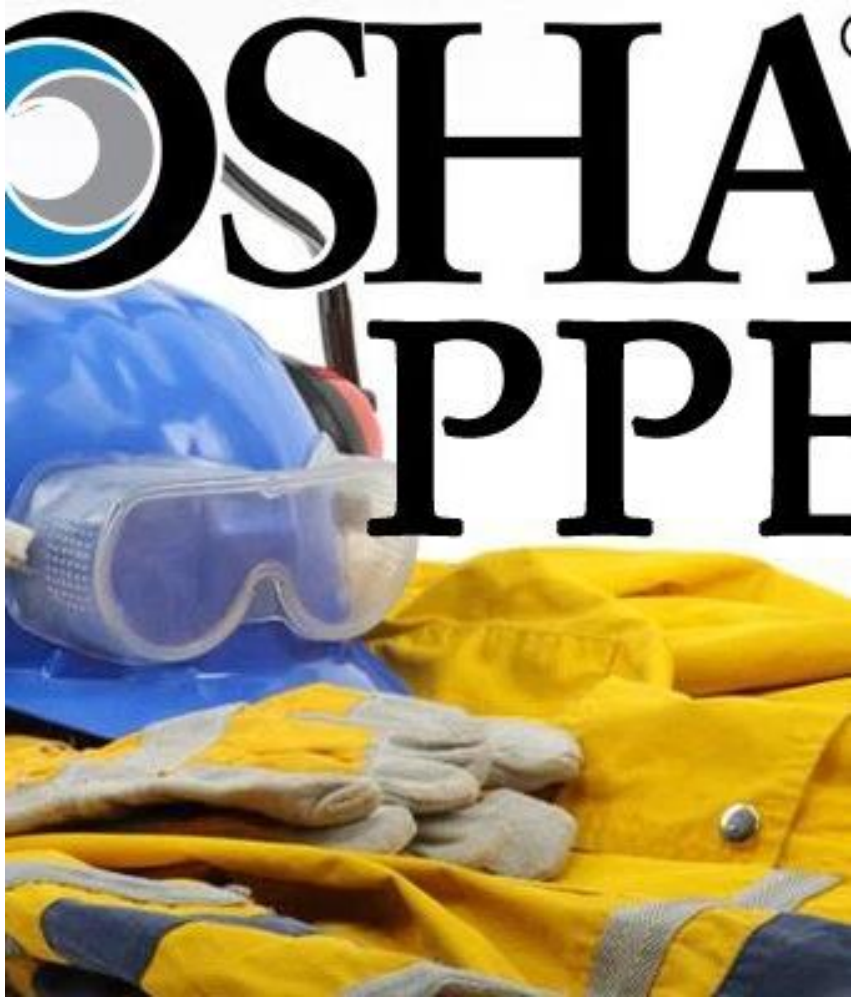





Tishk International University, Civil Eng. Deprt.
Prepared by: Ass. Lec. Haval M. Selki ©

haval.tiu@yahoo.com

CHAPTER I

# TITLE AND CONTENTS

- Six of History's Deadliest Construction Projects
- Why is OSHA Important to You?
- Recognize the background and history of OSHA standards.
- Aim & objectives of OSHA
- Humanitarian concerns in OSHA’s view
- Economic costs and benefits
- Impact of OSHA
- Discuss the structure of the OSHA regulations
- OSHA standards

# 6 OF HISTORY'S DEADLIEST CONSTRUCTION PROJECTS

# Panama Canal, 1880-1914

# CONT…

- **White Sea-Baltic Sea Canal, 1931-1933**
- Russian *gulag* prisoners were forced to dig this canal under extremely deplorable conditions, using primitive tools and inadequate safety equipment.
- 12,000 prisoners died during construction.

# CONT…

- **Burma-Siam Railway, 1942-1943.**
- Nicknamed the "Death Railway“
- 100,000 local residents who lost their lives working on the project,

# CONT…

- **Aswan Dam, 1960-70**
- Over 30,000 workers contributed to the building of the Aswan Dam in Egypt, and 500 lost their lives

# CONT…

- **Hawks Nest Tunnel, 1927**
- A simple diversion tunnel for the New River in West Virginia
- the deadliest industrial disasters in the U.S. due to poor health and safety regulations.
- Hundreds of workers developed silicosis due to the long-term exposure of silica dust in their lungs.
- official number of deaths is 1000.

