

General Safety Training

New Employee Safety Training
for NCCU public safety officers and security officers



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Environmental Health and Safety

Environmental Health & Safety Department

- Facilitates University's mission of research, teaching and service by ensuring health, safety and regulatory compliance.
- Qualified & knowledgeable specialists who are recognized as trusted subject matter experts and committed to providing excellent service and leadership to campus partners.
- Enables and empowers NC Central to adopt a culture of safety in which innovation, discovery and positive change are fully supported by safety professionals.



507 George Street
ehs@nccu.edu

919-530-7125
<https://nccu.edu/ehs>



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Safety Training Center



507 George Street
919-530-7125
ehs@nccu.edu



- Space to review safety plans and information
- In person guidance for safety training topics
- Technology for self-study safety trainings
- Assistance with safety topics or trainings
- Assist with obtaining training documentation

Available by appointment only

Use link or scan QR code to ensure that staff and space are reserved

https://nccu.co1.qualtrics.com/jfe/form/SV_0qww7iCNX5el8pw



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Environmental Health & Safety Website

<https://www.nccu.edu/ehs>

Health and Safety Reporting

Please use the Hazard and Incident Report Form to submit a safety hazard or incident report.

[Report an Incident](#)




EHS Scope of Service

EHS employs a staff of professionals trained in the field of occupational and environmental health and safety to provide support for University activities and to assure a safe and healthful environment for employees, students and visitors. The Department's sections include:

- [Biological Safety](#)
- [Chemical Safety](#)
- [Fire and Life Safety](#)
- [Environmental Hygiene](#)
- [Radiation Safety](#)
- [General Workplace Safety](#)
- [Insurance and Risk Management](#)

[View Our Scope of Service](#)




Trainings

Visit this page to view all of the EHS trainings we have to offer.

[Laboratory Training](#)


[General Safety Training](#)



Plans and Programs

Visit this page to view all of the EHS plans and programs.

[View EHS Plans and Programs](#)



Forms and Documents

Visit this page to view all of the EHS forms and documents available to you.

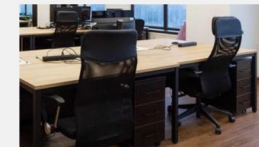
[View EHS Forms and Documents](#)

Safety Topics



Guidelines for Space Heater Use

This document provides guidance regarding the safe use of portable heaters on campus.



Ergonomic Work Practices

This fact sheet explains what ergonomics is, how to use ergonomics to protect yourself at work and how to report any issue or request an ergonomic assessment.



Extension Cords and Power Strips

This document provides information on the proper use of temporary wiring (i.e., extension cords and power strips) on campus.



Mold Fact Sheet

Mold is a common term used to refer to fungal growth, and it can be found on any organic substance as long as water and oxygen are present. Molds produce spores that move through the indoor and outdoor air continually. View this fact sheet to learn more about mold.



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Employee Health and Wellness

Welcome to the North Carolina Central University Health and Wellness page for employees.
This page serves as a source of information about resources, current health issues and events that affect employee health and wellness.



Our Mission

Our mission is to provide information on healthy workplace policies, enhancing positive social conditions, building personal skills and organizational resilience and promoting healthy lifestyles.



“Health and well-being is a state of complete physical, mental and social well-being — and not merely the absence of disease or infirmity.”

World Health Organization, 1946

- COVID-19 info and links
- General health and wellness info (mental health, heat safety, awareness, etc.)

<https://www.nccu.edu/employee-health-and-wellness>



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Training Objectives

- This training satisfies the following initial safety training requirements for Environmental Health and Safety
 - 29 CFR 1910.157 – Portable Fire Extinguishers
 - 29 CFR 1910. 95 Hearing Conservation
 - Electrical Safety Awareness
 - 29 CFR 1910.147 Lockout Tagout Awareness
 - Hazard Communication 2012
 - 29 CFR1910.22-.30 Walking Working Surfaces
 - 29 CFR 1910.1030 Bloodborne Pathogens
 - Chemical Safety Awareness
 - 29 CFR 1910.132 Personal Protective Equipment
 - 29 CFR 1910.146 Confined Space Awareness



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New Employee Training & Documentation

- **Must be completed within the first 30 days of employment**
 - Complete this training and pass quiz with a score of 80% or greater
 - Work with Supervisor to submit [NCCU New Employee Health and Safety Assessment](#)
 - Ask Supervisor for area-specific training on egress, gathering sites, nearest fire pull station, and other safety equipment specific to job and building

Employee Health and Safety Assessment Form

For assistance with this page

✉ EHS@nccu.edu

Form

WORKFLOW SUBMISSION

Work with your supervisor to determine if your job duties expose you to any of the following hazards. Submit a signed copy of this form within your first 30 days of employment.

Demographics

Last Name REQUIRED

Enter Text...

First Name REQUIRED

Enter Text...

NCCU Email Address REQUIRED ?

Enter Text...

Banner ID REQUIRED ?

Enter a number...

Title REQUIRED

Enter Text...

Department REQUIRED

Enter Text...

Supervisor REQUIRED

Enter Text...

Supervisor Email REQUIRED

Enter Text...

Law Enforcement specific Training Required REQUIRED

Check the "yes" button below if you are employed by University Police as a Public Safety Officer or Security Officer. All other UPD employees (Communications, Administration, etc.) should check "no" and complete the remainder of the form.

If indicating "yes" to this section, mark all other sections as "no."

☐ Yes

☐ No

<https://veoci.com/v/p/207411/workflow/yxsr6ner9kfb>

Once you have signed - form is routed to Supervisor for signature and then EHS; look for emails from Veoci



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Electrical and Fire Safety



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Fire Safety and Electrical Hazards

- Hazards
 - Defective outlets
 - Broken plugs or frayed cords
 - Plugs missing ground prongs
 - Missing covers on junction boxes or wall receptacles
 - Improper use of extension cords to get more outlets



Defective electrical equipment is a major cause of fires!



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Safe Electrical Work Practices



- Fuses, breakers, and GFCI outlets are designed to stop or return the electric current if a short circuit occurs
 - These electrical protective devices should only be reset by a Qualified Electrical Worker who has the training to determine why they were activated
- Electrical equipment frequently offers indications of pending failure
 - Equipment becomes hot when in use (not normal operations)
 - Unusual noises or sounds
 - Warning lights
 - Unfamiliar smells.
- If any of these indications is observed, do not use the equipment
 - Report to Supervisor

Extension Cords

- Check for wear and tear before use
- Do not modify in any way
- Use 3-wire extension cords
- Remove cord from receptacles by pulling on the plug – not the cord
- NEVER run through walls, ceilings or floors



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Space Around Electrical Equipment



- Width of working space in front of the electric equipment shall be the width of the equipment or 762 mm (30 inches) whichever is greater
- Workspace shall be clear and extend from the grade, floor, or platform to the height required
- Never use this area for storage or block with furniture, boxes, etc.

Space Heaters

Space heaters should be used as a last resort, and only after NCCU personnel have tried to correct heating requirements by the central heating system. The first step toward mitigating a heating requirement is to submit a School Dude request.

All space heaters used on the NCCU campus must meet the following requirements:

- Must have fully enclosed heating surfaces
- Must have a thermostat and a tip-over safety shutoff
- Must be listed by an approved listing agency such as Underwriter Laboratories
- Must plug directly into a regular 120-volt AC receptacle
- Must not require an extension cord or any temporary wiring
- Used in a location that is free of combustibles
- Does not create a trip hazard
- Portable liquid, gas or solid-fuel heaters are not allowed on campus



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Approved Testing Laboratories

- Electrical appliances must be tested by an approved testing laboratory and marked accordingly



Fire Protection Systems

Fire Alarm

- Present in most buildings on campus
- Designed to monitor a building for smoke or fire and alert occupants
- Can also be activated manually
- Will notify emergency responders and dispatch them to the building



Fire Sprinkler

- Designed to suppress fires
- Will activate automatically when sprinkler heads are exposed to heat at a certain level
- Areas around sprinkler heads must be kept clear and sprinkler heads should not be tampered with

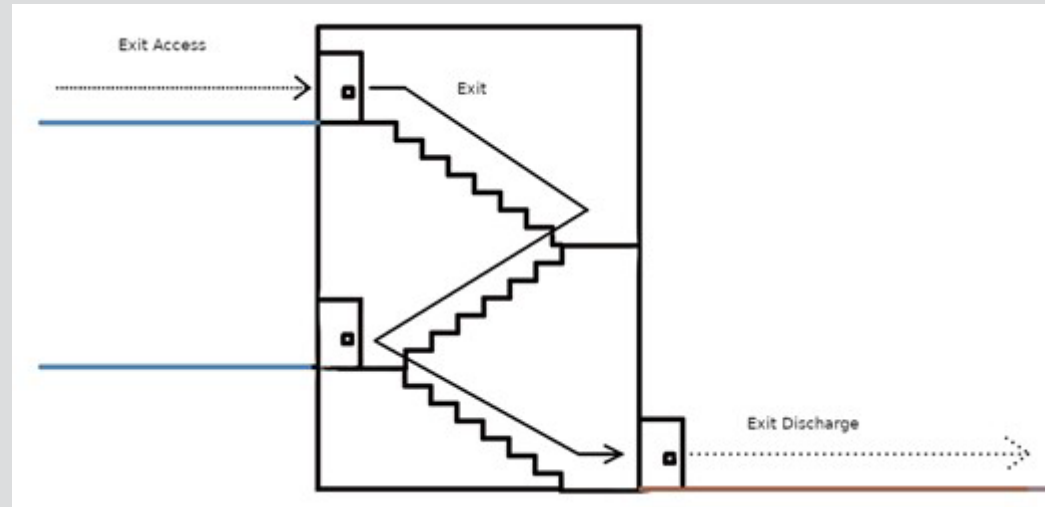


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Getting out Safely

- Building evacuation routes are posted in all buildings
- External assembly points can be found [here](#)
- Know 2 means of egress - continuous and unobstructed exit from any point in a building to the outside
 - Means of egress include
 - Exit access, exit, and discharge



