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Art Safety

Special Thanks to Eastern Carolina University for use of PowerPoints.

Art Safety

- Common misconception that Art is a non-hazardous occupation
- Encounter same hazards as found in industry
- Mindset may place personnel at greater risk

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Program Outline

- Regulatory Review
- Types of Hazards
- Effects of Exposure
- Routes of Exposure
- Hazard Identification SDS & Labels)
- Hazardous Materials Storage
- Protection from Hazards
- Common Issues
- Questions

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OSHA Regulations and EPA Initiative

- Colleges and Universities are required to comply with all applicable safety and environmental requirements like industry
- OSHA standards deal primarily with employee safety (www.osha.gov)
- EPA regulations deal primarily with protection of the environment (www.epa.gov)
- Tort liability addresses non-employee safety

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OSHA Regulations and EPA Initiative

- Subject to inspection by both agencies
- Subject to federal and state agency inspection
- EPA has already stepped up enforcement actions in Regions 1, 2, 3, and 4
- University of Hawaii fined $1.8 million
- Boston College and Stanford fined $1 million
- Yale received a $300,000 fine
- Common deficiencies
- Provisions for fine and imprisonment of individuals

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Art Safety

- Know the hazards and how to protect yourself (Hazard Communication)
- Must be incorporated into all activities
- If activity cannot be done safely then it should not be done at all
- Must become part of the curriculum
- Preparation for the “REAL WORLD”
- Reflection on Institution and Faculty

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Types of Hazards

- **Chemical** – paints, dyes, glazes, inks, solvents, clay, metals
- **Physical** – heat, lifting, machinery, tools, noise
- **Ergonomic** – work stations, tools
- **Radiation** – lasers, welding, kilns
- **Biological** – plant products, animal skins, bone, hair, blood borne pathogens

Effects of Exposure

- **Acute** – direct threat that shows up almost immediately after exposure such as burns from contact with a corrosive chemical

- **Chronic** – usually result from repeated exposure that occurs over months or years and includes cancer and some allergic reactions

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Risk Factors

- Toxicity
- Level, Duration and Frequency of Exposure (minimize exposures)
- High Risk Groups (pregnant women, children, smokers)
- Personal Susceptibility

Routes of Exposure

- Inhalation
- Absorption
- Ingestion
- Injection

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Routes of Exposure

- **Inhalation**
  - Primary Route of Entry
  - Airborne contaminants such as gases, vapors and particulate matter that enter directly into lungs
  - Absorption in the lungs, passage through the bloodstream, and reaction with brain and other sensitive organs occurs very quickly

Routes of Exposure

- **Absorption**
  - Can occur very quickly through cut or abraded skin
  - Many compounds can be absorbed through intact skin
  - Absorption through eyes are of great concern due to their sensitivity and the many splash hazards found in labs

Routes of Exposure

- **Ingestion**
  - Material is absorbed from the gastrointestinal tract into the bloodstream
  - Indirect ingestion when employees get material on their hands and then eat, drink or smoke without first washing their hands

Routes of Exposure

- **Injection**
  - Places contaminants in direct contact with the blood stream. These cuts are difficult to clean.
  - Needle sticks
  - Deep cuts involving contaminated glass or plastic shards or similar sharp items

Hazard Identification

- Inventory
- SDS's
- Labels

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Materials Inventory

- Identifies materials you have
- Identifies location and quantity of each
- Do you need all the materials you have on hand?
- Minimize inventory

Hazard Identification SDS's

- Chemical information sheets that include chemical ID, physical characteristics, hazardous ingredients, health hazards, handling precautions, first aid, reactivity data and control procedures.
- Must have a sheet for every hazardous chemical on site and must be accessible to every employee during the hours the employee is allowed to work.

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Hazard Identification Labels

- All containers must be properly labeled
- Labels on containers must include the identity of the material, appropriate hazard warnings and manufacturer information
- Identity of material must be the complete name as it appears on the original label or SDS
- Abbreviations and/or chemical formulas must not be used as primary identification

Hazard Identification Labels

- Appropriate hazard warnings include ***DOT hazard classes***, NFPA Hazard Diamond, and GHS pictograms or descriptive statement of the hazards
- Whatever method is used must be used consistently throughout the labs and all workers must be familiar with the method

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Examples of DOT Hazard Labels

