



HEALTH & SAFETY

NATIONAL REPORTS

of

TURKEY, POLAND, UK and PORTUGAL

SHANIME

Leonardo da Vinci
Transfer of Innovation Project

**Preventing Accidents in Construction –
Health and Safety Multimedia Animated
Learning**

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NATIONAL REPORT OF TURKEY

INTRODUCTION

Rapid technological advances in human well-being while serving on one hand, on the other hand, has brought dangers to human life and the environment. Processes of industrialization and mass production are in the forefront, especially the past 20 centuries, intensive mechanization and the production process in the hundreds of work-related accidents and occupational diseases caused by chemical substances will be remembered as a century of intense.

A healthy working environment and peace around the business is prerequisite for rapid and healthy development. Because the results of occupational accidents and diseases as well as threatened human life and health businesses are condemned to heavy bills.

According to ILO (International Labour Organisation) every year 1.2 million men and women die annually due to occupational accidents and diseases. According to the same sources, each year 250 million people in work accidents and occupational diseases are exposed to hazards.

Turkish Focal Point of the European Agency for Safety and Health

Turkish Focal Point of the European Agency for Safety and Health at Work in Turkey is within the working area of the Ministry of Labour and Social Security. There are four main actors taking place in Occupational Health and Safety System in Turkey and they are working on issues related with OHS within the Ministry.

- Directorate General of OHS, the Focal Point of Agency Network, works on legislation, policy making, authorisation of individuals, institutions and organizations serving in OHS field, raising awareness and information activities, national and international cooperation and coordination of National OHS network in Turkey. Occupational Health and Safety Centre (ISGUM), affiliated body of DGOHS, works on measurements at workplaces and setting measurement standards.
- Labour Inspectorate Board inspects the compliance with OHS regulations at workplaces.
- Training and Research Centre for Labour and Social Security (ÇASGEM), organise the training for professionals and other related target groups for OHS besides the other trainings related to labour life.
- Social Security Institution (SGK), collects and analyses data about labour life, provides occupational statistics and compensation in case of occupational diseases and accidents.

HEALTH & SAFETY and SECURITY CONCEPT IN BUSINESS :

In order to avoid work accidents and the losses, security measures must be implemented based on scientific research studies in line with a brief "job security" term. In general, the concept of job security is the protection of the people, employees, business and production, transportation of all kinds of danger and damages.

The construction industry has undergone significant changes in the last century, with the developing technology. Developments in technology also led to a multiplicity of materials used in the construction industry such as thermal insulation is made, earthquake, wind, began to be built for far more resistant to storms.

Construction sector is the most work-related accidents in our country TURKEY and according to statistics from the Social Security Administration, it is observed that the number of accidents is quite high.

PROTECTIVE EQUIPMENTS AT THE CONSTRUCTION SITES

The use of personal protective equipment as well as other sectors in the construction industry is very important to prevent accidents and diseases. Cause of some deaths and serious injuries in the construction sector is the falling objects crashing to the head. These types of protective equipment for accidents at the construction sites are the helmets and hoods and they must be used at the sites.

Workers in the construction sector must be careful to glues, adhesives, asphalt, tar and chemicals such as solvents, and asbestos-containing silica and sand, dust at the site. With respect to these breathing dangers, masks and respirators must be used as the protecting apparatus. At the same time, in order to avoid these dangers, measurements of the air must be done at these sites.

Noise is really important with the increasing number of machines used in the construction sector and it has started to cause destruction. In particular machines used during demolition of buildings, cranes, graders and buckets, not only for workers using machines in the environment but leads to hearing problems for workers and other people also. For this reason, the ear plugs and ear protection devices should be used. Noise measurements must be done and the precautions specified in the regulations must be taken at the sites.

Construction environment can be cold, hot, dry and humid. For these reasons, the workers should use suitable protective clothing. Non-ionizing ultraviolet radiation during welding operations (UV radiation) protective goggles to protect eyes, masks and shields should be used.

Construction at high levels need to take precaution while working and the seat belts must be used for working at height.

OCCUPATIONAL HEALTH AND SAFETY TRAINING

Occupational safety training and training of the workers about potential accidents, include a very important place in the process of building the training. Occupational safety training programs, by offering workers the opportunity to predict the accident risks and hazards, aims to prevent work-related accidents. Recent studies showed that, work-related accidents, and that contrary to popular belief on the experience of the workers in the sector experienced a large extent of accidents at work. But the same studies showed that, inexperienced workers were exposed to an accident than experienced workers reveal (Heberle, 1998; Chan et al., 2008; Reese, and Eidson, 2006). Therefore, at the construction companies, the training of inexperienced workers, job security is needed in addition to reserves of experienced workers.

U.S. Occupational Safety and Health Administration (OSHA), in terms of job security regulations and guidelines developed various educational programs. According to these regulations and rules, the adequacy of resources and equipment are necessary elements of occupational safety training curriculum. In other words, job security, training, adequate resources, support and equipment must be experienced. In addition, the training program must be conducted entirely under the supervision of an experienced training manager. (OSHA, 2011).

Occupational safety training in general consists of several stages. General information from the entry to restricted areas, pier, fire monitoring, training for emergency procedures includes such sub-branches. Job security begins to increase efficiency of education and education is spreading to larger areas. Monitoring the effectiveness of the techniques learned in this way facilitates the education of occupational safety (Huang and Hinze, 2006). For this reason, which is in a close relationship with OSHA safety training regulations are largely to prevent the nature of work accidents.

Chemical risks to workers, confined spaces, electrical safety, machine use, seat belts, disaster management, working under difficult conditions, machine safety, safety management, port security, failures and collapses are trained on the use of the material in the workplace. Occupational safety training, having an experienced staff, audio conferences, behavioral modification, monitoring, feedback, progress of tracking, motivation and encouragement, planning, training the tests make the training successful and meantime the computer plays an important role in the presentations and web-based training (BLR, 2007).

Occupational safety training, the reduction of occupational accidents and holds an important place in the increase of job security. Therefore, reduction and prevention of occupational accidents are supplied by the occupational safety trainings.

Studies in the past years, much more work to examine the performance of safety management and safety at work has been done at the companies (Hinze, 1998). Important studies in this area can be found today also. In 2004, because of the lack of awareness of job security, lack of training, inactive labor force,

inadequate equipment, low level of education, job security workers have investigated the effects of occupational safety rules.

Motivation is the main point-the cornerstone of learning effectively. Careful training curriculum should be established and what the content should be prepared to be very difficult nor too easy. To avoid tedious and incomprehensible that the intensity of training curriculum is determined according to job performance. At the end of the training question / answer process to begin to clarify the misconceptions in the process. In addition, the learning curve should be established at the end of training in terms of monitoring performance. Training should be done by the person and an overall assessment of education should be ascertained about the missing points (Furnham, 2005).

At the organisations, Occupational Health and Safety training issues in Turkey in general covers the following topics;

- Basic Occupational Health and Safety Training
- Risk Assessment Training
- Accident Investigation and Root Cause Analysis
- Fire Training
- Emergency Planning Training
- General Principles of Occupational Health and Safety Practices,
- OHS in Business Organization,
- After Accident Resulting in criminal and legal responsibilities,
- Analysis of causes and consequences of Occupational Accidents,
- OHS in the State, Labor, Duties and Responsibilities of Employers
- Ways of Occupational Disease and Prevention
- Operating Environment Thermal Comfort Conditions
- Fire and Protection Paths in Industrial Facilities
- Electrical Accidents and Prevention Measures in Workplaces
- Business equipment Safety Precautions
- Materials Handling and Storage Works Safety Precautions
- Cost of Occupational Accidents and Diseases
- Personal Protective Equipment
- Ergonomics in Working Life
- Investigation of Accidents
- Biological Factors Work Accidents
- Physical Factors in work accidents
- Work Places and the Prevention of Electrical Accidents

Fundamental Safety Training

Training Objectives: Employees in accordance with Article "Occupational Health and Safety" issues informing occupational risks, and more secure work in this area to minimize the risks.

Risk Analysis Training

Purpose of education: Occupational Health and Safety system and "Risk and Risk Assessment" in the organization to educate workers and managers about the basic concepts and methods of application.

Legal Responsibilities of Workers

Training Objectives: The Law brought with its rights and responsibilities of employees to inform about the framework of the regulations issued.

Health & Safety Committee Training

Purpose of Education: Occupational health and safety committees effective and systematic execution of a work by creating sub-structure and intended to contribute to the reduction of occupational accidents and diseases.

