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# SAFETY AT THE WORKPLACE

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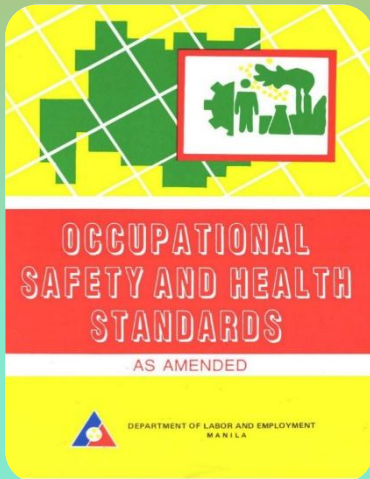
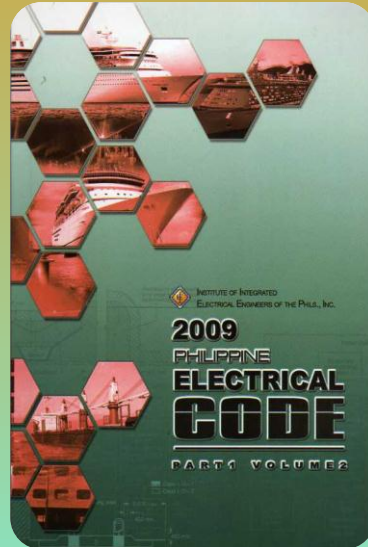
## OSH LAWS & ISSUANCES



Book IV, Title I –  
Medical, Dental and  
Occupational Safety

Occupational Safety  
and Health Standards,  
(OSHS) 1978

OCCUPATIONAL SAFETY AND HEALTH CENTER  
Department of Labor and Employment



## RULE 1210 ELECTRICAL SAFETY

**1211 : Philippine Electrical Code:**

The Philippine Electrical Code is hereby adopted and the standards contained therein shall be considered safety standards to the extent that they safeguard any person employed in any workplace and control the practice of electrical engineering.

**1212 : Electrical Safety Inspection:**

**1212.01 : Definition:**

- (1) "Installation" as used in this Rule shall mean assemblage of electrical equipment in a given location, designed for coordinated operation, properly erected and wired.
- (2) "Approved" shall mean acceptable to the Bureau after test and examination show compliance with standards.

**1212.02 : General Provisions:**

- (1) No electrical installation shall be undertaken without the plans having been approved by the Secretary or his authorized representative.
- (2) No service or power supply shall be connected to any electrical installation by any utility company supplying electricity or by any person until the necessary final inspection is conducted and a safety certificate/permit issued by the Regional Labor Office or authorized representative having jurisdiction over the case.
- (3) The following are excluded in the coverage of this Rule:
  - a. electric generating plants with franchises which are under the jurisdiction of the Board of Power and Waterworks.
  - b. electric generating plants and electrical installations in radio and television station which are under the jurisdiction of the Department of Public Works, Transportation and Communications, and
  - c. electrical installation for conveyances used in connection with water transportation which are under the jurisdiction of the Bureau of Customs.
- (4) The exemptions under 3 (a) and (b) are only for the design and construction, the electrical installation may be inspected by the Regional Labor Office or authorized representative, if such poses danger to the safety and health of the workers therein.
- (5) The practice of electrical engineering as required under this Rule shall be subjected to the provisions of the Philippine Electrical Engineering Law, R.A. 184.



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- RME - lifetime member of the IIEE
- BOD - IIEE, Camarines Chapter.
- Former President and Organizer of the Association of Bicol Electrician (ABE)
- Chairman of the Registered Master Electrician Affairs Committee (RMEAC)
- PRC License for Registered Master Electrician and Certified Plant Mechanic.
- Twenty six (26) years of work experience was devoted to the power plants of National Power Corporation assuming the various positions such as Sr. Plant Electrician, Sr. Plant Mechanic and Maintenance Foreman in Substation Section of the Maintenance Services Department of NPC.
- Safety Specialist in AP Renewables, Inc. - Tiwi Geothermal Power Plant in Tiwi, Albay,
- Accredited Safety Consultant of the Department of Labor and Employment- Bureau of Working Condition.
- Recognized speaker on safety-related training such as Basic Occupational Safety and Health (BOSH), Construction Occupational Safety and Health (COSH) and resource speaker for various safety-related topics in different schools.
- Safety Practitioner Awardee of the Safety, Health Association of the Philippines Energy Sector (SHAPES) for 2015.
- Geothermal Safety Officer – DOE
- Contact Number: 09394393888/09276862443





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## ABSTRACT

- Companies spend millions of pesos in safety trainings and programs, invest in management systems like OHSAS 18001 to meet compliance requirements, attain zero incident/accident in the workplace and achieve a world class status in the world of business.
- Investing in safety trainings is worth the cost because the workforce becomes effective. A safe and healthy workplace results to increased efficiency and quality, no day lost, reduced medical insurance and higher productivity.



