represent the least knowledge an individual needs to be able to comply with own

duties under the Regulations. It does not cover technical training and skills needed to use equipment but cover the very basic education requirements which anyone who works at height ought to know. It is probably best thought of as the answer to the question “If my son or daughter started to work at height tomorrow for the first time what would they need know to ensure that they remained safe “

A web site which describes the work of the committee and its constituent members can be seen at [www.acwaht.org.uk](http://www.acwaht.org.uk).

It is hoped that the above developments led by a new cohesive knowledgeable work at height industry, in response to WAHR, will have a big impact in reducing the number of unnecessary death’s, injuries and related suffering every year

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<sup>1</sup> Directive 2001/45/EC

<sup>2</sup> The Regulations do not apply to climbing and caving activities carried out by the Adventure Activities Sector

<sup>3</sup> It is important to remember that in these statistics that each comment represents ‘one’ response therefore a response received from say a Trade Association representing say 1000 members is recorded as the same as a response received from a self employed individual.

<sup>4</sup> Gratifyingly the responses to Q19 in the Consultative document “*Do we need to say more – without being over-prescriptive – about the type of equipment that should be used to meet each step of the hierarchy?*” indicated overwhelming support for this approach .

Answer	Yes	No	Don’t Know	No reply
All responses	69	528	10	144

<sup>5</sup> Schedule 1 of WAHR details the specific requirements that an “existing place of work” must meet

<sup>6</sup> Harness suspension: review and evaluation of existing information  
[http://www.hse.gov.uk/research/crr\\_hm/2002/crr02451.htm](http://www.hse.gov.uk/research/crr_hm/2002/crr02451.htm)

<sup>7</sup> Fall Factor = Height of the fall divided by length of the lanyard

<sup>8</sup> fall prevention ,work restraint, work positioning, fall arrest, rescue systems and rope access and positioning techniques

<sup>9</sup> These are slightly modified versions of the Draft CEN/TC 160/ PG Definitions to encompass other equipment than traditional harness/lanyard type PPE with which that committee deals

<sup>10</sup> sometimes incorrectly called fall restraint

<sup>11</sup> In this context static means non moving relative to the anchor not the type of manufacture of the rope