

Fall prevention systems: rules and practical use

Presentation by Jos van der Borgt
Kiev, 11-12 November 2008

Speaker's notes

Slide 1

Good afternoon.

It is a great pleasure to be here in Kiev and to have this opportunity to share information so that we can help to improve occupational health and safety around the world, particularly for people at risk of falling from height.

Slide 2

Whether we are in Kiev or Amsterdam, Ukraine or the Netherlands, most statutory precautions against falls are set out in European agreements. In other words, they are decided in Brussels.

In this presentation I shall provide some background information about these regulations and how they are applied in practice. This should help non-EU companies better understand the market there, or enable them to work more effectively with partners within the European Union.

Slide 3

Standing before you today is someone who speaks from experience. I spent about fifteen years in the building trade, where I had to cope with the risk of falls in practice. And for the past ten years I have been closely involved in developing regulations and projects to improve occupational health and safety for building workers, particularly those who work at height. For the past ten years, our organization has run a continuous information campaign including regular visits to companies and workers exposed to the risk of falls. We also devote a lot of effort to the study of safe new ways to carry out roofing work. As well as falls, we are also interested in mitigating such dangers as fire and physical overexertion.

Moreover, roofing workers today are increasingly exposed to other risks as well. They include noise, radiation from radio transmitters, dust and, of course, the weather.

Slide 4

The organization I work for was founded jointly by Dutch roofing industry employers and the trade unions, and they continue to run and fund us. We also work closely with all levels of government, and with manufacturers of building materials and of equipment like scaffolding, ladders, machinery and personal protection devices.

Slide 5

In this presentation, I will be covering the topics listed here. I will also be happy to provide more examples of how we in the Netherlands are trying to improve safety at work, particular for roofers.

Sheet 6

To put the situation into perspective, here are some figures to provide an indication of the scale of the problem we are discussing here today.

Of course, comparatively few workers use advanced equipment like rope access systems. But almost everyone climbs a ladder or stepladder on a fairly regular basis. And the accident statistics reflect that. Ideally, improved products would help us to manage the risks better. But I shall come to that point in a moment, during my first photo presentation.

Slide 7

As I said, just about everyone uses ladders and stepladders. But we expect the use of personal fall protection equipment to be confined to specialists who have received specific training.

Slide 8

In 2007, experts from the Dutch Ministry of Social Affairs and Employment analysed all the reports of building industry accidents between 1998 and 2004 which were serious enough to result in a Labour Inspectorate investigation.

Their review, entitled *Story Builder*, reveals the most common causes of those incidents, what types of accident they were and which groups of workers were most likely to be victims. This analysis has proved a very useful aid in understanding the dangers and identifying who is at risk, and so in developing appropriate precautions. It also confirms the fact that a fall is one of the biggest and most serious risks facing a building worker. The five trades suffering the most falls from height in the Netherlands are carpenter, fitter, painter, pointer and roofer.

Slide 9

Statistics, however, provide only a partial picture of the circumstances in which accidents occur. To believe that we can eliminate such incidents in the future with reason and technology alone is to ignore the fact that much of human behaviour is driven by other factors. By culture and emotion, and by local variables which are almost impossible to itemize in advance.

If you want to introduce your product or invention in a new market, then – as well as bearing in mind local regulations and methods – it is a good idea to think about how well it suits the culture there and the situation on the ground.

So this is what my first photo presentation looks at.

Slide 10

Photo presentation 1: Impression working at height. Dutch vision.

Slide 11

For most of us, understanding all the rules and regulations in force in our own country is a struggle.

So it is even more difficult getting to grips with the specific legislation covering products for export to, say, the EU. But it is absolutely essential that you do so.

In the Netherlands, government policy since 2005 has been geared to deregulation. Instead of imposing rules from above, the authorities hope that more voluntary local or industry agreements will be established.

Nevertheless, there are still numerous regulations governing health and safety in general and work at height in particular. I shall now briefly summarize the most relevant of these.

The key point to remember is the fact that the EU – that is, Brussels – sets almost 85 per cent of the minimum standards in this respect.

