Safety and Health Program Management

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Terminal Outcomes

Upon the completion of this course, the participant will be able to:

- Explain the benefits of implementing a safety and health management system.
- Identify the core elements of an effective safety and health program.
- Describe the key processes in each program element.

Introduction

Nearly 50 American workers are injured every minute of the 40-hour workweek and almost 17 die each day.

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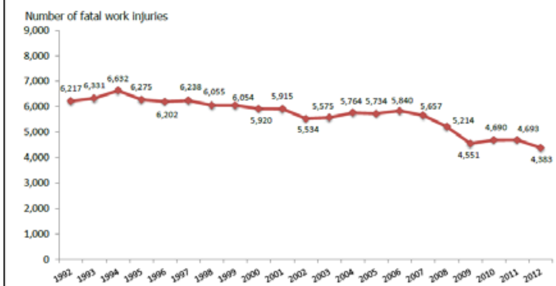
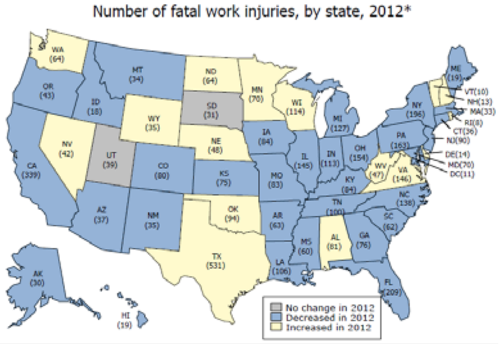
Number of fatal work injuries, 1992–2012*



The 2012 preliminary total of 4,383 fatal work injuries represents a decrease of 7 percent from the final count of 4,693 fatal work injuries reported for 2011.

*Data for 2012 are preliminary. Data for prior years are revised and final.
NOTE: Data from 2001 exclude fatal work injuries resulting from the September 11 terrorist attacks.
SOURCE: U.S. Bureau of Labor Statistics, U.S. Department of Labor, 2013.

Number of fatal work injuries, by state, 2012*



Sixteen states and the District of Columbia had preliminary counts showing more fatal injuries in 2012 than in 2011. Thirty-two states had fewer fatal workplace injuries in 2012 compared to 2011. Two states saw no change between the two years.

*Data for 2012 are preliminary.
SOURCE: U.S. Bureau of Labor Statistics, U.S. Department of Labor, 2013.