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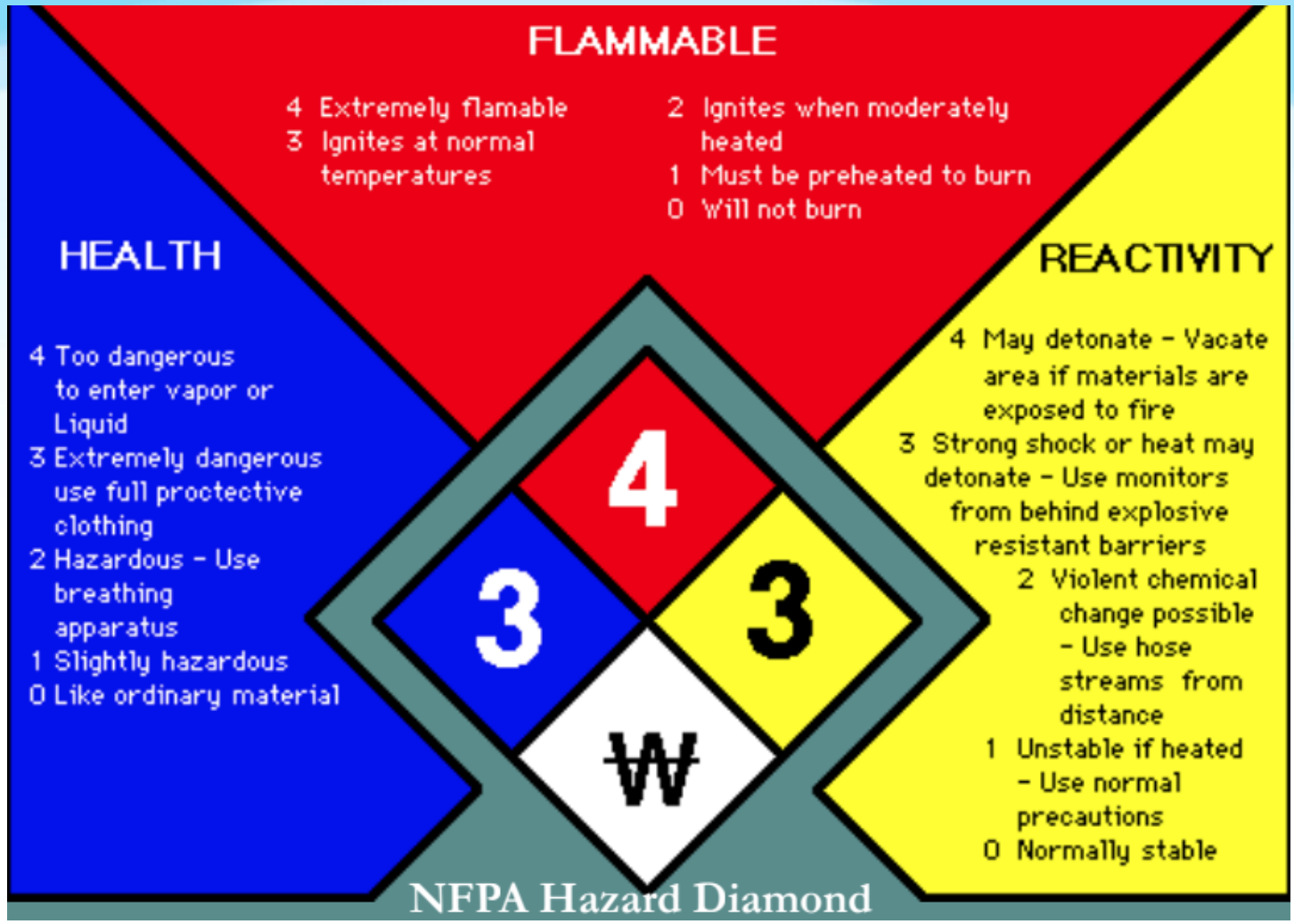

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GHS PICTOGRAMS

Health Hazard Carcinogens, respiratory sensitisers, reproductive toxicity, target organ toxicity, germ cell mutagens 	**Flame** Flammable gases, liquids, & solids; self-reactives; pyrophorics; 	**Exclamation Mark** Irritant, dermal sensitiser, acute toxicity (harmful) 
Gas Cylinder Compressed gases; liquefied gases; dissolved gases 	**Corrosion** Skin corrosion; serious eye damage 	**Exploding Bomb** Explosives, self-reactives, organic peroxides 
Flame Over Circle Oxidisers gases, liquids and solids 	**Environment** Aquatic toxicity 	**Skull & Crossbones** Acute toxicity (severe) 

