Managing Physical Hazards

Lecture 9 : Inspection, Audits and Accident Investigation (Physical Hazards)

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Undergraduate Diploma in Occupational Health and Safety

Learning Objectives

- **Understand workplace physical hazards**
  Develop knowledge of common physical hazards found in workplaces such as noise, vibration, radiation, extreme temperatures, poor lighting, and unsafe machinery. Understanding these hazards helps workers recognize potential risks, assess their impact on health and safety, and take appropriate preventive measures.
- **Learn inspection procedures**
  Understand the systematic process of workplace inspections, including planning, using inspection checklists, identifying unsafe conditions and practices, documenting findings, and recommending corrective actions. Learning inspection procedures helps organizations detect hazards early and maintain a safer working environment for all employees.
- **Understand safety auditing**
  Gain knowledge of safety auditing processes that evaluate workplace safety management systems, policies, and procedures. Understanding audits helps determine compliance with regulations, identify gaps in safety performance, and recommend improvements that strengthen overall workplace health and safety management.

Learning Objectives

- **Learn incident investigation techniques**
  Develop skills to investigate workplace incidents effectively by collecting evidence, interviewing witnesses, analysing immediate and root causes, and documenting findings. Learning investigation techniques helps organisations understand why incidents occur and implement corrective measures to prevent recurrence.
- **Apply preventive actions**
  Learn how to implement preventive and corrective actions to eliminate or reduce workplace hazards. Applying preventive measures such as engineering controls, administrative controls, safe work procedures, and training helps reduce risks, improve safety performance, and protect workers from injuries.

The Importance of Hazards Identification

- Identifying physical hazards in the workplace is essential for protecting the health and safety of employees. Physical hazards such as excessive noise, extreme temperatures, poor lighting, moving machinery, slippery floors, and falling objects can cause serious injuries or long-term health problems. When these hazards are recognised early, organisations can take appropriate actions to eliminate or control them before they lead to accidents or harm. Early identification helps create a safer working environment where employees can perform their tasks with reduced risk.
- Another important reason for identifying physical hazards is accident prevention. Many workplace incidents occur because hazards were not noticed or properly managed. Regular hazard identification allows organisations to detect unsafe conditions and unsafe work practices before they result in injuries, equipment damage, or operational disruptions. By recognising potential dangers, employers can implement safety measures such as machine guards, proper lighting, safe storage, and maintenance procedures that significantly reduce the likelihood of workplace accidents.

The Importance of Hazards Identification

- Identifying physical hazards also helps organizations comply with occupational health and safety regulations and legal requirements. Many safety laws require employers to assess workplace risks and provide a safe working environment for their employees. Failure to identify and control hazards may result in legal penalties, financial losses, compensation claims, and damage to the organization's reputation. Proper hazard identification demonstrates that the organization is committed to maintaining regulatory compliance and protecting worker welfare.

- Finally, identifying physical hazards contributes to improved productivity and a stronger safety culture. When workers feel safe and protected, they are more confident, motivated, and efficient in performing their duties. A workplace that actively identifies and manages hazards encourages employees to participate in safety practices and report potential risks. This proactive approach not only reduces injuries and costs but also promotes long-term organizational success and sustainability.

Workplace Safety Management

Safety Management Components

1. Hazard identification
2. Risk assessment
3. Control measures
4. Monitoring and Review
   (Inspections, audits, and investigations support the monitoring process)

What is a Workplace Inspection?

Definition

A safety inspection is a systematic and organised examination of the workplace conducted to identify physical hazards that may cause injury, illness, or property damage. It involves carefully observing work areas, equipment, machinery, and working conditions to detect unsafe conditions and practices. The goal of a safety inspection is to recognize potential physical hazards before they lead to accidents and to ensure that appropriate safety controls are in place.

Related to Physical Hazards

- Examination of workplace conditions such as floors, walkways, lighting, temperature, and ventilation
- Checking machinery and equipment for missing guards, sharp edges, or exposed moving parts
- Identifying slip, trip, and fall hazards such as wet surfaces, uneven floors, or obstructed pathways
- Evaluating exposure to noise, vibration, heat, cold, and radiation
- Inspecting storage areas for risks of falling objects or unstable materials
- Verifying that emergency exits, safety signs, and protective barriers are properly maintained

Objective Workplace Inspection (1/2)

Identify hazards

The primary objective of a workplace inspection is to identify physical hazards that may pose risks to employees. These hazards may include slippery floors, poor lighting, excessive noise, exposed moving machinery, falling objects, or unsafe equipment. During inspections, the workplace environment, equipment, and work practices are carefully examined to detect unsafe conditions. Early identification of hazards allows organizations to take corrective measures before accidents occur, thereby protecting workers and maintaining a safer workplace environment.