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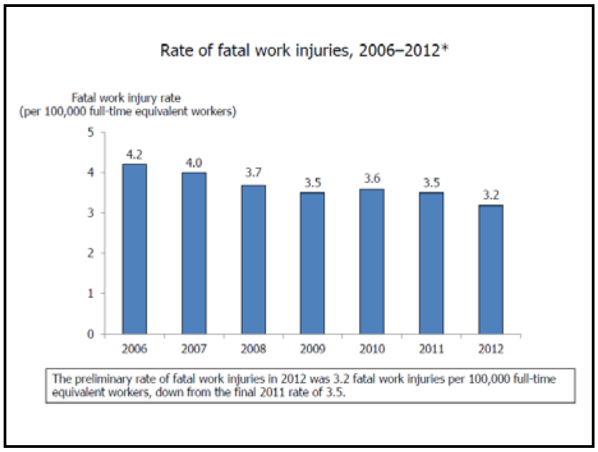
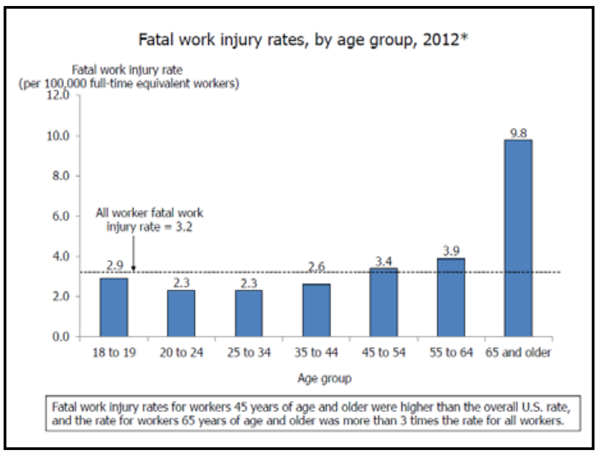
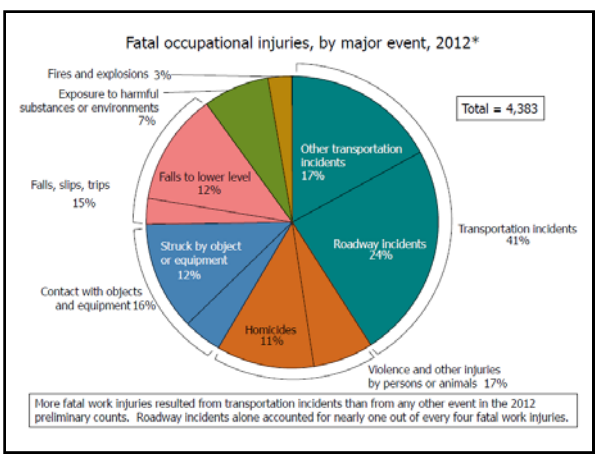
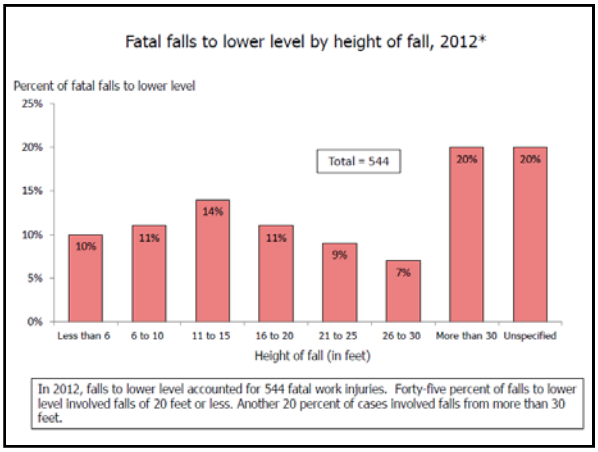
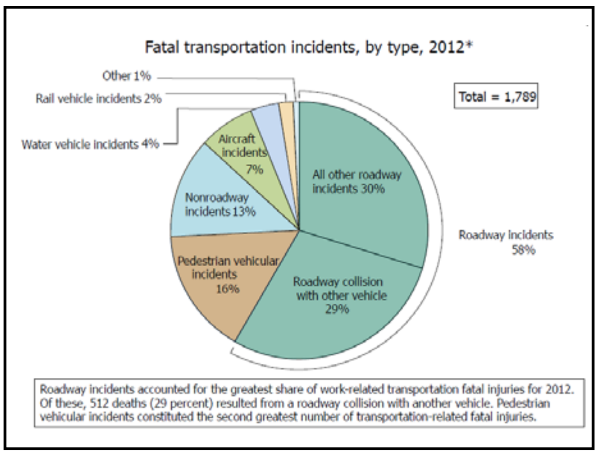
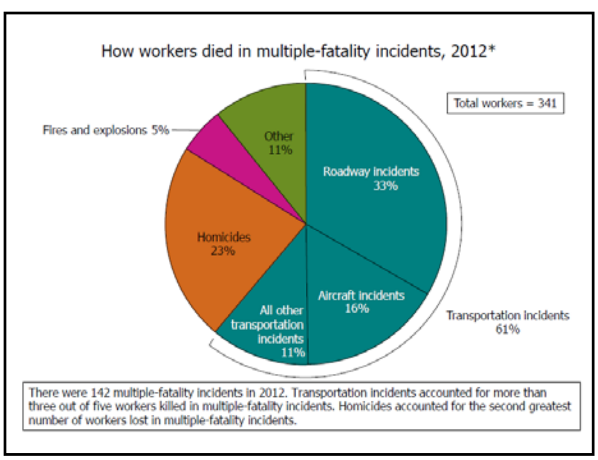

Rate of fatal work injuries, 2006–2012*
Fatal work injury rate
(per 100,000 full-time equivalent workers)
5
4
3
2
1
0
4.2
4.0
3.7
3.5
3.6
3.5
3.2
2006
2007
2008
2009
2010
2011
2012
The preliminary rate of fatal work injuries in 2012 was 3.2 fatal work injuries per 100,000 full-time equivalent workers, down from the final 2011 rate of 3.5.

