Managing Physical Hazards

Lecture 8 : Sector Specific Physical Hazards Management

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Undergraduate Diploma in
Occupational Health and Safety

Learning Objectives

- **Identify sector-specific physical hazards**
Recognise different physical hazards present in construction, manufacturing, offices, healthcare, retail, hospitality, and educational workplace environments.

- **Apply basic OHS risk control measures**
Use risk assessment processes and apply appropriate control measures to reduce or eliminate workplace physical hazards effectively.

- **Recognise safe work practices across industries**
Understand and identify safe procedures, equipment use, and behaviours that prevent injuries in different workplace environments.

- **Understand employer and worker safety roles**
Explain shared responsibilities of employers and workers in maintaining safe workplaces through compliance, communication, and cooperation.

- **Improve hazard awareness and reporting skills**
Develop ability to identify hazards early, report concerns promptly, and contribute to continuous workplace safety improvement efforts.

Occupational Sectors

1. Construction

Building sites, roadworks, infrastructure projects

Common hazards: working at height, heavy machinery, falling objects, electrical risks

2. Manufacturing

Factories and production plants

Common hazards: moving machinery, noise, repetitive tasks, chemical exposure

3. Healthcare

Hospitals, clinics, care homes

Common hazards: patient handling, sharps, medical equipment, biological risks

4. Education

Schools, colleges, universities

Common hazards: laboratory equipment, playground injuries, manual handling

5. Retail

Shops, supermarkets, warehouses

Common hazards: manual handling, slips and trips, stockroom risks

Occupational Sectors

6. Hospitality

Hotels, restaurants, catering services

Common hazards: hot surfaces, sharp tools, wet floors, heavy lifting

7. Office / Corporate

Administrative and business environments

Common hazards: poor ergonomics, electrical hazards, trip risks

8. Transportation & Logistics

Delivery services, warehouses, ports

Common hazards: vehicle accidents, loading equipment, manual handling

9. Agriculture/Gardening

Farms and food production

Common hazards: machinery, animals, chemicals, uneven terrain

10. Mining & Energy

Mining sites, oil and gas facilities

Common hazards: confined spaces, heavy equipment, explosions, dust exposure

Employers Responsibilities (Physical Hazards)

Employers have a legal and ethical responsibility to protect workers from physical hazards in the workplace. This includes identifying potential dangers such as unsafe machinery, working at height, electrical risks, noise exposure, and manual handling tasks. Employers must carry out regular risk assessments to evaluate the likelihood and severity of harm. They are required to eliminate hazards where possible or implement control measures to reduce risks to acceptable levels. Providing a safe working environment is a fundamental duty of care.

In addition, employers must implement appropriate control measures using the hierarchy of controls. This may include installing machine guards, providing fall protection systems, improving ventilation, or redesigning workstations to reduce ergonomic strain. Where risks cannot be fully eliminated, suitable personal protective equipment (PPE) must be supplied at no cost to employees. Employers must also ensure that equipment is properly maintained, inspected regularly, and safe for use.

Training and supervision are equally important responsibilities. Employers must provide clear safety instructions, safe work procedures, and ongoing training so workers understand hazards and how to work safely. They must encourage hazard reporting, investigate incidents, and continuously review safety measures to maintain a safe and healthy workplace.

Workers Responsibilities (Physical Hazards)

Workers have an important responsibility to take reasonable care of their own health and safety, as well as that of others who may be affected by their actions. This includes following workplace safety rules, procedures, and instructions provided by the employer. Workers must use tools, machinery, and equipment correctly and avoid engaging in unsafe behaviours that could create additional risks. Being attentive and responsible at work helps prevent accidents and injuries.

Employees are also required to use personal protective equipment (PPE) properly and consistently where it is provided. They should not misuse or intentionally damage safety equipment, guards, or warning systems. If they identify hazards such as faulty equipment, spills, or unsafe working conditions, they must report these issues promptly to a supervisor or designated safety representative. Early reporting helps prevent minor hazards from becoming serious incidents.

Participation in safety training and cooperation with employers are further key responsibilities. Workers should attend training sessions, follow safe work procedures, and contribute to maintaining a positive safety culture. By communicating openly about risks and supporting workplace safety initiatives, employees play a vital role in reducing physical hazards and ensuring a safer working environment for everyone.