Verify safety compliance

Workplace inspections help verify whether the organization is complying with occupational health and safety regulations, company safety policies, and industry standards. Inspectors check if safety procedures are properly followed, warning signs are displayed, machine guards are installed, and safety equipment is available and functional. Compliance verification ensures that physical hazards are effectively controlled and that the workplace meets legal requirements. Regular inspections also help organizations avoid legal penalties and maintain proper safety management practices.

Objective Workplace Inspection (2/2)

Ensure equipment safety

Another important objective of workplace inspections is to ensure that machinery, tools, and equipment are safe to operate. Inspectors examine equipment for defects, damage, missing guards, or improper maintenance that could create physical hazards. They also verify that safety devices and protective systems are functioning correctly. Ensuring equipment safety reduces the risk of mechanical injuries, equipment failures, and operational disruptions, while promoting safe and efficient work processes within the organisation.

Prevent accidents

Workplace inspections play a crucial role in preventing accidents and injuries caused by physical hazards. By regularly examining the workplace for unsafe conditions such as obstructed walkways, poor lighting, unstable materials, or malfunctioning equipment, organizations can take corrective actions before incidents occur. Preventive inspections help reduce the likelihood of slips, trips, falls, and mechanical injuries. Ultimately, this proactive approach supports a strong safety culture and protects employees from harm.

Types of Workplace Inspection

Routine inspections

Routine inspections are regularly conducted checks of the workplace to identify common physical hazards that may develop during daily operations. These inspections focus on areas such as walkways, floors, lighting, machinery guards, and storage areas. Supervisors or safety officers usually perform them frequently to detect unsafe conditions like spills, obstructions, excessive noise, or damaged equipment before they lead to accidents.

Planned inspections

Planned inspections are scheduled and systematic examinations of specific workplace areas, equipment, or processes to identify physical hazards. They are usually conducted using structured checklists and involve safety personnel, supervisors, and worker representatives. Planned inspections focus on identifying hazards such as unsafe machinery, poor ventilation, heat exposure, or improper material storage, helping organisations maintain a controlled and safe working environment.

Special inspections

Special inspections are carried out under unusual or specific circumstances, such as after an accident, equipment failure, workplace modification, or introduction of new machinery. These inspections aim to identify new or unexpected physical hazards that may arise from changes in the work environment. They help ensure that new processes, equipment, or structural changes do not create additional risks for workers.

Pre-operational inspections

Pre-operational inspections are conducted before machinery, equipment, or work processes begin operating. The purpose is to ensure that all equipment is safe and free from physical hazards before use. Workers check for issues such as loose parts, missing guards, damaged tools, leaks, or unsafe conditions. These inspections help prevent mechanical failures, injuries, a accidents during operation.

Inspection Team (1/2)

Safety Officers

Safety officers play a leading role in workplace inspections by coordinating and guiding the inspection process. They use safety standards, checklists, and regulations to identify physical hazards such as excessive noise, poor lighting, unsafe machinery, and slip or trip hazards. Safety officers document inspection findings, assess the level of risk, and recommend corrective actions. They also ensure that inspections are conducted regularly and that the organization complies with occupational health and safety requirements.

Supervisors

Supervisors are responsible for monitoring the day-to-day activities of workers and ensuring that work areas remain safe. During workplace inspections, they help identify unsafe practices and physical hazards related to equipment use, housekeeping, and work procedures. Supervisors also verify that workers follow safety guidelines, use equipment properly, and maintain safe work conditions. Because they are familiar with daily operations, supervisors can quickly recognize potential hazards and implement immediate corrective actions.

Inspection Team (2/2)

Worker Representatives

Worker representatives participate in inspections to provide the perspective of employees who perform the tasks daily. They help identify physical hazards that may not always be visible to management, such as repetitive strain, uncomfortable working positions, excessive vibration, or unsafe work practices. Their involvement encourages worker participation in safety programs and improves communication between employees and management. Worker representatives also help promote awareness and cooperation in maintaining a safe workplace.

Maintenance Personnel

Maintenance personnel play a crucial role in identifying and correcting equipment-related physical hazards during workplace inspections. They inspect machinery, tools, electrical systems, and infrastructure for defects, wear, or malfunction that could lead to accidents. Maintenance staff ensure that machine guards, safety devices, and protective systems are functioning properly. They are also responsible for repairing faulty equipment and performing preventive maintenance to reduce the risk of mechanical failures and injuries.