Working at High Elevation Training

Purpose of Education: Participants will gain knowledge and skills to provide safe working conditions at higher elevations.

Scaffolding Training

Training Objectives: The installation of the piers, the piers in order to avoid accidents resulting from inadequate control of the installation requirements, the control elements and safe working methods are aimed.

Work Accident and Occupational Disease Prevention

Educational Objectives: the prevention or adequate reduction of risks in the workplace, based on the collective protection of technical measures and work methods, work organization or work accidents and occupational diseases that occur.

Personal Protective Equipment Training

Educational Objectives: The Personal Protective Equipment application must be applied at all workplaces with the ability and right to give any information about the properties of the material intended to contribute to protect the health of employees.

Emergency and Crisis Management

Educational Objectives: The employees will take part in the process of preparation for emergency situations, managerial and operational functions in an emergency situation and emergency preparedness will acquire the knowledge and skills.

Preparation of the explosion protection document

Educational Objectives: Published in Official Gazette dated 26/12/2003, Risks in Explosive Atmospheres Regulations on the Protection of Employees in the workplace in accordance with the possibility of the formation of explosive atmosphere, "explosion protection document".

OHSAS 18001 Standards Training

Educational Objectives: The disclosure requirements of OHSAS 18001 Occupational Health and Safety Management System and the introduction of this system with practical examples regarding the conduct and interpretation of the standard conditions.

ISO 14001 Standard Training

Educational Objectives: The disclosure requirements of ISO 14001 Environmental Management System and the introduction of this system with practical examples regarding the conduct and interpretation of the standard conditions.

Fire Prevention and Fire Fighting

Educational Objectives: The general information about fire, fire hazard sources, their impact on human health, fire and evacuation procedures by transferring to develop a sensitivity and the correct behaviour to fire.

Electrical Safety Training Works

Purpose of Education: Electrical work studies and measures are taken to prevent accidents resulting from carelessness requirements for electrical studies, control elements and safe working methods are aimed.

Waste Management and Environmental Legislation Training Content

Education Purpose: Ensure the establishment of production cost and resource use in a good way and balances the prevention of waste to be determined in accordance with the requirements of audit units they want. After the training, participants will acquire the necessary information about waste management.

Behaviour Based Safety Training

Purpose of Education: Behaviour Based Safety Management approach, principles, methods and tools using the application, reducing the risk of accidents caused by behaviors; Increasing the percentage of safe behavior, and "Safe Behavior Culture" necessary to strengthen the knowledge, skills, and gain a positive attitude.

Accident Investigation / Root Cause Analysis Training

"Accident Analysis" or "Accident Investigation" training is also known by the so-called names. **Purpose of Education:** Education, through an accident analysis, accident reporting and analysis in order to avoid this accident from happening again, like how to organize the most effective way to learn what is necessary to do.

Off and Hazardous Areas of Work Security :

The purpose of education: death, poisoning, fire, explosion-risk areas such as health and safety in terms of the research done that need to be transferred to the security criteria.

The Observer Training

Behavior during field applications to be done under the security management focused on a rotating basis on behalf of colleagues "observer" to assume the role of observation and feedback to employees to gain knowledge and skills.

Employees work within the regulations specified by legal regulations and controls, and hazard and risk control employees make statements to determine the near and far term, the risks and hazards and work to be done to eliminate. To increase the comfort of an ergonomic working to improve the work efficiency of employees and physical measurement activities for the improvement of working conditions.

Occupational Safety Communications

Within the organization to ensure the sustained success of occupational safety, as well as communication skills, including empathic understanding of the development of this program, to recognize the factors impeding the communication, adopt different ways to reduce communication addressing the problems. This is to bring about a systematic approach to individuals, relationships, control, communication skills, aims are to give health.

Lifting Equipment Training

Working the fields of fatal accidents and injuries all over the world are still the biggest problem in working life. High-risk equipment to ensure safety of employees, but may be able to control equipment periodically. Performs the functions of the equipment is properly checked at regular intervals, eliminated non-conformances detected as soon as possible. In this way, for the workers the risk can be minimized.

Control of Lifting Equipment:

Control of lifting equipment, cranes, forklifts, elevators, equipment operating under load, such as the hook. Controls, lifting equipment and auxiliary equipment of performing the job safely, the equipment fulfills the requirements of the test checks and the reports identifies deficiencies or hazardous conditions.

Risk Disclosure - Hazard Hunt

Training Objectives: At the site, in terms of occupational health and safety hazard, hunting & resources to determine the dangerous situations. Notifications of the risks of these hazards, risk reduction process is to provide an effective roadmap.

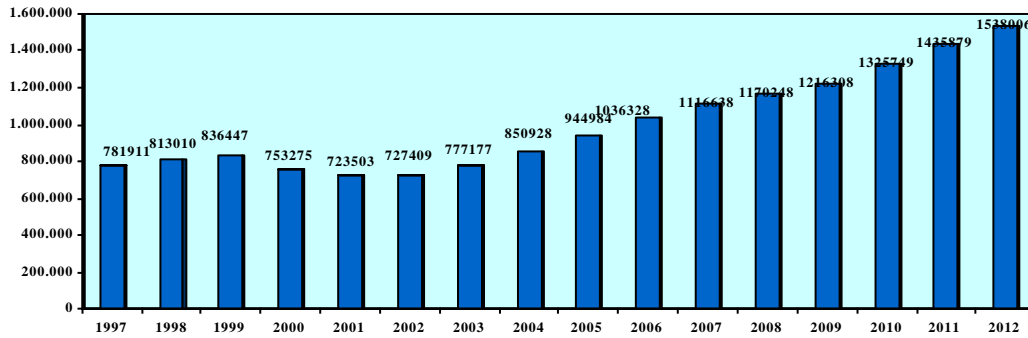
Under Stress Study (Stop, Fault, Accident)

Time pressure, human relations, the negative way of thinking, mood, work interruption, posture and work accident in business failure in the face of a person's life force and the tension that creates a sense of control and the major sources of stress.

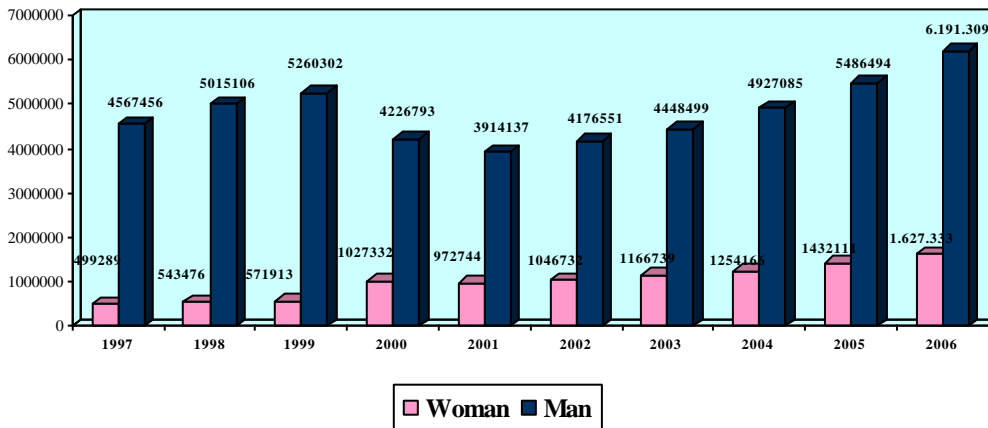
Hazard Awareness Training

Training Objectives: Employees who are aware of the dangers and possible consequences, they are significant hazards and ways to deal with, work safety and health are among the topics of this training of the human factor. Developed for the prevention of accidents by increasing employees' knowledge and awareness.

