

# ELECTRIC SHOCK IN WORK PLACE

by

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# 1. Define the Hazard of Electricity

## Hazard Analysis

- Shock (Burning, cell wall damage)
- Influencing factor (frequency, Voltage magnitude)
- Arc and Arc energy release
- Blast
- Affected Body Parts

## continue

- Electrical Maintenance and its relationship to safety
- Electrical safety Equipment
- Regulatory and Legal safety Requirements and standards
- Accident Prevention, Accident Investigation, Rescues, and First Aid
- Medical Aspects of Electrical Trauma
- Safety Management and Organizational Structure
- Protective Strategies
- Safety Training Methods And Systems
- **Inspection , Test and Certificate for cause of (Injury, death)**

# 2.Low voltage system safety

- **a) Overall criteria**
- -Low-voltage Equipment
- Low-voltage system grounding
- Safety Equipment
- Safety Procedures
- Electrical safety around Electronic Circuit
- Stationary Battery Safety

## **b. Human factor in electrical safety**

- Human physical reliability includes understanding process information and executing successful decision or cognitive ergonomics
- **\*Electrical accidents happen when an employee isn't paying attention**
- **\*As long as I don't touch an electrical source , I won't get shock**
- -area (generation, Transmission, **Distribution, construction**)
- - Age influences , Physical and mental performance
- (sleep deprivation, fatigue, time of day, environmental extreme, alcohol or other drug use, medical problem, nutritional status)

## c. Grounding of Electrical Systems and Equipment

- c-1 system
- - Electric shock hazard
- - General requirements for grounding and bonding
- - Electrical grounding System
- - Electrical Equipment grounding
- - Bonding of Electrically conductive materials and other equipment
- - Arrangement of Prevent Objectionable current

continue

- c-2 Equipment grounding
- Cord and plug connection
- Grounding conductors
- Size of Grounding conductors

## **d. Electrical Maintenance and its relationship to safety**

- safety–related case for electrical maintenance( regulatory, hazard associated with electrical maintenance)
- Economic case for electrical maintenance
- Reliability cetered maintenance (RCM)
- Maintenance Program
- Frequency maintenance
- Maintenance requirements for specific equipment and location



## e. Regulatory and Legal safety Requirements and standards

- - Regulatory Body
- AISI American National Standards Institute
- NFPA National Fire Protection Association
- ASTM American Society for Testing and Materials
- ASSE American Society of Safety Engineers
- OSHA The Occupational Safety and Health Administration
- NESC National Electrical Safety Code

## **f. Accident Prevention, Accident Investigation, Rescues, and First Aid**

- **f-1 Accident Prevention**
- - Installation safety
- - Electrical Protective devices
- - Maintenance
- - Operation Schemes
- - Load Flow Analysis (stability, Motor starting, Harmonic, switching Transient, Reliability)
- - Cable ampacity analysis
- -Ground Mat Analysis

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- **f-3 Accident Investigation**
- Accident Prevention
- Litigation General Rules
- Data gathering( Site survey, Witness Interview, Physical Evident)
- Accident Analysis( Experimentation, Report)
- **f-4 Rescues**
- Heart-lung resuscitation
- Rescue Breathing
- Rescue Techniques

## **g. Medical Aspects of Electrical Trauma**

- Statically Survey
- Fatality and Injury related costs
- Electrocution and electrical fatalities
- Medical and surgical intervention
- Plateau in Recovery

# h .Safety Management and Organizational Structure

- -Electrical safety program structure
- -Electrical safety program development
- -Employee electrical safety teams
- -Safety meeting

## i. Safety Training Methods And Systems

- -Elements of a good training program
- -On the job training

## j. Protective Strategies

- -Training consultants and vendors
- -Training Program Setup





THANK  
YOU



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