Inspection Checklist (1/3)

An **inspection checklist related to physical hazards in the workplace** should include key areas that help identify unsafe conditions which may cause injuries, accidents, or health problems. The checklist ensures inspections are systematic and that common hazards are not overlooked.

1. Floors and Walkways
The checklist should include inspection of floors, corridors, and walkways to identify slip, trip, and fall hazards. Inspectors should check for wet or slippery surfaces, uneven flooring, loose tiles, clutter, cables across walkways, and obstacles that may block movement. Proper housekeeping practices and clearly marked walkways should also be verified to ensure safe movement of workers and equipment.

2. Machinery and Equipment Safety
Inspectors should examine machines and equipment for physical hazards such as exposed moving parts, missing machine guards, damaged tools, or faulty safety devices. The checklist should also verify whether emergency stop buttons are functional and whether equipment is properly maintained. Ensuring machinery is safe to operate helps prevent mechanical injuries and equipment-related accidents.

Inspection Checklist (2/3)

3. Lighting Conditions
Adequate lighting is essential for safe working conditions. The inspection checklist should include checking whether work areas, stairways, storage areas, and walkways have sufficient lighting. Poor lighting can lead to accidents, mistakes, and eye strain. Inspectors should also check for broken lights, glare, or shadows that may affect visibility.

4. Noise and Vibration
The checklist should include evaluation of areas with high noise levels or excessive vibration from machinery or equipment. Inspectors should determine whether noise levels exceed safe limits and whether control measures such as sound barriers or personal protective equipment are provided. Monitoring these hazards helps prevent hearing damage and worker discomfort.

5. Temperature and Ventilation
Workplace inspections should assess exposure to extreme heat or cold, especially in industrial environments. The checklist should include evaluating ventilation systems, air circulation, and temperature control measures. Proper ventilation helps maintain a comfortable working environment and prevents heat stress or cold-related health problems.

Inspection Checklist (3/3)

6. Storage and Falling Object Hazards
Inspectors should check whether materials, tools, and equipment are properly stored and secured. The checklist should include examining shelves, racks, and stacked materials to ensure they are stable and not likely to fall. Proper storage prevents injuries caused by falling objects and improves workplace organisation.

7. Emergency Exits and Safety Signs
The checklist should verify that emergency exits are clearly marked, unobstructed, and easily accessible. Inspectors should also check the presence and visibility of safety signs, warning labels, and hazard indicators. These features help workers quickly identify dangers and safely evacuate in case of emergencies.

8. Personal Protective Equipment (PPE)
The checklist should ensure that appropriate PPE such as helmets, safety shoes, ear protection, or gloves is available and used correctly when workers are exposed to physical hazards. Inspectors should also verify that PPE is in good condition and properly maintained.

Inspection Checklist Sample

Workplace Inspection Checklist OHSD_017

WORKPLACE INSPECTION CHECKLIST

The following is not an exhaustive list but a framework to guide workplace inspections. Each workplace may wish to develop a site specific checklist. For review of workplace safety systems use the OHS self assessment tool.

Team Members: _____

Date of Inspection: _____

Location (e.g. General Assistant's Area/Workroom/Art room): _____

*** Further action required: (i) Risk Management Plan (ii) Hazard Report form (iii) Incident Investigation (iv) Other**

	Acceptable		Immediate action taken	Further action required*	Date signed off	Date to be completed
	Y	N				
Thoroughfares (access and egress)						
Pathways/walkways/stairs/ramps and access areas clear of rubbish and obstructions						
Pathways/walkways are slip free. Surfaces are even, free of holes, cracks, fraying or uplifted edges						
Slip resistant materials or absorbent mats used in wet areas						
Steps/stairs/ramps/handrails are secure and in good repair						
Electrical cables/cords kept clear of walkways or secured						
Exit and egress points clearly identified and accessible						
Other:						
Office environment (workstations and surrounding areas)						
Ergonomic furniture is appropriately adjusted e.g. keyboards, chairs						
Furniture is well maintained and in good/safe condition						
Desks and benches stable and suitable for the work						
Materials are stored appropriately e.g. not on floor around work areas						
Staff use good housekeeping practices around their work areas						
Sufficient space is provided around workstations so staff can move and work safely						
Walkways and aisles are clear of obstructions						
Floor mats do not present trip hazards						
Lifting aids are available where required						
Electrical equipment is in good working order						
Electrical leads are secured to prevent trip hazards						
Adequate ventilation in all areas						
Other:						
Storage						
Storerooms and storage areas are tidy and free from obstruction						
Stored materials are secured appropriately to prevent them falling						
Heavy equipment is stored at waist level						
Storage areas are accessible and free from trip hazards						
Shelving is stable and well maintained						
Other:						