# CONT…

- **Chernobyl Accident 1986**
- After the accident, officials closed off the area within 30 kilometres.
- Government evacuated about 115,000 people from the most heavily contaminated areas in 1986, and another 220,000 people in subsequent years.
- **The radiation reached Turkey & continue in development.**

# CONT…

- The Chernobyl accident contaminated wide areas of Belarus, the Russian Federation, and Ukraine inhabited by millions of residents.
- The majority of the five million residents living in contaminated areas.
- To date, about 6,000 thyroid cancer cases have been detected.

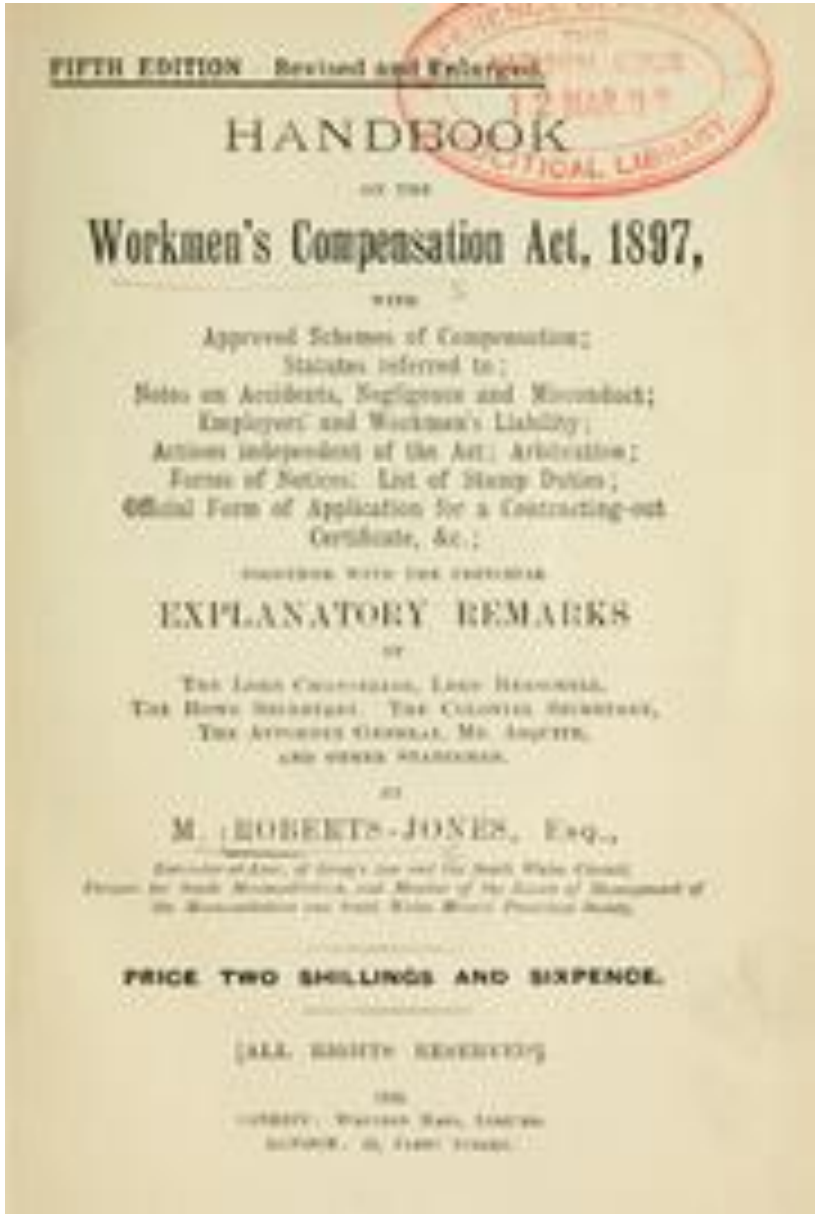
# Meaning of “Work”

- Work as an employee
- When he is at his place of work

Work can be simply defined as *an endeavor which is performed by somebody to achieve his/her goals, efforts can be physical or mental & goals could be set daily, weekly, monthly and even yearly.*

# HISTORY OF WORKMANSHIP

- In 1884, Germany enacted the first workmen's compensation act, followed by Austria in 1887 and England in 1897.
- The U.S. federal government passed the first U.S. compensation act in 1908 covering government employees. Following several legal battles, the Supreme Court, in 1917, declared that states could enact and enforce compulsory Workmen's Compensation laws under their power to provide for the public health, safety, and welfare.


FIFTH EDITION Revised and Enlarged.

HANDBOOK

Workmen's Compensation Act, 1897,

EXPLANATORY REMARKS

M. ROBERTS-JONES, Esq.,

PRICE TWO SHILLINGS AND SIXPENCE.