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Hazardous Materials Storage

- All hazardous materials must be stored according to compatibility so that accidental mixing does not occur (applies to gas cylinders as well)
- Use only appropriate, compatible containers (NO MILK JUGS)
- Minimize chemical inventories
- Flammable storage cabinets

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Hazardous Materials Storage

- Containers should be inspected periodically and at least annually to assure container and label integrity
- Keep all containers closed except when in use
- Secondary containment can prevent serious spills and subsequent reactions
- Prior to the end of each semester or upon the departure of personnel, all remaining hazardous materials should be properly identified with disposition to storage or waste disposal

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What is Hazardous Waste?

- Waste Chemical listed by the Environmental Protection Agency as a Hazardous Waste
- A compound or solution that is:
  - Corrosive
  - Toxic
  - Reactive
  - Flammable

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Darkroom Wastes

- Whenever possible you should use an alternative to generating darkroom wastes such as digital photography
- Used fixer solution is to be poured into the silver recovery unit located in the Wilson Hall Art darkroom studio
- Insure that all containers are labeled properly

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Studio Wastes

- All liquid wastes are to be segregated in the waste accumulation area for pick-up by OEHS
- Rags containing wastes are to be placed in Rag Cans
- Paint or ink cans are to be emptied first, the lids removed and placed in trash receptacle
- Paint or ink cans containing product for disposal should be turned in to OEHS as chemical waste

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Chemical Waste Containers

- Collect in clean chemical containers, compatible with collected material
- Containers must have a tight fitting screw on cap that will not leak if tipped
- Keep container exterior free of damage or contamination
- Do not mix incompatible wastes

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Chemical Waste Collection

- Maintain 1-1 1/2 inches of air space at the top of the container
- Transfer material inside fume hood
- Clorox bottles and milk jugs are not acceptable containers

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Satellite Accumulation

- If you accumulate waste, you are required by the EPA to adhere to the regulations
- Noncompliance with any hazardous waste regulation may result in substantial fines and penalties for the University and individual investigators

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Satellite Accumulation

- Waste must be properly segregated and stored according to compatibility
- Wastes must be stored with a tight fitting screw on cap or lid and be free from leaks, damage or outside contaminants
- Kept in designated area, called a Satellite Accumulation Area– preferably with secondary containment

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Satellite Accumulation

- Every container must remain closed except when adding waste
- Must be marked with the accumulation start date (day the first drop went into the container)
- NO chemicals are to be discharged into the sewer system or thrown in the trash without OEHS approval

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Satellite Accumulation

- Wastes can only be accumulated for up to one year
- Once a chemical is designated a “waste” or when the first drop of waste has been put into the container, a “hazardous waste” tag must be completed and placed on that container
- OEHS must be notified when containers are ¾ full
- The outside of the container cannot show evidence of leaks or spills. Must be clean!

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Hazardous Waste Labeling

- All Hazardous Waste containers must be properly labeled with OEHS tags
- DO NOT use chemical formulas or abbreviations
- Tags must be completed and signed by the generator
- Attach the tag to the container with string, wire or rubber band
- Inspect label integrity and replace if damaged

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Laboratory Waste		
Lab Supervisor/Generator#	Building & Room#	
Department#	Start Date# End date#	
Phone No#	Physical State(circle) Solid Liquid	
Chemical Constituents (no abbreviations)		%
1		
2		
3		
4		
5		
6		

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Hazardous Waste Disposal

- Ensure that wastes are in appropriate containers and labeled
- Email (OEHS@uah.edu) your waste chemical inventory or call 824-6053
- Provide your name, phone number, location, identity, and amounts of waste

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Protection From Hazards

- Hazard Assessments/Safety Plans
- Substitution
- Work Practices
- Engineering Controls
- PPE
- Personal Hygiene
- Emergency Procedures

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Engineering Controls

- General Ventilation (comfort)
- Dilution Ventilation
- Local Ventilation
- Design, Operation and Maintenance

Personal Protective Equipment

- Proper selection (compatibility, fit, comfort)
- Proper use (training)
- Storage
- Maintenance

Emergency Response

- Know how to respond to an emergency before the emergency occurs
- Keep the Emergency Procedures near the phone and know what to do and who to contact
- Plans in place for fire, spills, severe weather, ventilation system failure, etc.