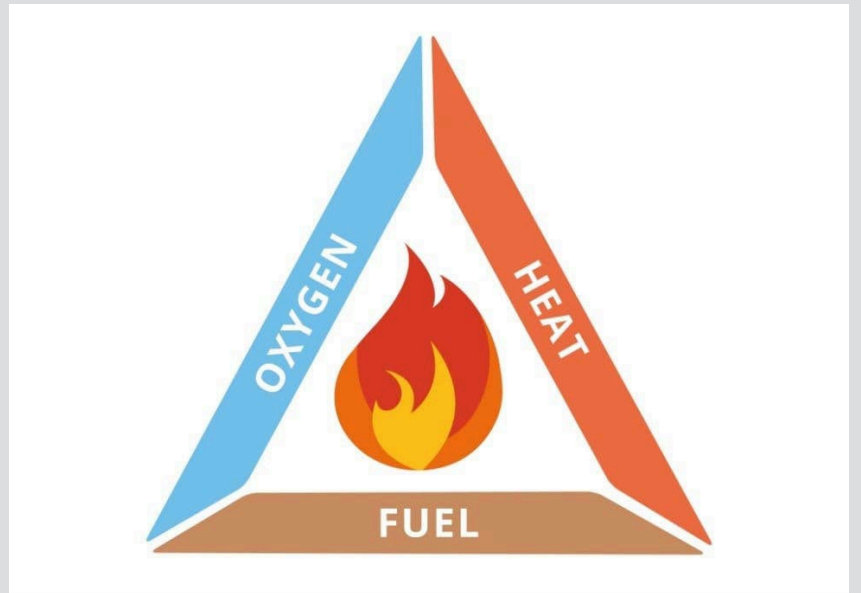
RACE to save your life

- **R**emove or rescue individuals in immediate danger
- **A**ctivate the nearest fire pull station and call 911
- **C**onfine the fire by closing windows, vents, doors
- **E**vacuate to a safe area – know the evacuation routes

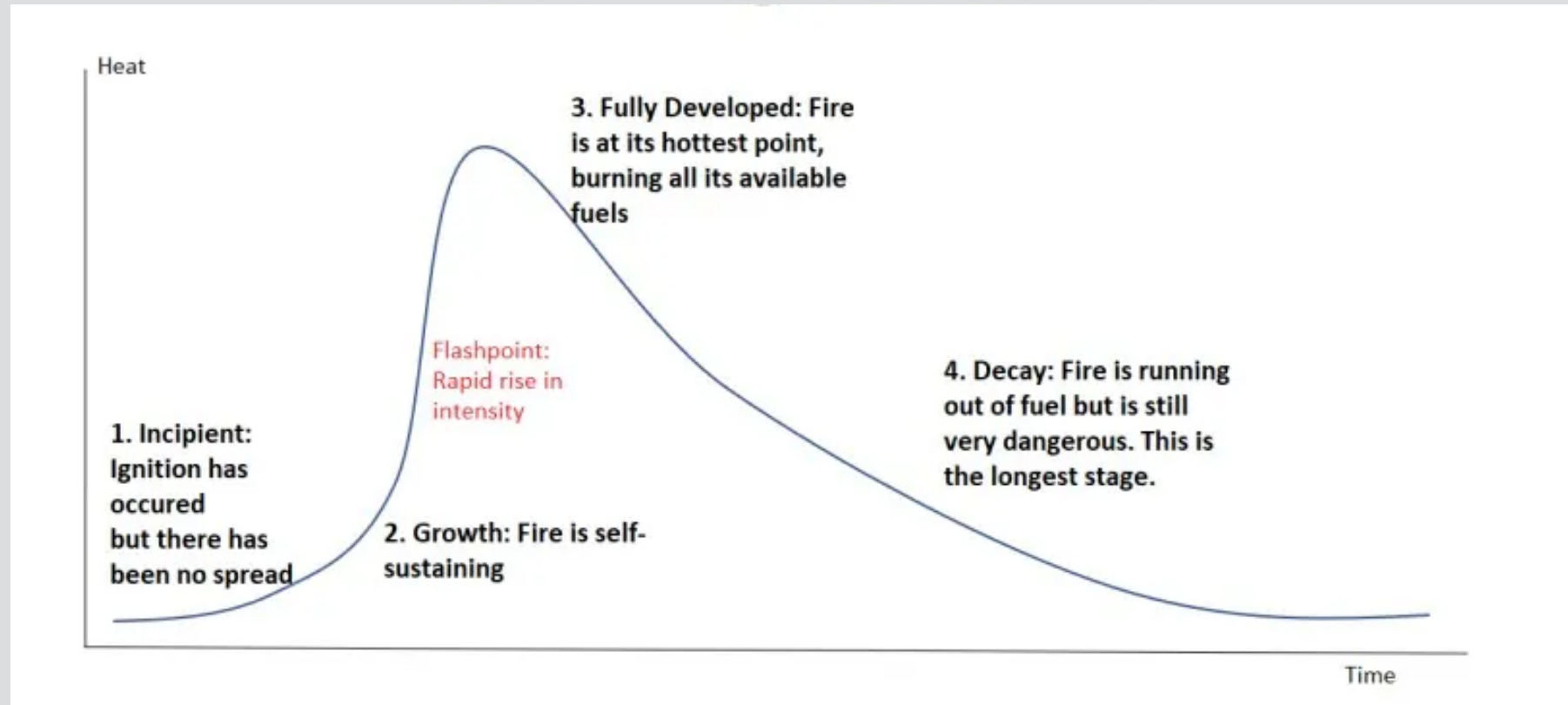


The Fire Triangle

- A fire requires three elements:
 - Heat – to reach ignition temperature
 - Fuel – combustible material to feed the fire
 - Oxygen – to sustain combustion
- When combined, these elements produce the chemical reaction that is fire
- To prevent or extinguish a fire, remove one of the three elements



Stages of a Fire



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Incipient Fire

- The fire has just begun and heat is low
- The fire has not affected anything beyond its immediate vicinity
- Smoke has not reduced visibility or air quality
 - This stage sets off smoke alarms
- Everyone in the area can still escape easily
- Fire extinguishers should only be used in the incipient stage











Portable Fire Extinguisher Firefighting Guidelines

Before making a decision to attempt to extinguish the fire, keep these things in mind...

1. Know what is burning! If you don't know what's burning, you won't know what type of extinguisher to use
2. Is the fire spreading rapidly? The time to use an extinguisher is at the beginning stages of the fire

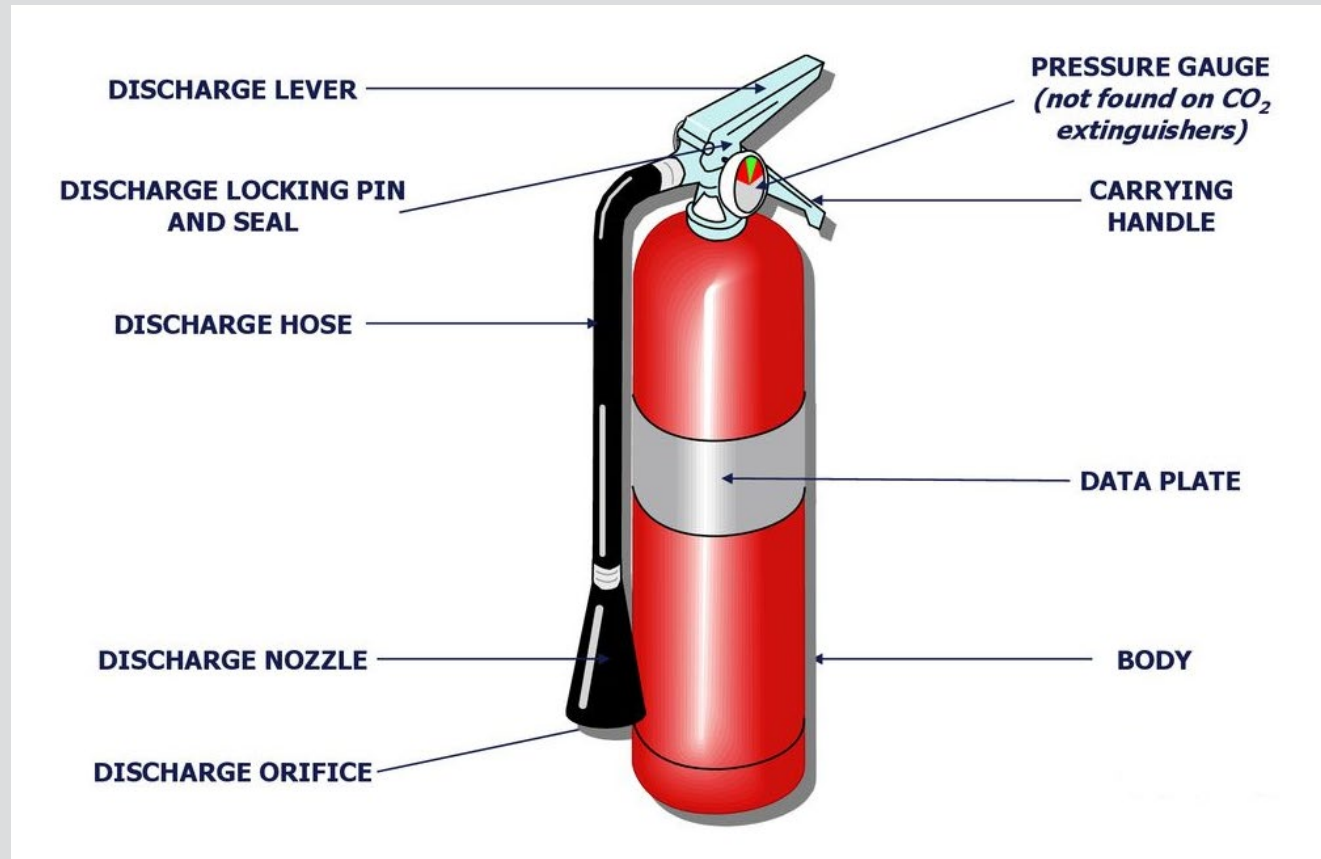
If you are unsure what is burning or if the fire is spreading rapidly, evacuate immediately and contact the fire department

Types of Fire Extinguishers

Type	Materials	Description	Label	Pictogram
A	Ordinary Combustibles	Fires in paper, cloth, wood, rubber, and many plastics require a water or dry chemical type extinguisher		
B	Flammable Liquids	Fires in solvents and other flammable liquids require dry chemical, or CO ₂ extinguisher		
C	Electrical Equipment	Fires in wiring, fuse boxes, energized equipment and other electrical sources require a dry chemical or CO ₂ extinguisher		
D	Metals	Combustible metals such as magnesium and sodium require special extinguishers		
K	Cooking Oils and Fats	Wet chemical extinguishers specially designed to put out fires of cooking oils or fats; unlikely needed in a laboratory setting.		