I should stress here that I am not a lawyer and so you should not take anything I say about the interpretation of the regulations as legally binding. For the definitive facts, it is important that you always consult the relevant legislation in those EU countries where you intend to do business. In many cases, this is now available in English.

Slide 12

The European Temporary Work at Height Directive is at the heart of what we are discussing today. Its provisions were enacted in the Netherlands in 2006, under what we call the Arbobesluit, or Health and Safety at Work Order. This was followed in 2007 with an initial evaluation of companies' awareness of the new, tighter rules – particularly as regards working with ladders, scaffolding and rope systems – and also of their compliance with them. This assessment covered the period 2004 to 2006.

What it revealed is that the safety of work at height has improved since 2004. The use of ladders has declined. Falls remains the largest single category of industrial accidents, but they now result in fewer hospital admissions. Levels of compliance could be better, though, particularly by smaller businesses.

Slide 13

The Dutch Health and Safety at Work Act is actually so-called framework legislation. In other words, rather than enforcing detailed rules, it defines basic obligations for employers and workers and provides outline instructions on how they should be met. In some situations, these provisions also apply to other groups, such as architects, designers, building owners and self-employed workers.

For example, the law clearly states that the employer is primarily responsible for the health and safety of all those working on its behalf. This includes not only its own staff, but also secondary personnel like agency workers and those employed by subcontractors.

And because buildings have to be safe to maintain once they are finished, architects are required to consider that in their designs. In practice, however, this obligation is not always observed. Many architects, it seems, still consider aesthetic design more important than safe construction and upkeep.

On the other hand, it is worth pointing out that many building firms, as well as complying with the letter of the law, also commit themselves to observing additional rules. For example, the regulations imposed by insurers, the codes of their professional or industry bodies and the standards set by certification institutes. Ultimately, though, all of these must be in line with Dutch and European law.

Slide 14

The basis for a safe workplace is enshrined in the risk assessment which every business is required by law to conduct, and in the company plan based upon it. That describes its health and safety policy, including how it is put into practice. For each individual risk, the precautions taken have to reflect a “safety-first” strategy. The company also needs to demonstrate how staff are instructed in health and safety matters and how it ensures compliance with the rules.

Slide 15

In most industries, basic models or templates for the risk assessment are available. Companies can also use the services of independent institutes like the one I work for, obtain information from central government or hire commercial risk consultants, of whom there are many active in Western Europe. None of these routes alone guarantees safety, however. For that, the support and direct involvement of the workers who actually have to take the necessary precautions every day are absolutely essential.

Slide 16

It is vital that measures to improve health and safety become an integral part of the entire business process. That means incorporating them into activities as diverse as costing, tendering and procurement, as well as core production or implementation. To do that, every company is required to appoint a so-called safety officer. In a small business, that may be the proprietor himself. Naturally, accident and time-off-work statistics are a primary indicator for a business as to whether it is meeting its health and safety targets. The average rate of absenteeism through accident or illness in the Netherlands as a whole has remained below 5 per cent in recent years. In the building industry, the figures are somewhat higher – varying between 5 and 6.5 per cent for different trades. Steel fixers, roofers and road workers, in particular, are engaged in hard physical labour and so have high rates of absenteeism.

Slide 17

Although scientific research clearly shows that the most effective way to eliminate risks – and the cheapest in the long term – is to tackle them at source, we have to admit that this is something the building industry could still do much better.

Since construction often involves a whole chain of contractors, and so many different kinds of workers are active at once, collective precautions should be the preferred option.

In the case of work at height, that means scaffolding and roof edges with guard rails or the like.

Slide 18

With so many different parties working together, some way of harmonizing safety precautions is essential. One way to do this is through certification, backed by internal supervision and – if necessary – disciplinary procedures. This supplements the statutory external regulation by the Labour Inspectorate.

Since that body has limited resources at its disposal, however, it tends to concentrate upon the most serious potential risks, like falls and physical overexertion, and upon specific groups who are particularly prone to accidents, like young workers and immigrant labour.

It is often possible to tell how seriously a business takes safety at work just by looking at the image it presents to the outside world. That's why we say, "The manager's standards are the worker's standards."