SOCIAL SECURITY STATISTICS

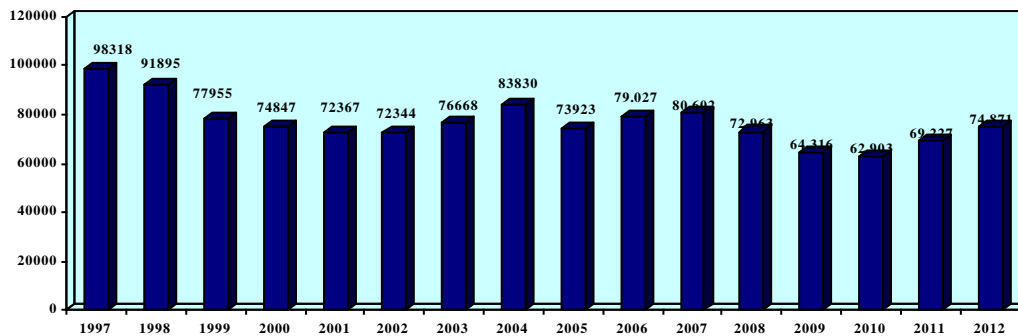


Number of Workplace

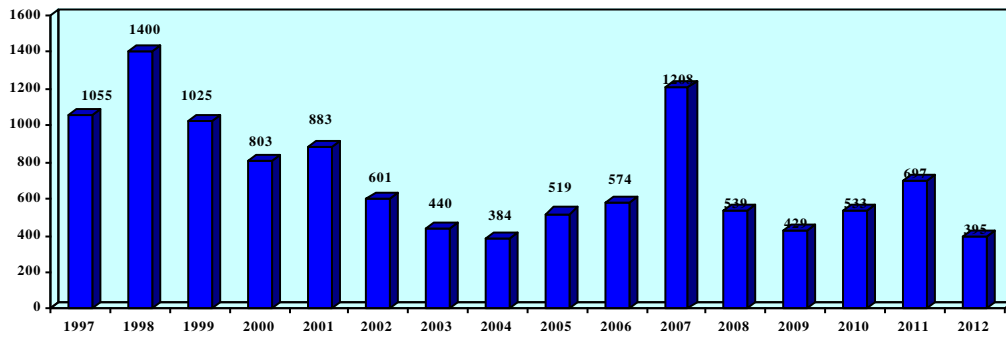


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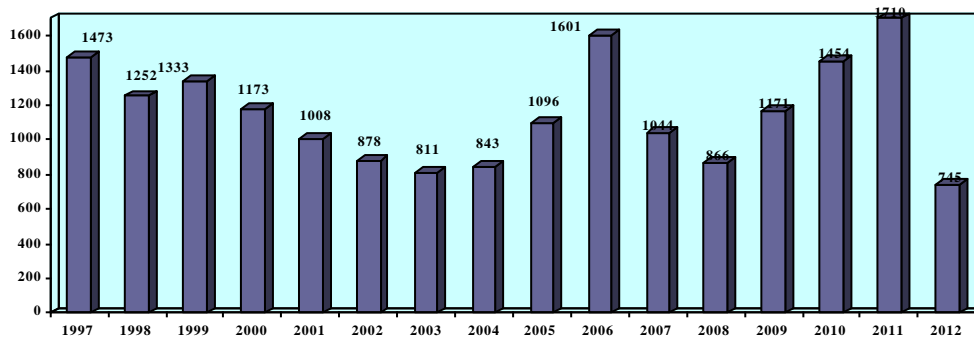
Number of workers



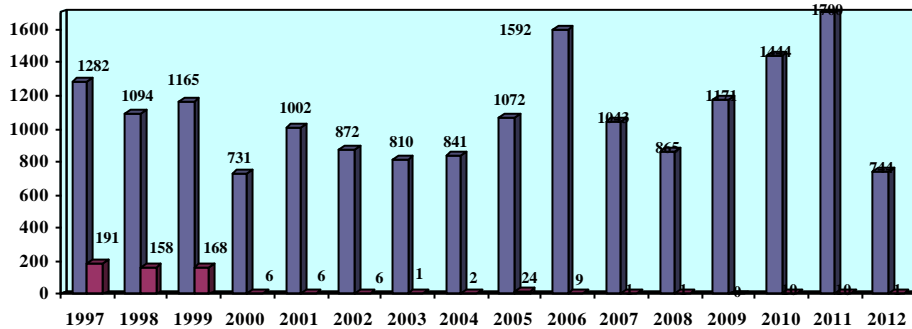
Number of Accidents



Number of Occupational Diseases

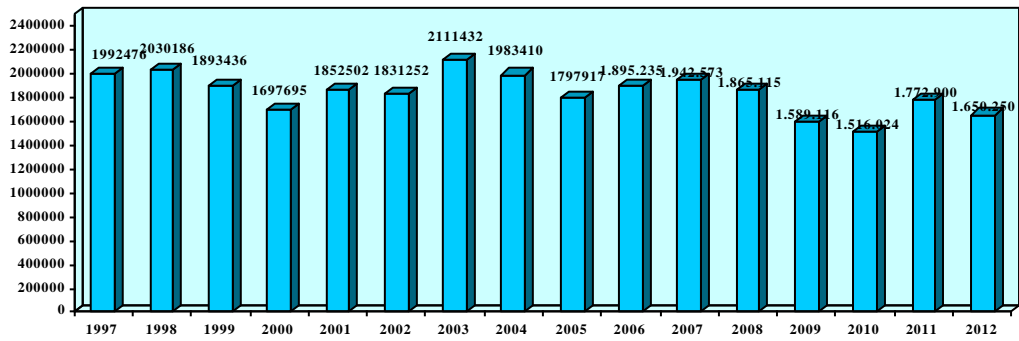


Number of deaths caused by Work Accident and Occupational Diseases

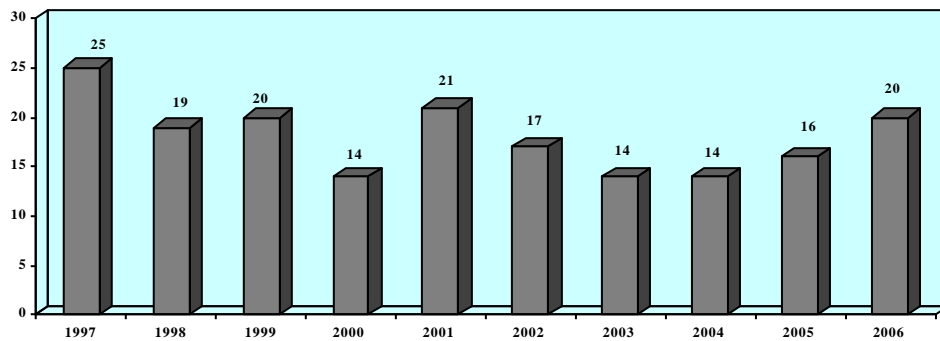


■ Work Accident ■ Profession. Hospital. result

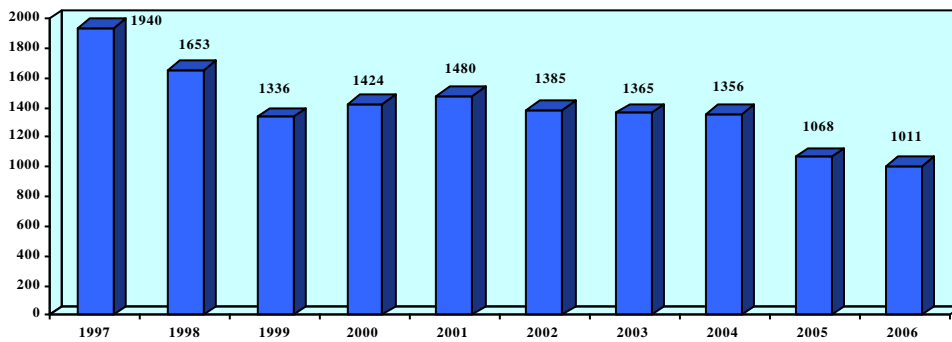
Distribution of deaths by cause of death



Number of Business Days lost due to work accidents and occupational diseases



Work Accident Death Rates (100,000 workers)



Accident Frequency Rate (100,000 workers)

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NATIONAL REPORT OF POLAND

Accidents at work in years 2008 – 2010

Introduction

The building industry is worldwide a sector characterised by a very high level of professional risk. According to the data provided by the National Work Inspection (PIP), which in Poland is an institution in charge of supervision over observance of the Labour Code by the employers and the employees, the building workers performing shell and finishing works in Poland are a professional group most frequently injured during accidents at work in terms of all the accidents as well as the fatal ones. Almost one of five fatally injured as a result of an accident at work in Poland is a building worker. In the discussed period over 50% victims of accidents at work in the building sites were employees working for the enterprise for a period shorter than one year. Rights and obligations concerning health and safety at work of persons employed in the building industry are defined in the Labour Code of June 26th, 1974 (with later amendments) and the Building Law.

The statistics of accidents in the building industry in Poland – compared to other industries

In 2010, during the performed audit, work inspectors of the National Work Inspection (PIP) analysed circumstances and causes of 657 accidents at work (including 56 mass accidents), which arose in this period **in the building industry**. In this accidents 764 were injured (including: 169 fatally, 220 suffered severe body injuries, and 163 were injured during mass accidents).