- Most NCCU buildings are equipped with Type ABC fire extinguishers that extinguish ordinary combustible items, flammable liquids, and electrical fires.
- Gas” extinguishers containing carbon dioxide (CO₂) offer a first defense against flammable liquids or electrical fires without leaving a powder residue that could harm electronic equipment.
- EHS coordinates monthly checks of all fire extinguishers. Please report any problems or missing extinguishers to ehs@nccu.edu.

Fire Extinguisher Components



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Operating Fire Extinguishers

- Remember to PASS when using a fire extinguisher
 - Pull the pin between the handles
 - Aim the nozzle at the base of the fire
 - Squeeze the handles together
 - Sweep the extinguisher from side-to-side at the base of the fire



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Never Fight a Fire.....

- If you don't know what is burning
- When fire appears too large to handle with one extinguisher
- If fire is spreading rapidly
- When you don't have an appropriate extinguisher
- If smoke may be toxic
- If your instincts tell you not to

Fire Extinguisher Inspections

- Portable fire extinguishers must be inspected on a regular basis
 - Monthly inspections – to be performed by building staff or EHS
 - Annual inspections – to be performed by a vendor hired by EHS



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Monthly Inspections

- Requirements
 - Is extinguisher in correct location?
 - Is the pin in place?
 - Is the gauge in the green area?
 - Is there any visible damage or corrosion?
 - Does the tag indicate the correct year?
- If “yes” to the above, initial and date the monthly inspection tag
- If “no” to any of the above, contact EHS (ehs@nccu.edu) for a new extinguisher

A vertical inspection tag with a hole at the top. It contains the following text: 'DO NOT REMOVE BY ORDER OF THE STATE FIRE MARSHAL', 'Johnson Controls' logo, 'MONTHLY INSPECTION RECORD', 'MODEL #', 'OWNER'S ID #', 'REMARKS:', and a table with columns 'DATE', 'BY', and 'COMMENTS'. The table has several rows for recording data.

What Can You Do?

- Remember - a safe workplace is everyone's responsibility
- Regularly inspect work area for
 - Electrical hazards
 - Storage in hallways
 - Blocked exits or hallways
 - Adequate lighting
 - General housekeeping
- Practice good housekeeping
- [Immediately report hazards on the Safety Hazard and Incident Report Form](#)
- Report any repairs that are needed using [Asset Essentials](#)

Severe Weather



The poster is divided into two main sections. The left section, titled 'Tornado WATCH:' in yellow, lists two points: '✓ Tornadoes are possible' and '✓ Remain alert – stay tuned'. Below this, 'Tornado WARNING:' is written in red, followed by '✓ Sighted or indicated by weather radar' and '✓ TAKE SHELTER IMMEDIATELY!'. The background of this section is a dark, stormy sky with a visible funnel cloud over a field. The right section, titled 'Severe Storms in NC' in white, features a photo of large hail. Below the photo, it states: '“Severe” thunderstorms MUST have one of the following –' followed by three bullet points: '✓ Hail of at least 1.0” diameter', '✓ Winds of 58 mph or stronger', and '✓ Produce a tornado'. At the bottom, a blue banner contains the 'ReadyGULFORD' logo, the text 'NC Severe Weather Preparedness Week', and the 'National Weather Service' logo.


Tornado WATCH:

- ✓ Tornadoes are possible
- ✓ Remain alert – stay tuned

Tornado WARNING:

- ✓ Sighted or indicated by weather radar
- ✓ TAKE SHELTER IMMEDIATELY!

Severe Storms in NC





“Severe” thunderstorms MUST have one of the following –

- ✓ Hail of at least 1.0” diameter
- ✓ Winds of 58 mph or stronger
- ✓ Produce a tornado

ReadyGULFORD

NC Severe Weather Preparedness Week



Critical weather updates are communicated to the community via the [Eagle Alert System](#)



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Severe Thunderstorms

- Strong winds, tornadoes, or hail
- Move indoors and away from doors and windows
- Each campus building has a designated [inside assembly point](#) located on a lower floor, away from doors and windows
- If you are outdoors and unable to move to shelter, find a low lying area, such as a ditch, and lie flat, covering your head with your hands for protection



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Tornado



- When a **Tornado Watch** is issued be aware that tornadoes are possible and remain alert
- When a **Tornado Warning** is issued seek shelter **immediately!**
- Each building has a designated [inside assembly point](#) located on a lower floor, away from doors and windows.
- Most injuries associated with high winds come from flying debris, so take care to protect your head when sheltering



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Injuries and Accidents in the Workplace



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Accidents

- Any incident that involves injury
- In the event of an injury obtaining necessary medical attention is **always** the first priority
- Non-emergency medical care is available using a Worker's Compensation approved urgent care or other provider
- Employees should NOT transport injured persons in their personal vehicle
 - Within a personal vehicle the University has no liability if person's condition were to become life threatening or you were involved in an accident
 - Medical transport is a huge personal risk for both the driver and the injured party.
- While you cannot prohibit persons driving themselves – injured persons are discouraged from self-transport

Common Types of Workplace Injuries

- Back injuries
 - Employees at high risk for back injuries must complete Back Safety Training
- Slip, trip and fall
- Struck by injuries

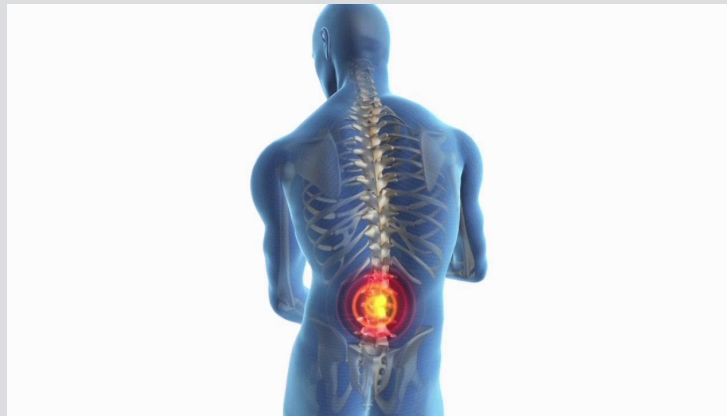


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Workplace Back Injuries

According to the CDC, back injuries account for nearly 20% of all injuries and illnesses in the workplace and cost an estimated 20 to 50 billion dollars per year



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Common Causes of Workplace Back Injury

- Force
 - Most common cause of back injury in the workplace
 - Application of weight or strain to your back
 - A common example would be lifting or carrying a heavy object
- Repetition
 - Repetitive strain from lifting and carrying even light objects
 - Frequent twisting and bending
- Inactivity
 - Sitting for prolonged periods of time, especially with poor posture

Back Injury Prevention

- Modify repetitive tasks
 - Consider lift assist tools
 - Take breaks
 - Alternate work tasks
- Strengthen core
 - A strong core can take some of the strain off of your back and help with lifting
- Stretch regularly
 - Make sure to stretch your back, legs, arms, and core muscles regularly,
 - Helps reduce back and joint pain by relieving muscle tightness and imbalance
- Stay healthy
 - Drink plenty of water
 - Exercise regularly and take breaks to stretch and walk around
 - Maintain good eating habits.
 - Get enough sleep



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Slip, Trip, & Fall (STF) Safety



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Slip, Trip and Fall (STF) Program

- OSHA 29 CFR 1910.22-.30
 - Regulations for walking/working surfaces that guard against hazards
- NCCU STF Program and training developed to minimize injury or death from incidents involving slips, trips, and falls

Slips

- Loss of balance caused by too little friction between your feet and the surface you walk or work on
- Caused by wet surfaces, spills, or weather hazards like ice or snow.
- Likely to occur when you hurry or run, wear the wrong kind of shoes, or don't pay attention to where you're walking



Trips

- Occur whenever your foot hits an object and you are moving with enough momentum to be thrown off balance
- Likely to happen when you are in a hurry and don't pay attention to where you're going

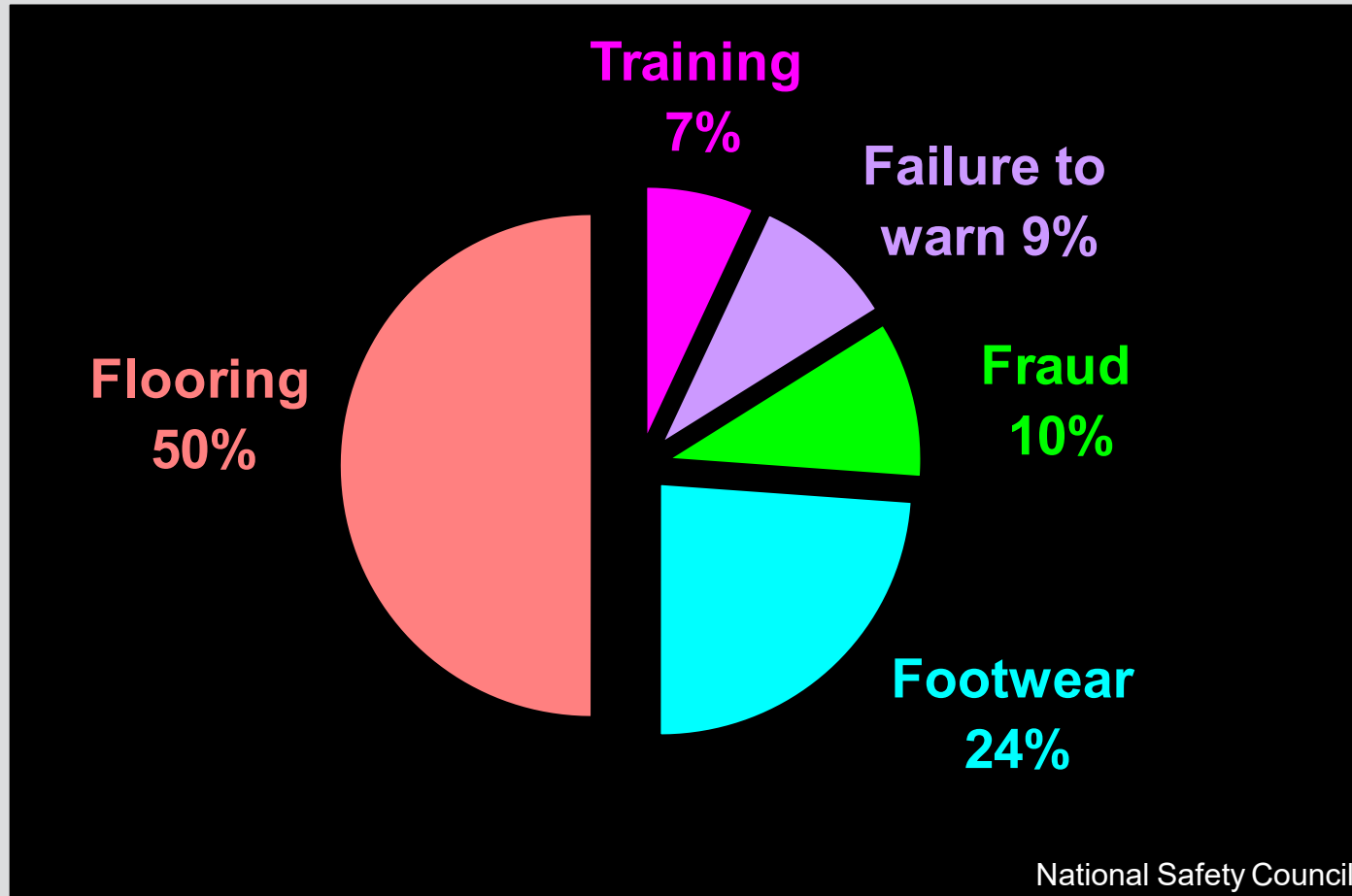


Falls

- Occur whenever you move too far off your center of balance
- Account for more workplace fatalities than any other reason