Construction - (Physical Hazards)

Industry Overview

- Construction involves building infrastructure, residential, commercial, and industrial projects.
- Work environments are dynamic and constantly changing, with multiple trades operating simultaneously.
- Workers are exposed to heights, heavy machinery, tools, and hazardous materials.
- It is one of the highest-risk industries worldwide.
- Continuous hazard identification, supervision, and safety management are essential to protect workers.

Construction - (Physical Hazards)

Key Physical Hazards

- Falls from heights (roofs, scaffolds, ladders)
- Moving machinery and vehicles (cranes, forklifts, excavators)
- Electrical hazards from live wires or temporary wiring
- Manual handling of heavy materials (bricks, steel, cement)
- Slips, trips, and falling objects from elevated work areas

Construction - (Physical Hazards)

Core Safety Practices / Controls

- Conduct daily risk assessments and Job Safety Analysis (JSA) before tasks
- Apply the hierarchy of controls: elimination, substitution, engineering, administrative, and PPE
- Guardrails, edge protection, and fall arrest systems for heights
- Machine guarding and lockout/tagout procedures for equipment
- Training in working at heights, machinery operation, and correct manual handling
- PPE: helmets, gloves, boots, and harnesses

Construction - (Physical Hazards)

Slide 4 – Site/Workplace-Specific Controls

- Clearly marked exclusion zones for machinery and elevated work areas
- Mechanical aids for heavy lifting, trolleys, and hoists
- Regular inspection and maintenance of scaffolding, ladders, and equipment
- Housekeeping to remove debris, maintain clear walkways, and prevent slips/trips
- Insulated tools and clear marking of electrical services

Manufacturing - (Physical Hazards)

Industry Overview

- Manufacturing involves producing goods in factories or production plants.
- Workers use machinery, tools, and chemical processes.
- Environments can be noisy, repetitive, and equipment-intensive.
- Safety management is essential to prevent injuries.

Manufacturing - (Physical Hazards)

Key Physical Hazards

- Moving machinery and conveyor belts
- Noise and vibration exposure
- Slips, trips, and falls
- Manual handling of heavy items
- Hot surfaces and sharp edges

Manufacturing - (Physical Hazards)

Core Safety Practices / Controls

- Machine guarding and lockout/tagout procedures
- Hearing protection and regular noise monitoring
- Training on lifting techniques
- Slip-resistant footwear and housekeeping
- PPE for hands, arms, and eyes

Manufacturing - (Physical Hazards)

Industry-Specific Controls

- Safety signage near machinery
- Clearly marked walkways and storage areas
- Temperature control for hot processes
- Routine maintenance and inspections
- Ergonomic workstations to reduce strain

Manufacturing - (Physical Hazards)

Key Physical Hazards

- Patient handling and lifting
- Slips and trips from wet floors
- Equipment-related injuries (beds, trolleys, wheelchairs)
- Sharps and medical devices
- Repetitive strain from prolonged tasks

Healthcare- (Physical Hazards)

Industry Overview

- Healthcare includes hospitals, clinics, and aged care facilities.
- Workers handle patients, equipment, and medical tools.
- Fast-paced environments with high responsibility for patient safety.
- Physical hazards can lead to injury or illness if unmanaged.

Healthcare- (Physical Hazards)

Core Safety Practices / Controls

- Use hoists, slide sheets, and team lifting
- Maintain clean and dry floors
- Equipment safety checks and proper storage
- Sharps disposal protocols
- Training in ergonomics and body mechanics

Healthcare- (Physical Hazards)

Industry-Specific Controls

- Non-slip flooring in corridors and bathrooms
- Clear emergency exits and pathways
- PPE: gloves, shoes, and protective clothing
- Regular maintenance of medical equipment
- Reporting incidents promptly

Education- (Physical Hazards)

Industry Overview

- Education includes play schools, schools, colleges, and universities.
- Workers manage classrooms, laboratories, and playgrounds.
- Diverse environments with student supervision and physical tasks.
- Physical hazards vary with activities and settings.

Education - (Physical Hazards)

Key Physical Hazards

- Laboratory equipment
- Playground equipment
- Lifting furniture and supplies
- Slips, trips, and uneven surfaces
- Sports and physical education injuries

Education- (Physical Hazards)

Core Safety Practices / Controls

- Training in laboratory and equipment safety
- Regular playground inspections
- Manual handling training
- Clear walkways and non-slip flooring
- PPE for labs, workshops, and sports activities

Education- (Physical Hazards)

Industry-Specific Controls

- Safety signage in labs and workshops
- Proper storage for chemicals and tools
- Ergonomic classroom setups
- Routine equipment maintenance
- Immediate reporting of hazards or incidents

Retail - (Physical Hazards)

Industry Overview

- Retail includes shops, supermarkets, and warehouses.
- Workers engage with customers, stock handling, and cash operations.
- Fast-paced environments with public interaction and manual tasks.