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Common Issues

- Lack of Written Program/Policy
- Lack of available Chemical Inventory/SDS's
- Poor Inventory Security / Control (students)
- Inappropriate Chemical Containers/Labeling
- Inappropriate Waste Management
- Eating, Drinking, and Smoking in work or chemical storage areas

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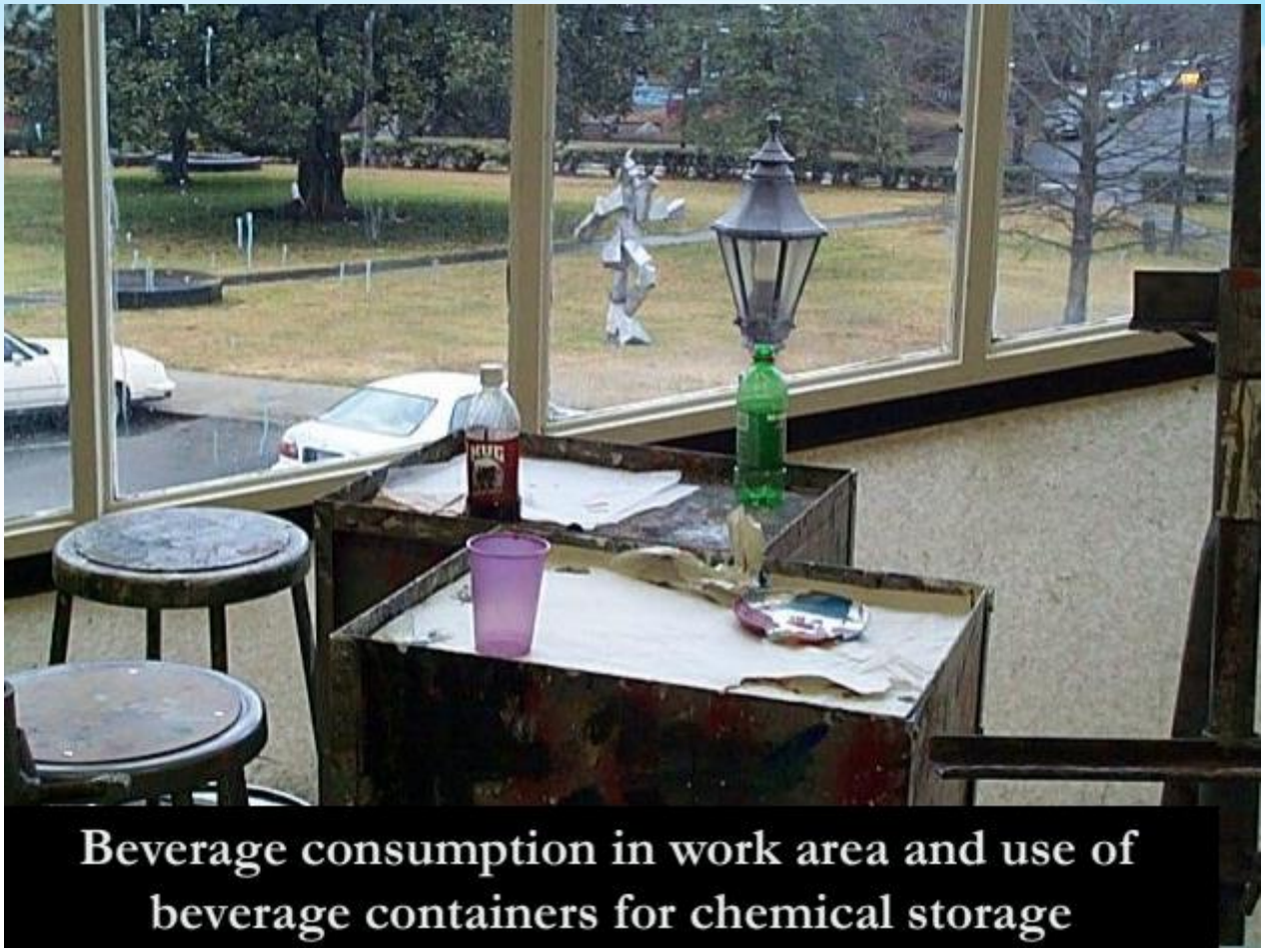

Beverage consumption in work area and use of beverage containers for chemical storage