Causes of Slips, Trips and Falls



Lighting

- Poor lighting prevents people from seeing obstacles
- Emergency lighting should be functional and bright enough to allow persons to safely exit the building in the event of a power loss



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Avoid Slips



- Practice safe walking skills
 - Take short steps on slippery surfaces to keep your center of balance under you and point your feet slightly outward
- Clean up or report spills or other moisture on walking surfaces right away
- Be extra cautious on smooth surfaces such as newly waxed floors.
- Be careful walking on loose carpeting

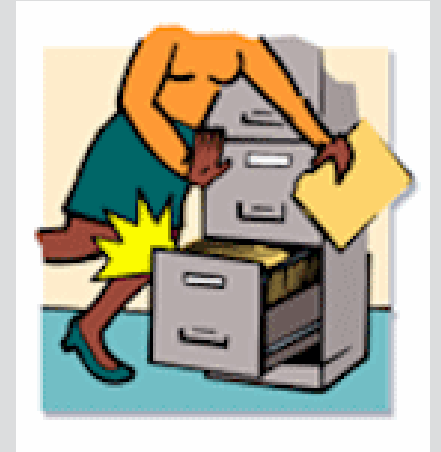


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Avoid Trips

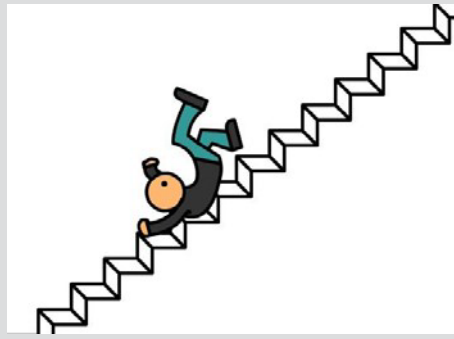
- Make sure you can see where you are walking
- Don't carry loads that you cannot see over
- Keep walking and working areas well lit
- Keep work place clean and tidy
 - Store materials and supplies in appropriate storage areas
- Arrange furniture and office equipment so that it doesn't interfere with walkways or pedestrian traffic
- Alert appropriate authorities regarding potential maintenance related hazards



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Avoid Falls



- Don't jump off landings, stairs, or other elevated surfaces
 - Always use the stairs
- Report fall hazards such as broken or loose stairs or handrails
- Keep passageways and aisles clear of clutter and well lit
- Wear shoes with non-slip soles



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Storage Safety

- Use proper equipment to reach high items
- Do not store heavy objects above head
- Never stand on revolving chairs or chairs with castors
- National Fire Protection Association specifies that items may not be stacked to block smoke detectors and sprinklers
 - Allow at least 18 inches of clearance between items and sprinkler head
 - In a non-sprinklered building, storage must not be within 24" of the ceiling

NO!



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Struck By or Injured By

1 out of every 4 workplace injuries involve someone hitting or being hit by something around them



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Struck by Injuries

- Occur when a worker is hit by an object in the workplace
 - Flying projectiles and loose work materials
 - Objects falling from higher levels
 - Swinging objects such as crane hooks or rigged loads
 - Rolling objects such as wheeled equipment or vehicles



Preventing Struck By Injuries

- Check vehicles before use to make sure they are in safe operating condition
- Securely and neatly store loose materials
- Secure items that are stored at a height
- Store heavy objects close to the floor
- Open one filing cabinet drawer at a time to prevent a tip-over
- Wear the proper personal protective equipment for your environment, such as steel-toed shoes and a hard hat
- Always walk behind moving equipment if possible
- Never obstruct your vision by overloading carts or other moving equipment
- Only operate equipment you are properly trained to use
- Make sure all safety devices on your equipment are in good working order before use
- Use extra caution around corners and near doorways
- When large equipment is being operated, always make eye contact with the operator before approaching
- Secure all loads and lift them evenly to prevent them from slipping



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Hazard Reporting

The screenshot shows the NCCentral University myEOL Home page. At the top, the NCCentral University logo is on the left, and navigation links for 'myEOL Home', 'Forms and Documents', and 'Directory' are on the right. Below the header is a dark red navigation bar with icons for email, user profile, help, and search. The main content area has a background image of a person wearing a face mask. The heading 'Compliance or Hazard Reporting' is followed by a paragraph stating NCCU's commitment to a safe environment. Three buttons are visible: 'COVID-19 Reporting', 'Report a Compliance Concern', and 'Report a Safety Hazard'. A yellow arrow points from the 'Report a Safety Hazard' button to a blue text box on the right. Below this, a section titled 'Administrative & Academic Services' displays a grid of application icons. A second yellow arrow points from the 'Asset Essentials' icon to the same blue text box. At the bottom, an 'Office 365' section shows icons for OneDrive, Outlook, Word, OneNote, Excel, and PowerPoint.

myEOL Home Forms and Documents Directory

Compliance or Hazard Reporting

NCCU is committed to providing a safe environment and a compliant workplace. Please use the links below to report any concerns, hazards or incidents.

COVID-19 Reporting Report a Compliance Concern Report a Safety Hazard

69°

Administrative & Academic Services

Access Control	Accommodate	Argos	Asset Essentials
Banner SSB 8	BDM	BlackBoard	Brown Book Software
Cayuse	Chrome River	DegreeWorks	Digital Measures
Eagle Point			

Office 365

OneDrive	Outlook	Word	OneNote	Excel	PowerPoint
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- Report Safety Hazards in
 - myEOL banner OR
 - EHS website
- Use Asset Essentials in myEOL to report needed repairs to facilities or grounds



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Injury/Accident Reporting

- Report the incident immediately to your Supervisor
- Within 24 hours submit the following to ensure benefits are available EVEN IF YOU DO NOT SEEK IMMEDIATE MEDICAL ATTENTION
 - [Workers' Compensation Employee Statement Form](#)
 - [Supervisor's Accident/Incident Investigation Report Form](#)
 - Note that failure to report an injury could result in denial of claim
- Once the injury is reported, an incident investigation will be opened to determine the cause of the accident
- Incidents/Accidents that involve employees are also reported to EHS using the [Hazard and Incident Reporting Form](#)

Laboratory Awareness Training

NCCU has three laboratory buildings on campus that contain hazardous biological and/or chemical hazards



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General Laboratory Safety

- Hazards in laboratory are most often “contained” in fume hoods, biosafety cabinets, etc. to protect anyone in the space
- For all non-emergency entry make contact with someone who is fully trained in hazards in the space to escort you
 - Building manager, faculty member or lab manager of lab, etc.
- In emergency situations, consult signage for awareness and enter only if you must

Laboratory Signage

- Posted on laboratory doors
- PPE needed for entry
- Hazards present
 - Biohazards
 - Radioactive materials
 - Compressed gases
 - Lasers
 - NFPA diamond for chemicals
 - 24/7 contact information

Caution
Admission to Authorized Personnel Only



Required Personal Protective Equipment

- Lab Coat
- Eye Protection
- Gloves



Biosafety Level





Caution



Radioactive Materials








Title	Name	Office Phone	After-hours
Principal Investigator			
Lab Manager			
Environmental Health & Safety		919-530-7125	919-530-6106
University Police		919-530-6106 or 911	24 hours



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Hazard Communication Signage

- Biohazard sign is required where biohazardous materials are present 
- NFPA 704 Fire Diamond communicates hazards of chemicals 
- Radiation trefoil symbol indicates radioactive materials are used/stored 
- Class 3B or Class 4 lasers are present - **Do not enter** unless accompanied by lab personnel 
- Equipment with strong magnetic fields in laboratory. **Do not enter** unless accompanied by lab personnel, and limitations of entry are understood. 

Laboratory Safety Equipment



- Eye wash & shower
 - Indoors, emergency eyewash and safety showers are required within a 10-seconds travel distance and not more than 75 feet from where corrosive chemicals are used.
 - Must be on the same level as the chemical area; there can be no stairs/ramps or blockages between the hazard and the eyewash and/or safety shower.
- First Aid Kit
 - Class A kits in labs provide a basic range of products to deal with common injuries including minor burns, wounds, and eye injuries.



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Hazard Communications

OSHA Hazard Communication Standard 29 CFR 1910.1200 requires employees be informed of chemical hazards they work with or are present in work area



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Elements of the Program

- Chemicals are properly labeled
- Areas with chemicals must maintain a current chemical inventory and Safety Data Sheets (SDS)
- Training personnel by Supervisor on chemicals used in workplace
- General awareness training for all employees regarding definitions, label, and SDS

Definitions

- Under HazCom 2012 hazards are classified using a specification approach
 - Provide a specific criteria for classification of health and physical hazards as well as classification of mixtures
 - Appendix A defines health and safety hazards
 - Appendix B includes additional parameters to evaluate health hazard data
 - Appendix F pertains to carcinogens

Labels

- HazCom 2012 requires manufacturers and importers to provide a label that includes a harmonized product identifier, pictogram, signal word, and hazard statement for each hazard class and category.
- Precautionary statements are also provided.