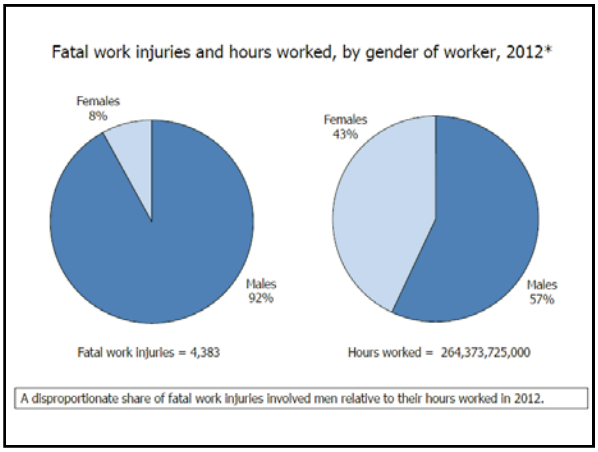

Fatal work injury rates, by age group, 2012*
Fatal work injury rate
(per 100,000 full-time equivalent workers)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
All worker fatal work injury rate = 3.2
2.9
2.3
2.3
2.6
3.4
3.9
9.8
18 to 19
20 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 and older
Age group
Fatal work injury rates for workers 45 years of age and older were higher than the overall U.S. rate, and the rate for workers 65 years of age and older was more than 3 times the rate for all workers.

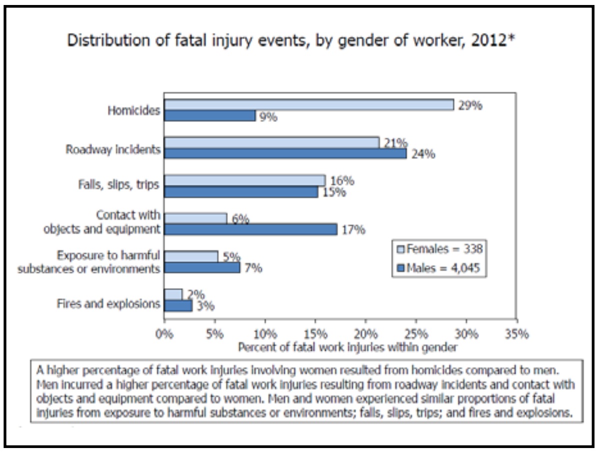

Fatal occupational injuries, by major event, 2012*
Fires and explosions 3%
Exposure to harmful substances or environments 7%
Falls, slips, trips 15%
Falls to lower level 12%
Struck by object or equipment 12%
Contact with objects and equipment 16%
Homicides 11%
Violence and other injuries by persons or animals 17%
Other transportation incidents 17%
Roadway incidents 24%
Transportation incidents 41%
Total = 4,383
More fatal work injuries resulted from transportation incidents than from any other event in the 2012 preliminary counts. Roadway incidents alone accounted for nearly one out of every four fatal work injuries.

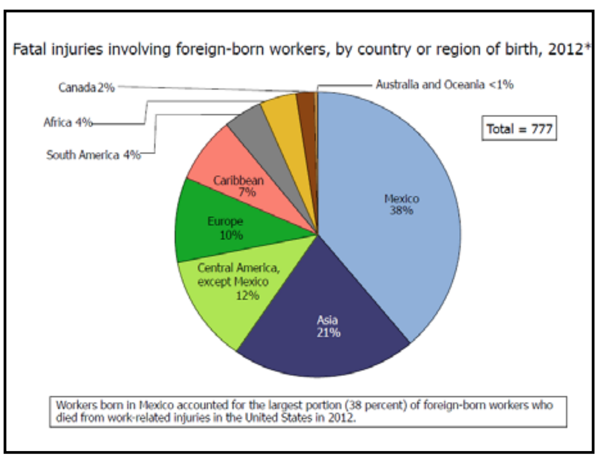

Fatal falls to lower level by height of fall, 2012*
Percent of fatal falls to lower level
25%
20%
15%
10%
5%
0%
Total = 544
10%
11%
14%
11%
9%
7%
20%
20%
Less than 6
6 to 10
11 to 15
16 to 20
21 to 25
26 to 30
More than 30
Unspecified
Height of fall (in feet)
In 2012, falls to lower level accounted for 544 fatal work injuries. Forty-five percent of falls to lower level involved falls of 20 feet or less. Another 20 percent of cases involved falls from more than 30 feet.