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Safe and Healthy  
Work  
environment



**OHSAS 18001:2007**

**SAFETY  
FIRST**



**ISO 9001:2008**

Improved business process  
to achieve customer requirements

**SAFETY &  
HEALTH**



Committed in taking care  
of the environment

**QUALITY**

**IMS**

**ENVIRONMENT**

**ISO 14001:2004**

Innovation Process



**Efficiency**



Vision

Strategy

Development



Teamwork

Analysis

Management



Marketing

Partner



**What is Integrated Management System (IMS)?**



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- Workplace hazards are part of every workplace that occur in an uneven intensity depending on the sector.
- Everyone in the workplace should know how to identify, analyze, eliminate, mitigate and or manage hazards.
- It is important that we have a clear understanding of the hazards e.g. electrical, chemical, thermal, tripping, ergonomic, falling hazards and many more that we meet at the workplace.
- All of these can be mitigated, managed and or eliminated.
- Ensuring the safety of our co-workers in the workplace is a top priority of the company and the customer as well and to look after their safety, a Safety Officer is employed.







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## CATEGORIES OF HAZARD

- **Safety** – anything or condition that can cause physical injury
  - **Health** – any infective agent, substance situation or condition that directly attacks the body tissues causing occupational illness
- **Environment** – any pollution, waste including noise in any form or quantity that impairs the quality of the working environment, such as dust, smoke, gases, radioactivity and odors



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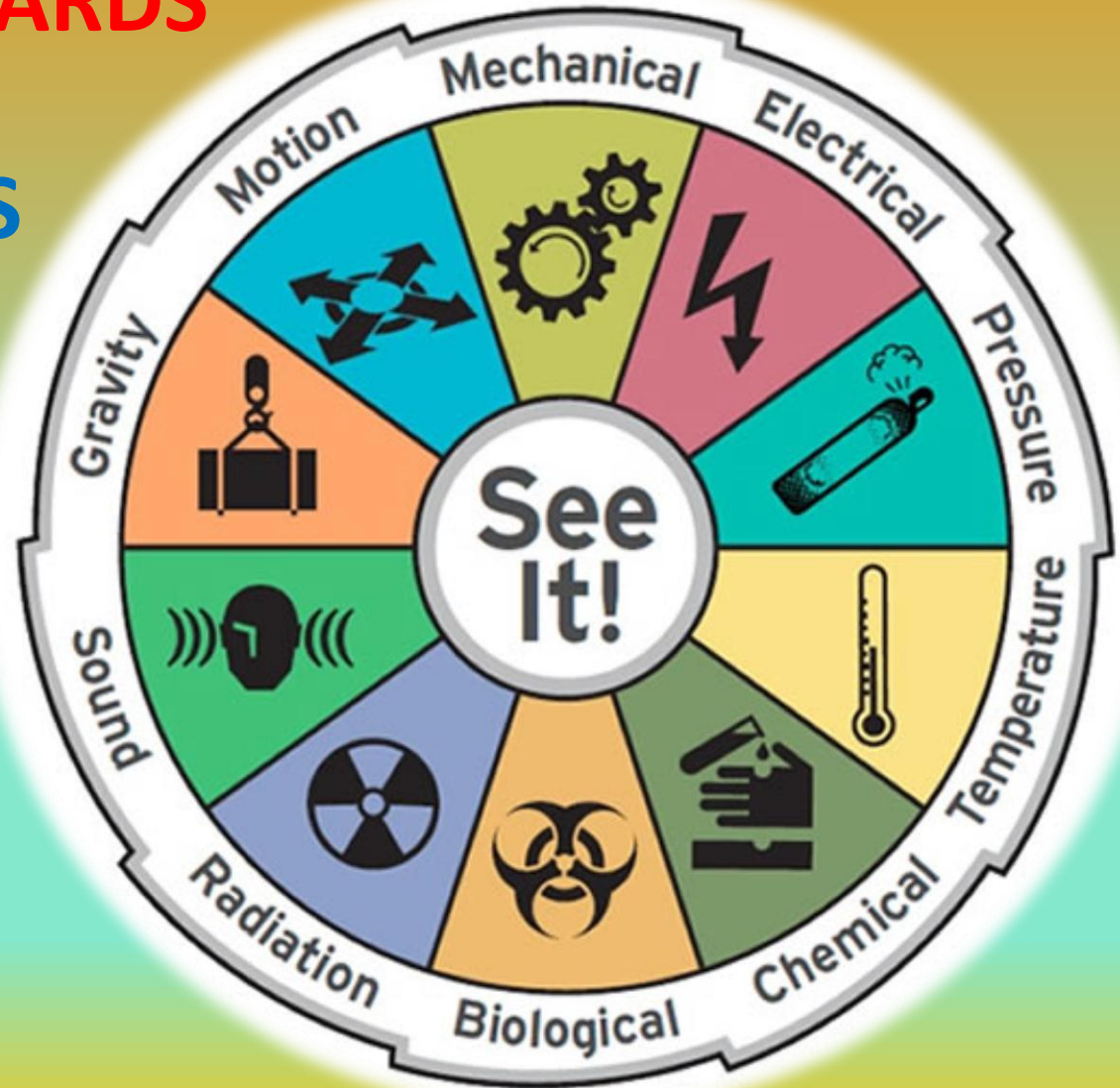
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# SOURCES OF HAZARDS