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Conducting an Inspection

Conducting an inspection related to physical hazards in the workplace is an important process for identifying unsafe conditions that may cause injuries or accidents. The inspection should begin with proper planning, which includes selecting a competent inspection team, preparing an inspection checklist, and reviewing previous inspection reports or incident records. A structured approach helps ensure that all areas of the workplace are carefully examined and no potential hazards are overlooked.

During the inspection, the team systematically examines work areas, machinery, equipment, walkways, storage areas, and environmental conditions. Inspectors look for physical hazards such as slippery floors, obstructed walkways, poor lighting, excessive noise, unguarded machinery, falling objects, and exposure to extreme temperatures. Observing work practices and employee activities is also important to identify unsafe behaviours that may contribute to accidents.

All identified hazards should be clearly recorded, including their location, level of risk, and recommended corrective actions. Photographs or notes may be used to support the findings. After the inspection, the team should discuss the results and recommend appropriate control measures to eliminate or reduce the hazards. Regular workplace inspections help organizations prevent accidents, improve safety conditions, and promote a proactive safety culture.

Recording an Inspection

Recording the findings of a workplace inspection related to physical hazards is an essential step in ensuring that identified risks are properly addressed and controlled. Proper documentation provides a clear record of hazards and helps organisations track corrective actions and improve workplace safety over time.

The documentation should first include a **clear hazard description**. This involves briefly explaining the physical hazard observed during the inspection, such as a slippery floor, unguarded machinery, poor lighting, or unstable storage of materials. A detailed description helps others understand the nature of the hazard and its potential impact.

The **location of the hazard** should also be recorded accurately. Identifying the exact area, department, or workstation where the hazard exists helps responsible personnel quickly locate and address the problem.

Another important element is the **risk level**, which indicates the severity or likelihood of harm caused by the hazard. Classifying hazards as low, medium, or high risk helps prioritize corrective actions.

The documentation should also include the **recommended action** needed to eliminate or reduce the hazard, such as repairing equipment, improving housekeeping, or installing safety guards.

Finally, the **responsible person** for implementing the corrective action should be clearly identified to ensure accountability and timely resolution.

Corrective Actions

Applying control measures following a workplace inspection of physical hazards is a critical step to reduce or eliminate risks and ensure a safer working environment. Once hazards are identified and documented, organizations must implement appropriate control measures based on the **hierarchy of controls**, which prioritizes elimination, substitution, engineering controls, administrative controls, and personal protective equipment (PPE).

For physical hazards, elimination involves completely removing the hazard, such as replacing unsafe flooring or removing unnecessary machinery. Substitution might include using safer equipment or tools that produce less noise, vibration, or heat. Engineering controls are physical modifications to the workplace, such as installing machine guards, safety barriers, ventilation systems, or anti-slip flooring. Administrative controls involve changing work procedures, scheduling, or training workers to minimize exposure to hazards.

Providing and enforcing the correct **PPE** is essential when other control measures cannot fully eliminate risk. For example, workers may need helmets, ear protection, safety shoes, or gloves to prevent injury from machinery, noise, or falling objects.

Effective application of control measures also requires monitoring and follow-up. Inspectors must verify that the measures are implemented correctly, remain functional, and continue to protect employees. This proactive approach reduces accidents, enhances compliance, and promotes a strong safety culture in the workplace.

Safety Audits

A safety audit is a **systematic, comprehensive, and independent evaluation** of an organization's workplace safety management system, focusing on identifying, assessing, and controlling physical hazards that may cause injury or damage. Unlike routine inspections, which examine specific areas or equipment, safety audits evaluate the **overall effectiveness of safety policies, procedures, and practices** in preventing physical hazards such as unguarded machinery, slips, trips, falls, excessive noise, poor lighting, vibration, or extreme temperatures.

The audit process includes reviewing documentation, inspecting work areas, observing operations, and interviewing employees to assess compliance with regulatory standards and internal safety requirements. Safety audits help organisations **identify gaps or weaknesses** in their safety management system, prioritize corrective actions, and implement improvements. By systematically analysing hazards and controls, safety audits reduce workplace incidents, ensure legal compliance, and support a proactive culture of safety focused on physical hazard prevention.