# WHY IS OSHA IMPORTANT TO YOU?

- **5,250** workers were killed on the job in 2018 (3.5 per 100,000 full-time equivalent workers)
- An average of nearly **14** workers die every day
- Nearly 3.5 million serious workplace injuries and illnesses were reported by private industry employers in 2018

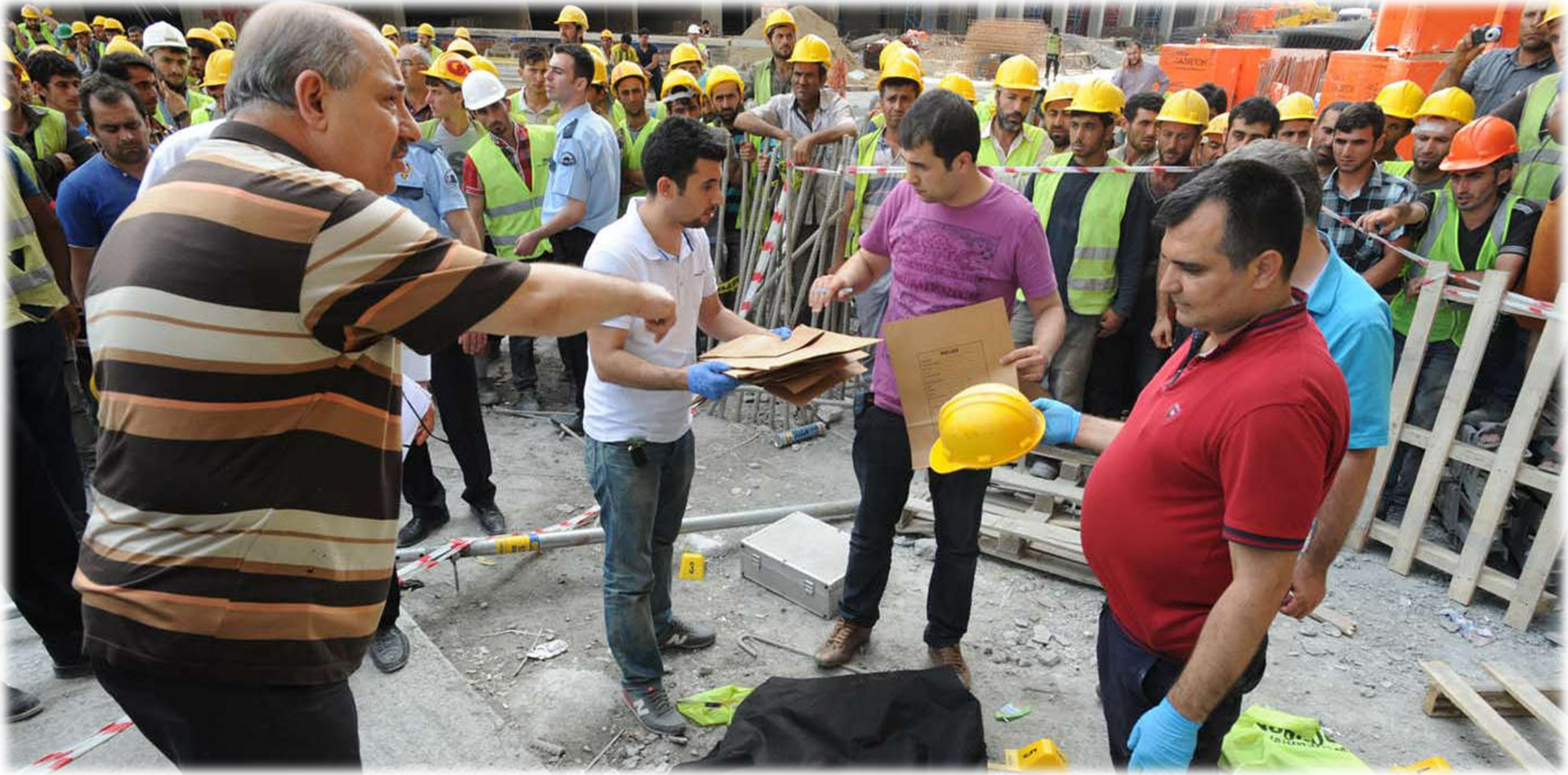
# OSHA Makes a Difference

- Worker deaths in America are down–on average, from about **38** worker deaths a day in 1970 to **14** a day in 2018.
- Worker injuries and illnesses are down–from **10.9** incidents per 100 workers in 1972 to **3.0** per 100 in 2018.

# WHAT IS OSHA?

- OSHA stands for the Occupational Safety and Health Administration.

