

Construction Hazards and Risks Control

**Lecture Title: Health & Safety in Construction:
Risks, Hazards, & Legislation Overview**

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Occupational Health and Safety**

Introduction

- **Construction** is one of the **most hazardous** industries, with workers exposed to numerous risks on a daily basis.
- Accidents, injuries, and fatalities are unfortunately common, which makes it **essential for health and safety professionals** to understand these risks **and implement effective preventive measures.**





Primary Objectives of H&S in Construction

- Ensure worker safety
- Prevent accidents and illnesses
- Comply with local and international health & safety regulations



This presentation will cover:

- The key risks and hazards faced by construction workers.
- Preventive measures and control strategies.
- An overview of the legislation governing health and safety in the construction industry.
- By the end of this session, you will gain insight into creating safer working environments and complying with legal requirements in construction projects.



Statistics

- The Occupational Health and Safety Authority (OHSA) reported 20 fatalities at work in 2022 and 2023.
- 60% of all fatal accidents that occurred in the past two years involved Maltese nationals.
- 55% of all fatalities at work occurred in the **construction** sector.



The top four Causes of Construction Work Fatalities

1. Falls 39.2%
2. Struck by an object 8.2%
3. Electrocution 7.3%
4. Caught in or between an object 5.1%



Hazard

A source or a situation with the potential for harm in terms of human injury or ill-health, damage to property, damage to the environment, or a combination of these.



Hazards Examples

- Defective surfaces on which people might slip or trip
- Unguarded edges from which people might fall
- Falling materials,
- Moving vehicles that might strike people
- Sharp edges
- Electricity, fires



Risk

The likelihood that a person may be harmed or suffers adverse health effects if exposed to a hazard.



- <https://www.youtube.com/watch?v=y3dQj1mYlOw>



Chronic VS Acute Hazard

An Acute hazard is when it's extremely severe, short-term, and dangerous.

A chronic hazard, on the other hand, is one that is present over a long period of time.



Avoiding Risk Examples

On a small domestic extension, the architect specified the use of dry lining, thus avoiding the need for cutting and chasing masonry for the installation of electrical and other services. This avoided the risks to the health of the workers from dust, noise and vibrations.



Safety vs Risk





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Key Risks in Construction

- Falls from Heights: (Most common cause of fatalities in construction)
- Examples: Scaffoldings, ladders, roof edges.
- Preventive measures: Harnesses, guardrails, safety nets.
- Struck-by Objects: Tools, materials, or equipment causing injuries.
- Preventive measures: Helmets, proper stacking, barriers.



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- Electrocution: Risks of working near electrical equipment or power lines.
- Preventive measures: Proper insulation, trained personnel, lockout/tagout.
- Caught-in/between: Machinery, collapsing structures, trench accidents.
- Preventive measures: Machinery guarding, proper trench shoring



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- Health Risks: Long-term exposure to noise, vibration, dust (silica, asbestos), and hazardous chemicals.
- Control Measures: Change in equipment, use of PPE (respirators, ear protection), health monitoring.



Common Construction Hazards

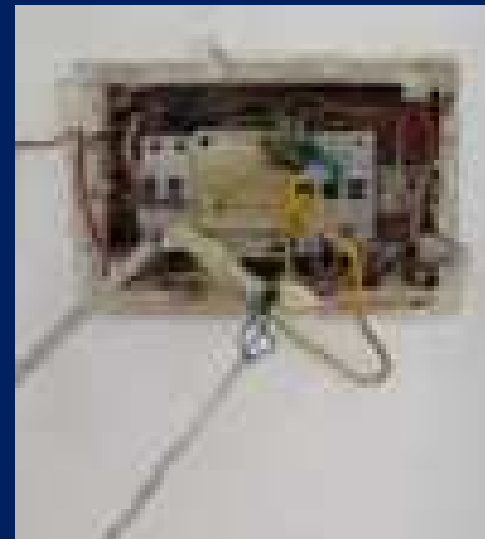
- **Work at Heights:** Scaffolding failures, unsecured ladders, incomplete roofing.
- **Regulations & Controls:** 89/654/EEC standards, use of harnesses, proper anchoring points.