HEALTH HAZARDS

SAFETY HAZARDS





# Hazardous Energy Sources



Energy Type	Description
Mechanical	Relating to springs, rotating parts etc, produced by machine
Radiation	Energy released from unstable nuclei, nuclear reaction or charged particle acceleration
Magnetic	Energy stored in magnetic fields, found in capacitors & superconducting magnetic storage
Gravity	Found in machine/equipment parts that might descend, slide or fall if left unblocked
Electrical	Present in transmission lines, transformers, circuit breakers or motors- AC or DC
Hydraulic	Involving fluid under pressure, in cylinders, pipes & tanks
Pneumatic	Involving compressed air or gas, in cylinders, lines or pipes
Thermal	Hot or Cold, Heat generated from machine or cooling system (<5 °C & >60 °C)
Chemical	Produced as a result of chemical reaction
Steam	Water vapour kept under pressure



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# WORKPLACE HAZARD

## SAFETY HAZARDS

- Working conditions where harm to the workers is of an immediate and violent in nature.
- Result in broken bones, cuts, bruises, sprains, loss of limbs, etc.
- The harm results in some kind of injury to the worker
- Associated with poorly guarded or dangerous equipment and machinery.



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## HEALTH HAZARDS

- Working conditions which result in an illness.
- Exposure to dangerous substance or conditions, such as chemicals, gases, dusts, noise etc..
- Often, latency between exposure and diseases.



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- Any Hazards exist in every workplace, but how do you know which ones have the most potential to harm workers?
- By identifying hazards at your workplace, you will be better prepared ;
  - to control or eliminate them and
  - prevent accidents, injuries, property damage and downtime.



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- A key step in any safety protocol is to conduct a thorough hazard assessment of all work environments and equipment.
- You can't protect your workers against hazards you are unaware of.
- Avoid blind spots in your workplace safety procedures.





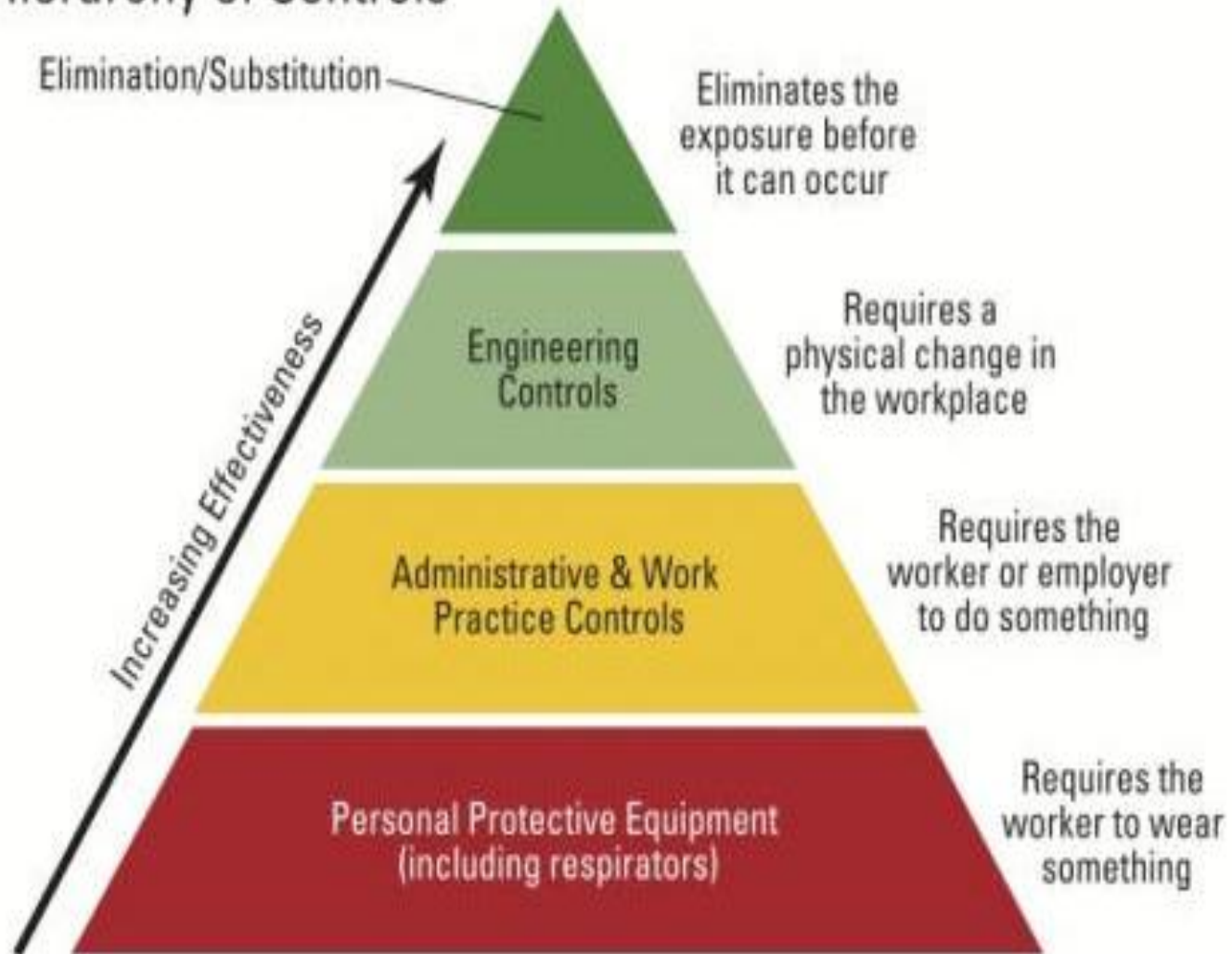


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## "The Hierarchy of Controls"





