Preventing injuries and ill-health in the construction industry

You might think that the active, outdoor life in the construction sector would keep you fit and healthy. Quite the reverse is true. Building work deserves its reputation as dirty, difficult and dangerous.

Fiona Murie
Director Health, Safety and Environment
International Federation of Building and Woodworkers

At least 55,000 people suffer fatal injuries on building sites every year, according to a conservative ILO estimate. That means one person is killed in a site accident every ten minutes. Many hundreds of thousands more people suffer serious injuries and ill-health because of bad, and often illegal, working conditions.

However, the published figures grossly underestimate the number of accidents. In many countries, less than 20 per cent of injuries are reported – and the longer-term impact of occupational diseases is scarcely reflected at all in the statistics.

Downsizing, outsourcing, the use of labour-only subcontracting and the so-called self-employed have a negative impact on the management of health and safety in construction. Responsibilities for planning and coordination of health and safety are often unclear, and compliance with health and safety law is generally poor. Informal contractual conditions in the sector make it difficult for workers to exercise their rights.

To make matters worse, self-regulation is increasingly widespread in the construction industry, and the relevant administrations frequently have a permissive, passive attitude towards employers who ignore health and safety laws, even when this leads to the death of a worker.
Deaths on site – predictable but not prevented

The real tragedy behind the statistics is that deaths are preventable. Most people are killed whilst carrying out perfectly routine work, where the hazards are well known. Some of the main causes of fatal injuries in construction are:

- **Falls**: The number one construction killer in any country is falling from heights, and this is principally due to the lack of proper edge protection in a variety of construction tasks. The most frequent culprit is inadequate scaffolding, with no proper access or no guard rails to prevent falls. Scaffolding is often erected by unqualified operatives, and is sometimes improvised, using unsuitable materials. Apart from scaffolding problems, other causes of falls include unprotected openings in buildings, lack of edge protection in roof work, lack of crawling boards on fragile roofs, demolition work and inappropriate use of ladders and hoists.

- **Fatal crush injuries and being struck by falling objects**: Excavations which are not shored up (or at least sloped) may collapse, particularly after rainfall. Vehicles operating too close to the edge, where there are no stop blocks, may also cause a cave-in. Walls may collapse when excavations undermine them. Buildings may collapse when supporting structures are injudiciously altered. Falling objects, materials or tools can strike and kill workers – particularly if they are not wearing hard hats. Such falling objects are due to the lack of toe boards on scaffolding, lack of tool belts for workers, bad storage and stacking and poor housekeeping. Fatal injuries may also result from improper use of hoists and cranes, and from being struck, crushed or trapped by vehicles, dumper trucks and machinery.

- **Electrocutions** – due to cable strikes, or to contact with or arcing from overhead cables.

Ill-health in building workers – invisible and ignored

Workers in the building trades are exposed to a wide range of hazardous substances
and physical hazards. In many countries, the resulting health problems are not recognized as being work-related, and are not reported, recorded or compensated. This social invisibility, this censorship of the true damage to workers’ health, means that there is no national policy to prevent occupational ill-health in the sector. It is a vicious circle.

Yet, as with accidents, the causes of ill-health are well known and can be prevented or controlled. Some of the most common health problems in the construction sector are:

- **Deafness:** Exposure to hazardous noise levels is so widespread as to be routine, and occupational deafness is very common among building workers. Here, noise reduction methods can be used, for example on compressors, but personal protective equipment and training are essential to prevent hearing loss.

- **Vibration syndromes:** Hand-arm vibration can cause damage to blood vessels and nerves. This leads to a lack of sensitivity in the fingers. Called Raynauds Syndrome, this condition is particularly due to the use of pneumatic tools. Whole body vibration is caused by operating heavy machinery and vehicles, and can damage the spine.

- **Back injuries:** These are caused by manual handling of heavy loads, sometimes over long distances - for example, bricks, cement blocks and cement bags weighing 50 kilos. Confined spaces, awkward postures, heavy tasks and productivity demands and long hours can aggravate the problem. Lower back injuries, sciatica, hernias and slipped discs can put people out of the labour market for good.