Purpose of Safety Audits

Safety audits serve multiple important purposes in the workplace, especially in managing physical hazards:

1. **Evaluate Safety Programs:** Audits assess the effectiveness of existing safety policies, procedures, and control measures, ensuring that hazards such as unguarded machinery, slips, falls, noise, vibration, or poor lighting are properly managed.
2. **Verify Regulatory Compliance:** Audits help organizations ensure they comply with occupational health and safety regulations, standards, and internal safety policies, reducing the risk of legal penalties or fines.
3. **Identify Gaps and Weaknesses:** By systematically examining workplaces, operations, and documentation, audits uncover weaknesses or deficiencies in safety systems that may not be apparent during routine inspections.
4. **Prevent Accidents and Injuries:** Audits proactively identify risks and recommend corrective actions, helping to reduce workplace incidents related to physical hazards.
5. **Promote Continuous Improvement:** Safety audits encourage a culture of ongoing safety monitoring, training, and process improvement, strengthening overall organizational safety performance.
6. **Support Management Decisions:** Audit findings provide management with actionable data to allocate resources, improve safety programs, and prioritize risk mitigation strategies.

Types of Safety Audits

Internal audits

Internal audits are conducted by trained employees or internal safety teams within the organisation. They evaluate workplace safety practices, procedures, and controls for physical hazards such as machinery risks, slips, trips, falls, noise, or heat exposure. These audits help identify gaps, monitor compliance, and recommend corrective actions to improve safety from within.

External audits

External audits are performed by independent third-party organizations or regulatory agencies. They provide an unbiased assessment of workplace safety systems, focusing on physical hazards like unguarded equipment, poor lighting, or unsafe storage. External audits ensure compliance with legal and industry standards, validate internal safety programs, and offer recommendations for improving overall hazard control.

Compliance audits

Compliance audits specifically assess whether a workplace adheres to occupational health and safety laws, regulations, and internal policies. They focus on identifying physical hazards such as unsafe machinery, electrical risks, noise exposure, and emergency preparedness. These audits ensure organizations meet legal obligations, avoid penalties, and maintain a safe working environment for employees.

Management system audits

Management system audits evaluate the effectiveness of an organization's overall safety management system, including policies, procedures, and hazard control measures. They review how physical hazards—like slips, falls, heat, vibration, or moving machinery—are managed, monitored, and mitigated. These audits support continuous improvement, accountability, and the integration of safety into operational management.

Audits Process (1/2)

1. **Audit Planning**
   Audit planning involves defining the audit's scope, objectives, and schedule. It includes selecting the audit team, reviewing previous reports, and preparing inspection checklists focused on physical hazards such as machinery risks, slips, falls, noise, or heat exposure. Proper planning ensures a structured, thorough, and efficient audit process.

2. **2. Document Review (**
   During document review, auditors examine safety policies, procedures, risk assessments, incident records, training logs, and maintenance reports. This helps identify gaps in managing physical hazards like unguarded machinery, improper storage, or insufficient protective equipment. Reviewing documentation provides a baseline understanding of the organization's safety compliance and effectiveness before site inspections.

3. **3. Site Evaluation**
   Site evaluation involves physically inspecting the workplace to identify physical hazards such as slippery floors, obstructed walkways, faulty machinery, excessive noise, or poor lighting. Auditors observe work practices, equipment conditions, and environmental factors. This step ensures that safety systems are effectively implemented and that real-world conditions align with documented procedures.

Audits Process (2/2)

4. Employee Interviews (
Auditors interview employees to understand their awareness, training, and adherence to safety procedures. Workers can provide insights into physical hazards they encounter daily, such as repetitive strain, vibration, or unsafe machinery operation. Interviews help auditors validate findings, uncover unreported risks, and assess the effectiveness of safety communication and training programs.

5. Analysis and Evaluation
In this step, auditors analyse collected data, site observations, and employee feedback to evaluate the effectiveness of hazard controls. Physical hazards are categorized by risk level, and gaps in safety practices are identified. This evaluation helps prioritize corrective actions and ensures that resources are focused on high-risk areas requiring immediate attention.

6. Reporting and Follow-Up
The final step involves preparing a detailed audit report documenting findings, identified physical hazards, risk levels, and recommended corrective actions. Reports assign responsibilities and timelines for implementation. Follow-up ensures corrective measures are completed, controls are effective, and workplace safety continuously improves, reducing the likelihood of accidents and injuries.

Safety Audits Checklist (1/2)

What Hould a Safety Audit Checklist include?