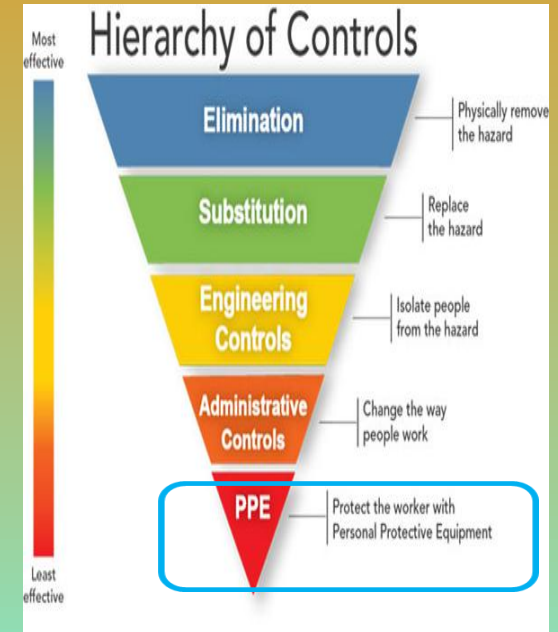
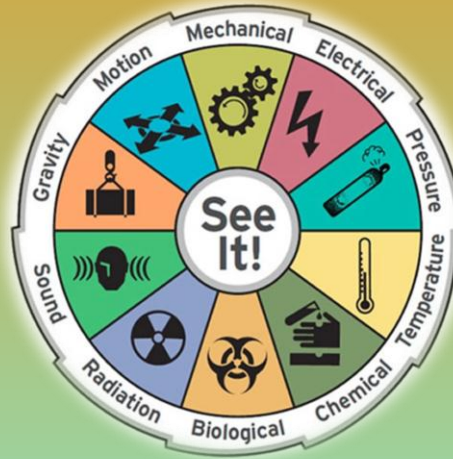
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## Hazard Identification:

- A process where all members of a Work Party identify the work place hazards and the control measures used to control them.





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Can the Hazard be eliminated?

Can we substitute or replace the hazard?

Can we isolate the hazard from the employee?

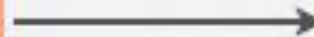
Can we introduce Engineering Controls to control the hazard?

Will an Administrative Control fix the problem?

Personal Protective Equipment

Make the Workplace Safe

Make the Employee Safe





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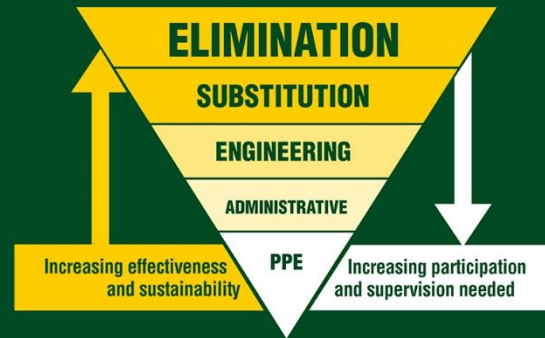
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# HAZARD CONTROL

Workplace procedures adopted to minimize injury, reduce adverse health effects and control damage to plant or equipment.

## Hierarchy of Controls



Apply the highest level of control that corresponds with the risk level  
Lower value controls may be used in the interim until long-term controls are implemented



### Elimination

Remove the hazard from the workplace

- Elimination is the preferred way to control a hazard and should be used whenever possible



### Substitution

Substitute hazardous materials or machines with less hazardous ones

- Use a soap and water washing system to clean metal parts instead of trichloroethylene, a cancer hazard
- Substitute a product that is in dry powder form with the pellet form to reduce airborne dust and the inhalation hazard



### Engineering Controls

Designs or modifications to plants, equipment, systems and processes that reduce the source of exposure

- Automate hazardous processes
- Use mechanical lifting devices or transportation instead of manual methods
- Enclose and isolate the hazard from workers
- Implement a local exhaust ventilation system



### Administrative Controls

Controls that alter the way the work is done

- Schedule maintenance and other high exposure operations to when few workers are present
- Implement job rotation and work rest schedules that limit the time a worker is exposed to a substance or process
- Establish safe work practices such as standard operating procedures, emergency response training, and good housekeeping and personal hygiene practices



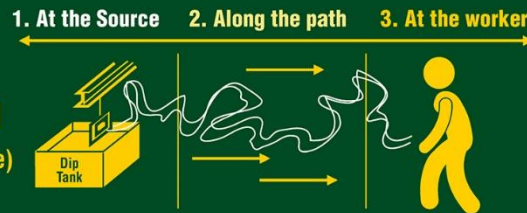
### Personal Protective Equipment

Equipment worn to reduce exposures such as chemical contact or noise

- Should be the last level of protection used when all other methods are not possible

In many cases, a combination of control measures might need to be used to control a risk.