Fatal transportation incidents, by type, 2012*
Total = 1,789
Other 1%
Rail vehicle incidents 2%
Water vehicle incidents 4%
Aircraft incidents 7%
Nonroadway incidents 13%
Pedestrian vehicular incidents 16%
All other roadway incidents 30%
Roadway collision with other vehicle 29%
Roadway incidents 58%
Roadway incidents accounted for the greatest share of work-related transportation fatal injuries for 2012. Of these, 512 deaths (29 percent) resulted from a roadway collision with another vehicle. Pedestrian vehicular incidents constituted the second greatest number of transportation-related fatal injuries.


How workers died in multiple-fatality incidents, 2012*
Total workers = 341
Fires and explosions 5%
Other 11%
Roadway incidents 33%
Homicides 23%
Aircraft incidents 16%
All other transportation incidents 11%
Transportation incidents 61%
There were 142 multiple-fatality incidents in 2012. Transportation incidents accounted for more than three out of five workers killed in multiple-fatality incidents. Homicides accounted for the second greatest number of workers lost in multiple-fatality incidents.


Fatal work injuries and hours worked, by gender of worker, 2012*
Females 8%
Males 92%
Females 43%
Males 57%
Fatal work injuries = 4,383
Hours worked = 264,373,725,000
A disproportionate share of fatal work injuries involved men relative to their hours worked in 2012.


Distribution of fatal injury events, by gender of worker, 2012*
Homicides 29% 9%
Roadway incidents 21% 24%
Falls, slips, trips 16% 15%
Contact with objects and equipment 6% 17%
Exposure to harmful substances or environments 5% 7%
Fires and explosions 2% 3%
Females = 338
Males = 4,045
0% 5% 10% 15% 20% 25% 30% 35%
Percent of fatal work injuries within gender
A higher percentage of fatal work injuries involving women resulted from homicides compared to men. Men incurred a higher percentage of fatal work injuries resulting from roadway incidents and contact with objects and equipment compared to women. Men and women experienced similar proportions of fatal injuries from exposure to harmful substances or environments; falls, slips, trips; and fires and explosions.


Fatal injuries involving foreign-born workers, by country or region of birth, 2012*
Canada 2%
Africa 4%
South America 4%
Australia and Oceania <1%
Total = 777
Caribbean 7%
Europe 10%
Central America, except Mexico 12%
Asia 21%
Mexico 38%
Workers born in Mexico accounted for the largest portion (38 percent) of foreign-born workers who died from work-related injuries in the United States in 2012.

What are the benefits of cultivating a safe work environment?

- You Go Home
- Family
- You have a job
- Co-Workers

Cost of Accidents

1. 45 billion dollars
2. 3.9 million lost workdays (average 20 days)
3. 1 out of 20 will suffer serious injury or illness
4. Pain and suffering
5. Damage to environment
6. Morale of employees

Cost of Accidents

Direct Costs

Indirect Costs

Cost of Accidents

Direct Accident Costs

1. Medical (30% increase)
2. Insurance premiums (30% increase)
3. Employee compensation (long term)
4. Long term cost (medical / legal)

