

BWI Construction Hazards Fact Sheet

Preventing injuries and ill health in construction

You might think that the active, outdoor life in the construction sector would keep you fit and healthy. Quite the reverse is true and the construction industry has a deservedly notorious reputation as being dirty, difficult and dangerous.

More than 100, 000 people suffer fatal injuries on building sites every year. That means that one person is killed in a site accident every five minutes. Many hundreds of thousands more people suffer serious injuries and ill health because of bad, and often illegal, working conditions.

The fragmentation of the industry and the widespread use of flexible employment practices seriously undermine trade union capacity to organise in the sector. Downsizing, outsourcing, the use of labour-only sub contracting and the so-called self-employed has a negative impact on the management of health and safety. 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, and to push for more progressive and effective prevention initiatives based on workers participation, collective bargaining and training on skills and health and safety. The consequence of poor management standards in the sector is the deterioration of working and living conditions and an alarmingly high incidence of injuries.

To make matters worse, many governments do not have a coherent legislative and policy framework for prevention. Self-regulation in construction is increasingly widespread, 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 principal causes of fatal injuries in construction are described below. Although this is not an exhaustive list, these are all priority hazards for prevention. Deaths from these causes can and should be avoided by the use of collective prevention measures.

Any of the circumstances described below can be a recipe for disaster. However, the lack of collective prevention measures is particularly dangerous when combined with work **organisation factors**. That is the management failures which characterise the industry: spectacularly poor housekeeping; chaotic working conditions; lack of planning and coordination; lack of training and supervision, and the intense productivity and time pressure.

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:

Scaffolding falls

□ *Inadequate, improvised scaffolding with no proper access or no guard rails to prevent falls. Often scaffolding is erected by unqualified operatives, and thereafter the lives of everyone who works from the scaffold are endangered. Scaffolding is often improvised using inappropriate materials.*

Common, fundamental scaffolding problems are:

- the base is not stable,*
- materials used to construct the scaffold are defective or unsuitable*
- it has no guard rails or has guarding that creates a false sense of security,*
- has no proper access, so workers are obliged to perform acrobatics*
- has only single, or insufficient, boards and is full of traps, resulting in more balancing acts for the workers*
- it is not properly tied in to the building.*

The overloading of scaffolding for storage of materials is often the straw that breaks the camel's back and leads to the collapse of the scaffold. All of these factors can and do kill. It seems almost ridiculous to mention the absence of toe boards, netting, fall arrest systems and other more sophisticated equipment.

Other causes of falls

- Unprotected openings, stairwells and shafts inside buildings , (for lifts, heating, air conditioning, ventilation)*
 - No edge protection in roof work to prevent falls, or falling through fragile roofs (particularly asbestos cement roofs) due to lack of crawling boards.*
 - Demolition work*
 - Inappropriate use of ladders*
- Inappropriate use of hoists*

Fatal Crush injuries and being struck by falling objects

- Excavations which are not shored up (or at least sloped) may be unstable and collapse, particularly after rainfall, crushing, burying and asphyxiating the workers trapped below the heavy soil.*
- Vehicles operating too close to the edge, where there are no stop blocks, may also cause a cave in.*
- Walls collapse when excavations undermine them.*
- Buildings collapse when supporting structures are injudiciously altered*
- Falling objects, materials or tools can strike and kill workers. Hard hats can save lives or reduce injuries in many circumstances. The causes are lack of toe boards on scaffolding, lack of tool belts for workers, bad storage and stacking, and poor housekeeping.*
- Improper use of hoists and cranes.*
- Being struck or crushed by vehicles, due to poor organisation and signalling.*
- Overtuned dumper trucks, due to overloading, or where gradients are too steep, or approaching too close to excavations.*
- Machinery crushing or trapping workers, resulting in fatal injuries.*
- Electrocutions**
- Cable strikes*
- contact with or arcing from overhead cables*

Building Ill health, 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 recognised 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 know and can be prevented or controlled.

Improvements can be made by substitution of hazardous materials for safer ones; by the introduction of safe working methods; by the use of good PPE; through information, training and workers participation.

Access to Occupational Health Services and health surveillance is extremely scarce in developing countries. In the informal economy, building workers are excluded from social security and health schemes.

Trade unions are working to promote recognition and compensation of occupational ill health. Below, some of the most common health hazards are discussed.

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 that leads to lack of sensitivity in the fingers called Raynauds Syndrome. This condition is particularly due to the use of pneumatic tools. Whole body vibration caused by operating heavy machinery and vehicles, and can cause damage to the spine.

Back injuries 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 task and productivity demands, and long hours. Lower back injuries, sciatica, hernias and slipped discs can put people out of the labour market for good.

Other Musculo skeletal disorders, 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 work is really labour intensive, there is little mechanisation and tools are rudimentary, recycled and improvised. Typical injuries include:

Bursitis, from kneeling, for example floor laying.

