FACTS
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Accident prevention in the construction sector

In the European Union construction is the sector most at risk of accidents ([1]), with more than 1 300 people being killed in construction accidents every year. Worldwide, construction workers are three times more likely to be killed and twice as likely to be injured as workers in other occupations. The costs of these accidents are immense to the **individual**, to the **employer** and to **society**. They can amount to an appreciable proportion of the contract price.

Over 99% of construction firms in Europe are **small and medium-sized enterprises (SMEs)**. SMEs are therefore most affected by construction accidents. The advice in this factsheet is relevant to enterprises of all sizes.

Labour inspectorates join forces to build a safer Europe

Labour inspectorates across the European Union have launched a **pan-European campaign** to cut the number of accidents in the construction industry involving falls from heights. Using a mix of promotional activities and worksite inspections, the campaign will start in 2003 and continue into 2004.

Promotional activities will target everybody working in construction: from clients and architects to employers, trade unions, workers and subcontractors.

The **inspection campaign** will focus on safety and health in construction sites, accesses to workplaces and emergency routes. Inspections will be carried out to ensure that the appropriate preventive measures and provisions are in place. The campaign will also investigate the obligations for prevention and coordination on construction sites.

Responsibilities

Clients, project supervisors, employers, individual contractors and self-employed persons all have responsibilities to ensure safety. Relevant requirements set in European directives ([2]) include:

- considering occupational safety and health from the planning stage onwards in all **construction** work. Work has to be coordinated between all parties involved in planning and doing the work;
- ensuring safe **work equipment** (covers suitability, selection, safety features, safe use, training and information, inspection and maintenance);
- providing **safety and/or health signs** where hazards cannot be avoided or adequately reduced by preventive measures;
- providing **personal protective equipment** (hard hats, safety harnesses, eye and respiratory protection, safety footwear etc.) appropriate for the risks involved and where they can not be prevented by other means;
- ensuring a safe working environment and welfare facilities for **construction** workers, e.g. access, safe traffic routes;
- following a general **framework** to manage health and safety, including: assessment and prevention of risks; giving priority to collective measures to eliminate risks; consulting employees, providing information and training; and coordination on safety with contractors.

The minimum requirements set by directives have been implemented in **national legislation** that may include additional requirements.

Employees have duties to cooperate actively with employers' preventive measures, following instructions in accordance with training given.

Consulting the workforce is a requirement. Using their knowledge helps to ensure hazards are correctly spotted and workable solutions implemented.

Preventing accidents — assessing the risks

There are many hazards in construction work. However there is much 'good practice' that can be easily applied to prevent accidents. The first step is to carry out a **suitable and sufficient risk assessment.**

To ensure a real reduction in the exposure of workers and others (including site visitors, passing members of the public) to harm, the risk assessment should consider all the risks, hazards and ensure reduction of one risk does not increase another.

All the hazards should be identified, including those arising from work activities and from other factors, e.g. site layout. This is followed by evaluating the extent of risks involved, taking account of existing precautions. Have enough precautions been taken or does more need to be done? The risk assessment results will help in selecting the most appropriate good practice measures to use ([3]).

Practical prevention

The main hazards include working at height, excavation work and moving loads. **Priority must be given to measures that eliminate or reduce the hazard at source and provide collective protection**. Individual protection, such as protective equipment, is used where risks can't be further reduced by other means.

Ongoing **monitoring** and **regular inspections** are needed in addition to overall risk assessment.

INRS — Yves COUSSON

([1]) *The State of Occupational Safety and Health in the European Union* — Pilot study, 2000. European Agency for Safety and Health at Work, ISBN 92-828-9272-7.
([2]) http://europe.osha.eu.int/legislation/ provides links to EU legislation, details of Commission guidance for SMEs and on risk assessment and construction and to Member State sites where national legislation to implement the directives and guidelines may be found. See in particular the temporary or mobile construction sites directive.
([3]) Agency web site provides construction information at http://europe.osha.eu.int/good_practice/sector/construction/

Working at height

Falls from heights are the most common cause of injuries and death in the construction industry. Causes include: working on a scaffold or platform without guard rails, or without a safety harness correctly attached; fragile roofs; and ladders that are badly maintained, positioned and secured.