Place, where the accidents arise most often, are building sites of new objects, renovated objects and destroyed and renovated objects (73.2% of all the accidents in the building industry). The accidents mostly involved: falls from heights to a lower level, e.g. from roof, terraces, windows, scaffoldings, working platforms, ladders, etc. (37.3% of accidents) and strike of the injured by falling objects, e.g. structural elements of buildings, machines and devices, tools, articles, materials, etc. (10.5%). The most accidents still arise during extraction and ground works as well as during building works – 58.5% of all the examined persons injured in the accidents in the building industry (including: construction of new buildings – 22.6%).

The highest number of persons injured was among building workers, bricklayers, carpenters and roofers. The persons injured in the accidents mostly worked in buildings, structures and their elements, spaces – over the ground level (it were mainly roofs, terraces, doors and windows, stairs, platforms, catwalks, scaffoldings, ladders and man baskets) – 30.6% of the overall number of the injured in the building industry. The event, which most frequently caused an injury to the injured persons, was collision with/crash into an unmovable object (mainly vertical collision with/crash to unmovable object) – 46.6% of all the injured.

The building industry by date the accident arouse (2008-2010)

Number of persons fatally and severely injured in the building industry in years 2008-2010, and examined by the PIP			
Number of injured persons (by effect of the accident)	2010	2009	2008
including: death	169	170	176
including: severe personal injury	220	261	281
TOTAL	764	761	778

Analysing number of accidents in the whole national industry in years 2008-2010, the highest number of accident was recorded in the industrial processing: 672 accidents in 2010, which is 30.77% of the overall number of accidents in the industry. The building industry in this period recorded 638 accidents, which is 29.21% of the overall number of accidents, commerce - 224 accidents – 10.26%, transport and storage - 143 accidents - 6.55%, mining and extraction industries - 63 accidents, that is 2.88% of the overall number of accidents in Poland. In the appendix No. 1 the analysis of accidents at work in the building industry in 2010 has been shown graphically.

National strategy and system of training

Employees' insufficient knowledge of health and safety rules at work is major cause of events leading to accidents. Hence the grassroots work is very important and absolutely necessary. Initial and regular training for employees from any group is a fundamental obligation of employer and core element of preventing accidents. According to section X, division VIII, Art. 237 with sign 3, paragraph 2 of the Labour Code, the employer is bound to provide to his employee a training concerning health and safety at work before admitting him to work and to conduct regular training in this scope. Next element of the strategy directly related to employees is appropriate professional risk assessment drawn up for all working posts. This assessment constitutes a comparison of risk level, which has been determined by evaluation, with level, which is considered acceptable. Art. 226 of the Labour Code imposes on the employer an obligation to make the risk assessment and to inform the employee about the related risk

during entering into agreement with the employee. Next mandatory element of the work safety strategy on the building site is a Safety and Health Protection Plan (BIOZ). The responsibility to draw up this plan has been legally defined in Art. 21a of the Building Law of July 7th, 1994. This regulation defines elements constituting this plan.

Main causes of accidents at work are:

- inappropriate general organisation of works and improper organisation of the working post – 43.3% of the overall causes
- incorrect behaviour of the employee – 21%
- improper condition of the material factor (mainly structural defects or inappropriate technical and ergonomic solution of this factor) – 12.7%.

Source: data provided by the National Work Inspection (PIP)



NATIONAL REPORT OF UK

Health and Safety in the UK

Introduction

The construction industry is one of the largest in the United Kingdom with employment over 2 million people and from its nature remains as one of the most hazardous. Construction is one of the biggest challenges from health and safety point of view.

The industry has achieved many improvements in health and safety over the past few years; however, there still a lot needs to be done for improvement. The challenge for industry is clear, and will need a lot of efforts to continue to play its part in achieving accidents reduction. Some members of the industry have already made steps forwards, what is noticeable on larger projects. Nevertheless, these improvements are needed on smaller sites where are still many cases of unacceptable standards.

Statistics¹

Preface²

In the UK Health and Safety Executive (HSE) now uses the SIC 2007 (Standard Industrial Classification) scheme to define industries, rather than the SIC 2003 scheme, which are used in previous years. The industry for RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) Change – 6 April 2012³) reports before April 2010 was coded using the older classification whilst the Labour Force Survey (LFS) was coded using SIC2003 prior to 2008/09. This data has been computer recoded to allow for comparisons over time. There may be errors as a result of this recoding.

The definition of construction is very similar in the two coding schemes except that, under SIC2007, it includes the development of building projects, which now accounts for about 4% of the construction workforce. This makes rates slightly lower as real estate involves a much lower risk – at least in terms of health and safety.

Between 2003/04 and 2006/07 some injuries were allocated to other industry groups, effectively reducing the numbers and rates of non-fatal injuries for construction. This means that numbers and rates

¹ www.hse.gov.uk/statistics/

² <http://www.hse.gov.uk/statistics/industry/construction/index.htm>

³ From **6 April 2012**, subject to Parliamentary approval, RIDDOR's over three day injury reporting requirement will change. From then the trigger point will increase from over three days' to over seven days' incapacitation (not counting the day on which the accident happened). Incapacitation means that the worker is absent or is unable to do work that they would reasonably be expected to do as part of their normal work. Employers and others with responsibilities under RIDDOR must still keep a record of all over three day injuries – if the employer has to keep an accident book, then this record will be enough. The deadline by which the over seven day injury must be reported will increase to 15 days from the day of the accident. New guidance that explains the change is available at HSE website: <http://www.hse.gov.uk/riddor/>

of injury for those years cannot be straightforwardly compared with numbers and rates for earlier or later years.

The LFS introduced a new automatic coding tool at the same time as the change to SIC2007. A more detailed explanation of the impact to the LFS can be found on the Office for National Statistics (ONS) website⁴, in the LFS User Guide – Volume 3. LFS rates of illness and injury for construction are of a similar order to those previously published under SIC2003.

Foreword

Construction accounted for 5% of the employees in Britain, 6% (27% fatalities, 9% major and 6% of over-3-day injuries) of reported injuries to employees.

The most common kinds of reported injuries to employees in all industries occur as a result of handling (31%), or slips and trips (27%). These also represent the most common kinds of reported injury within Construction. In 2010/11p, handling accounted for 28% of all reported injuries to employees, slips and trips accounted for 23%.

Construction accounted for 26% (247 cases) of all reported injuries to employees involving high falls, 29% of collapses (32), 25% (3) of drowning/asphyxiation, 16% (70) involving electricity and 16% (10) explosions. Taking all kinds of falls together it accounted for 12% (1 209) of all reported injuries from falls.

There have been significant reductions in the number and rate of injury over the last 20 years or more. Nevertheless, construction remains a high risk industry. Although it accounts for only about 5% of the employees in Britain it still accounts for 27% of fatal injuries to employees and 9% of reported major injuries.

2010/2011 Summary

In 2010/11 there were:

- 50 fatal injuries to workers. 18 of these fatalities were to the self-employed. This compares with an average of 61 over the previous five years – including an average of 19 to the self-employed (RIDDOR);
- the number of employees who were fatally injured has reduced by two-thirds compared with 20 years ago. This is roughly in line with the reduction in other industries (RIDDOR);
- reported non-fatal injuries have fallen by over a third and rates have fallen by a quarter since 2007/08 (RIDDOR);
- over 5 000 occupational cancer cases are estimated to arise each year as a result of past exposures in the construction sector (Cancer Burden Study, 2010);
- an estimated 36 000 new cases of work-related ill health with rates of musculoskeletal disorder significantly higher than average (LFS);
- about 2.3 million working days were lost (1.1 days per worker) due to self-reported work-related illness or workplace injury. Just over three quarters of this was due to health problems and only one quarter to injuries (LFS).