Controls are usually placed (most effective to least effective)

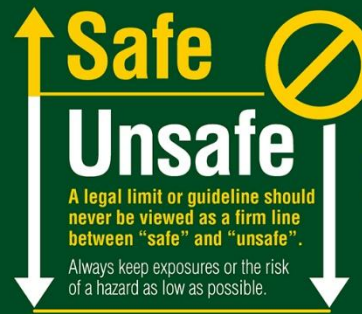


## Steps in a hazard control program

1. Identify the hazard
2. Assess the risk (consider severity and likelihood of outcome)
3. Choose the best control for the hazard
4. Implement the chosen control
5. Evaluate the effectiveness of the control

## Monitor and Review

- Physical workplace inspections
- Testing
- Exposure assessments
- Injury and illness tracking
- Medical assessments
- Accident/incident investigations reports
- Employee feedback and input



**What the law says:** Some hazards and their control measures will be specifically outlined in legislation. In all cases, the employer must take all reasonable precautions to prevent injuries or accidents in the workplace.

**CCOHS.ca**  
Canadian Centre for Occupational Health and Safety



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## **Safety Hazards**

Objects that cause immediate injuries like cuts, burns, slips, or falls.

## **Ergonomic Hazards**

Lifting, working in an awkward position, and repetitive motions.

## **Chemical Hazards**

Gases, vapors, liquids, or dusts that can harm your body.

## **Environmental Hazards**

Elements of your environment such as noise, temperature, violence, or stress.



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## **SAFETY HAZARDS**

- Safety Hazards are unsafe working conditions that that can cause injury, illness and death. Safety hazards are the most common workplace hazards.



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They include:

- ✓ Anything that can cause spills or tripping such as cords running across the floor or ice
- ✓ Anything that can cause falls such as working from heights, including ladders, scaffolds, roofs, or any raised work area
- ✓ Unguarded machinery and moving machinery parts that a worker can accidentally touch
- ✓ Electrical hazards like frayed cords, missing ground pins, improper wiring
- ✓ Confined spaces



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## **BIOLOGICAL HAZARDS**

- Biological Hazards include exposure to harm or disease associated with working with animals, people, or infectious plant materials.
- Workplaces with these kinds of hazards include, but are not limited to, work in schools, day care facilities, colleges and universities, hospitals, laboratories, emergency response, nursing homes, or various outdoor occupations.





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Types of things you may be exposed to include:

- Blood and other body fluids
- Fungi/mold
- Bacteria and viruses
- Plants
- Insect bites
- Animal and bird droppings



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# PHYSICAL HAZARDS

Physical hazards can be any factors within the environment that can harm the body without necessarily touching it.

They include:

- Radiation: including ionizing, non-ionizing (EMF's, microwaves, radiowaves, etc.)
- High exposure to sunlight / ultraviolet rays
- Temperature extremes – hot and cold
- Constant loud noise



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	COMMON SOUNDS	DECIBEL LEVELS dB(A)
DAMAGING	rock concert, jet takeoff, gun shot	120 to 140
	chainsaw, air gun, portable stereo, dance club, boiler room, sandblasting	100 to 120
HARMFUL	power tools, motorcycle, headphones, snowmobile, manufacturing plant, lawnmower, hydraulic press, pneumatic drill	90 to 100
IRRITATING	dishwasher, computer room, subway, busy restaurant or kitchen	75 to 90
	city traffic, hair dryer, office equipment, cell phone	70 to 80
SAFE	normal conversation	50 to 70
	countryside with rustling leaves	20 to 50



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# ERGONOMIC HAZARDS

Ergonomic Hazards:

- Occur when the type of work, body positions and working conditions put a strain on your body.
- Short-term exposure may result in “sore muscles” the next day or in the days following the exposure, but long term exposure can result in serious long-term illness.



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Ergonomic Hazards includes:

- Improperly adjusted workstations and chairs
- Frequent lifting
- Poor posture
- Awkward movements, especially if they are repetitive
- Having to use too much force, especially if you have to do it frequently
- Vibration



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# CHEMICAL HAZARDS

## Chemical Hazards:

- Are present when a worker is exposed to any chemical preparation in the workplace in any form (solid, liquid or gas).
- Some are safer than others, but to some workers who are more sensitive to chemicals, even common solutions can cause illness, skin irritation, or breathing problems.



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## **Beware of:**

- Liquids like cleaning products, paints, acids, solvents – ESPECIALLY if chemicals are in an unlabeled container!
- Vapors and fumes that come from welding or exposure to solvents
- Gases like acetylene, propane, carbon monoxide and helium
- Flammable materials like gasoline, solvents, and explosive chemicals
- Pesticides



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## WORK ORGANIZATION HAZARDS

- Hazards or stressors that cause stress (short term effects) and strain (long term effects).
- These are hazards associated with workplace issues such as workload, lack of control and/or respect, etc.





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Examples include:

- Workload demands
- Workplace violence
- Intensity and/or pace
- Respect (or lack thereof)
- Flexibility
- Control or say about things
- Social support or relations
- Sexual harassment



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# IMMEDIATE CAUSES OF ACCIDENT

• **UNSAFE ACT**

• **UNSAFE CONDITION**



## **Immediate cause > Examples of Unsafe acts & unsafe conditions**

---

### **Unsafe Acts**

- Operating Vehicles without license or authority
- Bypassing safety interlocks without authorization
- Not tagging filed equipment when isolated from electrical Sub Station
- Starting maint job on machines/pump/motor without isolating power locally and from sub station
- Opening of flanges on live equipment/line as happened on MJPL HSD line
- Miscoordination between two working groups in same enclosure
- Fueling running vehicles/cranes
- Carrying a suspended load over personnel.
- Keeping files on floor in movement area.