Loss of Credibility with workforce
Legal and medical cost

Cost of Accidents

Indirect Costs

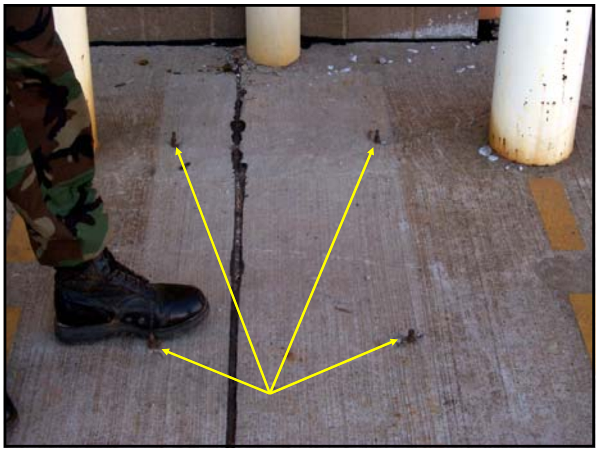
1. Equipment/material
2. Replacement cost
3. Overtime pay
4. Lost sales
5. Hire and train new employees
6. Investigate accident
7. Worker’s compensation
8. Clean up
9. Repair damaged area

Loss of Credibility with workforce
Legal and medical cost

Causes of Accidents and Illnesses

Accidents / Illnesses

- Hazardous Acts
  - Untrained
  - Unaware
  - Unable
  - Unmotivated
- Hazardous Conditions
  - Unidentified
  - Uncorrected



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Safety and Health System Model

Policy
Management Leadership
&
Employee Participation

Management Review

Planning

Checking and Corrective Action

Implementation and Operation

Where does Safety and Health Fit in your Workplace?

- Safety and health are an integral part of our operations.
  __ Yes __No __Don't know
- Teamwork is apparent in all parts of the organization.
  __ Yes __No __Don't know
- Managers and supervisors are out on the floor frequently and always observe the company safety and health rules.
  __ Yes __No __Don't know
- Employees are encouraged to identify safety and health hazards and correct them on their own.
  __ Yes __No __Don't know
- Employees have full and open access to all the tools and equipment they need to do their job safely.
  __ Yes __No __Don't know

Where does Safety and Health Fit in your Workplace?

Detailed Survey

http://www.osha.gov/SLTC/etools/safetyhealth/comp1_mgt_lead_leadershipquiz.html

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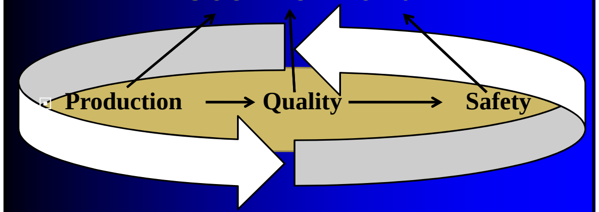
Job 1 is Profit



Safety and Health System Model Major Elements

An effective occupational safety and health program includes the following four elements:

- Management commitment and employee involvement

- Worksite analysis

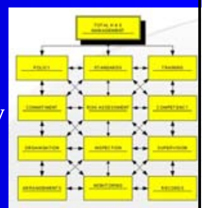
- Hazard prevention and control

- Safety and health training

Element 1 – Management Leadership and Employee Involvement

- Management leadership - Motivating force and resources
- Employee involvement - Means through which workers actively participate and ultimately express their own commitment to safety and health

1. Management Commitment



Policy and Goals

- Clearly state a worksite safety and health policy
- Establish and communicate a clear goal and objective for the safety and health program
- Involve top management in implementing the program

2. Employee Involvement

- Encourage employees to get involved in the program and in decisions that affect their safety and health
- Communicate responsibility for all program aspects

3. Responsibility

- Parties responsible for the safety and health program must have authority and resources
- Managers, supervisors, and employees must be held accountable for meeting their responsibilities
- Program operations must be reviewed at least annually, to evaluate, identify deficiencies, and revise, as needed


4. Accountability
How do you know if you have a safe workplace?


Accountability
• Audit
• Inspection
• Sampling Techniques


Safety Culture
• Safety is a culture?
• Safety is a skill?