- OSHA " *focuses on enhancing the safety of workplaces and the health of all workers. Generally, it is*
  - Rules that describe the methods employers must use to protect employees from hazards
  - Designed to protect workers from a wide range of hazards




FIRE
JAXON
JAXON

# THE FIRST OSHA ACT HAS BEEN SIGNED:

*Reflections from the 1970s*

**Early Years of OSHA**

President Richard M. Nixon signs *OSH Act*

The Occupational Safety and Health Act was signed into law on December 29, 1970, by President Richard M. Nixon, culminating nearly a

# THE MAIN AIM OF OSHA

Ensure employee safety and health by working with employers and employees to create better working environments.

# THE OBJECTIVES OF OSHA

- To **secure the safety, health and welfare** of persons at work against risks out of the activities at works.
- to **protect person** at a place of work other than persons at work against risks out of the activities at work
- To **promote an occupational environment** or persons at work which is adapted to their psychological and physiological needs.
- To **provide the means** to be progressively replaced by a system of regulations and approved industry codes to maintain or **improve the standards of safety and health**

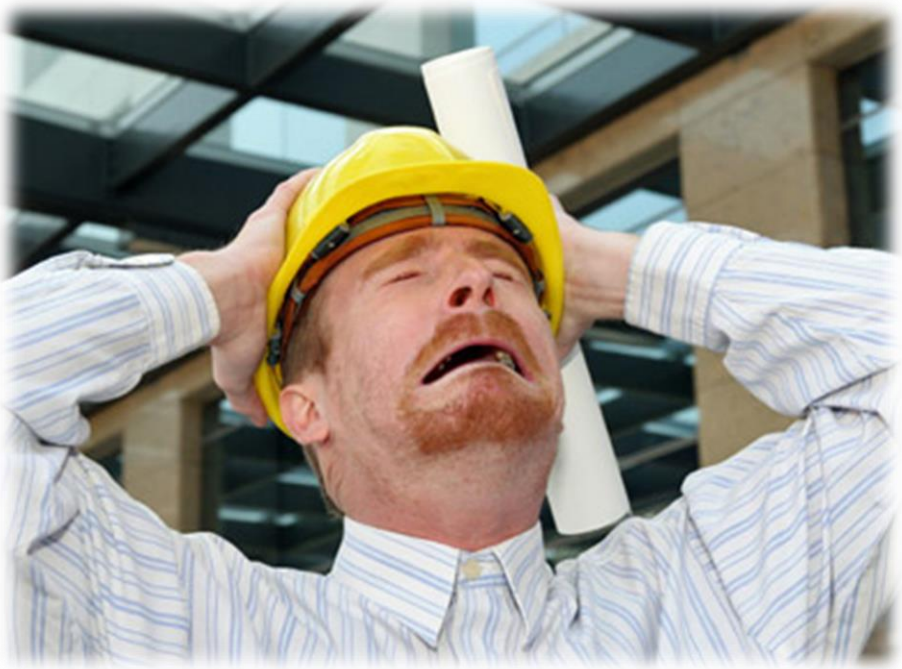
# HUMANITARIAN CONCERNS IN OSHA'S VIEW

Society has defined the principle that the employer is responsible for providing a safe environment for the workforce. The courts have further charged the employer with the following five responsibilities:


# 1. To provide a reasonably safe workplace.

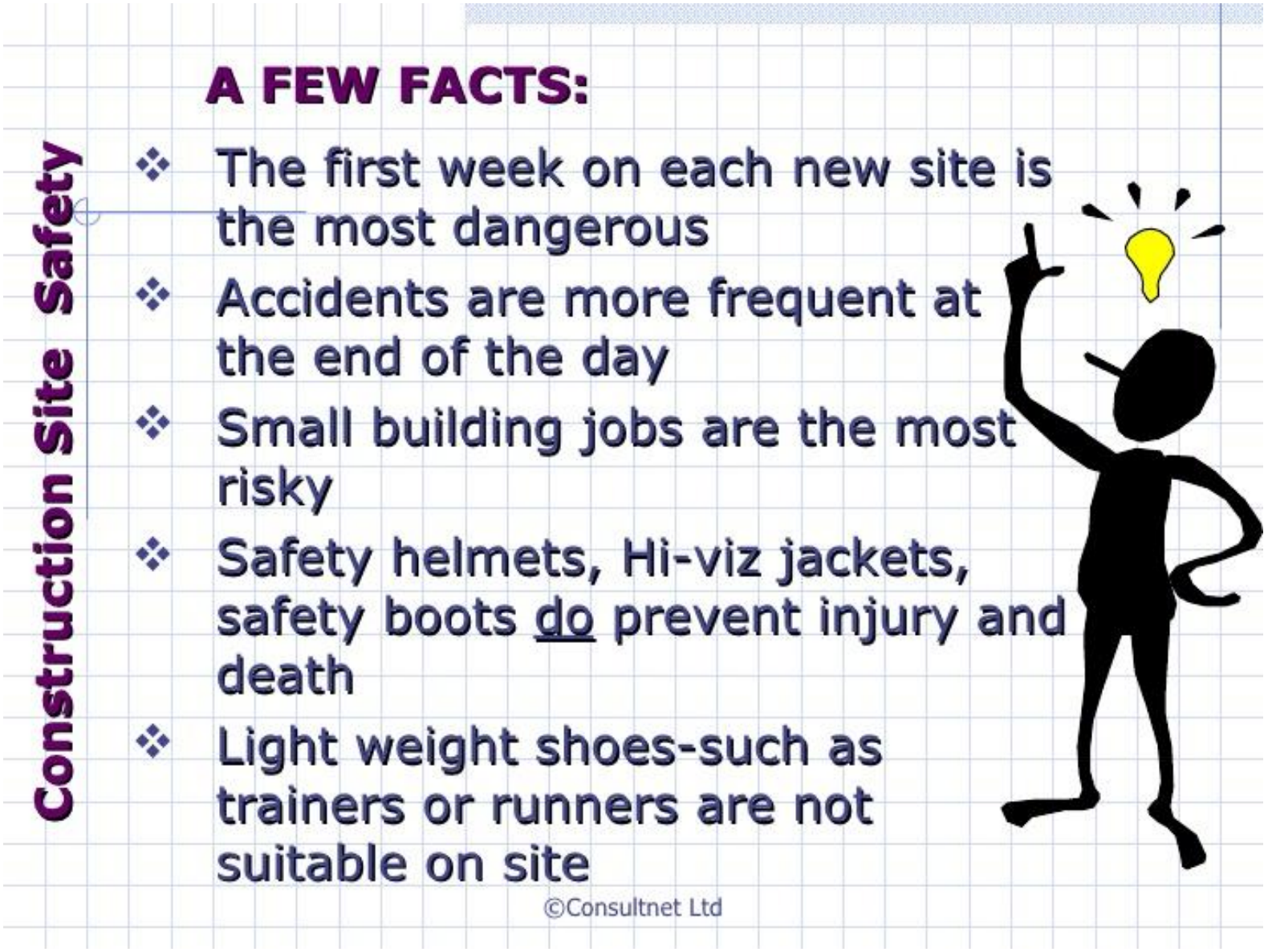
# 2. To provide reasonably safe appliances, tools, and equipment.