### **Unsafe Condition**

- Working on perforated roof or weak roof
- Blocked exit/entry/stairs
- Undressed cable /wire of computer /printer etc
- Open manholes /Open trenches
- Working in areas with oil spillage
- Broken/missing wire net on revolving fan/machines.



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## Definitions

- Safeguarding—Any means of preventing personnel from coming in contact with moving parts of machinery or equipment, that would potentially cause harm
- Device—a mechanism or control designed for safeguarding at the point of operation
- Guard—barriers designed for safeguarding
- Enclosure—safeguarding by fixed physical barriers that are mounted on or around the machine to prevent accidents
- Fencing—safeguarding by means of a locked fence or rail
- Location—safeguarding when a hazard is physically inaccessible under normal operating conditions or use

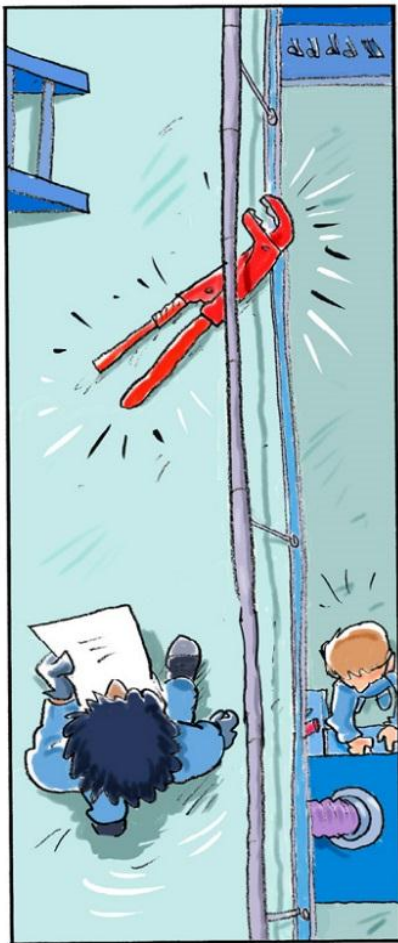


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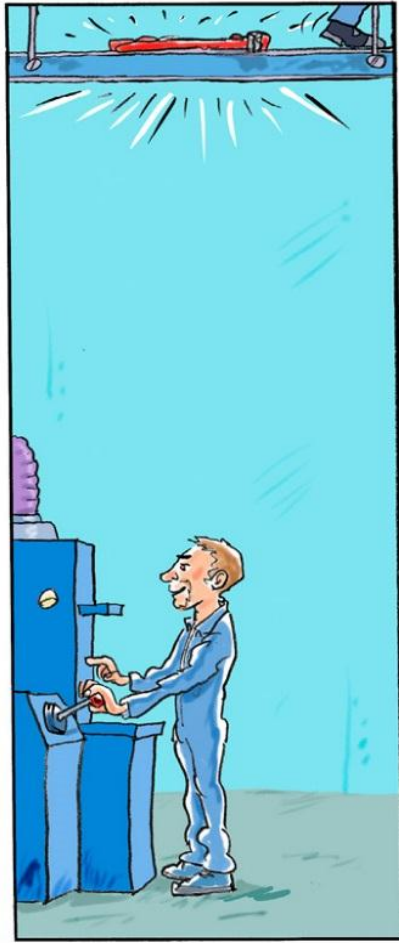
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# The unsecured tool



**UNSAFE CONDITION**



**UNSAFE ACT**



**NEAR MISS**



**ACCIDENT**



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# The flying claw



Unsafe condition.

Unsafe act

Near miss

Accident



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# Trolley on the loose



Unsafe condition.



Unsafe act



Near miss



Accident





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# The misplaced handle



Unsafe condition.

• Unsafe act

• Near miss

• Accident



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# the slippery floor



Unsafe condition.

Unsafe act

Near miss

Accident



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# The electrical Shock



Unsafe condition.



Unsafe act



Near miss



Accident



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# The Weak Rope



Unsafe condition.

• Unsafe act •

Near miss

• Accident



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**Is that safe?"**

**"Oh sure, it would take two hydraulic failures before it comes down."**



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**If You Value Your Sight  
Do What's Right!**

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**THERE'S A**  
**WRONG WAY...**



**AND A**  
**RIGHT WAY!**

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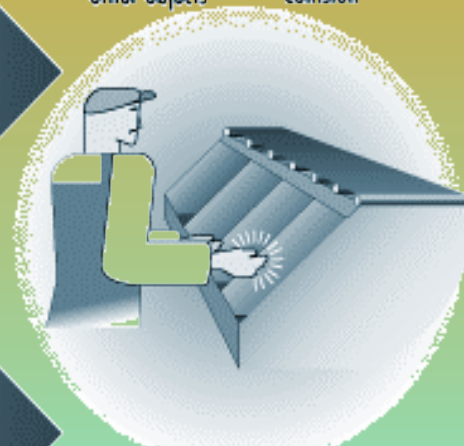
## IMMEDIATE CAUSES

### UNSAFE ACTS

- Protective equipment or guard provided but not used
- Hazardous method of handling (failure to watch for sharp or slippery objects and pinch points; lifting; loose grip, etc.)
- Improper tools or equipment used despite availability of proper tools
- Hazardous movement (running, stepping on or climbing over, throwing, etc.)