21 Safety Management "Culture" Indicators

- Accident Investigation
- Alcohol and Drug Abuse
- Attitude Towards Safety
- Awareness Programs Communication
- Discipline
- Employee Training
- Goals for Safety Performance
- Hazard Correction
- Inspections
- Involvement of Employees
- Management Credibility
- New Employees
- Operating Procedures
- Quality of Supervision
- Recognition of Performance
- Safety Climate
- Safety Contacts
- Stress
- Supervisor Training
- Support for Safety

Element – 2 Worksite Analysis

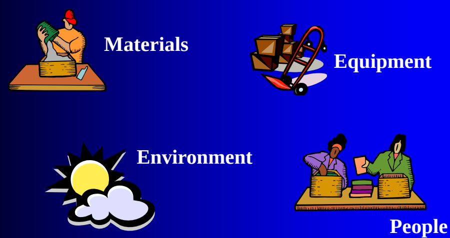
Element – 2 Worksite Analysis

Examine the worksite and identify:

- existing hazards
- conditions and operations where changes might occur to create hazards

Management must actively analyze the work and the worksite to *anticipate* and prevent harmful occurrences

Four Categories of Hazards



Element - 2 Worksite Analysis

- Initial Surveys
- Comprehensive (Focused) Surveys
- Hazard Corrections
- Job Task Analysis and Job Hazard Analysis
- Daily and periodic inspections
- Employee Hazard Reports
- Accident Investigations
- Trend Analyses

Comprehensive Survey

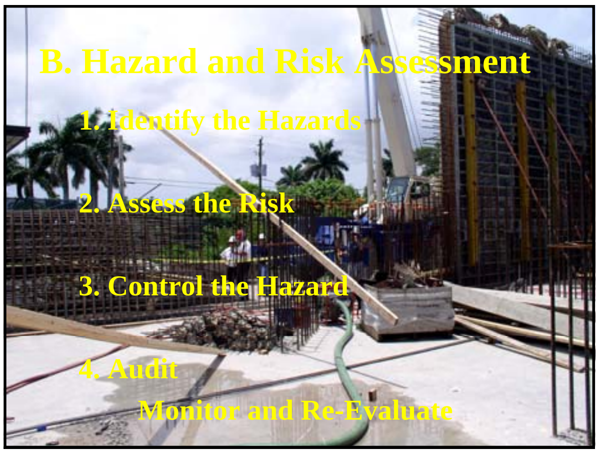
Conduct a comprehensive baseline survey for safety and health

- Hazard and Risk Assessment
- Job Task Analysis
- Job Safety Analysis

Safety and Health Inspections

- Conduct regular (usually weekly) site inspections
- Establish daily work area inspection procedures
- Develop and use a checklist
- Provide a reliable system for employees, without fear of reprisal, to notify management about apparent hazardous conditions and to receive timely and appropriate responses

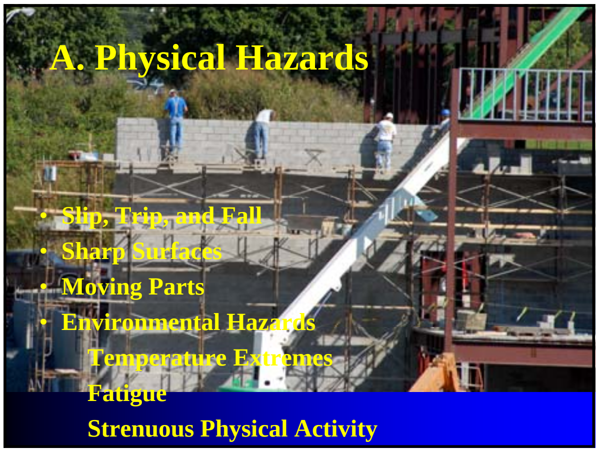
B. Hazard and Risk Assessment



1. Identify the Hazards
2. Assess the Risk
3. Control the Hazard
4. Audit

   Monitor and Re-Evaluate

Step 1: Identify Hazards


A. Physical Hazards
• Slip, Trip, and Fall
• Sharp Surfaces
• Moving Parts
• Environmental Hazards
Temperature Extremes
Fatigue
Strenuous Physical Activity