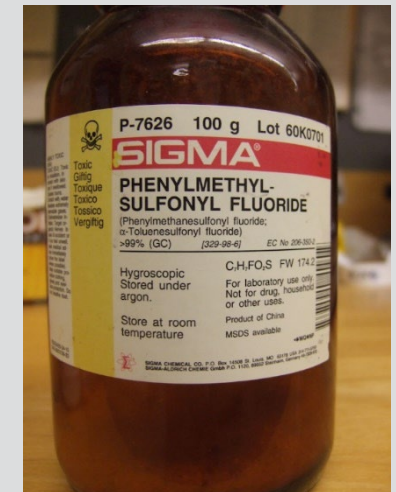


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General Safety Measures

- Never remove or deface a chemical label
- Review SDS and labels for chemicals prior to first use
- Make sure that all containers are properly labeled



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Globally Harmonized System (GHS)

- International approach to communicating chemical hazards
- United Nations' document *Globally Harmonized System of Classification and Labeling of Chemicals*
- Standardized approach to label elements and safety data sheets
- Provides appropriate signal words, pictograms, and hazard and precautionary statements to convey hazard information

Distinct Hazards

- Chemicals for which there is scientific evidence that a health, physical, and/or environmental hazard may occur
 - Health – acute or chronic health effects may occur if exposed
 - Physical – combustible liquid, compressed gas, explosive, flammable, etc.
 - Environmental – pose risk or danger to the environment

Signal Word

- Word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.
 - Danger is used for the more severe hazards
 - Warning is used for the less severe

Danger vs. Warning



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Pictograms

- Symbol plus other graphic elements, such as a border, background pattern or color, intended to convey specific information chemical hazards
- Nine GHS Pictograms
 - GHS Environmental pictogram is not used by OSHA



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Hazard Statements

- Statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard
 - ***Example: Category 4 Acute Toxicity - Inhalation***

Pictogram				
Signal word	Danger	Danger	Danger	Warning
Hazard statement	Fatal if inhaled	Fatal if inhaled	Toxic if inhaled	Harmful if inhaled

Hazard Communication – Pictograms and Hazards

Health Hazard  <ul style="list-style-type: none">• Carcinogen• Mutagenicity• Reproductive Toxicity• Respiratory Sensitizer• Target Organ Toxicity• Aspiration Toxicity	Flame  <ul style="list-style-type: none">• Flammables• Pyrophorics• Self-Heating• Emits Flammable Gas• Self-Reactives• Organic Peroxides	Exclamation Mark  <ul style="list-style-type: none">• Irritant (Skin and Eye)• Skin Sensitizer• Acute Toxicity (harmful)• Narcotic Effects• Respiratory Tract Irritant• Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none">• Gases Under Pressure	Corrosion  <ul style="list-style-type: none">• Skin Corrosion/Burns• Eye Damage• Corrosive to Metals	Exploding Bomb  <ul style="list-style-type: none">• Explosives• Self-Reactives• Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none">• Oxidizers	Environment (Non-Mandatory)  <ul style="list-style-type: none">• Aquatic Toxicity	Skull and Crossbones  <ul style="list-style-type: none">• Acute Toxicity (fatal or toxic)

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Precautionary Statements

- Phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.
 - ***Example for Explosives, Division 1.1, 1.2 and 1.3***
 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
 - Keep wetted with...
 - Ground/bond container and receiving equipment
 - Do not subject to grinding/shock/.../friction
 - Wear face protection

Workplace Labeling

- Each hazardous chemical container must be ***labeled, tagged or marked*** with
 - Name of the chemical
 - Hazards



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Safety Data Sheets

- Manufacturers must provide distributors and users SDS
 - With initial shipment, *and*
 - With first shipment after an SDS is updated
- Must have an SDS in the workplace for each chemical
 - Must be readily accessible to users during work shift
 - Electronic versions acceptable as long as no barrier to immediate employee access exists
 - When employees travel between work sites during a work shift SDS is kept in primary workplace

Safety Data Sheet Format

1. Identification of the substance or mixture and of the supplier
 2. Hazard identification
 3. Composition/information on ingredients
 4. First-aid measures
 5. Fire-fighting measures
 6. Accidental release measures
 7. Handling and storage
 8. Exposure controls/personal protection
 9. Physical and chemical properties
 10. Stability and reactivity
 11. Toxicological information
 12. Ecological information (non-mandatory)
 13. Disposal considerations (non-mandatory)
 14. Transport information (non-mandatory)
 15. Regulatory information (non-mandatory)
 16. Other information, including date of preparation or last revision
- Contains 16-sections
 - Sections 12-15 are address information outside OSHA's jurisdiction; not mandatory
 - No subheading in Sections 1-11 and 16 can be left blank



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Air Contaminants standard 29 CFR 1910.1000

- Rules for protecting workers from airborne exposure to over 400 chemicals – several of which are commonly used in labs include: toluene, xylene, and acrylamide

Toluene		
Exposure routes	Symptoms	Target Organs
Inhalation; Ingestion; Skin and/or eye contact; Skin absorption.	Irritation of eyes, nose; Weakness, exhaustion, confusion, euphoria, headache; Dilated pupils, tearing; Anxiety; Muscle fatigue; Insomnia; Tingling, pricking, or numbness of skin; Dermatitis; Liver, kidney damage.	Eyes; Skin; Respiratory system; Central nervous system; Liver; Kidneys.

Xylene		
Exposure routes	Symptoms	Target Organs
Inhalation; Ingestion; Skin and/or eye contact; Skin absorption.	Irritation of eyes, skin, nose, throat; Dizziness, excitement, drowsiness, incoherence, staggering gait; Corneal vacuolization (cell debris); Anorexia, nausea, vomiting, abdominal pain; Dermatitis.	Eyes; Skin; Respiratory system; Central nervous system; GI tract; Blood; Liver; Kidneys.

Acrylamide		
Exposure routes	Symptoms	Target Organs
Inhalation; Ingestion; Skin and/or eye contact; Skin absorption.	Irritation of eyes, skin; Ataxia (staggering gait), numb limbs, tingling, pricking, or numbness of skin; Muscle weakness; Absence of deep tendon reflex; Hand sweating; Tearing, Drowsiness; Reproductive effects; Potential occupational carcinogen.	Eyes; Skin; Central nervous system; Peripheral nervous system; Reproductive system (in animals: tumors of the lungs, testes, thyroid and adrenal glands).



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Chemical Spills

- All areas on campus that use and store chemicals (laboratories, facility shops, grounds, etc.) are equipped with protective clothing and spill cleanup materials to respond to small low-hazard chemical spills
- Laboratories with mercury or mercury containing items have special spill kit and training



Control Spill Area & Evaluate Hazard

- Evacuate personnel from the immediate spill area
- Remove any injured personnel from spill area
 - Remove contaminated clothing, flush skin with water, use eyewash and/or safety shower, etc. and seek medical attention
- Block off immediate spill area to restrict access
- Post signage, “Spill Area – Keep Out”.
- Eliminate any fire hazard if spill is flammable or combustible
- Make preliminary evaluation of hazard and risks and decide whether you should call EHS.
 - If you are comfortable with clean up and can do it safely, continue with clean up

Clean Spill Area

- Contain the spill
 - Use spill pads to absorb liquid
- Clean the spill surfaces
- Replace used materials in spill kit
- Place all contaminated disposable materials in large plastic bag
 - Double bag if necessary
 - Submit request for hazardous waste pick-up
- Report spill to PI/Supervisor

Emergency Response to Chemical Spills

- Do not try to clean up any chemical incident that involves any of the following:
 - Respiratory hazard
 - Threat of fire or explosion
 - More than 100 mL of an OSHA regulated chemical carcinogen or a highly toxic chemical
 - More than 1 liter of a volatile or flammable solvent
 - More than 1 liter of a corrosive (acid or base) liquid
- As best as possible, try and determine the contents and potential hazards and call EHS (919-530-7125) immediately to report during work hours and University Police after hours (919-530- 6106).
- The EHS Chemical Safety Specialist or another trained EHS Specialist will immediately respond, assess the situation, remove the container or spill or leave in place and sequester the area until it can be safely removed.

Bloodborne Pathogens

Bloodborne Pathogens (BBP) Standard ([29 CFR 1910.1030](#)) requires the employer to provide annual training regarding the occupational hazards of **Bloodborne Pathogens**.



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Exposure Control Plan

Required by OSHA BBP Standard

- Identifies tasks with exposure potential
- Lists job descriptions with exposure potential
- Defines methods of exposure control
 - Standard precautions
 - Engineering, administrative and PPE controls
 - Hepatitis B vaccination
- Housekeeping controls
- Medical waste procedures
- Incident reporting procedures
- Process for post-exposure evaluation and follow-up
- Information and training
- Documentation and recordkeeping



The **[NCCU Exposure Control Plan](https://myeol.nccu.edu/sites/default/files/2020-06/NCCU-Exposure-Control-Plan.pdf)** can be found at:

<https://myeol.nccu.edu/sites/default/files/2020-06/NCCU-Exposure-Control-Plan.pdf>

and **is required to be reviewed as part of this training.**



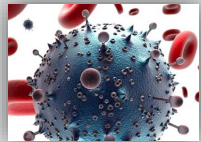
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What are Bloodborne Pathogens?

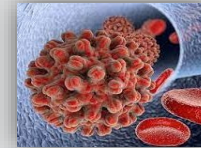
- Bloodborne Pathogens are infectious microorganisms that may be present in human blood and can cause disease in humans.
- According to the CDC there are 200+ BBP
- Most common BBP are: HIV, HBV, and HCV
- Other BBP: Non-A hepatitis, *Treponema pallidum* (syphilis), *Plasmodium* spp. (malaria), *Brucella* spp., Arboviruses (mosquito transmitted) – chikungunya, Zika, Hemorrhagic fever viruses - Ebola

Human Immunodeficiency Virus (HIV)



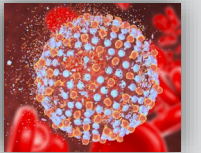
- HIV attacks and destroys immune cells
- HIV does not survive long outside the human body
- AIDS is the most severe stage of the infection
- Use standard precautions, safety devices, PPE to prevent exposure
- Symptoms: Flu-like symptoms, fever, sore throat, fatigue, swollen-lymph nodes
- **No vaccine available**; antiretroviral therapy available

Hepatitis B Virus (HBV)



- HBV infects liver
- HBV is the most infectious of the BBP
- HBV can survive outside the body and remains infectious for at least 7 days
- To prevent exposure use standard precautions, safety devices, PPE
- **Get HBV vaccine**
- Symptoms: Fever, fatigue, abdominal pain dark urine, jaundice, gray-color stools
- Chronic HBV can cause liver damage, cirrhosis, liver cancer, and even death

Hepatitis C Virus (HCV)



- HCV transmission occurs through occupational exposure to blood
- Use standard precautions, safety devices, PPE to prevent exposure
- Symptoms: Fever, fatigue, abdominal pain dark urine, jaundice
- **There is no vaccine for HCV**
- Chronic HCV can cause liver damage, cirrhosis, liver cancer, and even death

Click on each link to learn more about the specific virus at [cdc.gov](https://www.cdc.gov)



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Other Potentially Infectious Materials (OPIM)

Exposure to human blood carries the greatest risk for acquiring the BBP.