⁴ www.statistics.gov.uk

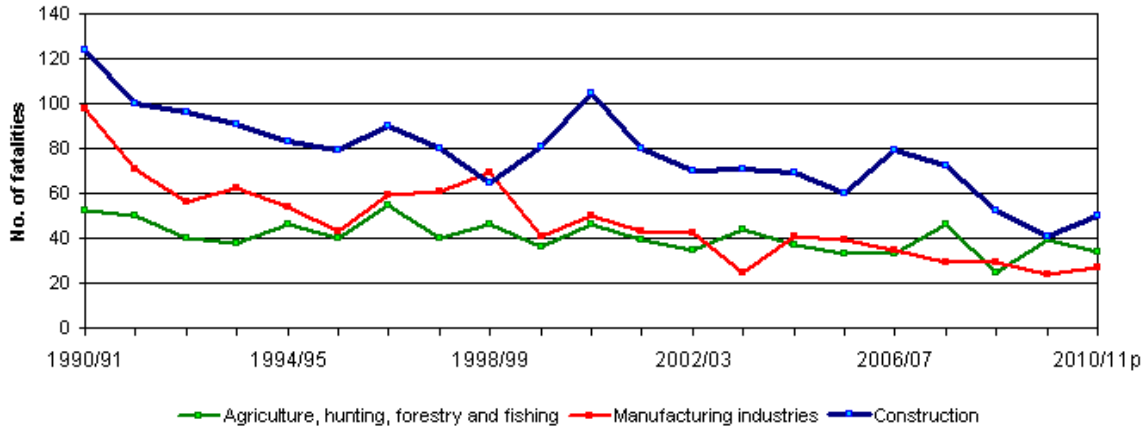


Figure 1. Twenty year trend in worker fatalities

Fatal injuries

There were 50 fatal injuries to workers in Construction in 2010/11p, 18 of these fatalities were to the self-employed. This compares with an average of 61 over the previous 5 years – including an average of 19 to the self-employed.

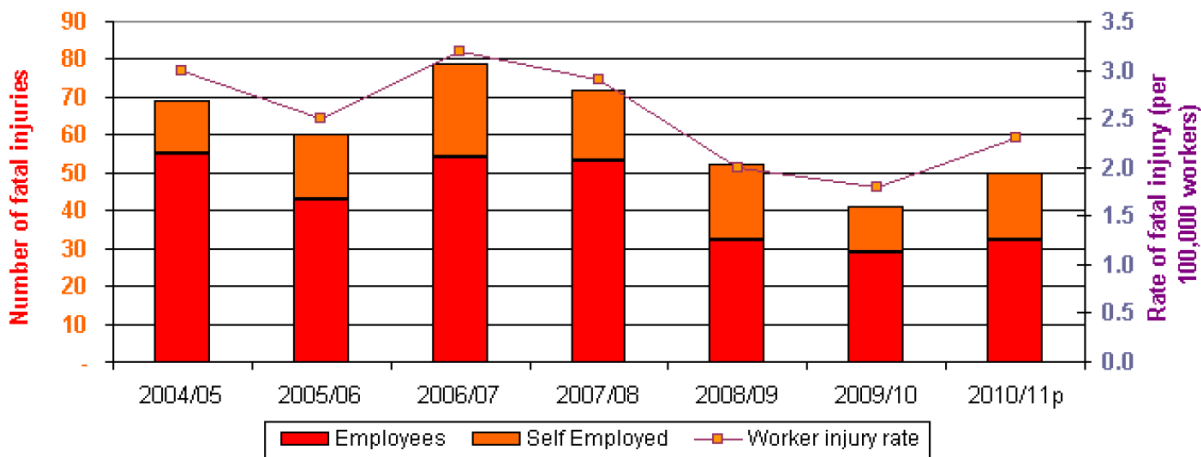
The rate of fatal injury per 100 000 construction workers was 2.3 in 2010/11p compared with a 5 year average of 2.5.

In 2010/11p, 29% of all fatal injuries to workers were in Construction and it accounts for the greatest number of fatal injuries of the industry sections.

The general trend in the number and rate of fatal injury from 2004/05 to 2010/11p is downwards, but it has been fairly static over the past 3 years.

The fatal injury rates quoted above are slightly lower than those provided in June because a different source for employment estimates (Annual Population Survey) has been used. This gives a higher estimate (8% for employees and 4% for all workers in 2010/11p)⁵.

The number of fatalities is the same as when calculated using the SIC2003 definition of construction, but the rate is slightly lower as construction, under SIC2007, includes development and selling of real estate.



⁵ For construction employment see www.hse.gov.uk/statistics/sources.htm#employment for further information

Figure 2. Number and rate of fatal injuries to workers 2004/05 to 2010/11p

Major injuries

There were 2 298 reported major injuries to employees in 2010/11p, compared to an average of 3 423 over the previous five years. The corresponding rates of major injury per 100 000 employees were 173.2 in 2010/11p and an average of 217.6.

There has been a general reduction in the rate of reported major injury since 2004/05. The number of reported injuries has also fallen (25% for rates and 38% for numbers) since 2007/08.

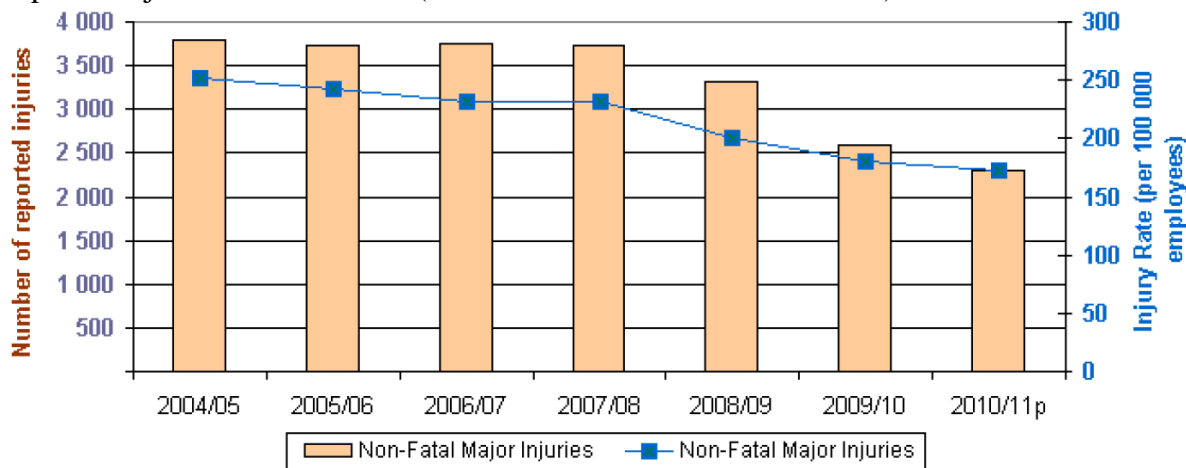


Figure 3. Number and rate of major injuries to employees, 2004/05 to 2010/11p

Over three day injuries

There were 4 784 reported over-3-day injuries to employees in 2010/11p, compared to an average of 6 990 over the previous five years. The corresponding rates of over three day injury per 100 000 employees were 360.5 in 2010/11p and an average of 444.5.

As with major injuries there has been a general reduction in the rate of reported over three day injuries since 2004/05. The number of reported injuries has also fallen (22% for rates and 36% for numbers) since 2007/08.

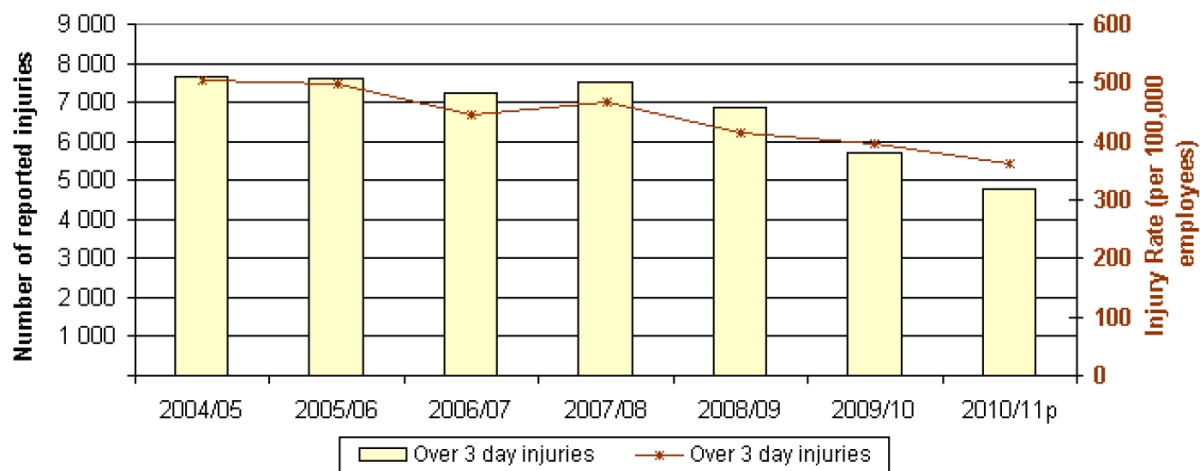


Figure 4. Number and rate of over-3-day injuries to employees, 2004/05 to 2010/11p

Reported injuries to members of the public

There were two fatal injuries to members of the public in 2010/11p compared to an average of five a year over the previous five years. One of these fatalities was to someone aged 16 or under.