Holes in Floors

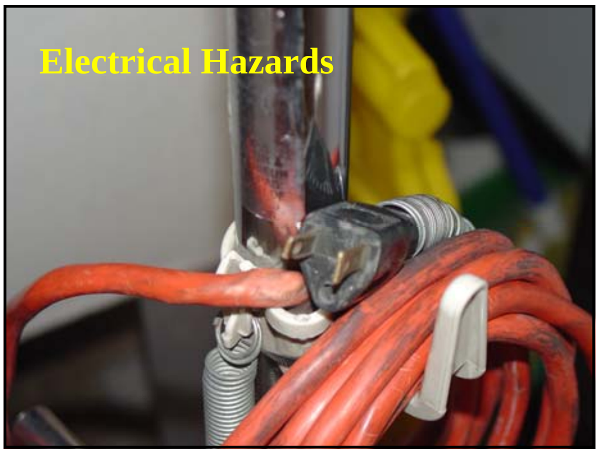

B. Structural Hazards

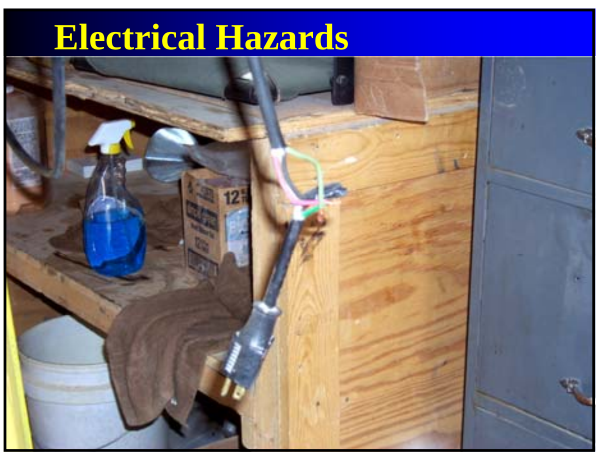
Loads and Access

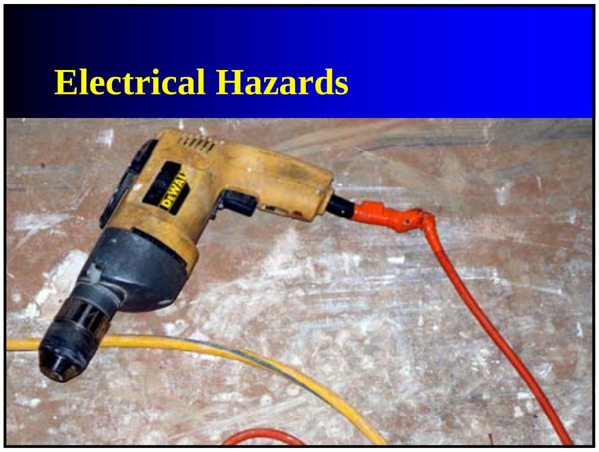
C. Electrical Hazards

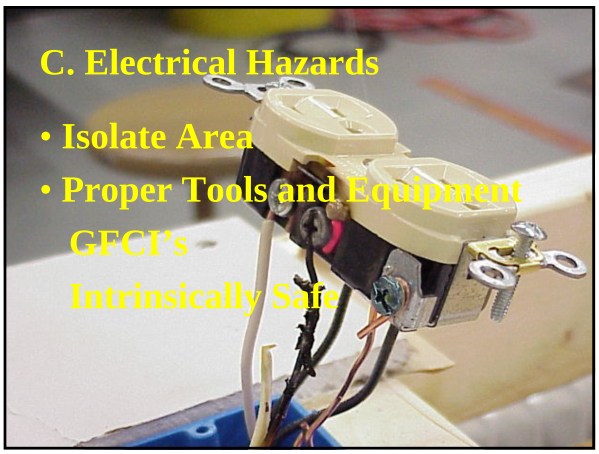
Electrical Hazards


Electrical
Hazards


Electrical Hazards


Electrical Hazards


Electrical Hazards
DEWALT


C. Electrical Hazards
• Isolate Area
• Proper Tools and Equipment
GFCI's
Intrinsically Safe


D. Chemical Hazards
FALCON
WATER
• MSDS
• Appropriate Storage
• Appropriate Use
• Appropriate PPE

Chemical Hazards, Storage

Chemical Hazards

Chemical Hazards

Chemical Storage and Food?