In addition to blood, OPIM are considered to be potentially infectious with HIV, HBV or HCV.

These include:

- Saliva
- Any body fluids that is visibly contaminated with blood
- Any unfixed cells, tissue or organ from a human (living or dead)
- Laboratory cells or tissue cultures
- Semen or vaginal secretions

Unless visibly contaminated with blood, other bodily fluids, such as urine, feces, vomit, tears, sweat, sputum, and nasal secretions are NOT considered to be OPIM of BBP.



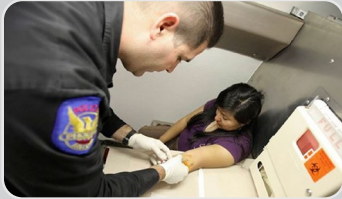
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BBP Exposure Risk/Route of Infection

- Manipulating specimens (Processing evidence)
- Handling biological wastes
- Contaminated equipment or surfaces
- Hypodermic needle
- Droplets and airborne exposure
- Medical/First aid activities
- Being bitten by suspect
- Cleaning surfaces or handling waste contaminated by blood or OPIM

Common routes of infection



Inoculation

Accidental skin punctures with contaminated needles or other sharp objects.



Mucous Membrane Exposure

Direct contact of contaminated fluid with the eyes, nose, mouth, or broken skin (splash or splatter).



Blood Spill Cleanup

Cleanup of spills of blood and OPIMs



Ingestion

Eating, drinking, applying cosmetics or storing food in units where blood or OPIM are present increase likelihood of infection via ingestion. Do not store food in refrigerator where blood or OPIM are kept.



Inhalation

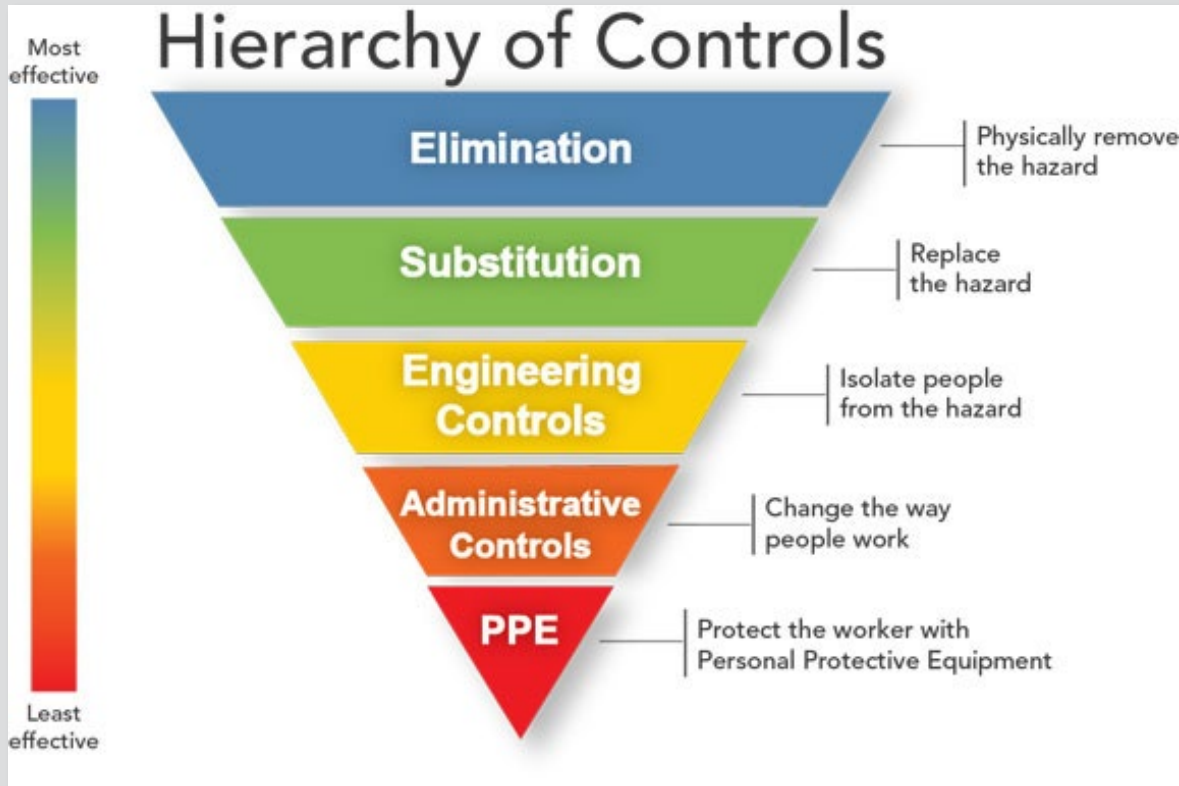
Spill or procedures that can generate aerosol, coughing or sneezing, could potentially present the risk of infection via inhalation. Use of respiratory masks.



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HIERARCHY OF CONTROLS



- Determine effective & feasible risk mitigations
- **The most feasible and efficient mitigations are engineering controls**



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Engineering Controls

Engineering controls physically isolate or remove a hazard from the workplace (“safety devices”).

Examples of work practice controls:

- CPR masks and breathing barriers
- Sharps safety devices
- Single-use lancets with retractable needle
- Needleless IV infusion system
- Protective (re-sheathing) IV catheter
- Sharps containers/disposal
- Contaminated solid waste containers/disposal



CPR Masks

CPR masks and breathing barriers help to prevent disease transmission when performing CPR.



Sharps Safety Devices

Proper use of devices with needles that retract or are covered by a sheath or shield, needleless systems that do not use a needle or sharp at all are to reduce sharps injuries and prevent exposure of law enforcement professionals.



Sharps Disposal

Contaminated items likely to cause skin puncture (e.g., needles, razor blades, broken glass) must be immediately disposed of in appropriate puncture-resistant, leak-proof containers.



Solid Waste Disposal

Contaminated solid waste is placed into red, leak-proof, puncture-resistant containers lined with a red/orange biohazard bag.

Work Practice Controls

“*Work Practice Controls*” means performing a task in a way to prevent exposure to blood and OPIM



Washing Hands

Persons must wash their hands after working with potentially hazardous materials and before leaving the workplace.

Make sure to use hot, soapy water and wash hands for at least 20 seconds. Rinse and dry. Use paper towel to turn off tap.



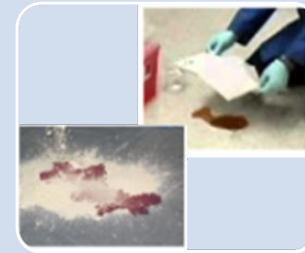
Sharps Precautions

Contaminated needles are not to be bent, broken, recapped, or removed from the syringe. Sharps used during the procedures are to be passed in a basin or on a tray. Disposing of sharps in the sharps container helps keep yourself and other safe. Wear gloves and use tongs or a brush and dust pan to collect sharps.



Preventing Ingestion

Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption must not be permitted in area that can be contaminated with blood/body fluids.



Minimize Splashes

Place paper towel over the spill site prior to pouring disinfectants or

Use absorbent powder on the spill followed by cleanup with scoop and then disinfecting.



Communication of Hazards

Biohazard labels are used to alert others of the potential presence of biohazardous materials. It must be used when contaminated instruments or infectious specimens are transported.



PPE

PPE must be always utilized when there is a potential for exposure to blood or OPIM

PPE must be removed and placed in designated container

Handle laundry (uniforms, soiled clothing) soiled with blood as little as possible. Do not take home for cleaning.

Administrative Controls

- Policies and **S**tandard-**O**perating-**P**rocedures
- Exposure Control Plan
- Training
- Hand washing



North Carolina Central University
Exposure Control Program Plan

<https://myeol.nccu.edu/sites/default/files/2020-06/NCCU-Exposure-Control-Plan.pdf>



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Handwashing & Removing Safely Gloves

Handwashing is the most effective administrative control performed:

- between all direct contact with the subjects
- before donning and after removing gloves
- after handling soiled or contaminated equipment or instruments
- after leaving the room of a subject on isolation precautions
- immediately or as soon as possible if contaminated with blood or OPIM
- Wash hands including all surfaces of hands and up to wrists
 - Wet hands with warm running water
 - Lather with soap and scrub between fingers, backs of hands and under nails for at least 20 seconds
 - Rinse and dry
 - Use a paper towel to turn off tap



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Personal Protective Equipment (PPE)



PPE are garments worn to protect personnel from contact with blood and body fluids.

Choose the right combination of PPE to protect your skin, eyes, nose, and mouth.

Eye Protection - wear when splashes, sprays, or spatters, or droplets of blood and/or OPIM pose a hazard to the eyes.

Face mask/shield – wear when splashes, sprays, or spatters, or droplets of blood or OPIM pose a hazard to the nose or mouth.

Gloves - wear appropriate gloves when it is reasonably anticipated that there may be hand contact with blood or OPIM, and when handling or touching contaminated items or surfaces. Replace gloves if torn, punctured or contaminated, or if their ability to function as a barrier is compromised. Do not wash or reuse gloves. Do not handle personal items while wearing gloves.

Disposable apron - should be worn during spill cleanup of blood or OPIM. If it is penetrated by blood or OPIM, it must be removed immediately or as soon as feasible.

Foot protection - should be worn to protect shoes from contaminated floors when cleaning up blood or OPIM.

Remove and dispose PPE before leaving the work area and perform hand hygiene.

Sequence for donning and doffing of PPE: <https://www.cdc.gov/hai/pdfs/ppe/ppeposter148.pdf>



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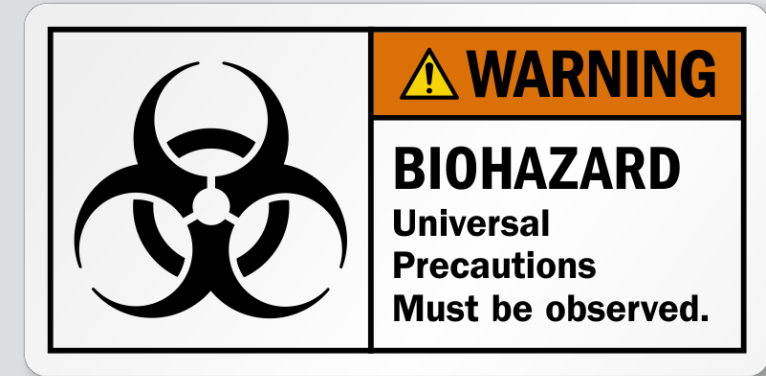
Universal Precautions

Under Universal Precautions, Personal Protective Equipment (PPE) is required when there is a reasonable expectation that you may come into contact with blood, blood products, certain body fluid visibly contaminated with blood.