The whole construction process should be planned to minimise the risk of falls. At the project design stage, protection against falls can be planned. The risk can be reduced by adding purpose-made guard rails or finally, if the risk is still present, providing safety harnesses.

Moving loads

Plan to minimise the movement of materials and for safe materials handling. Ensure **equipment** is set up and operated by trained and experienced workers.

Have the equipment regularly inspected, tested and examined by a competent person. **Coordinate site activities** — for example do not let those involved in lifting operations endanger other workers or vice versa. Where **manual handling** can't be avoided, organise tasks to limit the amount and distance of physical handling. Train workers on avoiding risks and use of techniques.

All mobile crane lifts should be planned and carried out by competent people. The driver should have a clear view, and the crane should be on level ground and a safe distance from excavations and power lines.

General 'housekeeping' and safe access

General site organisation and tidiness is important. For example, ensure that: there is safe access (roads, walkways, ladders, scaffolds etc.) to and from all places of work, free from obstructions; materials are stored safely; holes are fenced or covered and clearly marked; there are proper arrangements for collecting and disposing of waste materials; and that there is adequate lighting.

Training and information

Workers need to understand the risks, their consequences, and precautions they need to take to act safely. Training should be related to real situations, e.g. problems encountered, what went wrong, and how to avoid it happening again. Cover risks, prevention measures, emergency procedures, reporting problems, personal protective equipment, work equipment etc. Plan for refresher training.

Training should be backed up by good communication. Discussion of health and safety issues and passing on information should be part of team meetings.

Personal protective equipment

Personal protective equipment should always be worn when required on construction sites. It should be comfortable, well maintained, and not lead to increase in other risks. Training is needed in its use. Protective equipment includes: safety helmets — if there is a risk of being struck by falling objects or a person might hit their head; suitable footwear — with toe and sole protection and anti-slip; protective clothing — for example, against bad weather or with high visibility so workers can be seen more easily, e.g. by vehicle operators.

Checklist: Falls from heights, scaffolds and ladders

- ✓ Has the most suitable equipment been selected to ensure safety, including for means of access and evacuation?
- ✓ Are ladders only used when other equipment is not justified in view of short duration and low risk?
- ✓ Is the scaffold erected on a firm foundation?
- ✓ Are all guardrails in position at the correct height?
- ✓ Are there enough planks for the working platform?
- ✓ Are the planks secured in position?
- ✓ Have any scaffold ties been removed?
- ✓ Is a ladder the safest and best method for the job?
- ✓ Is the ladder in good condition and suitable for the type and height of work?
- ✓ Can the ladder be placed to avoid overreach?
- ✓ Can the ladder be restrained at top and bottom?
- ✓ Is the supporting surface firm and level?

If any answer is 'No', prevention action is needed **before** starting the work. Measures include:

- ✓ ensuring that openings, such as holes in floors, are fenced off with secure barriers (e.g. guard rails and toe boards) or covered over. Secure the cover in place or mark with a warning;
- ✓ checking all scaffold elements for safety before starting erection work;
- ✓ inspecting ladders before climbing to ensure they are in good condition and securely positioned;
- ✓ using fall arrest equipment when on scaffolding, especially before guard rails and toe boards are fitted, and ensuring harness lines are attached to a firm structure and used properly;
- ✓ not throwing equipment or materials to a lower level, the ground or onto safety nets.

Getting more information/references

More information on good safety management practice is available from the Agency web site http://osha.eu.int/. All Agency publications can be downloaded free of charge. The Agency site links to Member State sites where national legislation and guidance on construction may be found: http://ie.osha.eu.int/ for Ireland http://uk.osha.eu.int/ for United Kingdom.

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