- **Electrical Hazards:**

- Electrocutation from faulty wiring, exposed cables, unprotected circuits.

- **Preventative Measures:** Proper insulation, regular electrical inspections, lockout/tagout (LOTO) procedures.



- **Heavy Machinery & Moving Vehicles:**
- Cranes, forklifts, trucks moving around the site pose serious risks.
- **Safety Tips:** Use of spotters, site traffic management plans, and daily inspections of machinery.



Certifications

SPHERE OF SAFETY
PREVENTED BY INCIDENTS

Best Practices for Safe Crane Lifts

- EXTEND ALL OUTRIGGERS, USE PROPER CHASSIS, AND ENSURE USE OF APPROPRIATE WEIGHTS TO HELP MAINTAIN STABILITY**
- ENSURE CRANE HAS ANTI-TWO-BLOCK DEVICE TO PREVENT TWO-BLOCKING**
- ENSURE PROPER TIE ANGLE IS SET ON ALL RIGGING**
- USE TAG LINES AND PUSH STICKS TO KEEP THE LOAD UNDER CONTROL**
- NEVER STAND UNDERNEATH A SUSPENDED LOAD**
- USE CLEAR SIGNALS TO COMMUNICATE WITH THE CRANE OPERATOR**
- SET UP BARRICADES ALL THE WAY AROUND THE CRANE**

For more information on preventing struck-by incidents, visit www.osha-slc.gov

CDC **NIOSH** **CPWA**

- **Hazardous Substances:**

- Exposure to asbestos, silica dust, lead, chemicals like solvents or adhesives.

- **Control Measures:** Ventilation systems, protective clothing, asbestos abatement programs, proper labelling of hazardous materials.



Legislation

- Chapter 424 of 2000 –Occupational Health and safety Authority Act



- LN 88 of 2028 -Work Place (Minimum Health and Safety Requirements for Work at Construction Sites) Regulations,



5. The project supervisor shall:

Project
regulations
Orders

(1) take account of the general principles of prevention concerning health and safety referred to in the Act and subsidiary regulations as appropriate, during the various stages of designing and preparing the project, in particular:

(a) when architectural, technical and, or organizational aspects are being decided, in order to plan the various items or stages of work which are to take place simultaneously or in succession;

(b) when estimating the period required for completing such work or work stages.

Account shall also be taken, each time this appears necessary, of all health and safety plans and of files drawn up in accordance with sub-regulation (4) or adjusted in accordance with paragraph (e) of sub-regulation (4).

(2) The health and safety plan shall set out the rules applicable to the construction site concerned, taking into account where necessary the industrial activities taking place on the site; this plan shall also include specific measures concerning work which falls within one or more of the categories of Schedule II.



(3) In the case of construction sites on which work is scheduled to last longer than 30 working days and on which more than 20 workers are occupied simultaneously, or on which the volume of work is scheduled to exceed 500 person-days, the project supervisor shall communicate a prior notice drawn up in accordance with Schedule III to the Authority at least four calendar weeks before work starts on the project. Once any work activity on the project commences, a copy of the prior notice shall be clearly displayed on the construction site and, if necessary, periodically updated.

Prior notice.

(4) The project supervisor shall also:

Health and
safety plan.

(a) co-ordinate the implementation of the provisions of this regulation, and shall draw up a health and safety plan prior to the setting up of a construction site;

(b) prepare a file appropriate to the characteristics of the project containing relevant health and safety information to be taken into account during any subsequent works;

Health and
safety file.