Retail - (Physical Hazards)

Key Physical Hazards

- Manual handling of stock and heavy boxes
- Slips and trips in aisles and storerooms
- Working on ladders for shelves
- Crowded work areas
- Equipment hazards like trolleys and pallet jacks

Retail - (Physical Hazards)

Core Safety Practices / Controls

- Correct lifting techniques and mechanical aids
- Maintain clean, dry floors
- Ladder safety training and supervision
- PPE such as gloves and non-slip shoes
- Clear signage and hazard communication

Retail - (Physical Hazards)

Industry-Specific Controls

- Designated loading/unloading zones
- Regular housekeeping in stockrooms
- Safety barriers for customer and worker areas
- Routine equipment maintenance
- Immediate reporting of spills or damaged flooring

Hospitality - (Physical Hazards)

Industry Overview

- Hospitality includes hotels, restaurants, catering, and tourism services.
- Workers handle food preparation, cleaning, and customer service tasks.
- Fast-paced, high-pressure environments with constant public interaction.

Hospitality - (Physical Hazards)

Key Physical Hazards

- Burns from hot surfaces and liquids
- Cuts from knives and sharp utensils
- Slips, trips, and falls on wet floors
- Manual handling of trays, luggage, or equipment
- Repetitive strain from prolonged tasks

Hospitality - (Physical Hazards)

Core Safety Practices / Controls

- Use oven mitts, heat-resistant gloves, and PPE
- Proper knife handling techniques
- Immediate cleaning of spills and use of non-slip footwear
- Mechanical aids for lifting heavy items
- Training in safe posture and ergonomics

Hospitality- (Physical Hazards)

Industry-Specific Controls

- Clearly marked hazard zones in kitchens and service areas
- Proper storage of sharp utensils and hot equipment
- Regular inspection of floor mats and walking surfaces
- Team lifting of heavy or awkward items
- Immediate hazard reporting to supervisors

Office/Corporate- (Physical Hazards)

Industry Overview

- Office and corporate environments involve administrative, IT, and desk-based tasks.
- Lower physical risk but hazards exist in ergonomics, electrical systems, and slips/trips.

Office/Corporate- (Physical Hazards)

Key Physical Hazards

- Poor posture causing musculoskeletal disorders
- Slips, trips, and falls from cables, wet floors
- Electrical hazards from overloaded outlets or faulty devices
- Heavy lifting of office supplies or equipment
- Eye strain from prolonged screen use

Office/Corporate- (Physical Hazards)

Core Safety Practices / Controls

- Ergonomic workstations and chairs
- Clear walkways and proper cable management
- Test and tag electrical equipment
- Proper lifting techniques and use of trolleys
- Breaks and exercises to prevent strain

Office/Corporate- (Physical Hazards)

Industry-Specific Controls

- Regular workstation assessments
- Floor cleaning and maintenance
- Correct use of power strips and surge protectors
- Storage of office supplies at safe heights
- Hazard reporting system for minor or major issues

Transport/ Logistics (Physical Hazards)

Industry Overview

- Includes delivery services, warehouses, shipping, and distribution centers.
- Workers operate vehicles, forklifts, and handle packages.
- High physical workload with exposure to moving vehicles and heavy loads.

Transport/ Logistics (Physical Hazards)

Key Physical Hazards

- Vehicle accidents (trucks, forklifts)
- Manual handling of heavy or awkward items
- Slips, trips, and falls in warehouses
- Falling objects from shelves
- Repetitive strain from loading/unloading
- Incorrect posture
- Vibration

Transport/Logistics (Physical Hazards)

Core Safety Practices / Controls

- Vehicle safety training and speed limits
- Correct lifting techniques and mechanical aids
- Clear walkways and hazard signage
- PPE: gloves, helmets, high-visibility clothing
- Regular inspection of vehicles and warehouse equipment

Transport/ Logistics (Physical Hazards)

Industry-Specific Controls

- Designated loading/unloading zones
- Safe stacking and storage of materials
- Barrier protection between pedestrians and vehicles
- Warehouse housekeeping to remove obstacles
- Immediate reporting of spills or hazards

Agriculture/ Gardening (Physical Hazards)

Industry Overview

- Agriculture involves farming, horticulture, and gardening.
- Workers handle machinery, animals, crops, and chemicals.
- Outdoor, physically demanding work with variable conditions.