The number of fatalities has fallen fairly steadily over the past five years but, statistically speaking, the numbers are small and considerable year-on-year variation can be expected.

Just over a quarter (27%) of fatal injuries to the public over the last five years were due to falls. Slips/trips and moving vehicles accounted for 18 and 14% respectively.

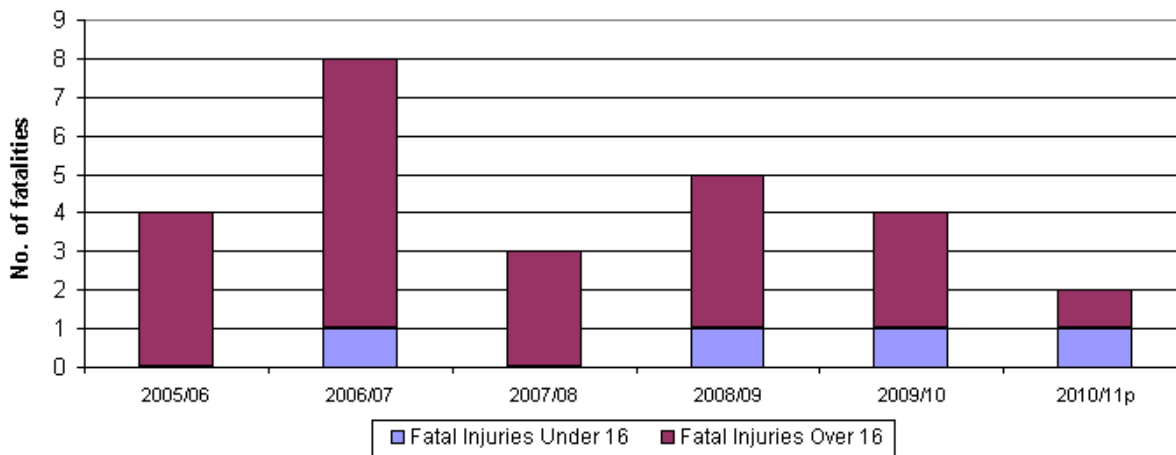


Figure 5. Fatal injuries to members of the public from 2005/06 to 2010/11p

There were 174 reported non-fatal injuries to members of the public in 2010/11p compared to an average of 195 a year over the previous five years. 17 of these injuries were to those aged 16 or under. Nearly half (44%) of reported non-fatal injuries to the public over the last five years were due to slips and trips. Almost a third (30%) were due to injuries from falling objects and one eighth (12%) from falls.

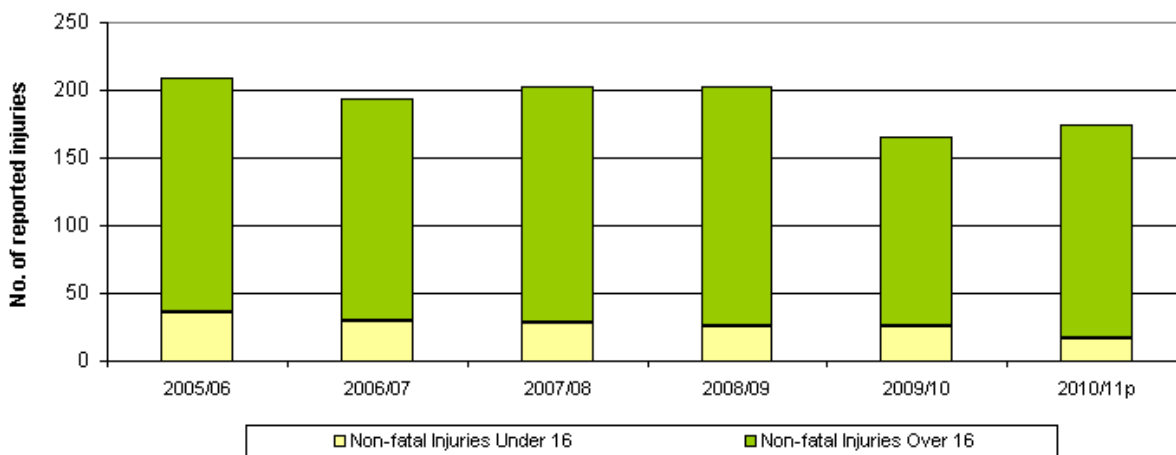


Figure 6. Non-fatal injuries to members of the public 2005/06 to 2010/11p

Labour Force Survey (LFS) injuries and days lost

The Labour Force Survey suggests that the construction sector accounted for around 11% and 12% of reportable non-fatal injuries and all non-fatal injuries in 2009/10 (three-year average).

The estimated incidence rates of reportable non-fatal injury and all non-fatal injuries for the construction industry were 1 100 and 3 300 per 100 000 workers respectively (1.1% and 3.3%) in 2009/10 (three-year average). Both were statistically significantly higher than the corresponding average rates of 750 and 2 300 per 100 000 workers across all industries⁶.

Examining the reportable non-fatal injury rates over time using smoothing techniques, which aim to reduce irregularities (random fluctuations) in the times series, suggests a downward trend.

Results from the LFS suggest that around half of reportable non-fatal injuries are recorded under RIDDOR, but that the level for construction is lower than this.

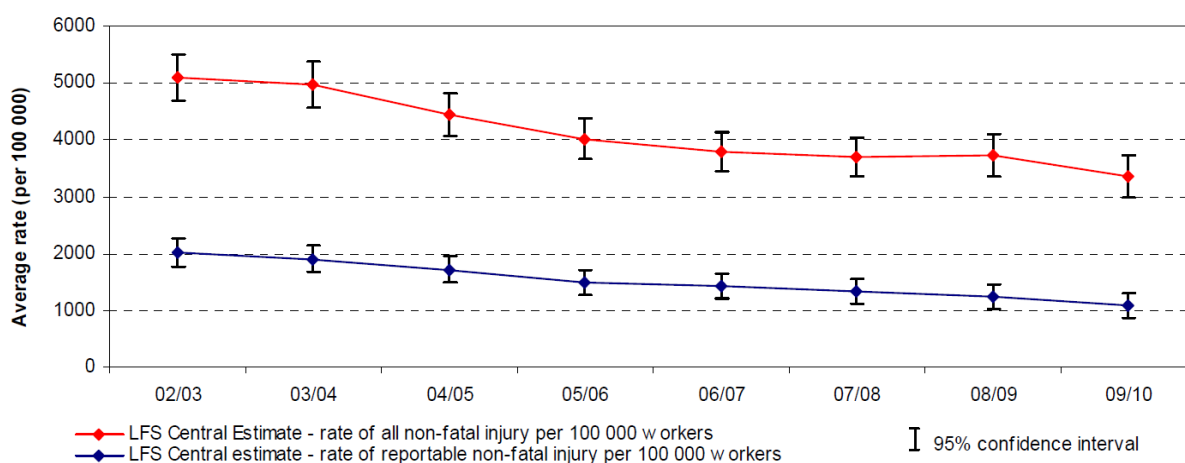


Figure 7. Estimated incidence rates of non-fatal injury per 100 000 people working in construction in the last 12 months (all injuries and reportable injuries with over 3 day absence)

The LFS also indicates that in 2010/11 the estimated total number of days lost (full-day equivalent) due to workplace injury attributed to the current or most recent job was about 525 000, equating to approximately a quarter of a day per worker⁷.

The average rate for all industries was 0.16 days per worker and the rate for construction is not statistically significantly different from the average across all industries.

Legislation, training and national strategy

Health and Safety at Work etc Act 1974

The Health and Safety at Work etc Act 1974, also referred to as HASAW or HSW, is the primary piece of legislation covering occupational health and safety in the United Kingdom. The Health and Safety Executive is responsible for enforcing the Act and a number of other Acts and Statutory Instruments relevant to the working environment.

The Health and Safety at Work etc Act 1974 requires employers to provide whatever information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of your employees. This is expanded by the Management of Health and Safety at Work Regulations 1999, which identify situations where health and safety training is particularly important, e.g. when people start work, on exposure to new or increased risks and where existing skills may have become rusty or need updating. Employers must provide training during working hours and not at the expense of their employees. Special arrangements may be needed for part-timers or shift

⁶ www.hse.gov.uk/statistics/lfs/injind1_3yr.xls

⁷ www.hse.gov.uk/statistics/lfs/injind2.xls

workers. Employers need to assess the risks to their employees while they are at work and to any other people who may be affected by the way they conduct business.

