

Construction Hazards and Risks Control

Lecture Title: – Proactive Safety Management System in Construction

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Date: 20th November 2024



Undergraduate Diploma in
Occupational Health and Safety

Objectives

- Understand Safety Management Systems (SMS)
- Identify key elements of proactive SMS
- Recognise integration with management processes
- Apply SMS knowledge in construction projects



Definition of PPE

- Personal Protective Equipment (PPE) refers to all equipment worn or held by a worker to protect against health and safety risks.
- Examples: helmets, gloves, goggles, footwear, harnesses.
- It is the last line of defence in the hierarchy of control.

What is a Safety Management System?

- A Safety Management System (SMS) in construction is a structured and systematic framework that enables employers, contractors, and project teams to plan, implement, monitor, and continuously improve all aspects of health and safety on a construction site. It provides a clear, organised approach to identifying hazards, assessing risks, implementing controls, and ensuring legal compliance throughout all phases of the project.
- Structured framework for managing H&S
- Based on PDCA cycle
- Promotes proactive safety



Proactive Vs Reactive Safety

- Reactive: after incidents (fire fighting)
 - Just like fire-fighting, action only begins when the fire is already burning.
- Proactive: prevention & improvement (fire prevention)
 - Just like fire prevention, it focuses on removing fuel sources, installing alarms, and training people *before* a fire starts.
- Prevent-first culture (organizational mindset)
 - Think of it as the mindset shift from “*we will deal with accidents when they happen*” to “*we will organise the work so accidents never happen in the first place.*”



Key Benefits of SMS in Construction

- Reduces accidents
- Meets legal duties
- Increases Productivity & efficiency
- Promotes positive safety culture
- Provides a safer working environment



SMS in the Construction Context

- Multiple Stakeholders
- Dynamic hazards
- Coordination & consistency between activities (also when there is overlapping of activities)
- Transient Workforce



How the SMS Addresses these Challenges

- A construction SMS provides:
- Structure
 - Clear documentation, procedures and controls for safe working.
- Coordination
 - Ensures all stakeholders work in a safe working environment
- Communication
 - Regular briefings, toolbox talks, and updates maintain awareness
- Continuous Improvement (PDCA)
 - Hazards are monitored, controls reviewed and improvements implemented
- Proactive, Prevent-First Culture
 - Risks are managed before work begins, not after incidents occur.



Core Elements of SMS

- Policy Development
- Planning & Organisation
- Implementation & Operation
- Monitoring & Measurement
- Review & Improvement



Policy Development

- Clear H&S policy
- Management commitment
- Communicated to stakeholders



Planning & Organisation

- Risk assessments
- Roles & responsibilities
- Resource planning



Implementation & Operation

- Toolbox talks
- Permit-to-work systems
- Site Inspections
- Incident and Near Miss Reporting



Monitoring & Measurement

- Active monitoring (inspections)
- Reactive monitoring (incidents)
- KPIs
- Feedback loops



Review & Continuous Improvement

- Management reviews
- Lessons learned
- Updating procedures
- Learning culture



The Role of Leadership

- Visible commitment
- Accountability
- Empowerment to stop unsafe work



Worker Participation

- Consultation & involvement
- Safety committees
- Ownership of practices



Tools for Proactive Management

- Safety climate surveys
- Behavioural observation
- Digital tools (drones, apps)



Challenges in SMS Implementation

- Costs & resources
- Contractor management
- Resistance to change
- Documentation overload



Key Takeaways

- SMS = proactive framework
- Leadership & engagement critical
- Continuous improvement essential





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