- **Other musculo-skeletal disorders:** These are injuries to muscles, nerves, tendons and joints caused by physically demanding work. Risk factors include: uncomfortable postures, forceful and repetitive movements, awkward tools and sustained effort. In many developing countries, construction work is really labour-intensive. There is little mechanization and tools are rudimentary, recycled and improvised. Typical injuries include: *bursitis*, from kneeling, for example floor laying; *tenosinovitis* - the inflammation of the tendon sheaths due to overuse and repetitive and forceful
movements; *tendonitis* - inflammation of the tendons, especially in the shoulder, often due to working with the arms reaching above shoulder level; *neck problems* – for the same reason; *epicondilitis* (“tennis elbow”), caused by the impact absorbed when making repeated blows.

- **Exposure to hazardous substances:** *Solvents* of many different kinds are used in paints, varnishes, lacquers and adhesives. They can cause central nervous system damage and can harm the skin, liver, kidneys and cardiovascular system. Some solvents increase the likelihood of cancer. Solvents can also cause reproductive problems. They can reduce fertility and cause birth defects and miscarriages. *Isocyanates*, used in some paints and varnishes, bonding agents and resins, can cause asthma and dermatitis. In the long term, they are also associated with cancer and reproductive hazards. *Pesticides* used in timber treatments are poisons. They can also present serious reproductive hazards. *Chemical treatments for damp courses* and *fire retardants* can also be hazardous. Welding fumes – which may include a cocktail of all kinds of metal fumes - can cause serious health problems in the long term. The respiratory system is affected and, as chemicals are absorbed, they can slowly affect the brain and internal organs.

- **Dust:** All kinds of dust are bad for the health. There are higher death rates from respiratory disease and from lung and stomach cancers in dusty trades. *Cement dust, silica, wood dust* and *medium-density fibre boards* pose particular risks. And, of course, *asbestos* is highly dangerous and should be banned outright (see our inset). Low-cost solutions for reducing dust are to get materials pre-cut off site where exhaust ventilation can be used, and to dampen work and isolate dusty work. Good hygiene facilities for washing and changing and proper protective clothing are needed for hazardous jobs, and this is seldom the case in developing countries. Ideally, exhaust ventilated tools, and tools fitted with a water supply for dust suppression should be used. Respiratory protective protection needs to be selected carefully as different types give widely varying standards of protection. Unfortunately, what is
normally given out as personal protective equipment is a “dust mask” made of paper or cloth, rather than filtering respirator masks.

- **Welfare and biological hazards:** The living and working conditions of building workers are poor in developing countries. *Tuberculosis, cholera and parasitic diseases* from contaminated water can occur. *Dengue and malaria*, caused by mosquito bites, can also be a health hazard. Where pools of water are allowed to accumulate, they make perfect breeding grounds for mosquitoes. Communities around construction sites may also be affected. Seeking work on large construction projects means being away from home and family for long periods. This puts construction workers at risk from *HIV/AIDS*.

- **Stress:** Noise, dirt, dust, chemicals, work at heights, confined spaces, heavy work, and a lack of information and training all contribute to stress. Particularly acute is the fear of accidents, most notably fear of falling. Bullying and pressure are commonplace. Generally the workers, particularly labourers, will have little or no control over how the work is to be done.

**Don’t compete by cutting safety**

The overwhelming majority of accidents in construction are foreseeable and preventable. However, there is rarely a coherent prevention system in place. The micro and macro economic costs are considerable. In Europe, the cost of construction accidents is estimated at around 3 per cent of the volume of a project. The cost of strict compliance with European legislation on occupational health and safety is around 1.5 per cent of a construction project’s volume.

However, there are costs associated with prevention. Therefore, occupational health and safety and welfare costs should be taken out of competition, and considered as prime costs. Health and safety requirements should be included as mandatory items in procurement policy, contracts and competitive tendering. Failure to comply with such requirements should mean exclusion from competing for tenders.
**Personal protective equipment – lip service to prevention**

In the construction industry there is an over-emphasis on the use of personal protective equipment (PPE). Of course, good PPE is essential. However, it is a complementary measure to be used along with collective protection - not as an alternative to it. PPE should be used when it is not possible to properly control the risk by other means. PPE is cheap, though, and some employers believe that if workers are wearing their hard hats, then the employer’s responsibility is met. This is what we might call the Pontius Pilate style of health and safety.