# 3. To use reasonable care in selecting employees.



# 4. To enforce reasonable safety rules.


5. To provide reasonable instructions regarding the dangers of employment.



5. To provide reasonable instructions regarding the dangers of employment.


# ECONOMIC COSTS AND BENEFITS

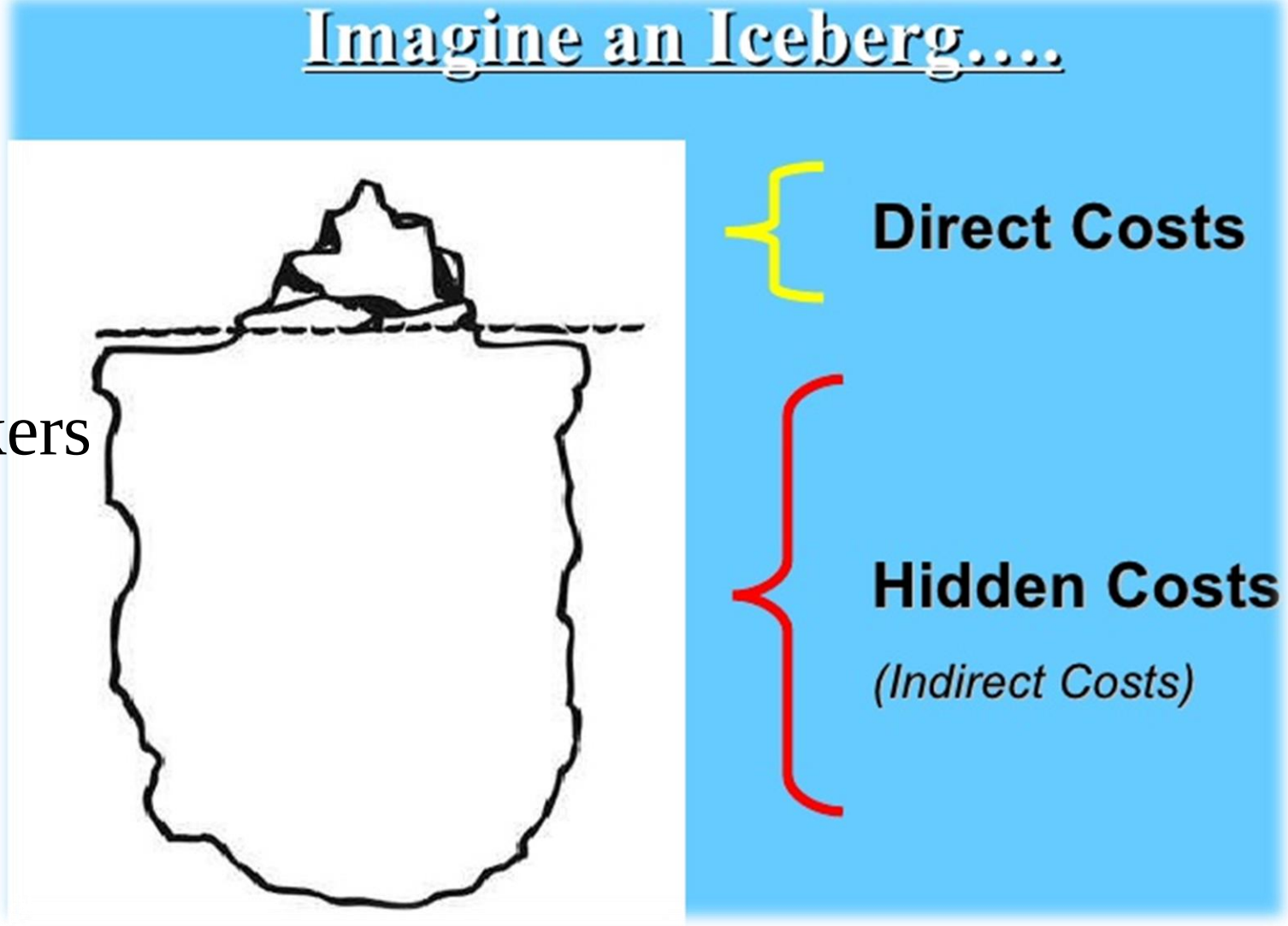
Safety costs can be broken into three categories as follows:

1. Direct cost of previous accidents
   a. prevention methods
   b. RecorInsurance premiums and ratings
   c. Mandatory accident ds, safety personnel

