

Introduction to Occupational Safety and Health

Introduction to Occupational Safety and Health (OSH)

Key concepts, objectives, and foundational elements for creating safe workplaces.

1. What Is Occupational Safety and Health?

Term	Definition
Occupational Safety	Practices that protect workers from accidents, injuries, and hazardous incidents that occur while performing job duties.
Occupational Health	Measures that preserve and promote workers' physical, mental, and social well-being, focusing on disease prevention, ergonomics, and exposure control.
OSH (Occupational Safety and Health)	Integrated approach that combines safety and health to prevent work-related injuries, illnesses, and fatalities.

2. Core Objectives of OSH

- Prevent Injuries & Illnesses** – Eliminate or reduce hazards before they cause harm.
- Comply with Legal Requirements** – Meet national and international regulations (e.g., OSHA, EU-OSHA, ILO conventions).
- Promote a Safety Culture** – Foster attitudes, beliefs, and behaviors that prioritize health and safety at all organizational levels.
- Enhance Productivity** – Healthy workers are more efficient, have lower absenteeism, and contribute to higher quality output.
- Protect Assets & Reputation** – Reduce costs from accidents, legal claims, and damage to brand image.

3. Legal Framework (U.S. Example)

Level	Description
Federal	Occupational Safety and Health Act (OSHA) – sets standards, enforces compliance, provides training.

Introduction to Occupational Safety and Health

Level	Description
State	State-run OSHA programs (e.g., California's Cal/OSHA) may have stricter rules.
Industry-Specific	Standards for construction, maritime, agriculture, etc.
International	ILO Convention 155, ISO 45001 (Occupational Health & Safety Management Systems).

Key legal concepts:

- **Employer duties** – provide safe workplace, training, PPE, hazard communication.
 - **Employee rights** – receive training, report hazards, refuse unsafe work without retaliation.
 - **Enforcement tools** – inspections, citations, fines, possible criminal penalties.
-

4. Hazard Identification & Risk Assessment

4.1 Types of Workplace Hazards

Category	Examples
Physical	Noise, vibration, radiation, extreme temperatures, machinery.
Chemical	Solvents, gases, dust, fumes, hazardous substances.
Biological	Bacteria, viruses, fungi, mold.
Ergonomic	Repetitive motion, awkward postures, manual handling.
Psychosocial	Stress, harassment, shift work, workload pressure.
Safety	Unguarded equipment, slips/trips/falls, electrical hazards.

4.2 Risk Assessment Process

1. **Identify** hazards (walk-throughs, job safety analyses, incident reports).
 2. **Analyze** likelihood and severity of potential outcomes.
 3. **Evaluate** risk level (e.g., low, medium, high) using a risk matrix.
 4. **Control** hazards (apply hierarchy of controls).
 5. **Review** and update regularly or after any change.
-

Introduction to Occupational Safety and Health

5. Hierarchy of Controls

Level	Control Method	Typical Application
1. Elimination	Remove the hazard entirely.	Automate a dangerous task.
2. Substitution	Replace with a less hazardous alternative.	Use water-based paint instead of solvent-based.
3. Engineering		