Safety Policies
The checklist should verify that written safety policies are in place, up-to-date, and accessible to all employees. Policies must address physical hazards, safe work procedures, PPE requirements, and compliance with regulations. Effective policies guide behaviour and promote a culture of workplace safety.

Training Records
Training records ensure employees have received proper instruction on physical hazards, safe work practices, and emergency procedures. The checklist should confirm that training is documented, current, and covers machinery operation, PPE use, hazard recognition, and risk prevention to maintain a competent and safety-aware workforce.

Safety Audits Checklist (2/2)

What Hould a Safety Audit Checklist include?

Incident Reports
Incident reports document workplace accidents, near misses, and safety violations. The checklist should ensure reports are complete, accurate, and analysed for root causes. Reviewing these reports helps identify recurring physical hazards, informs corrective actions, and prevents similar incidents in the future.

Risk Assessments
Risk assessments identify and evaluate potential physical hazards such as slips, trips, falls, noise, and unsafe machinery. The checklist should confirm that risk assessments are conducted regularly, updated as needed, and used to implement control measures that minimize workplace injuries.

Emergency Preparedness
The checklist should evaluate the organization's readiness for emergencies, including fire, chemical spills, or equipment failures. It verifies that emergency plans exist, evacuation routes are clear, drills are conducted, and employees are trained to respond safely to minimize harm from physical hazards.

Audit Report

An OHS audit report is a structured document summarizing the findings of a safety audit, particularly in relation to physical hazards in the workplace. It serves as a record of evaluation and provides actionable information for management to improve safety systems.

The **findings** section outlines the results of the audit, detailing observed physical hazards such as unguarded machinery, slippery floors, poor lighting, excessive noise, or unsafe storage. It highlights areas where safety measures are effective and areas needing attention.

The **non-compliance issues** section identifies violations of occupational health and safety regulations, company policies, or industry standards. These may include missing machine guards, inadequate PPE, blocked emergency exits, or incomplete training documentation.

The **risk levels** section categorises each hazard according to its severity and likelihood of causing injury or damage. Classifying risks as low, medium, or high helps prioritize corrective actions.
Finally, the **recommendations** section provides suggested corrective measures, including engineering controls, administrative changes, PPE improvements, or enhanced training. Assigning responsibilities and timelines ensures effective implementation and continuous improvement in workplace safety.

OHS Audit vs OHS Inspection (1/2)

1. Definition

OHS Inspection: A **systematic, on-site examination** of specific areas, equipment, or work practices to identify immediate physical hazards such as slippery floors, unguarded machinery, poor lighting, or noise exposure. It is usually focused and task-specific.

OHS Audit: A **comprehensive, systematic evaluation** of the organisation's overall safety management system, including policies, procedures, training, and compliance with regulations. Audits assess how well physical hazards are managed across the entire workplace.

2. Purpose

Inspection: Detects **existing hazards** and unsafe conditions to prevent accidents. It is proactive and immediate.

Audit: Evaluates **effectiveness of safety systems**, identifies gaps, and ensures compliance with legal and organizational safety requirements. Focuses on long-term improvement.

3. Scope

Inspection: Narrow, specific, and often routine. Focuses on areas, equipment, or operations with high physical hazard potential.

Audit: Broad, covering policies, documentation, procedures, training, hazard controls, and emergency preparedness across the organisation.

OHS Audit vs OHS Inspection (2/2)

4. Frequency
Inspection: Frequent or regular (daily, weekly, or monthly) to catch hazards early.
Audit: Periodic (quarterly, annually, or as required by law or management).

5. Outcome
Inspection: Immediate corrective actions for hazards.
Audit: Recommendations for systemic improvements, policy updates, and long-term risk reduction.

In short, inspections identify hazards on the ground, while audits evaluate the safety management system that prevents those hazards.

Incident Investigation

Incident investigation in Occupational Health and Safety (OHS) is a systematic process used to determine the causes of workplace incidents, including accidents, near misses, or unsafe events, particularly those involving physical hazards such as slips, trips, falls, machinery injuries, noise, vibration, or exposure to extreme temperatures. The purpose is not to assign blame but to understand why the incident occurred and prevent recurrence.

The process typically involves:

- **Securing the scene** to preserve evidence.
- **Collecting evidence** such as photographs, equipment condition, and environmental data.
- **Interviewing witnesses and employees** to gather firsthand accounts.
- **Analysing root and contributing causes**, including unsafe conditions, unsafe acts, or system failures.
- **Recommending corrective and preventive actions** to eliminate hazards or improve workplace safety procedures.