**Prevention strategies – a tripartite approach:**

**Governments’ role**

Governments have an important role to play as legislators and regulators, but also as clients who can lever changes through the procurement process. Similarly, the World Bank and development agencies can influence labour standards and working conditions on construction sites in many parts of the world. Their procurement policies and conditions of tender should set exemplary standards.

Governments need to have a coherent legislative and policy framework on occupational health and safety in the sector. This should be developed with the social partners through tripartite committees on occupational health and safety, Construction Industry Development Boards and Training Boards. The national policy must include a system for promotion and enforcement of the regulations.

Under-resourcing of the competent authorities, combined with a laissez-faire policy of self-regulation in the industry, can result in a passive and permissive attitude on the part of governments towards even serious breaches of the legislation. Responsible employers need assistance in the form of information, training and guidance on hazards and their prevention. Negligent employers must be shown that they will face stiff fines, high compensation claims, social stigma and loss of licence or liberty.
Employers’ role

Employers must give a basic commitment that they will adhere to labour standards and will insist that these are respected by all subcontractors and suppliers. These labour standards are based on ILO Conventions, including such fundamental human rights as freedom of association, the right to organize and the right to collective bargaining.

Employers should pay a training levy to improve the capacity of the workforce on skills and health and safety. Several Construction Industry Training Boards have introduced mandatory training on health and safety. There are many positive examples of skills certification and recognition of prior learning, which boost quality and productivity as well as reducing injuries and ill health. There should also be compulsory employers’ liability insurance to cover all workers on site.

Company health and safety policies and systems for risk management must include workers participation. Downsizing and outsourcing have created a construction industry dominated by precarious, informal contractual conditions, by subcontracting and by bogus self-employment. This has a direct and negative impact on health and safety. An effective vehicle for the practical implementation of the safety policy is a joint management-trade union Health and Safety Committee.

Clients and Contractors’ Associations should ensure that:

- Safety, health and welfare provisions are included as mandatory components in tender documents, so as to take these provisions out of competition. All contractors should consider health, safety and welfare items in their cost estimates.
- All management and supervisory staff on their sites have demonstrable competence in occupational health and safety and in management and supervisory skills.
- All workers have a demonstrable skill level, incorporating occupational health and safety.
• All contractors respect labour standards.
• Structures and resources are in place to implement policy and comply with the law.
• There is proper communication and co-ordination between contractors and the participation of workers, including induction training.

Occupational health and safety targets should be audited for each contractor on site. Previous health and safety performance should be included in the selection criteria for tenders and all bids should present a detailed health and safety plan before work starts.

Unions’ role

Low trade union density is a key factor in explaining the poor safety standards in the construction industry.

So Strong Unions for Safe Jobs is the title of the Global Programme on Safety, Health and Environment conducted by the International Federation of Building and Wood Workers (IFBWW). Funded by the Swedish unions’ LO-TCO Council and promoted by Swedish building workers’ union Byggnads, the programme is servicing affiliated trade unions in Asia, Africa and Latin America. The aim is to popularize health and safety as a recruitment and organizing tool, and to assist unions to improve their structure, policy and organizing strategy in this important area of trade union activity. Encouraging results are being obtained by many IFBWW-affiliated trade unions in the following areas:

• Trade union structures improved to bring safety, health and environment into the mainstream of union activities
• Institutional participation, particularly tripartite work
• Legislative and policy agenda developed and pursued, negotiation of improved standards, and participation in training on health and safety
• Collective bargaining agreements that include health and safety
• Recruitment and organizing strategy, including increased membership, promotion of Safety Representatives and establishment of Safety Committees
• Information and training on hazards and their prevention: carrying out workplace inspections and health surveys, prioritizing hazards, and negotiating for improvements.