“Treat everything as if it were infectious.”

OSHA required label

The universal Biohazard sign is used to alert law enforcement personnel when containers, specimen refrigerators, medical equipment, or containers used to transport specimens contain infectious materials. The sign is orange or red/orange with contrasting letters and have universal biohazard symbol.



Lab Specimen Bag



Specimen refrigerator



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Contaminated Clothing

As soon as possible, clothing contaminated with blood or OPIM should be carefully removed, avoiding contact with the garment's outer surface to prevent skin contamination (using gloves if necessary)

Garments contaminated with blood or OPIM should be placed in a plastic bag with a biohazard label.

NEVER take home clothing contaminated with blood or OPIM.

Contaminated Equipment

Equipment such as pepper spray, Taser, radio, baton, or handcuffs must be cleaned if contaminated with blood or OPIM using EPA-registered disinfectant detergent, bleach wipe or a 1:10 dilution of bleach and water.



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Blood & Body Fluid Spill Cleanup

To cleanup a blood or OPIM spill, you must:

- Be trained in biological spill procedures with hazardous substance spill risk
- Be knowledgeable about the presence of Biological Spill kit
- Be trained in proper wearing of the appropriate PPE (<https://www.osha.gov/training/library/materials>)

Spills must be cleaned up as soon as possible using the following steps:



Step 1

- Wear gloves and other appropriate PPE

Step 2

- Small spills should be cleaned using a 1:10 dilution of sodium hypochloride (household bleach) or an EPA-registered disinfectant

Step 3

- If broken glass is involved remove it using tongs or forceps (NEVER pick up by hand)
- Place the broken glass in a sharps container



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Exposure Management

Persons with occupational risk must be trained how to identify an exposure or potential exposure and what to do after an exposure/potential exposure

Exposure

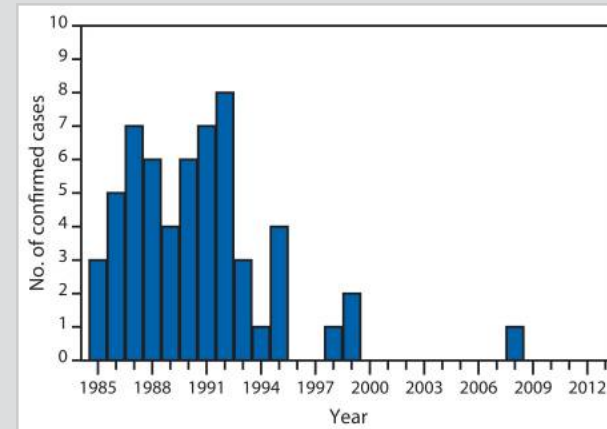
Known, unplanned, contact with infectious agent

- Needle stick or cut with sharp object
- Spill/splash into mucous membrane
- Entry through broken or intact skin

Potential exposure

Failure of control mechanism (engineering or PPE)

Occupationally acquired AIDS/HIV reported to CDC (U.S. 1985-2013)



- <https://www.ojp.gov/ncjrs/virtual-library/abstracts/police-and-hiv-aids-risk-reality-response>
- <https://www.sciencedirect.com/science/article/pii/S1353113195900756>



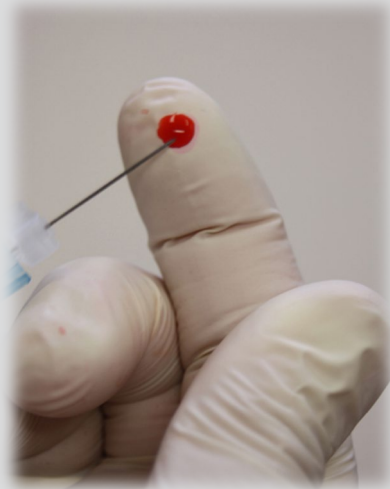
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Exposure Procedures

Percutaneous Exposure Procedure

1. Remove gloves and force wound to bleed
2. Immediately wash the area with soap and water for at least 5 minutes
3. Utilize First Aid kit if necessary
4. Immediately after rinsing, obtain medical attention
5. Notify the PI and EHS
6. Report incident



Eye Exposure Procedure

1. Immediately flood exposed areas with water from safety shower, eyewash, or faucet for at least 10-15 minutes.
2. Hold eyes open to ensure effective rinsing behind both eyelids
3. Immediately after rinsing, obtain medical attention
4. Notify the PI and EHS
5. Report incident



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Post-Exposure

- All exposures (known or potential) should be reported immediately to Supervisor to obtain medical evaluation and follow-up
- Report to EHS at <https://nccu.edu/ehs>
- Complete the [Workers' Compensation Employee Statement Form](#) and [Supervisor's Accident/Incident Investigation Report Form](#) and submit to Workers' Compensation Administrator within 24 hours even if you do not seek immediate medical care

Personal Protective Equipment

PPE as a control depends largely on compliance and proper usage



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PPE- Eye & Face Protection

- Supervisors work with EHS to determine job tasks for which eye protection is necessary and enforce eye protection rules
- OSHA requires that the employer provide eye and face protection devices without cost to employees
- Prescription safety glasses are available at a reduced cost from [Correction Enterprises](#).
- Contact lenses do not provide adequate eye protection for hazardous operations and must be worn in conjunction with approved safety eyewear

PPE- Safety Glasses



- Must be hardened-glass or plastic safety spectacles with side shields that comply with the Standard for Occupational and Educational Eye and Face Protection (Z87.1) established by the American National Standards Institute (ANSI). This standard specifies a minimum lens thickness of 3 mm, impact resistance requirements, passage of a flammability test, and lens-retaining frames.
- Do not wear photogrey (transition) lenses indoors because the percentage of light transmitted under normal light conditions is below ANSI standards

PPE – Face Shields

When you need to protect the face and/or throat from flying particles and harmful liquids



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PPE- Gloves



- The PD is responsible for providing proper gloves when needed and enforcing glove policy
 - OSHA has [guidance](#) on glove selection and chemical resistance
- Wear proper protective gloves for potential contact with hazards, sharps, and hot or cold materials
- Always remove gloves before contacting “clean” areas such as food area surfaces, or common equipment such as telephones, computer keyboards, and photocopiers.

Glove Best Practices

- Before each use, inspect gloves for discoloration, punctures, and tears
- Dispose single-use gloves after removal – never re-use
 - Uncontaminated gloves can go in the regular trash
 - Contaminated gloves are disposed of in proper waste stream

Latex Allergy



- Allergy can occur after repeated contact
- Sensitivity reaction may range from localized dermatitis (skin irritation) to an immediate, possibly life-threatening reaction
- OSHA PPE standard 29 CFR 1910.132
 - Employer must ensure that appropriate PPE is accessible at the worksite or issued to workers.
 - Latex-free gloves must be available to workers
- If you know you have a latex allergy – discuss with your Supervisor and EHS to make sure that proper gloves are selected



Hearing Conservation Program



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Statistics and Facts

- About 22 *million* workers are exposed to hazardous noise
 - Noise is considered hazardous when it reaches 85 decibels or higher or if a person has to raise their voice to speak with someone 3 feet away
- Hearing loss is the 3rd most common chronic physical condition among U.S. adults
 - Can be temporary or permanent
- Noise-induced hearing loss is the most common occupational hazard in the U.S.
- Hearing loss from noise is slow and painless; you can have a disability before you notice it
- It is **100%** preventable

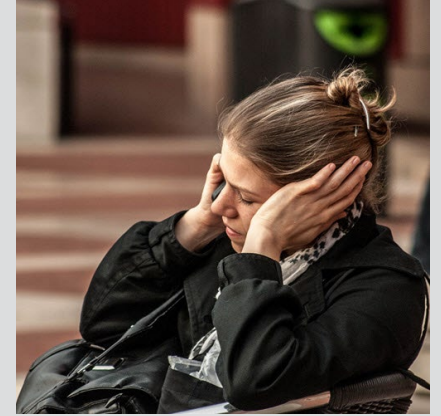


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Noise

- Any unwanted sound
- By-product of many processes - operating machinery
- Exposure to high levels of noise may lead to hearing loss and other harmful health effects



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OSHA Noise Exposure Levels

- The OSHA permissible exposure limit for noise is 90 dBA as an 8 hour TWA
- OSHA requires a hearing conservation program when noise exposure is at or above 85 decibels averaged over 8 working hours, or an 8-hour time-weighted average (TWA)



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How Loud is Loud?

Sound levels of common noises	
Decibels	Noise source
Safe range	
30	Whisper
40	Refrigerator
60	Normal conversation
75	Dishwasher
Risk range	
85	Heavy city traffic, school cafeteria
95	Motorcycle
100	Snowmobile
110	Chain saw, jackhammer, rock concert, symphony
115	Sandblasting
120	Ambulance siren, thunder
140-165	Firecracker, firearms