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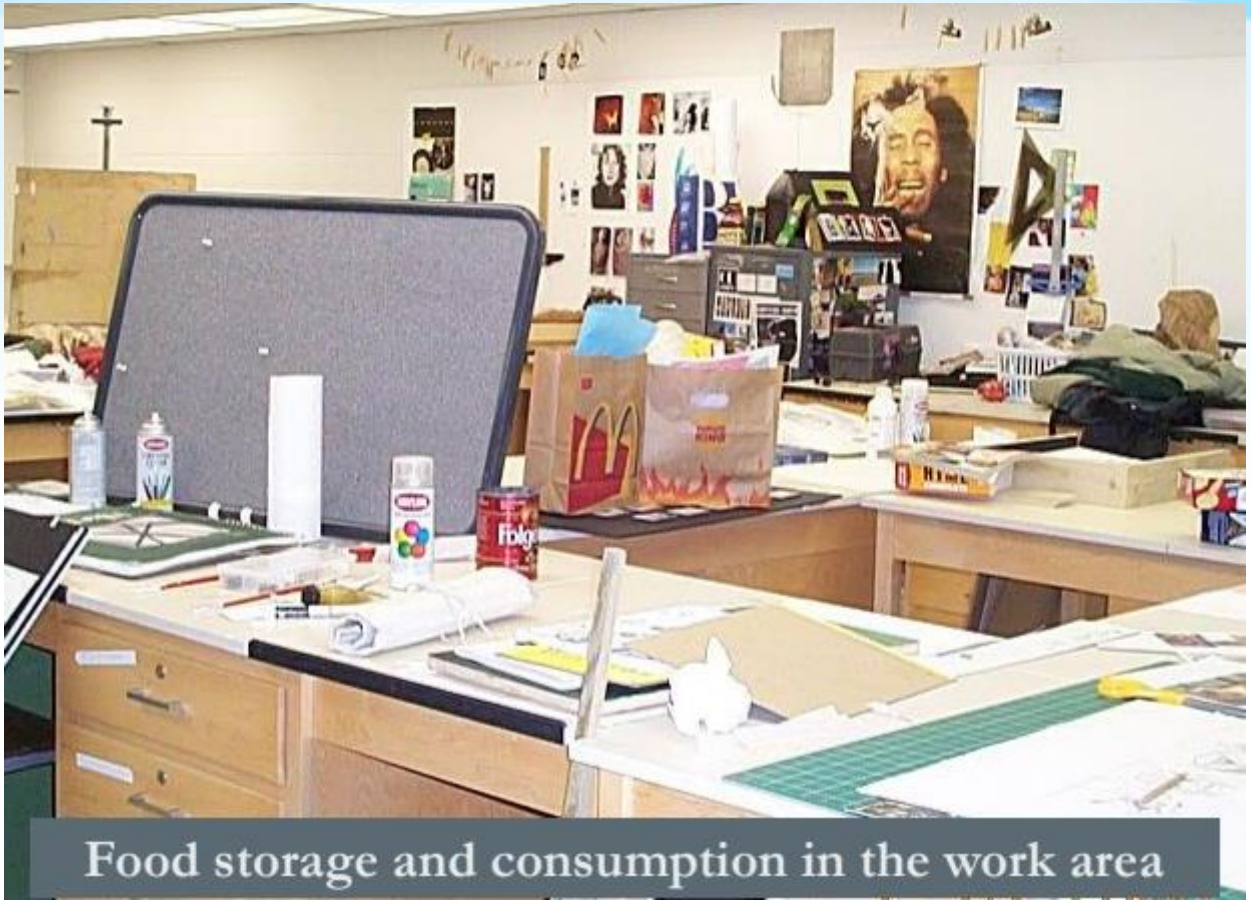

Food storage and consumption in the work area

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Common Issues

- PPE Selection and Use
- Attire
- Housekeeping
- New Operations (must have all equipment and control measures)
- Equipment Operations/Condition of Equipment
- Enforcement of Safety Practices