CDM 2007⁸

The Construction (Design and Management) Regulations 2007 are aimed at improving the overall management and co-ordination of health, safety and welfare throughout all stages of a construction project to reduce the large number of serious and fatal accidents and cases of ill health which happen every year in the construction industry. The HSE says that the new regulations emphasise planning and management to secure a safe project, rather than paperwork. CDM 2007 places legal duties on virtually everyone involved in construction work. Those with legal duties are commonly known as 'dutyholders':

- Clients
- CDM co-ordinators
- Designers
- Principal contractors
- Contractors
- Workers

The main causes of accidents in the construction industry⁹

Main accident causes

There are three main groups of accident causes in construction:

- 1) Technical causes – resulting e.g. from the technical condition of machines, devices, tools, materials and types of energy used in work processes (wear and tear of equipment and machinery);
- 2) Organisational causes – connected with an overall organisation of work and workstations;
- 3) Human factors – connected with psychophysical condition or behaviour of workers.
 - Slips, trips and low falls

These are probably the most common form of accident in construction. Although usually minor, they can lead to many different injuries and ill health outcomes, from musculoskeletal disorders (e.g. strained ankle) to puncture wounds (from falling on sharp materials). Fatalities from apparently innocuous slips have been known.

- Falls from height
 - This is the main cause of fatal accidents. These often occur due to:
 - Inadequate scaffolding,
 - Lack of edge protection,
 - Unprotected openings in buildings,
 - Lack of edge protection in roof work,
 - Dangerous demolition work, and
 - Inappropriate use of inappropriate ladders and hoists.

⁸ <http://www.hse.gov.uk/construction/cdm.htm>

⁹ <http://osha.europa.eu/en>

- Crush injuries

These occur in unsafe excavations often lead to fatal accidents or serious injuries. They occur when there is inadequate support for trench sides, especially after rainfalls, or when vehicles are operating too close to the edge. Buildings and walls may collapse when supporting structures are undermined.

- Being struck by falling objects, materials or tools

This is a potentially deadly occurrence. Such falling objects can be due to:

- The lack of toe boards on scaffolding,
- Lack of tool belts for workers,
- Bad storage and stacking, and
- Poor housekeeping.

Injuries may also result from improper use of hoists and cranes, and from being struck, crushed or trapped by vehicles, trucks and machinery.

- Electrocutions

This can be due to cable strikes on buried services, or to contact with overhead cables.

The main causes of ill health in the construction sector

- Skin diseases

Construction is not kind to skin. Handling rough materials, working in bad weather, and using dangerous substances all harm the skin. Wearing gloves can also cause problems, trapping dirt against the skin. During summer and especially in Southern Europe ultraviolet radiation is a significant hazard for the skin.

- Deafness

Deafness is caused by exposure to hazardous noise levels from tools and machines. The noise can come from either the machine being operated, or from background noise of other operations.

- Vibration

Hand-arm vibration diseases normally occur from the use of powered hand tools, which damage the nerves and blood vessels in the hand and arm. Operating heavy machinery and vehicles can cause whole body vibration.

- Back Pain and musculoskeletal disorders

Back problems are mainly caused by work in extreme postures (e.g. working overhead) often in confined spaces. Another cause is the manual handling of heavy loads. Often these two risk factors, extreme postures and manual handling, are combined. Even the handling of smaller loads, such as bricks, can cause such disorders and injuries.

Other musculoskeletal disorders, injuries to muscles, nerves, tendons and joints, may be caused by physically too demanding work. Typical injuries include bursitis, from kneeling, (for example during floor laying) and tenosinovitis - the inflammation of the tendon sheaths due to overuse and repetitive and forceful movements.

- Exposure to hazardous chemicals and products

Many dangerous substances are used in construction. These can cause anything from short-term dizziness to cancer.

- Solvents

Solvents of many different kinds are used in paints, varnishes, lacquers and adhesives. Isocyanates and epoxy resins in paints, adhesives, and bonding agents, can cause asthma and dermatitis. Welding fume can cause serious health problems in the long term. The excavation of contaminated ground can also pose certain risks.

- Dust

Dust from natural or man made material is a common exposure in the construction industry because often such material needs to be treated by cutting, drilling or grinding on the construction site. Asbestos, man made mineral fibres, cement dust, silica, wood dust and fibreboards pose particular risks.

- Biological hazards

Biological hazards come into focus due to the growing importance of reuse and recycling. A risk for infections is connected with the contact to contaminated water.

- Stress at Work

Noise, dirt, dust, chemicals, work at heights, confined spaces, heavy work, and the climate contribute to stress. Overtime is common during good weather, and stress can be enormous with fixed dates for completion.

NATIONAL REPORT OF PORTUGAL

Work Accidents

Introduction

The building and civil engineering sector greatly contributes to the number of work accidents, especially fatal accidents. The lack of training and information on health and safety, financial matters and the necessity of meeting deadlines results in insufficient concern for prevention.

World Status

According to data from the International Labour Organization (ILO) each year occur worldwide approximately 270 million occupational accidents and 160 million occupational diseases, with a number of deaths exceeding 2 million workers with economic costs exceeding the 4% of global GDP.

European Union Status

According to data from the European Agency for Safety and Health at Work (EU-OSHA), every year die more than 140,000 people in the European Union due to occupational diseases and about 9000 due to accidents at work. Work accidents in Europe primarily concern small and medium enterprises accounting for 82% of work-related injuries and for 90% of fatal accidents.

Portuguese Situation

According to Eurostat statistics, Portugal is one of EU countries with the highest rate of workplace accidents, mainly affecting the building and civil engineering sector. The characteristics of this sector are usually pointed out as the main reason for having higher risk of work accidents: The great displacement / movement of labour, the multiplicity of activities and professions, the changes in the workplace and the cultural diversity of employees typical of the construction industry are important factors for a range of risks that make it one of the most hazardous sectors. The awareness and training of workers in the workplace are probably the aspects that most directly contribute for reducing the number of work accidents in construction. Additionally, the implementation of collective and individual safety measures inherent to the activity performed is another key contributing aspect.

Statistics

In Portugal, the main bodies responsible for the production accident statistics on the workplace are the Strategy and Planning Office (Gabinete de Estratégia e Planeamento - GEP) and the Authority for Working Conditions (Autoridade para as Condições do Trabalho - ACT). GEP is responsible for collecting, validating and processing data from claims to insurance companies; ACT is responsible for conducting surveys on work accidents and work diseases, especially on the most severe and frequent. Table 1 below shows that the total number of accidents has experienced moderate fluctuations between years 2000 and 2009; however, in 2009 there was a decrease of 9.4% over the previous year (2008). For fatal accidents at work there was a decrease over the same period, of roughly 41% from

2000 to 2009. This reduction led to a corresponding decrease in the rates of frequency and incidence of accidents at the workplace.

Table 1 - Work accidents, incidence rate and working days lost from 2000 to 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Work accidents										
Total work accidents	234.192	244.936	248.097	237.222	234.109	228.884	237.392	237.409	240.018	217.393
Fatal work accidents	368	365	357	312	306	300	253	276	231	217
Incidence rate of work accidents										
Total work accidents	5.546,9	5.599,8	5.633,1	5.431,9	5.393,1	5.311,9	5.474,5	5.422,2	5.478,1	5.148,5
Fatal work accidents	8,7	8,3	8,1	7,1	7,0	7,0	5,8	6,3	5,3	5,1
Working days lost										
Total work accidents with working days lost	179.867	187.051	176.884	171.661	171.037	166.642	173.274	173.587	174.916	160.673
Total working days lost	6.480.435	7.738.981	7.624.893	6.304.316	6.730.952	6.811.505	7.082.066	7.068.416	7.156.003	6.643.227

Source: GEP/MSSS, Work accidents

Note: The incidence rate reflects the risk of having an accident at work, i.e. the number of accidents at work occurring in a year for every 100 000 persons in employment.

Table 2 presents information on the causes and circumstances in which work accidents took place. This is useful for determining the workspace where victims were, their specific physical activity when the accident occurred and, more specifically, how the se triggered out the accident The type of site with the highest number of fatalities is the group "shipyard, construction site, quarry, open pit mine" with 79 deaths (36.4%) in 2009. In non-fatal accidents "industrial environment" ranked highest with 36.6% of the total number of accidents.