### UNSAFE CONDITIONS

- Ineffective safety device
- No safety device although one is needed
- Hazardous housekeeping (e.g., material on floor, poor piling, congested aisles)
- Equipment, tools or machines defective
- Improper dress or apparel for job
- Improper illumination, ventilation, and so on



- ### T Y P E
- Being caught in or between mechanical or other objects
  - Fall
  - Slip
  - Slide
  - Collision
  - Eruption or explosion
  - Burn

### RESULT

- Annoyance
- Production delays
- Reduced quality
- Spoilage
- Property damage
- Minor injury
- Disabling injury
- Fatality

## CONTRIBUTING CAUSES

### SAFETY MANAGEMENT PERFORMANCE

- Instruction inadequate
- Rules not enforced
- Safety not planned as part of the job
- Infrequent employee safety contacts
- Hazards not corrected
- Safety devices not provided

### MENTAL CONDITION OF WORKER

- Lack of safety awareness
- Lack of coordination
- Improper attitude
- Slow mental reaction
- Inattention
- Lack of emotional stability
- Nervousness
- Temperamentalism

### PHYSICAL CONDITION OF WORKER

- Extreme fatigue
- Deafness
- Poor eyesight
- Lack of physical qualification for job
- Hearing condition
- Crippling or other handicap





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# **LEGISLATIVE PROCEDURES**

## **Identification of hazards by employees**

- Elimination or control of risks

## **Establishment of H&S committees**

- Election of employee representative

## **Duties of H&S officer**

## **List of risk control procedures**

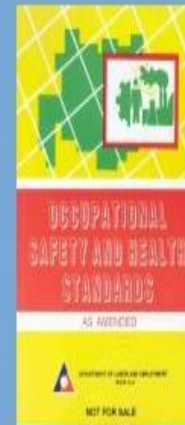
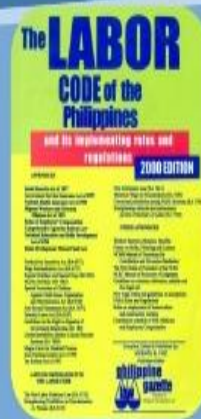


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# OSH LAWS & ISSUANCES



Book IV, Title I –  
Medical, Dental and  
Occupational Safety

Occupational Safety  
and Health Standards,  
(OSHS)1978



OCCUPATIONAL SAFETY AND HEALTH CENTER  
Department of Labor and Employment





- ✓ **Importance of Safety and Health program of a company to develop, designed procedures in a workplace and to control, eliminate the identified hazards and risks.**
- ✓ **“The goal of safety and health management\_ is to prevent workplace injuries, illnesses and deaths,”**
- ✓ **The guidelines are intended to help employers establish health and safety management plans at their workplaces.**
- ✓ **Key principles include finding and fixing hazards before they cause injury or illness, and making sure that workers have a voice in safety and health.**



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# Who will develop the SAFETY & HEALTH program?



## **RULE 1040 HEALTH AND SAFETY COMMITTEE**

### **1041 : General Requirements:**

In every place of employment, a health and safety committee shall be organized within sixty (60) days after this Standards takes effect and for new establishments within one (1) month from the date the business starts operating. In both cases the Committee shall reorganize every January of the following year.

### **1042 : Types and Composition of Health and Safety Committee:**

#### **1042.01 : Type A:**

In every workplace having a total of over four hundred (400) workers the following shall compose the Health and Safety Committee:

Chairman - The manager or his authorized representative who must be a top operating official.

Members - Two department heads  
- Four workers (must be union members, if organized)  
- The company physician

Secretary - The safety man

#### **1042.02 : Type B:**



**1043 : Duties of the Health and Safety Committee:**

**1043.01 : Health and Safety Committee:**

The Health and Safety Committee is the planning and policymaking group in all matters pertaining to safety and health. The principal duties of the Health and Safety Committee are:

- (1) Plans and develops accident prevention programs for the establishment.
- (2) Directs the accident prevention efforts of the establishment in accordance with the safety programs safety performance and government regulations in order to prevent accidents from occurring in the workplace.
- (3) Conducts safety meetings at least once a month.
- (4) Reviews reports of inspection, accident investigations and implementation of program.
- (5) Submits reports to the manager on its meetings and activities.
- (6) Provides necessary assistance to government inspecting authorities in the proper conduct of their activities such as the enforcement of the provisions of this Standards.
- (7) Initiates and supervises safety training for employees.