Slide 19

That motto sums up the quote you see here. And if you need any further proof of the need for good supervision, look no further than the current mess in the financial world and the effect it is having on all of us.

In fact, I should tell you that it was actually my daughter who found this quote while she was conducting research into fraud by accountants. She was doing that because she works a forensic criminologist. But whether in her job or in ours, the message is the same: when choosing safeguards, bear in mind how people will treat them. We tend to focus upon technological perfection, but there's more to it than that. At SBD, we often find ourselves trying to help small businesses which have put excellent safety measures in place but have failed to properly instruct their users. As we tell them, a Mercedes is a great car – until you put a monkey behind the wheel.

And, of course, you know who we humans are descended from!

Slide 20

Most work at height is actually carried out between one and ten metres from the ground. But even falls from these limited heights can be very serious, so precautions are needed.

Probably not personal protection equipment or safety harnesses, though.

Before looking at that option, then, I would like to cover some of the many other safeguards used in Western Europe.

Slide 21

The European Temporary Work at Height Directive is particularly restrictive on the use of ladders. Essentially, they can only be used to climb to heights of up to 10 metres. Working on a ladder for long periods, as painters, window cleaners and installers have traditionally done, is no longer allowed.

The greatest risks associated with ladders are toppling over and sliding at the base. For this reason, tying them and securing the base are matters of great concern. They are also an excellent opportunity to market safety devices.

Another major risk comes from having to step sideways off the top of a ladder up to a work platform. Here again, there is great chance for anyone who can come with a way of letting the user step straight onto the platform.

Slide 22

The two most important things to consider with scaffolding are the loads it will have to bear at each specific location and the use of qualified scaffolders to assemble it. Several serious accidents in the Netherlands in recent years have only underlined these points. Scaffolding can also be used as a means of fall prevention. Although this is a costly option, often there is no alternative. In the case of new building projects, it is certainly worth agreeing shared use by the different firms responsible for different phases of the construction process. In many cases, scaffolding also incorporates laddering used by workers to climb up to elevated work locations. I shall return to that aspect in the next photo presentation.

Slide 23

Guard rails are the most basic and effective form of collective fall protection. For that reason, they are compulsory at heights of 2.5 metres and more, under both Dutch and European law. Ideally, of course, it is best to include guard rails in the design of a building, machine or system. If they cannot be fitted permanently, then a semi-permanent or temporary set-up is always preferable. Structurally and aesthetically, there are many possible solutions. Using a relatively light material, such as aluminium, a guard rail can often be installed quickly and without too much physical effort so as to provide a high level of safety during jobs of limited duration, particularly when working on roofs higher than 2.5 metres.

Slide 24

The use of nets to break falls, of both people and objects, is a good option during new building projects – particularly when they feature unprotected openings in floors or roofs. Of course, nets are only effective when they are strong enough and have been firmly secured by expert installers!

Slides 25, 26

Much of the risk of a fall can be eliminated by making sure that safe zones on, say, a roof are clearly marked and by ensuring that no work needs to be done outside that area. Wherever possible, try to fit equipment like air conditioners, solar panels and aerials inside the safe zone so that they can be worked on there.

When carrying out building inspections, an even better solution is to use the latest infrared imaging techniques. They, too, help to minimize the danger of falling.

Slide 27

A mobile elevated work platform, popularly known as a “cherry picker”, can be a good solution in many work-at-height situations.

Using these machines is subject to strict rules, and in many cases the people on the platform must also use personal protection equipment.

Slide 28

Photo presentation 2: Safety-first-strategy in The Netherlands.

Slide 29, 30, 31

Dutch culture and our working methods meant that it was a long time before we adopted rope-based systems as a means of working at height. With more and more high-rise construction taking place in the Netherlands, however, as well as the greater internationalization of the industry and the harmonization of European rules, we have seen their use increase over the past ten to fifteen years. In fact, rope access has become an industry in its own right in past five years.

It is important to remember, though, that the safety-first strategy means that these systems should still be the option of last resort.

Indeed, rope-access work remains a distinction specialization.