Table 2 - Causes and circumstances for work accidents (2009)

	v.a.	%
Total work accidents	217393	100,0
Location type		
Industrial environment	79576	36,6
Shipyard, construction site quarry, open pit mine	46091	21,2
Terceray activity, e.g., office, leisure	36761	16,9
Other locations	54965	25,3
Specific physical activity		
Working with hand tools	53759	24,7
Manual transportation	50015	23,0
Movement	48652	22,4
Object manipulation	25934	11,9
Other physical activities	39033	18,0
Deviation		
Body movement subject to physical constraint	57822	26,6
Total / partial loss of control of machine, means of transportation, operated device, hand tool, object, animal	51780	23,8
Slippery or hesitation with fall, falling	40219	18,5
Other deviations	67572	31,1
Material agent of deviation		
Materials, objects, products, machine components - blasting debris, dust	50219	23,1
No material agent or no information	43022	19,8
Buildings, constructions, surfaces - at floor level	34219	15,7
Other deviation material agents	89933	41,4
Contact		
Physical body constraint, psychiatric constraint	58424	26,9
Crushing in horizontal or vertical movement over / against stationary object (the victim is moving)	53459	24,6
Hit by / collision with rolling or moving object	39731	18,3
Contact with cutting, sharpening, harsh material agent	31690	14,6
Other types of contact	92513	15,6
Contact material agent		
No material agent or no information	72950	33,6
Materials, objects, products, machine components - debris, dusts	47386	21,8
Buildings, constructions, surfaces - at ground level	37542	17,3
Other contact material agents	59515	27,3

Sources: GEP/MSSS, Work Accidents.

Graph 1 depicts work accidents according to causes in 2010. Referring to this graph, it is easy to realise that the main cause of fatal accidents at work is the fall form height (with 47 fatalities in 2010), followed by collision with objects (17 fatalities) and crushing by machinery (14 fatalities).

Graph 1 – Work accidents according to causes (2010, Source: ACT)

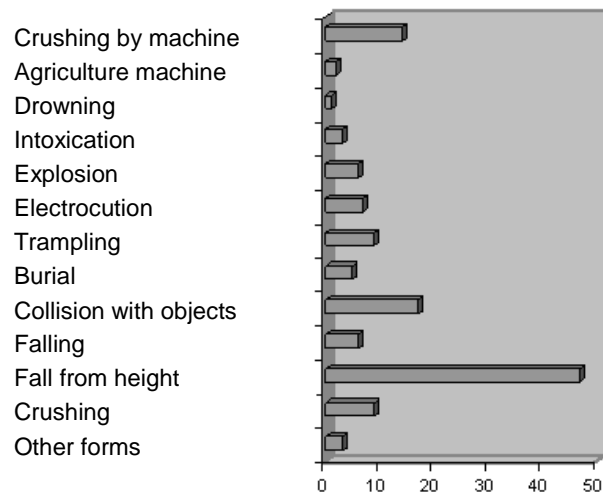


Table 3 shows the number of work accidents from 2007 to 2009 in Portugal, according to the activity sector

Table 3 - Work accidents (fatal and not fatal) by economic activity (Portugal)

		2007		2008		2009	
Total		244.936		240.018		217.393	
		Non fatal	Fatal	Non fatal	Fatal	Non fatal	Fatal
A	Agriculture, cattle, hunting, forestry and fishing	7.199	22	6.114	23	7.651	19
B	Extractive industries	2.096	4	2.022	12	1.399	8
C	Manufacturing	77.374	49	76.157	27	58.206	29
D	Electricity, gas, steam, hot and cold water and cold air	1.067	1	3.377	3	2.890	7
E	Construction	47.219	103	46.946	78	45.042	76
F	Wholesale trade, retail trade, automobile and moto vehicle repair	37.716	38	37.519	25	34.847	20
G	Accommodation and food service activities	11.880	2	11.892	1	11.901	1
H	Transportation, storage and communications	10.422	29	11.460	31	10.801	25
I	Financial and insurance activities	635	1	727	1	944	0
J	Real estate, administrative and support service activities	16.874	18	19.973	19	16.869	27
K	Public administration, defence, social insurance	6.335	4	6.440	6	6.593	3
L	Education	2.232	1	2.167	1	1.853	1
M	Health services and social support	9.062	0	10.153	1	10.543	0
N	Other service activities	6.548	6	4.538	1	4.999	0
O	Activities of households as employers; undifferentiated goods and services-producing activities of households for own use	313	0	118	1	1.385	0
P	Activities of extraterritorial organisations and bodies	-	0	-	0	25	0
	Ignored	159	0	184	1	1.228	1

Source: GEP/MSSS, Work Accidents

The accident rate in Portugal is markedly higher in sectors C ("Manufacturing") and E ("Construction"), which together reported almost half of the total accident occurrences. The construction sector recorded the highest number of fatalities caused by accidents at work: 76. Although the number of fatalities from work accidents in the construction sector is deplorable, the values have registered a fall. This is mainly due to the reduction of the total number of hours worked, caused by the decrease of activity in the sector given the context, the intensification of the means and methods of information, action by the inspector of labour administration, and the greatest compliance to the legal obligations of companies and their employees.

Table 4 shows the number of work accidents from 2000 to 2008 in Portugal, according to the victim professional occupation.

Table 4 – Work accidents (fatal and non-fatal) by large professional groups (Portugal)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	234.192	244.936	248.097	237.222	234.109	228.884	237.392	237.409	240.018
Senior staff from the public administration or private companies	7.231	7.475	8.306	8.108	7.869	8.943	9.803	10.930	9.792
Experts and associate professionals from scientific or intellectual professions	1.549	1.821	1.970	1.908	2.246	2.789	3.257	3.210	3.455
Technical staff and intermediate professionals	5.183	5.808	6.274	5.826	5.769	6.901	7.610	9.415	8.827
Administrative and similar staff	7.724	9.080	8.363	7.739	7.636	8.157	9.000	8.773	9.470
Service staff and commercials	15.744	17.999	20.385	20.339	23.051	23.272	26.183	27.652	29.539
Farmers and qualified workers from agriculture and fishing	8.376	7.847	8.630	8.442	8.474	7.773	8.707	6.269	5.830
Workers, craftsmen and related workers	101.301	108.595	105.755	100.604	99.665	97.168	97.550	89.320	85.553
Machine operators and assembling workers	28.607	35.481	34.272	29.231	25.219	28.862	30.121	32.176	34.644
Non qualified workers	35.870	40.545	39.074	34.305	34.046	35.878	37.710	38.443	38.048
Ignored	22.607	10.285	15.068	20.720	20.134	9.141	7.451	11.221	14.860

Sources: GEP/MSSS, Work accidents

The analysis of the distribution of accidents at work by occupation shows that the professional group of "workers, craftsmen and related workers" has the greatest work accident rate (35.6% in 2008); On the contrary, the professional group "experts and associate professionals" has the lowest rate (1.44% in 2008). However, unlike the first group above that depicts a declining value from year to year, work accidents of the group "experts and associate professionals" have increased since year 2000 when the percentage of accidents was only 0.65 %.

Portuguese prevention strategy

The new Community Strategy for 2007-2012, published by the Communication of the European Commission entitled "Improving quality and productivity at work: Community strategy for health and safety at work 2007-2012" represents an important step in improving the quality and conditions at work in Europe, as it forecasts the goal of reducing 25% of the total work accident incidence rate in the European Union until 2012.

Taking into account the national dimension of the problems of health and safety at work, Portugal set up a National Strategy for Safety and Health at Work (Estratégia Nacional para a Segurança e saúde no trabalho - ENSST) for the period 2008-2012 (Resolution of the Council of Ministers no. 59/2008 of 12 March).

The National Strategy defines two fundamental policies for health and safety at work: the development of coherent policies and effective functioning as the engine for mobilizing the society for this paramount social and economic problem with consequences to the social cohesion and affecting the society as a

whole; and the promotion of health and safety in the workplace, with the intention of effectively improving the work conditions.

The results of this strategy are essentially positive: In 2010, from the 59 measures included in the National Strategy, 13 were already completed, 33 were in full effect and only 13 had not yet started.

Meanwhile, training courses for technicians and senior technicians of safety and hygiene at work have been conducted over the last years. This process started in 2001 along with the certification of technicians (the publication of regulatory legislation took place after the year 2000, namely the Decree-Law no. 110/2000 of June 30, amended by the Law No. 14/2001 of 4 June and by the Ordinance No. 137/2001 of March 1). The National Qualifications Catalogue was published by the end of 2008 in the scope of the programme "New Opportunities". As a result of this publication effort there was an increase in the offer of technical training for health and safety in various ways and for different audiences; new methodologies have emerged for the implementation of training, including modular training, based on "training units of short term training"

References

1. <http://www.hse.gov.uk/statistics/industry/construction/index.htm>
2. www.statistics.gov.uk
3. <http://osha.europa.eu/en>