Types of Incident Investigation

1. **Injuries**
   Investigating injuries involves examining workplace incidents where employees are physically harmed due to hazards such as slips, trips, falls, machinery accidents, or exposure to extreme conditions. The investigation identifies causes, contributing factors, and preventive measures to avoid recurrence and improve safety.
2. **Near Misses**
   Near misses are incidents that could have caused injury or damage but did not. Investigating near misses helps identify hidden physical hazards, unsafe practices, or procedural gaps. Addressing these factors proactively prevents future accidents and strengthens workplace safety culture.
3. **Equipment Failures**
   Equipment failure investigations focus on machinery or tools that malfunctioned or broke down, potentially causing physical hazards. The investigation examines maintenance practices, operator errors, or design flaws to prevent recurrence, ensuring machinery operates safely and reduces risk of injury.
4. **Property Damage**
   Property damage investigations analyse incidents where workplace assets or infrastructure are damaged due to physical hazards. Identifying the root cause—such as falling objects, equipment collisions, or structural failures—helps implement corrective measures, prevent future damage, and maintain safe operational conditions.

Why we Investigate Incident ?

Identify Root Causes
Investigating incidents helps determine the underlying factors that led to an accident or near miss, such as unsafe conditions, equipment failure, or human error. Identifying root causes ensures that corrective actions address the real problem rather than just the symptoms, preventing future hazards.

Prevent Recurrence
Incident investigations allow organizations to implement measures that stop similar accidents from happening again. By analysing what went wrong and why, organizations can correct unsafe practices, improve workplace conditions, and reduce the risk of repeated injuries or property damage.

Improve Safety Systems
Investigating incidents provides valuable insights into weaknesses in safety procedures, training, equipment, or policies. This information helps management enhance safety systems, strengthen hazard controls, and update operational practices, ensuring that workplace hazards are better managed and overall safety is improved.

Meet Legal Requirements
Incident investigations ensure compliance with occupational health and safety laws and regulations. Proper documentation, analysis, and reporting demonstrate that the organization is actively managing risks, addressing hazards, and taking responsibility for worker safety, reducing liability and avoiding regulatory penalties.

Steps of Incident Investigation

1. Secure the scene
2. Collect evidence
3. Interview witnesses
4. Analyse causes
5. Recommend corrective actions

Secure the Scene

Securing the scene is the first and critical step in incident investigation, especially for incidents involving **physical hazards** such as machinery accidents, slips, trips, falls, falling objects, or electrical shocks. The goal is to **preserve evidence and prevent further injury** while maintaining the integrity of the investigation.

Key steps include:

Restrict Access: Limit access to the area where the incident occurred. Only authorized personnel such as safety officers or investigators should enter. This prevents disturbance of evidence and ensures safety.

Prevent Further Hazards: Identify and control any remaining physical hazards, such as exposed machinery, wet floors, or unstable materials, to avoid additional accidents.

Mark and Protect Evidence: Use barriers, cones, or tape to protect critical evidence like machinery, tools, surfaces, or environmental conditions. Take photographs or sketches for documentation.

Document the Scene: Record the location, environmental conditions, equipment positions, and any immediate hazards before any cleanup or changes occur.

Properly securing the scene ensures a thorough and accurate investigation, helping to identify root causes and implement effective corrective actions.

Evidence Collection

Collecting evidence is a crucial step in investigating incidents involving physical hazards such as machinery accidents, slips, trips, falls, falling objects, or exposure to extreme conditions. Accurate evidence ensures the investigation identifies root causes and informs corrective actions.

Key Steps:

Photographs and Videos: Capture the scene, damaged equipment, unsafe conditions, and positions of materials or machinery to preserve a visual record.

Physical Evidence: Collect damaged tools, machine parts, or any objects contributing to the incident. Ensure items are safely removed and stored for analysis.

Environmental Data: Record conditions such as lighting, temperature, floor surface, noise levels, or vibration that may have contributed to the hazard.

Documents and Records: Gather maintenance logs, training records, safety procedures, and prior incident reports related to the area or equipment involved.

Witness Statements: Collect firsthand accounts from employees present during the incident, noting their observations and actions.

Proper evidence collection ensures a comprehensive investigation, prevents recurrence, and strengthens workplace safety by addressing the underlying causes of physical hazards.

Interview Witnesses

Interviewing witnesses is a vital part of investigating workplace incidents involving physical hazards such as slips, trips, falls, machinery accidents, or falling objects. Witness accounts provide firsthand information about what occurred, helping investigators understand the sequence of events and contributing factors.