Agriculture/ Gardening (Physical Hazards)

Key Physical Hazards

- Machinery accidents (tractors, harvesters)
- Slips, trips, and falls on uneven terrain
- Manual handling of heavy tools and materials
- Animal-related injuries
- Exposure to extreme weather (hot/cold)

Agriculture/ Gardening (Physical Hazards)

Core Safety Practices / Controls

- Machine guarding and proper training
- Correct lifting techniques and mechanical aids
- PPE: gloves, boots, hats, sun protection
- Safe animal handling procedures
- Regular inspections and maintenance of tools and equipment

Agriculture/ Gardening (Physical Hazards)

Industry-Specific Controls

- Clearly marked hazardous areas (pits, machinery zones)
- Weather-appropriate clothing and hydration
- Safe storage of chemicals and pesticides
- Maintain clear pathways and remove debris
- Immediate hazard reporting

Mining/ Energy (Physical Hazards)

Industry Overview

- Mining and energy include coal, metal, oil, gas, and renewable energy sites.
- Workers handle heavy machinery, confined spaces, and electrical or explosive materials.
- High-risk environments requiring strict safety management.

Mining/ Energy (Physical Hazards)

Key Physical Hazards

- Falls from height or into pits
- Confined space hazards
- Machinery and equipment injuries
- Explosions, fires, and electrical hazards
- Slips, trips, and falling debris

Mining/ Energy (Physical Hazards)

Core Safety Practices / Controls

- Risk assessments and Job Safety Analysis (JSA)
- Machine guarding, lockout/tagout, and PPE
- Confined space entry permits and monitoring
- Explosion-proof equipment where required
- Safe walkways and housekeeping

Mining/Energy (Physical Hazards)

Industry-Specific Controls

- Fall protection systems and guardrails
- Ventilation and gas monitoring in confined spaces
- Routine equipment inspections
- Emergency response plans and drills
- Immediate reporting of hazards or unsafe conditions

Mining/Energy (Physical Hazards)

Industry-Specific Controls

- Fall protection systems and guardrails
- Ventilation and gas monitoring in confined spaces
- Routine equipment inspections
- Emergency response plans and drills
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Lecture Conclusion

In today's lecture, we explored the physical hazards and safety practices across a wide range of industries, from manufacturing and healthcare to construction and mining. Despite differences in work environments, a common thread emerged: every industry involves inherent physical risks that, if unaddressed, can result in serious injuries or long-term health issues. Manufacturing and construction, for example, present dangers from heavy machinery, moving vehicles, and falls, while healthcare and hospitality expose workers to repetitive strain, slips, and sharp or hot objects. Even office environments, though less physically demanding, carry risks such as poor ergonomics, electrical hazards, and falls from cluttered or wet surfaces. Recognizing these hazards is the first critical step in maintaining a safe workplace.

To mitigate these risks, industries rely on core safety practices and controls tailored to their specific needs. These measures include engineering controls such as machine guarding or ergonomic workstations, administrative controls like training and hazard reporting systems, and personal protective equipment for hands, eyes, or respiratory protection. Industries such as healthcare and education emphasize safe patient handling or laboratory safety, while transport, logistics, and agriculture focus on correct lifting techniques, vehicle safety, and animal handling procedures. Across all sectors, the integration of safety controls into daily operations ensures that workers are protected while maintaining productivity.

Lecture Conclusion

Site-specific and contextual safety measures further enhance protection. Clearly marked walkways, hazard signage, temperature and chemical controls, and routine inspections allow workers to navigate complex environments safely. High-risk industries, including mining, energy, and construction, require additional measures such as confined space monitoring, fall arrest systems, and emergency response planning. These practices, combined with continuous hazard identification and risk assessment, create a proactive safety culture rather than a reactive one. The emphasis on both standardized safety protocols and location-specific measures highlights the importance of adapting safety practices to the unique challenges of each workplace.

Ultimately, the lecture reinforced that workplace safety is a continuous process requiring vigilance, reporting, and a culture of shared responsibility. Supervisors and workers alike play critical roles in identifying hazards, adhering to safety procedures, and fostering improvements in safety practices. By combining awareness, training, and proper controls, organizations can significantly reduce accidents, protect their workforce, and promote a culture of safety that extends across all industries. Understanding and applying these principles not only safeguards individual workers but also strengthens overall operational efficiency, demonstrating that effective safety management is integral to every successful workplace.

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