Slide 32

As I said, the use of rope-based systems is increasing. There are now many products available in the Dutch market. Whilst most anchor points are still developed in the Netherlands or elsewhere in Western Europe, the ropes, connectors, lanyards and harnesses now tend to be imported from one or other of the numerous international suppliers.

With only limited experience with this equipment over ten years or so, the overall regulatory framework for its use are still in development.

The rules for testing the materials used in the anchor points are relatively well-defined, though. Their load capacity has to be checked by an independent laboratory, in accordance with Dutch standard NEN-EN 795. Systems in which the anchor point itself absorbs the force of a fall, thus minimizing the risk of injury, are preferable over this with purely static anchorage.

Good anchor points are all very well, but they are not the whole story. It is also important that the entire system be expertly assembled and installed, and that you can prove that. Sadly, plenty can go wrong here. Remember the monkey and the Mercedes!

Slide 33

As well as anchor points, rope-based systems incorporate a whole host of other components, every one of which must comply with all the relevant standards. This makes the use of these systems very risky for workers who, as well as paying full attention to the job in hand, also have to repeatedly check and double-check their equipment.

Slide 34

This slide shows the one basic requirement of a lanyard.

That may seem straightforward enough, but in practice even just putting it on incorrectly can cause things to go wrong. Because of that, a good lanyard is about much more than strong material and the quality of the stitching. It must also be “fit for purpose” and tailored to the needs of the individual user.

Slides 35, 36, 37

This slide, and the next two, summarize the Dutch and European legislation applicable to the use of personal rope systems and lanyard.

After this comprehensive introduction to the many systems available, and the rules they have to comply with, I would now take a more practical look at their use with another photo presentation.

Slide 38

Photo presentation 3. Use of fall equipment in The Netherlands.

Slide 39

So far, I have talked mainly about regulations and about recent experiences. Information which is essential to improving existing products and to developing new ones.

But time does not stand still. Because it is important for the manufacturers of fall protection equipment to know what is likely to happen in the future, I would now like to outline some of the developments we expect between now and about 2020.

High-rise buildings

There is a clear global trend towards more high-rise construction. And the Netherlands is no exception.

At the same time, architects are exploring ever more extreme designs and constantly incorporating new materials into their structures. Meanwhile, those high-rise buildings already in use are still going to have to be maintained. That means plenty of work for cleaners, painters, repairers, cladders and roofers.

Green and energy roofs

With buildings becoming more and more self-sufficient in their energy consumption, roofs and outer walls are taking on entirely new functions. And environmental regulations mean that all the materials used must be recyclable.

Multiple use

Roofs are increasingly being seen as a resource with the potential to help solve urban problems. As well as incorporating systems to reduce pollution and capture water, that also means making more use of them as recreational space where land is scarce.

More maintenance and upkeep

The more systems are installed on a roof, and the greater the access to it, the more upkeep it will require.

All of these developments bring with them the need for permanent safeguards to prevent falls. So there are plenty of opportunities here for designers, for manufacturers and for construction and maintenance firms.

Slide 40

From the practical examples and the regulatory framework I have outlined in this presentation, you should now have a clearer picture of the opportunities available to manufacturers of fall prevention systems from outside the EU. And the restrictions you face. To sum up, here are key points again.

- The first goes without saying. Comply with the legislation!
- Naturally, an innovative product always has a far greater chance of success than a copy of something already available in many versions.
Particularly when it comes to health and safety, it is essential to come up with products which are even better than those already on the market. The ideal product is one which eliminates a risk entirely!
- Make sure that the market actually wants what you are trying to sell it!
- Ultimately, high quality will always win out over useable but inconvenient or non-durable alternatives.
- To make the most of all these opportunities, by far the best option is to join forces with local partners or to exploit existing networks of major concerns.

Slide 41

Earlier I told you about the complex regulations for health and safety working in The Netherlands. Next year the introduction of a Health and Safety Catalogue should simplify this.

- databank
- digital information system – choose risk, occupation, phase of the building process
- risk analysis
- references to rules and regulations
- directions and information about measures to be included in a company plan
- reference to the website for health and safety tools, in which the manufacturers show their certified/good practices.

Slide 42

Finally, I would like to end with some simple Dutch wisdom.

Slide 43

Thanks for your attention.