(c) coordinate the implementation of the general Coordination principles of prevention and safety;

(i) when technical and, or organizational aspects are being decided, in order to plan the various items or stages of work which are to take place simultaneously or in succession;

(ii) when estimating the period required for completing such work or work stages;

(d) coordinate the implementation of the relevant provisions of these regulations in order to ensure that employers and, if necessary for the protection of workers, self-employed persons:

(i) apply the principles referred to in regulation 9 in a consistent manner;

(ii) where required, follow the health and safety plan referred to in sub-regulation (4) of regulation 5;

(e) make, or cause to be made, any adjustments required to the health and safety plan referred to in sub-regulation (4) of regulation 5 and the file referred to in sub-regulation (4) of regulation 5 to take account of the progress of the work and any changes which have occurred;



(e) make, or cause to be made, any adjustments required to the health and safety plan referred to in sub-regulation (4) of regulation 5 and the file referred to in sub-regulation (4) of regulation 5 to take account of the progress of the work and any changes which have occurred;

(f) organize cooperation between contractors, including successive contractors on the same site, coordination of their activities with a view to protecting workers and preventing accidents and occupational health hazards and reciprocal information as provided for in regulation 7 of the General Provisions for Health and Safety at Work Places Regulations, ensuring that self-employed persons are brought into this process where necessary;

(g) coordinate arrangements to check that the working procedures are being implemented correctly;

(h) take the steps necessary to ensure that only authorized persons are allowed onto the construction site.

6. The project supervisor shall take all the necessary measures for the safeguard of occupational health and safety.



LN 36 of 2003 General Provisions for Health and Safety at Work Places Regulations.

10. (1) It shall be the duty of every employer and of every self-employed person to carry out, or to ensure that is carried out, a suitable, sufficient and systematic assessment of all the occupational health and safety hazards which may be present at the place of work and the resultant risks involved concerning all aspects of the work activity. Such assessments shall consider the risks to the health and safety of workers and of self-employed persons to which they are exposed whilst at work, as well as the risks to the health and safety of other persons, including

Risk assessments,

visitors to the place of work, which risks arise out of, or in connection with the work being carried out, or by the conduct of the undertaking:



Risk Assessment

- Risk assessment is the process of evaluating risks to workers' safety and health from workplace hazards. It is a systematic examination of all aspects of work that considers:
 - What could cause injury or harm;
 - whether the hazards could be eliminated and, if not;
 - What preventive or protective measures are, or should be, in place to control the risks.



Hierarchy of Fall Protection

A ranked or graded series of fall protection solutions ranging from the best solution to the worst. In order of best to worst, these solutions are: 

Hazard Elimination

- The preferred solution to all fall hazards is elimination.
- Can the work be done at ground level.

Passive Fall Protection:

- Physical barriers like guardrails around unprotected edges and covers over holes are examples of passive fall protection.

Fall Restraint:

- Fall restraint systems are erected in such a manner that a fall cannot occur.
- Fall restraint systems use PPE to restrict the worker's range of movement so they cannot physically travel to the fall hazard.

Fall Arrest:

- Fall arrest systems are erected in such a manner that a fall can occur but the fall is arrested within acceptable force and clearance margins.

Administrative Controls:

- Administrative controls are work practices or procedures that increase a worker's awareness of a fall hazard.



Taking as an example – Working at Heights

Elimination

Example: Design the construction project to avoid work at heights altogether. For instance, if a roof needs to be installed, consider using modular systems that can be assembled on the ground and then lifted into place.

Substitution

Example: Instead of using traditional ladders for accessing high areas, use aerial lifts or scaffolding systems that provide safer access and working platforms.



Engineering Controls

Example: Install guardrails around the edges of roofs and elevated platforms. Use safety nets or fall arrest systems to catch workers if they fall.

Administrative Controls

Example: Implement safety policies that require regular safety briefings and training sessions focused on fall protection. Establish a work permit system for jobs that involve working at heights, ensuring that only trained personnel can perform these tasks



Personal Protective Equipment (PPE)

Example: Provide workers with appropriate PPE, such as harnesses, helmets, and non-slip footwear. Ensure that workers are trained on how to properly use and maintain their PPE.







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