Key Guidelines:

Interview Individually: Speak to each witness separately to prevent influence or biased accounts.

Ask Open-Ended Questions: Encourage detailed descriptions of what they observed, the conditions, and actions taken during the incident.

Avoid Blame: Focus on facts, not assigning fault, to ensure honest and accurate information.

Record Statements Accurately: Take notes, audio recordings, or written statements to document witness observations clearly.

Clarify Details: Ask follow-up questions to resolve ambiguities about physical hazards, environmental conditions, or equipment involved.

Effective witness interviews help investigators reconstruct the incident accurately, identify root causes, and implement preventive measures to reduce risks from physical hazards.

Root Cause Analysis

Root cause analysis (RCA) is a systematic process used to identify the underlying factors that lead to workplace incidents involving physical hazards, such as machinery accidents, slips, trips, falls, or falling objects. The goal is to **address the true causes rather than just the immediate effects**, preventing recurrence.

Key Steps:

Identify Immediate Causes: Determine what directly caused the incident, such as a wet floor, unguarded machinery, or improperly stacked materials.

Examine Contributing Factors: Analyse conditions that allowed the hazard to exist, such as poor maintenance, lack of training, or unsafe work procedures.

Use Analytical Tools: Apply methods like the **5 Whys, Fishbone Diagram, or Fault Tree Analysis** to systematically trace the problem back to its root causes.

Determine Systemic Issues: Look for organisational or procedural weaknesses that may have indirectly contributed to the incident.

Develop Corrective Actions: Implement solutions targeting the root causes, such as engineering controls, improved training, or procedural changes.

Investigation Tools

Fishbone Diagram
The Fishbone Diagram, also called the Ishikawa diagram, is a visual tool used in incident investigations to identify potential causes of workplace hazards. It organizes causes into categories such as equipment, environment, people, materials, methods, and management. For physical hazards, the diagram helps investigators systematically explore why incidents like falls, machinery injuries, or noise exposure occurred. By mapping all contributing factors, the Fishbone Diagram highlights underlying problems and supports the development of targeted corrective actions to prevent recurrence.

5 Whys Technique
The 5 Whys Technique is a simple, iterative method used to uncover the root cause of an incident by repeatedly asking “Why?” for each contributing factor. In workplace incidents involving physical hazards, such as unguarded machinery or slips, this technique helps move from immediate causes to underlying problems. By asking “Why?” five times, investigators can identify systemic issues, unsafe practices, or procedural gaps. The technique is practical, cost-effective, and helps organizations implement corrective measures that prevent similar hazards from reoccurring.

Fault Tree Analysis
Fault Tree Analysis (FTA) is a structured, top-down method used to determine the root causes of accidents by mapping the logical relationships between failures and incidents. For physical hazards, FTA can be applied to understand how equipment failure, human error, environmental conditions, or procedural lapses contribute to accidents like falls, machinery injuries, or structural damage. The method uses symbols and logic gates to illustrate cause-and-effect relationships, helping safety professionals identify critical points where interventions can eliminate risks and prevent future incidents.

Continuous Safety Improvement

Continuous safety improvement is an ongoing process aimed at reducing workplace risks and enhancing safety performance, particularly in relation to physical hazards such as slips, trips, falls, machinery accidents, excessive noise, and poor working conditions. Inspections, audits, and incident investigations play a crucial role in identifying hazards, evaluating safety systems, and learning from past incidents.

Workplace **inspections** help identify unsafe conditions and practices before they lead to accidents. By regularly examining work areas, equipment, and environmental conditions, organizations can detect hazards early and implement immediate corrective actions. This proactive approach reduces the likelihood of injuries and maintains a safe working environment.

Safety audits support continuous improvement by evaluating the effectiveness of the organization's safety management system. Audits review policies, procedures, training programs, and hazard control measures to ensure they are properly implemented and compliant with regulations. The findings help management strengthen safety strategies and allocate resources effectively.

Incident investigations provide valuable lessons by identifying the root causes of accidents and near misses. By analysing these incidents, organizations can implement preventive measures, improve work procedures, and address underlying safety weaknesses.

Together, inspections, audits, and incident investigations create a **cycle of learning and improvement**, helping organizations continuously reduce physical hazards, protect workers, and promote a strong workplace safety culture.

Lecture Conclusion

Key Takeaways

- Identify physical hazards early
- Conduct regular inspections
- Perform systematic audits
- Investigate incidents thoroughly
- Implement preventive measures

21 ACADEMY

Undergraduate Diploma in Occupational Health and Safety