Chemical Hazards

HazCom Program

E. Biological Hazards

Biological Hazards

Waste removal schedules

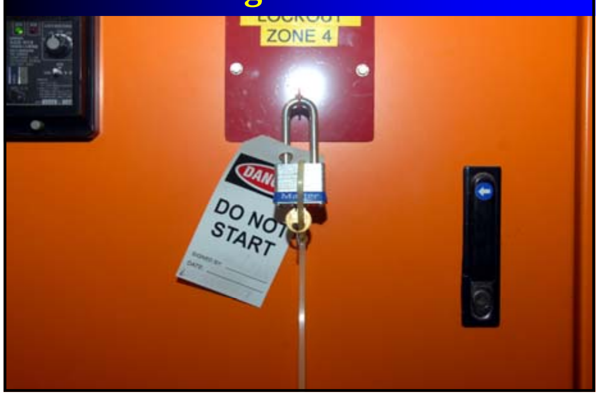
Food in the workplace

F. Mechanical Hazards

Mechanical Hazards

Lock Out/Tag Out
Zero Mechanical State

Lock Out/Tag Out?



Step 2: Determine the Risk of the Hazard

Step 2: Determine the Risk of the Hazard

Rating	Impact	Probability
High	Disabling injury, loss of body part, or fatality	•Repetitive Event •Greater than 50% chance of occurring •Has happened frequently in similar circumstances
Medium/ Moderate	Medical Aid Injury	•Infrequent Event •10-50% chance of occurring
Low	First Aid Injury	•Unlikely Event •Less than 10% chance of occurring •Has never been observed but is still felt to be possible.

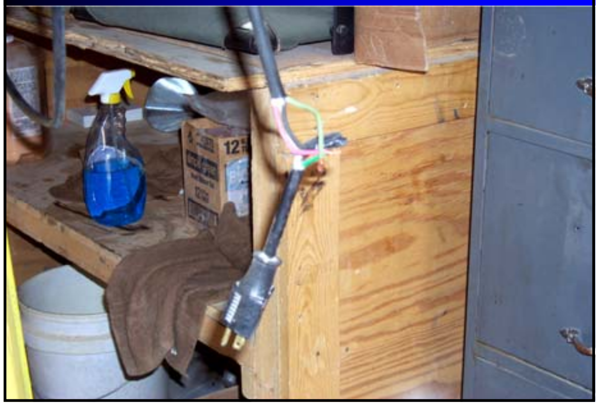
Determine the Risk


Determine the Risk


Determine the Risk

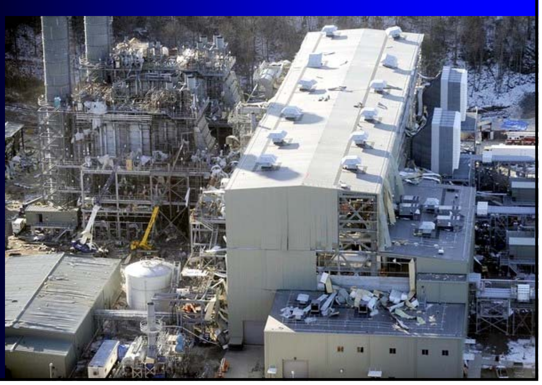

Determine the Risk

Determine the Risk



Determine the Risk

Step 3: Control the Hazard




Kleen Energy Natural Gas Explosion Middletown, Connecticut February 7, 2010 6 Killed, 50 Injured
Improper gas line purging techniques, allowed gas concentrations in the structure reach levels above LEL


A. Engineering Controls


B. Administrative Control
Time, Distance and Shielding

B. Administrative Controls

- Isolation of Area
- Signs, Cones, Barrier Tape
- Specialized Resources
- Work Practices

C. Proper Selection and Use of Personal Protective Equipment (PPE)

PPE

Eye	Safety Glasses, UV
Face	Face Shield
Head	Hard Hat, Helmet
Feet	Safety Shoes, Boots
Hands & Arms	Gloves
Body	Vests, Aprons, Chemical Suit
Hearing	Earplugs, Canal Caps, Earmuffs
Respiratory	APR, PAPR, SCBA, Air Supplied

Step 4: Monitor and Re-Evaluate the Hazards as time and conditions change

Hazard and Risk Assessment

Key Concept:

Focus on the Identification and Control of the hazards present and not the proper classification.

Safety and Health Program Management

Questions?

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