2. Direct cost of each accident occurrence
   a. Delay to project
   b. Uninsured damages

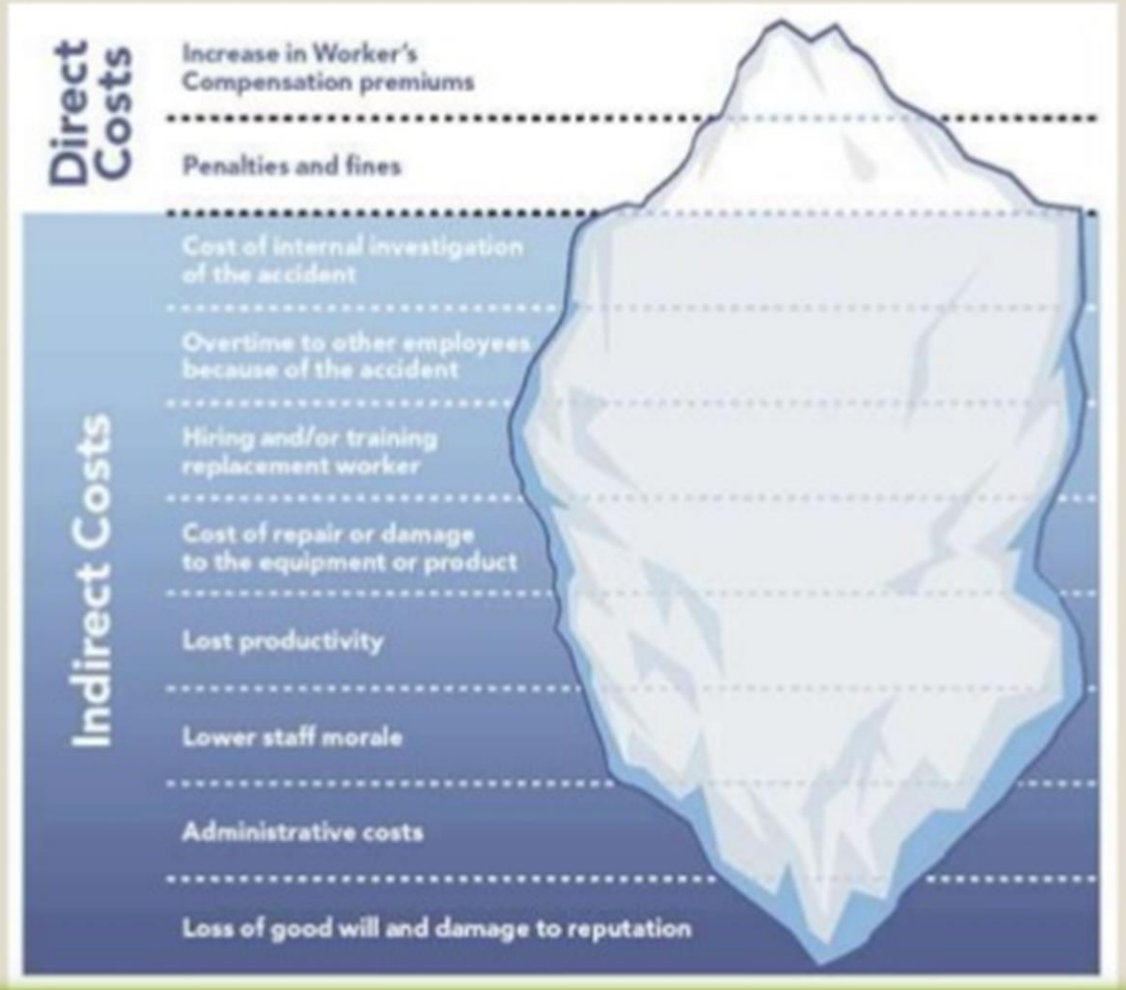
3. Indirect cost

- Investigation
- Loss of skilled workers
- Loss of equipment
- Lost production



# The Cost of Safety

*The Iceberg Effect – Employer's Costs of Workplace Accidents*




On average, for every $1 of direct costs of an accident a company will expend additional $4 in indirect costs