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# BE PROACTIVE



# REPORT HAZARDS!

## Your Report – basic checklist

- Have you?
  - Described Accident - Nature or Description
  - Identified Hazards
  - Determined the Sequence of events
  - Determined the Control Measures or Barriers
  - Determined Failures and where in the sequence of events
  - Identified Unsafe Acts and/or Unsafe Conditions
  - Identified Unsafe Act immediately prior to the accident is the Immediate Cause
  - Identified Unsafe Condition exists prior to the accident



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GLOBAL HEALTHCARE WASTE PROJECT

# Principles of Worker Health and Safety

- **11 functions integral to worker health and safety**
  - Identifying and assessing risk
  - Surveilling workplace hazard
  - Designing safe workplaces
  - Developing programs to improve work practices and evaluating new equipment
  - Advising on occupational health, safety and hygiene
  - Surveilling workers' health
  - Promoting adaptation of work to the worker
  - Managing vocational rehabilitation
  - Organizing training and education
  - Organizing first aid and emergency treatment
  - Analyzing adverse conditions that lead to injury and illness



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# *HAZARDS IN THE* *WORKPLACE*





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## 5 Steps to Safer Workplaces





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## Spot the Hazards







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***KEEP OUR PLANT  
SAFE & CLEAN***

**ELIMINATE HAZARDS**



**PICK-UP  
CLEAN-UP**





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**SPOT the HAZARDS**





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## PHYSICAL HAZARDS

- ✓ Slips/Trips/Falls
- ✓ Manual Handling
- ✓ Falling Objects

## HEALTH HAZARDS

- ✓ Noise
- ✓ Fumes/Dusts
- ✓ Vibration

## CHEMICAL HAZARDS

- ✓ Solvents
- ✓ Acids
- ✓ Glues

## BIOLOGICAL HAZARDS

- ✓ Waste
- ✓ Hep B

## HUMAN HAZARDS

- ✓ Stress
- ✓ Bullying

## EXAMPLES OF HAZARDS AND THEIR EFFECTS

Workplace Hazard	Example of Hazard	Example of Harm caused
Thing	Knife	Cut
Substance	Benzene	Leukemia
Material	Asbestos	Mesothelioma
Source of Energy	Electricity Shock,	Electrocution
Condition	Wet floor	Slips, Falls
Process	Welding	Metal fume
Practice	Hard rock mining	Silicosis



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## TRIP HAZARDS

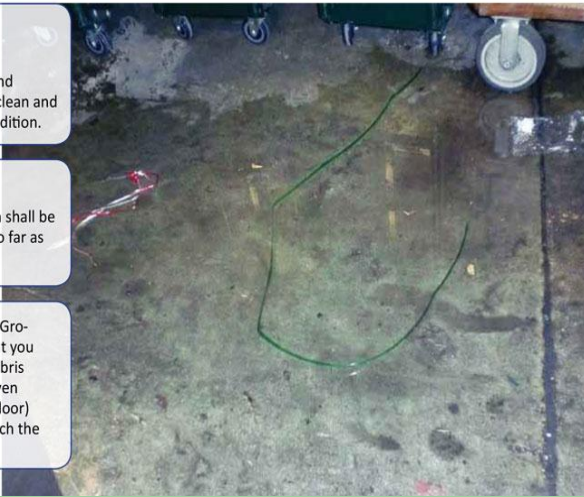
1910.22(a)(1)

All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.

1910.22(a)(2)

The floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition

OSHA's Guidelines for Retail Grocery Stores recommends that you inspect to see if there is "debris (e.g., broken pallets) or uneven surfaces (e.g., cracks in the floor) or dock plates that could catch the wheels while pushing?"



## BLOCKED EXIT ROUTE

1910.37(a)(3)

Exit routes must be free and unobstructed. No materials or equipment may be placed, either permanently or temporarily, within the exit route.



## BLOCKED PATHWAY

1910.176(a)

Use of mechanical equipment. Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard. Permanent aisles and passageways shall be appropriately marked.

The recommended width of aisles is at least 3 feet wider than the largest equipment to be utilized, or a minimum of 4 feet. – OSHA Letter of Interpretation May 15, 1972





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# Minimizing Hazards

- There are three main controls used to eliminate or minimize workplace hazards:
  - Administrative – policies and procedures that control the time and amount of exposure.
    - Rest breaks
    - Standard Operating Procedures (SOPs)
  - Engineering – physical changes to the workplace to reduce or minimize a hazard.
    - Biological safety cabinets
    - Chemical fume hoods
    - Ventilated dumping stations
  - Personal Protective Equipment (PPE) – equipment you wear to protect the head, face, eyes, feet, respiratory system, hearing and body from injury.
- Where possible, engineering and/or administrative controls should be attempted before requiring PPE.
- When PPE is necessary, it is provided to employees at no cost.
- Your supervisor should issue the appropriate PPE for your job duties.



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**i - SAFE / WE - SAFE**



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# OUR AIM IS



**THINK  
SAFE**



**WORK  
SAFE**



**GO HOME  
SAFE**



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# workplace safety A3 poster

## THE 10 COMMANDMENTS OF WORKPLACE SAFETY

- 1 Everyone Is Responsible For Their Own Safety AND The Safety Of Others.
- 2 All Accidents Are Preventable.
- 3 Follow Company Rules, Regulations And Procedures.
- 4 Assess The Risks. Stop AND Think.
- 5 Be Proactive About Safety.
- 6 If You're Not Trained, Don't Do It.
- 7 Manual Handling – Manage The Lift.
- 8 Don't Take Shortcuts.
- 9 Practice Good Housekeeping.
- 10 Be Prepared.

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