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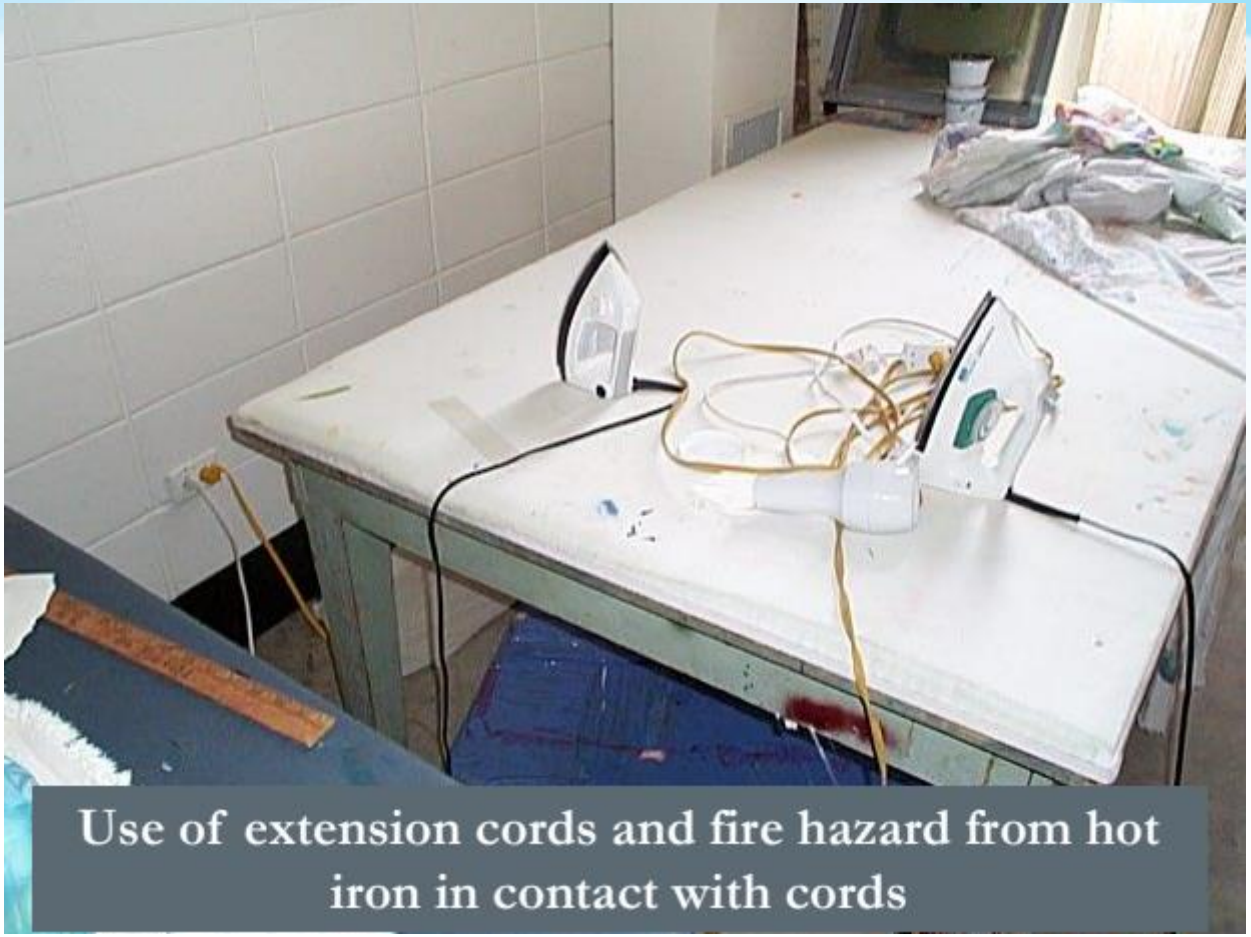

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What Personnel Need to Know

- What is the Hazard Communication Plan and where is it located?
- What are SDS's and where are they?
- What should be done if there is a spill, fire or other emergency?
- Where is the emergency eye wash/safety shower and how is it used?
- What are PEL's and where are they?

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What Personnel Need to Know

- How can a release be recognized?
- What are the health hazards associated with the materials used in your work area?
- What are signs and symptoms of exposure?
- What measures (work practices, emergency procedures, PPE, etc.) can be taken to protect yourself from the hazards associated with the materials you use?

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Keys to Success

- **Information** – Learn the hazards associated with your operation and share it with others (faculty, staff, students)
- **Training** – Ensure that all know how to work safely with hazardous materials and equipment (test to verify)
- **Leading by example** – Model safe behavior
- **Enforcement** – Clearly communicate expectations and do not tolerate improper or unsafe behavior

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Acknowledge Training

Click here to acknowledge receipt of training

If you have any questions contact:

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256-824-6053

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