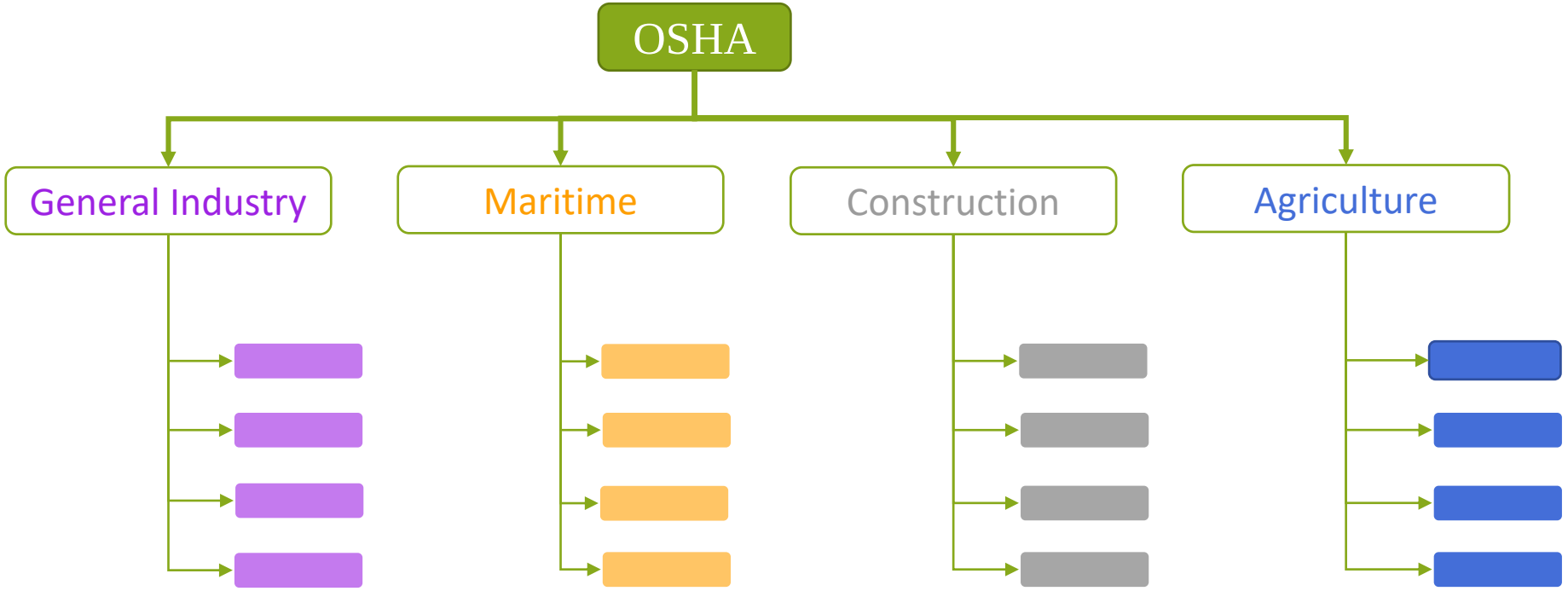
# THE INFLUENCE OF OSHA

# When Employees stay safe and healthy:

- better quality of work outcomes (patient outcomes!).
- higher productivity.
- lower worker's compensation costs.
- fewer injuries/illnesses that require
- time off, replacement employees, and overtime.
- reduced medical expenses.
- overall, more satisfied employees.

# OSHA'S STRUCTURE

- Regulations are broken down into Parts
- Each Part is then broken into major Subparts.



# CONT….

- Subpart J - General Environmental Controls
- Subpart K - Medical and First Aid
- Subpart L - Fire Protection
- Subpart M - Compressed Gas
- Subpart N - Materials Handling
- Subpart O - Machinery and Machine Guarding
- Subpart P - Tools

# CONT….

- Subpart Q - Welding, Cutting & Brazing
- Subpart R - Special Industries
- Subpart S - Electrical
- Subpart T - Commercial Diving
- Subpart Z - Toxic and Hazardous Substances

- Each Subpart is then broken down into **Sections**

# STANDARDS

- Standard" means a statement(s) which requires conditions, or the adoption or use of one or more:
  - Practices,
  - Means,
  - Methods,
  - Operations, or Processes, reasonably ***necessary to provide safe or healthful employment and places of employment.***

# HORIZONTAL STANDARDS

- **Horizontal** meaning “general”.
- Horizontal standards could apply *to* ***any employer in any industry.***
- Example:  the Hazard Communication Standard which covers the safe use of chemicals by workers who use them.

# VERTICAL STANDARDS

- Vertical standards are specific to a particular industry:
  - Welding

# REPORTS & RECORDS

- OSHA Forms 300, 300-A, and 301.
- May download forms and instructions from OSHA website.

- Form 301: Injury and Illness Incident Report

- Form 300: Log of Work-Related Injuries and Illnesses

- Form 300A: Summary of Work-Related Injuries and Illnesses

# WHERE CAN YOU GO FOR HELP

- Sources within the workplace/worksite
- Sources outside the workplace/worksite

# SOURCES WITHIN THE WORKPLACE/WORKSITE

- Employer or supervisor, co-workers and union representatives
- Safety Data Sheet (SDS) for information on chemicals
- Labels and warning signs
- Employee orientation manuals or other training materials
- Work tasks and procedures instruction

# SOURCES OUTSIDE THE WORKPLACE/WORKSITE

- OSHA website: http://www.osha.gov and OSHA offices (you can call or write)
- Compliance Assistance Specialists in the area offices
- National Institute for Occupational Safety and Health (NIOSH) – OSHA's sister agency
- OSHA Training Institute Education Centers
- Doctors, nurses, other health care providers
- Public libraries
- Other local, community-based resources

**Table 19.2** OSHA Standards Most Commonly Cited for Violations

| Section | Subject | Section | Subject |
|---|---|---|---|
| 1926.500 | Guardrails, Handrails, Covers | 1926.100 | Head Protection |
| .451 | Scaffolding | .552 | Materials, Hoists, Personnel Hoists, Elevators |
| .450 | Ladders | .50 | Medical Services, First Aid |
| .350 | Gas Welding and Cutting | .501 | Stairways |
| .401 | Grounding and Bending | .300 | General Requirements, Hand and |
| .550 | Cranes and Derricks | .651 | Excavation |
| .25 | Housekeeping | | Power Tools |
| .152 | Flammable and Combustible Liquids | .51 | Sanitation |
| .400 | General Electrical | .28 | Personal Protective Equipment |
| .402 | Electrical Equipment Installation and Maintenance | .102 | Eye and Face Protection |
| .150 | Fire Protection | .302 | Power-operated Hand Tools |
| .652 | Trenching | .351 | Arc Welding and Cutting |
| .601 | Motor Vehicles | .105 | Safety Nets |

THANKS FOR YOUR ATTENTIONS

END OF CHAPTER I