Global campaigns
Global campaigns are an important tool for the IFBWW programme. The campaigns help the unions to build solidarity networks with other unions, academics, health professionals, lawyers, families and victims of accidents and ill health, and with communities. Campaigning activities are positive for the unions’ image, and give them a leadership role in building strong social pressure for improved working conditions.

Here, securing ratification and application of the relevant ILO Conventions is a major aim – including the Convention on asbestos (See box).

Meanwhile, the ILO Safety and Health in Construction Convention, 1988 (No.167) has so far been ratified by only 15 countries, although many countries have similar or better legislation on the statute books. The Convention’s main points for organizing prevention:

• There should be cooperation between employers and workers in taking appropriate measures to ensure that workplaces are safe and without risk to health.
• All parties to a construction contract have responsibilities, including those who design and plan projects
• The principal contractor is responsible for coordinating prevention measures.
• There should be an inspection service and penalty measures.
• Workers have the right to remove themselves from imminent and serious danger. The right to refuse to carry out a dangerous task without fear of victimization is very far from being a reality for most workers. Whilst there is low trade union density in the sector and informal employment, unorganized workers regularly face a choice between doing a dirty and dangerous job or having no job at all. The basic human right to safety is a test of democracy and dignity in the workplace.
Collective bargaining

Collective bargaining agreements should always include points on safety, health and environment, and should guarantee standards that go further than the existing legislative minimum - particularly with regard to the establishment of joint management-union Health and Safety Committees, workers’ participation in the prevention of injuries and ill-health, and, for example:

- Worker participation in prevention on site
- The right for trade union health and safety representatives to participate in prevention
- Time off for training, plus induction training, and toolbox meetings during work time
- Written health and safety policies
- Health and safety management systems that include worker participation at all levels
- Systems for reporting and resolving hazards, including the right for workers to refuse to carry out tasks which pose a serious risk to their health or safety, without fear of victimization or dismissal.

Trade union safety representatives

Trained trade union safety representatives make a positive contribution to the prevention of injuries and ill-health. A recent survey by the British Trades Union Congress indicates that workplaces with such reps have half the accident rate of comparable workplaces without reps.

Trade union safety reps are aware of the risks in the workplace, and can work closely with workers and management to assist with promoting a working environment where hazards are identified, removed or properly controlled before problems occur.

However, informal workers in construction are widely dispersed in small companies. This poses particular problems in ensuring that they are covered by union safety reps.

One imaginative solution is the Regional Safety Representatives (RSRs) who have been operating in the construction sector in Sweden since 1949. The system was so successful
that it was extended to all sectors in Sweden in 1974. There are currently around 1,450 roving reps in Sweden, operating in 152,000 workplaces. RSRs service those workplaces with no Occupational Health and Safety Committees (less than 50 workers). They have reasonable rights of access to workplaces, and defined functions similar to those of a regular workplace Safety Representative. The IFBWW is actively promoting the figure of the Regional Safety Representative.

ILO tripartite meeting on the construction industry
At the ILO Tripartite Meeting on the Construction Industry in December 2001, the workers’ group brought up proposals on RSRs in the meeting and tabled a resolution. Unfortunately, the employers’ group strongly opposed the idea and a consensus could not be reached at that meeting.

However, the conclusions of the meeting were very positive on occupational health and safety, and the employers clearly want to improve standards of prevention in the industry. Some interesting points agreed are:

- The suggestion of agreeing national registers and licensing systems for subcontractors.
- Promoting mandatory basic induction training on health and safety for everyone on site.
- Special attention to be paid to training of workers’ health and safety reps
- Strict sanctions for infringements of health and safety laws
- Public procurement procedures should ensure that subcontractors comply with health and safety legislation. If not, they should be excluded from tender lists.

Conclusions
There are many examples of tripartite structures to promote social dialogue in the construction sector. These include industry development boards and industry training boards as well as national committees on health and safety in construction. The emphasis has to be on:
- Strong health and safety laws, properly enforced, including workers’ right to refuse to carry out dangerous tasks without fear of victimization
- Recognition of trade unions for collective bargaining and the participation of workers in prevention
- Information and training on hazards and prevention for everyone on site.
- Promotion of health and safety management on site to ensure day-to-day application of prevention measures.