Tenosinovitis is the inflammation of the tendon sheaths due to overuse and repetitive and forceful movements. (eg plasterers, painters, carpenters)

Tendonitis, inflammation of the tendons, especially in the shoulder, is common. Working with the arms reaching above shoulder level is a typical cause of this problem. (eg plasterers, carpenters, painters). Neck problems are also widespread in these occupations.

Epicondylitis, more commonly known as tennis elbow, caused by the impact absorbed when making repeated blows. Arguably, carpenters elbow, or stonemasons elbow might be a more appropriate name for this condition.

Hazardous substances also have a serious impact on building workers health. These may come in the form of liquids, gases, vapours, fumes or dusts. They are contained in a variety of commonly used products and materials in construction. The main exposure route is through inhaling them, but substances such as solvents can also be absorbed through the skin. There may even be some additional exposure from ingestion due to poor hygiene and welfare facilities on site.

Very often, workers are not aware of what chemicals are contained in the products they use, and are not told about the health hazards and how to avoid them. **Renal, hepatic, cardiovascular problems and central nervous system disorders** can result from exposure to hazardous chemicals, such as pesticides and solvents. **Respiratory illness,** bronchitis, asthma, fibrosis and cancer may also be caused by exposure to certain materials on site. Commonly used hazardous substances are:

Vapours and fumes

Solvents of many different kinds are used in paints, varnishes, lacquers or adhesives, sometimes several are used in a single product. They can cause central nervous system damage and can harm the skin, liver, kidneys and cardio vascular system and some increase the likelihood of cancer. Painters, for example, have a higher risk of lung cancer. In recent years in the Scandinavian countries 'painters syndrome' has been recognised as an occupational disease. This refers to brain damage caused by solvents affecting the central nervous system. Solvents can also cause reproductive problems. They can reduce fertility, they can cause congenital birth defects, and they can readily cross the placenta and affect the health of the foetus causing malformations or miscarriage.

Isocyanates such as TDI and MDI. Used in two pack polyurethane paints and varnishes, bonding agents and resins, paints. These can cause asthma, dermatitis and, in the long term, are associated with cancer and reproductive hazards.

Pesticides, such as insecticides or fungicides. Pesticides are poisons. They are used in timber treatments to protect them from insect infestation or from the elements. Commonly used and dangerous ones are: Lindane, TBTO (tri-butyl tin oxide), PCP (penta-chloro phenol), or CCA compounds (copper, chrome, arsenic). Chemical treatments for damp courses and fire retardants can also be hazardous. Pesticides can also present serious reproductive hazards.

Welding fumes, welding can generate a cocktail of metal fumes of all kinds, depending on what is being welded - painted metals, brass, copper, steel, coated rods, alloys, and so on. Fumes (such as chromium oxide, zinc oxide, or lead to give a few examples) 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 dust is bad for your health. There are higher death rates from respiratory disease, lung and stomach cancers in dusty trades. Dust affects all sites and all trades, but is especially problematic in plastering, demolition, excavations, tunnelling and in certain tasks, such as cutting concrete blocks. Low cost solutions 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 Equipment needs to be selected carefully as different types give widely varying standards of protection. Unfortunately, what is normally given out as PPE is a "dust mask" made of paper or cloth, rather than filtering respirator masks.

Cement dust. can cause serious respiratory problems over time, such as pneumoconiosis (lung scarring). Cutting concrete blocks can generate huge clouds of silica-containing dust. Plasterers have a high rate of lung cancers because of the dust they inhale. Cement contains lots of chemicals, some of which cause skin problems: lime (calcium oxide), which can cause

burns from wet concrete and mortars. These burns can be severe enough to need skin grafts. Chromates, which cause dermatitis from contact with cement in both wet and dry states. This is a very widespread problem. Irritant, or contact, dermatitis is direct damage caused by contact with the skin. Allergic dermatitis is caused by sensitivity to the chromate impurities in cement and can be severe. Once a person is sensitised it is almost impossible to get rid of the allergic reaction.

Silica Breathing in silica can cause silicosis. This means irreversible scarring of the lungs, causing shortness of breath and premature death. Jobs such as stone masonry; sand blasting for cleaning and façade renovation; concrete cutting or drilling; tunnelling and many demolition jobs. Using power tools to cut stone will lead to high exposures.

Wood dust causes respiratory system problems, irritation and allergies, asthma, rhinitis. Some types of wood dust and oils can cause nasal cancer, particularly certain hard woods. Sawdust needs to be controlled.

Medium Density Fibre boards, chip board and plywood, contain glues and urea formaldehyde, and dust from working these materials can cause irritation.

Asbestos should be banned. Safe substitutes exist for all its applications and there is no justification whatsoever for its continued use. Asbestos causes fatal diseases - asbestosis, mesothelioma and cancer of the lung and digestive system. The use of asbestos in building and insulation materials has been widespread for many years. Millions of buildings all over the world contain asbestos, and workers carrying out maintenance, repairs, renovation or demolition work are often exposed without even being aware of it.