**BOX**

**World’s unions want asbestos banned**

*At the shocking worldwide figure of 100,000 people each year, deaths from asbestos-related diseases have now outstripped deaths from industrial accidents in some countries.*

Many of those affected today worked in the building trades. The International Federation of Building and Wood Workers (IFBWW) coordinates a global campaign to get asbestos banned and to prevent workers being exposed to it.

Breathing air containing asbestos dust causes fatal lung diseases. There is usually a long delay between exposure to asbestos dust and the onset of the disease. This can be between 10 and 50 years. The more you are exposed to asbestos, the more chance you will get sick later on.

When inhaled, those of the asbestos fibres that cannot be coughed up or breathed out can become deeply lodged in the lungs. There, they can cause irreparable scarring which continues to grow, even though there is no further exposure to asbestos. This can give rise to a number of painful, debilitating and often fatal diseases, including cancers.
Many of today’s asbestos victims worked in building trades. However, asbestos is still widely used in new construction materials, mainly in asbestos cement roofing and pipes. The breaking, cutting, sawing, drilling and sanding of asbestos cement releases asbestos fibres, and presents a very serious health hazard. Construction workers are also still exposed to asbestos in buildings during maintenance, renovation and demolition work.

Any asbestos material in buildings should be identified before work begins, but often sites are not checked for asbestos. If a suspect material is found, then it should be checked. All suspect material should be treated as if it contained asbestos.

Precarious contractual conditions and flexible employment practices in the construction industry undermine prevention measures and the safe systems of work that should be in place. Information, training and trade union organizing on health and safety all save lives.

The ILO’s Convention 162 and Recommendation 172 set out detailed requirements for employers to prevent worker exposure to asbestos, provide protective clothing and facilities, monitor workers’ health and provide workers with full information and training.

The IFBWW is campaigning for the ratification and practical application of these ILO standards worldwide, and for full legislation to minimize asbestos exposure and ensure safe working practices.

In fact, the IFBWW and the international trade union movement as a whole have repeatedly called for a global ban on the mining, manufacture, marketing and use of all forms of asbestos and related products. The world’s trade unions have agreed on the following measures:
• **Asbestos ban:** Trade unions should lobby their national governments to introduce a ban on asbestos, as part of an international initiative to ban asbestos throughout the world.

• **Protection of workers:** Trade unions should lobby their governments to ratify, effectively apply and enforce ILO Convention 162 as a minimum standard to protect workers who may be exposed to asbestos through their work. Trade unions should ensure that the best protection methods to prevent exposure to asbestos fibres are available to workers who have to remove asbestos.

• **Awareness-raising:** Trade unions should develop and maintain a broad-based international campaign to educate workers, the union movement and the public about the risks of exposure to asbestos fibres and the measures to be taken to prevent ill-health and to secure a global ban on asbestos;

• **Alternatives:** Trade unions should seek the replacement of asbestos with alternative substances that are less harmful to human health and the environment. Research should be promoted into technology to develop alternative substances to asbestos where that technology does not currently exist.

• **Information exchange:** Trade unions in countries that manufacture and use asbestos substitutes should distribute technical information on the substitutes to sister unions in countries where those substitutes are not currently manufactured and used.

• **Just Transition:** Where workers may be displaced because of the introduction of an asbestos ban, trade unions should lobby for a Just Transition to protect the income, employment and welfare of those affected and their communities.

• **Legal action:** Trade unions should seek through their countries’ legal systems to bring to justice those employers whose negligence has caused asbestos diseases and environmental damage to the community. The polluters must pay the remediation costs of any environmental damage done by their operations.

• **Compensation:** Trade unions should seek appropriate and prompt compensation for workers who suffer from asbestos-related diseases.
• **Treatment:** Trade unions should campaign to ensure that the victims of asbestos-related disease will have access to appropriate medical treatment, support services and information.