Manufactured Mineral Fibres. Certain types of MMFs which are used as substitutes for asbestos mimic its properties so closely that they can also cause fibrosis and lung cancer.

Welfare and biological hazards. Living and working conditions of building workers are poor in developing countries. Many workers live in slums and barely make enough money to feed themselves and their families, so nutrition is poor. Often there is no access to clean drinking water. On many sites, the accommodation offered in the bunk houses is dirty, overcrowded and infested with rats. **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

HIV AIDS. Migration, including rural -urban migration, to seek work in large construction projects means being away from home and family for long periods. This places construction workers at risk.

Work organisation and Stress. Caused by the hazardous and constantly changing working environment. Noise, dirt, dust, chemicals, work at heights, confined spaces, heavy work, and lack of information and training all contribute. Particularly acute is the fear of accidents, most notably fear of falling. Bullying and pressure is commonplace, and generally the worker, particularly labourers, will have little or no control over how the work is to be done.

Strong Unions = Safe Jobs

Low trade union density is a key factor in explaining the poor safety standards in the construction industry. The BWI Global Programme on Safety Health and Environment has the slogan Strong Unions for Safe Jobs. Funded by the Swedish 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 popularise health and safety as a recruitment and organising tool, and to assist unions to improve their structure, policy and organising strategy in this important area of trade union activity. Encouraging results are being obtained by many of our affiliated trade unions in the following areas:

- Trade Union Structures improved to mainstream Safety, Health and Environment into the union's 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 organising 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, prioritising hazards, and negotiating for improvements.

Global Campaigns are an important tool for the BWI 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.

- 28th of April, International Worker's Memorial Day. Workplace, community and media activities are organised to highlight the preventable nature of injuries and ill health at work.
- Banning asbestos and applying ILO Convention 162 on work with in situ asbestos in buildings. C162 contains important rights and prevention measures.
- ILO Convention 167 on Safety and Health in Construction (1988).
- *C167 has so far been ratified by only 15 countries, although many countries have similar or better legislation on the statute books. 167 covers the main health and safety problems and prevention measures to be taken. Principal points for organising prevention are:*
 - *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 -*
 - *an inspection service and penalty measures*
 - *and*
 - *workers have the right to remove themselves from imminent and serious danger.*

The right to refuse dangerous work

The right to refuse to carry out a dangerous task without fear of victimisation is very far from being a reality for most workers. Whilst there is low trade union density in the sector and informal employment, unorganised workers regularly face a choice between doing a dirty and dangerous job or having no job at all. This basic human right is a test of democracy and dignity in the workplace.

□ **Collective Bargaining**

Legislation varies from country to country. Collective Bargaining Agreements should always include points on Safety, Health and Environment, and should guarantee standards that go further than the existing legislative minimum. should include Health and Safety in Collective Bargaining Agreements, particularly with regard to the establishment of joint management -trade union Health and Safety Committees; workers' participation in the prevention of injuries and ill health; and

- For example:
- Recognition of trade unions for collective bargaining and workers participation in prevention on site.
- Rights for Trade Union Health and Safety Representatives to participate in prevention
- Time off for training, plus induction training, and toolbox meetings during work time. Joint Health and Safety Committees
- Written Health and Safety Policies,
- Health and Safety Management Systems that include workers participation at all levels
- Systems for reporting and resolving hazards, including the right for workers to refuse to carry out a task which poses a serious risk for their health or safety, without fear of victimisation or dismissal.

Training

Training is a cornerstone of the BWI support and development work with affiliated unions. Flexible training materials have been developed on health and safety, and are being used with trade union leadership, education officers, women's officers, trade union organisers, workplace representatives and workers.

Trade Union Safety representatives

There is generally low trade union density in construction due to informal contractual arrangements in the sector. However, all workers have rights, and trained Trade Union Safety Representatives make a positive contribution to the prevention of injuries and ill health. A recent survey by the British Trade Union Congress indicates that workplaces with Trade Union H&S 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.

Their legal or agreed functions typically include:

- Participation in the Health and Safety Committee
- Inspections, surveys, documentation, reports and recommendations
- promotion of safe systems of work
- investigation of accidents and ill health
- Information, training and communication with workers on health hazards and the risks of accidents, and the prevention measures to be taken, including basic induction training for new workers on site.
- Representation of workers interests, including upholding the right to refuse dangerous work without victimisation

Regional Safety Representatives (RSRs)

Informal workers in construction are widely dispersed in small companies.

The use of casual and temporary labour, subcontracting and the so-called self employed, creates an increasingly complex working environment where unions represent workers across multiple employers. Unions find it difficult to identify, train and retain trade union safety representatives given the mobile and temporary nature of the work in our industry. Workers are often reluctant to take on a union position because they fear that they are risking their jobs.

Imaginative structures need to be considered to ensure that workers have similar rights to

representation as in workplaces with a higher level of union membership. Unions at branch or regional level should be able to provide an appropriate union representative to support all members of that union wherever and for whomever they work.

THE BWI SAYS : STRONG UNIONS = SAFE JOBS !!!