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OSHA Table One

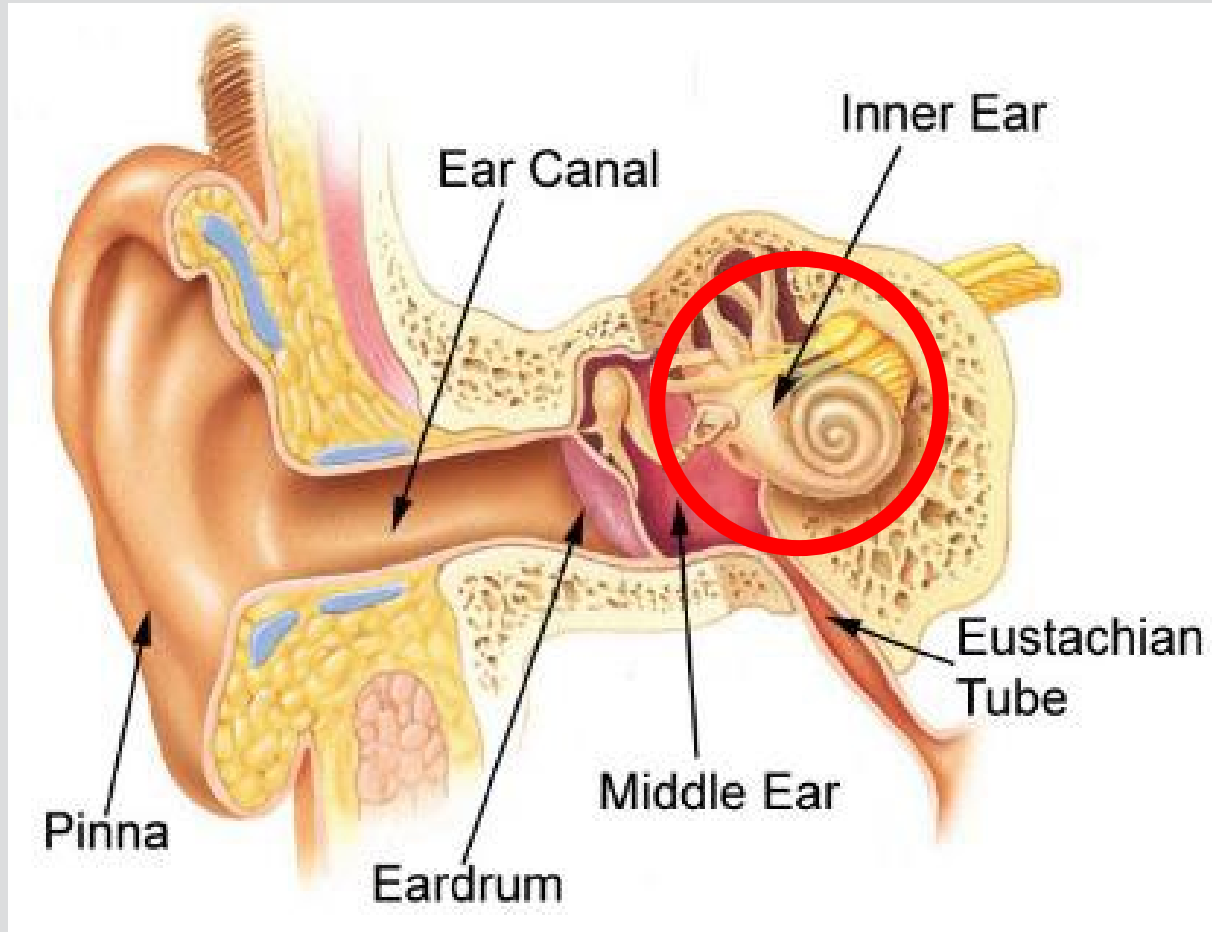
8- HOUR A-WEIGHTED* SOUND LEVELS & ALLOWABLE EXPOSURE TIMES		
A-Weighted Sound Level (dBA)	Allowable Exposure Duration (Hours)	<p>When the sound level is constant over the entire work shift, noise dose or percent noise exposure (D) is calculated as $D=100 C/T$</p> <p>C = length of work day in hours T = reference duration corresponding to the measured sound level $T= 8/2^{(L-90)/5}$ L = A-Weighted Sound Level</p>
80	32	<p>When the sound level is not constant over the work shift but is composed of two or more periods of noise at different levels, the total noise dose over the work day is given by where C_n indicates total time of exposure at specific noise level and T_n indicates reference duration for that level.</p> <p>$D = 100(C_1 / T_1 + C_2 / T_2 + C_n / T_n),$</p> <p>Full table for all dBA values available in 1910.95 Appendix A Table G-16A</p>
85	16	
90	8	
95	4	
100	2	
105	1	
110	0.5	
115	0.25	
120	0.125	
125	0.063	
130	0.031	



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Ear Anatomy



- Noise causes wear & tear of hairs or nerve cells in the cochlea that send sound signals to the brain
- Loud blasts of noise can result in rupture of the eardrum

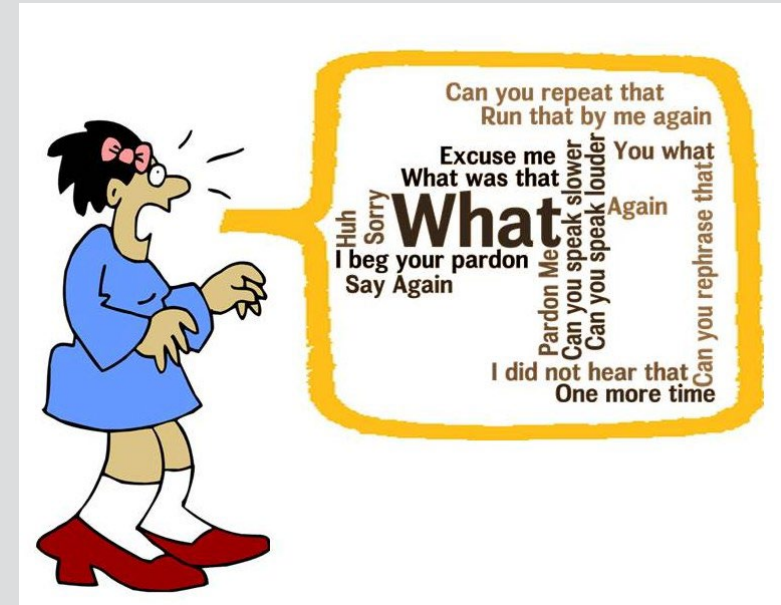


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Signs of Hearing Loss

- Muffling of speech and other sounds
- Difficulty understanding words, especially against background noise or in a crowd
- Trouble hearing consonants
- Frequently asking others to speak more slowly, clearly and loudly
- Needing to turn up the volume of the television or radio



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Noise Monitoring

- Monitoring of noise levels used to identify employees exposed to noise at or above 85 decibels (dB) averaged over 8 working hours, or an 8-hour time-weighted average (TWA)
- Employees are entitled to observe monitoring procedures and must receive notification of the results of exposure monitoring

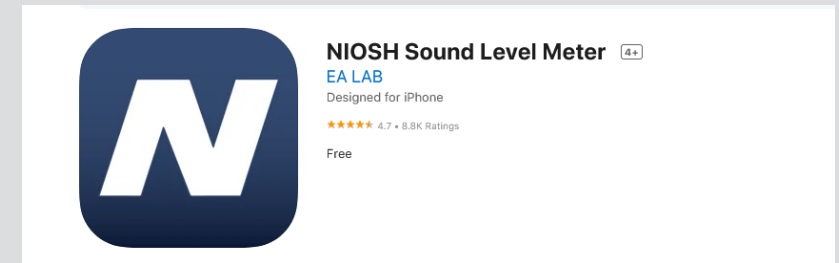


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NIOSH Sound Level Meter App

- Combines features of sound level meter and noise dosimeters into a one app
- Helps workers make informed decisions about their noise environment
- Up-to-date information on what noises are considered hazardous, how to conduct a noise measurement, how to properly select a hearing protector, and guidelines for preventing hearing loss



<https://itunes.apple.com/us/app/niosh-slm/id1096545820?mt=8>

Hearing Protection Devices



- Employees must wear hearing protection
 - If they are exposed to noise over the permissible exposure limit of 90 dB over an 8-hour TWA
 - If they have incurred standard threshold shifts that demonstrate they are susceptible to noise

Types of Hearing Protective Devices

- Ear muffs
- Foam insert earplugs
- Semi-aural ear caps/bands



Semi-aural ear caps or
bands



Earplugs



Earmuffs



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Noise Reduction Rating (NRR)

- Indicates the level of sound that is blocked when used alone without simultaneous noise-blocking objects
- Reported in dB
- Higher values indicate higher levels of noise reduction
- Highest NRR rating for earplugs is 33
- Highest NRR rating for earmuffs is 31

Ear Muffs

Advantages

- Best protection at higher frequencies
- Various NRRs available
- Durable, long lasting
- Can be fitted on hard hat
- Reusable

Disadvantages

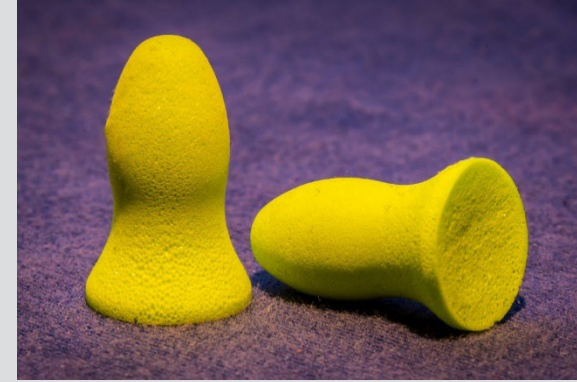
- Higher cost
- Eye glasses can interfere with ear muff seal
- May be uncomfortable in hot environments
- Must be cleaned before use by another worker



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Foam Insert Earplugs



Advantages

- More protection at lower frequencies than muffs
- Various NRRs available
- Inexpensive; disposable
- Can be custom molded for individual worker
- Reusable plugs are available

Disadvantages

- Hands must be cleaned before inserting earplugs
- Improper insertion reduces NRR value



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Semi-aural Caps/Bands

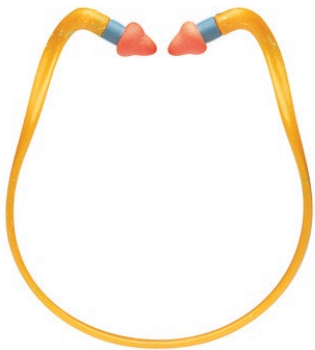
Advantages

- Various NRRs available
- Easy to use
- May be re-used
- Best for areas with intermittent noise



Disadvantages

- Improper insertion reduces effectiveness
- More expensive than ear plugs
- Typically have lower NRRs than plugs or muffs



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Selection of Hearing Protection Devices

- Employee may select hearing protection from a variety of suitable hearing protectors provided employer
- Select hearing protection based on
 - Employee comfort
 - Level of noise exposure
 - NRR of device
 - Type of work being performed
 - Environmental conditions

Fit, Use and Care of Hearing Protection Devices

- Ensure proper initial fitting
 - Contact EHS with questions
- Supervisors oversee the correct use of hearing protectors
- Hearing protectors are replaced as necessary at no cost to employee
- Hearing protection devices must be cleaned and stored according to manufacturer's instructions



Audiometric Testing

- Required for employees exposed to 8 hour TWA ≥ 85 dBA to monitor employee's hearing over time
 - Baseline test to be completed within 6 months of first exposure above the action level
 - Must have at least 14 hours without exposure to noise at or above 85 dBA
 - Annual testing thereafter
- Audiometric testing performed and reviewed by medical professionals

Standard Threshold Shift (STS)

- A change in employee's hearing threshold relative to their baseline audiogram of 10 dB or more at 2000, 3000, and 4000 hertz in one or both ears
- Re-test within 30 days to confirm

Access to Information

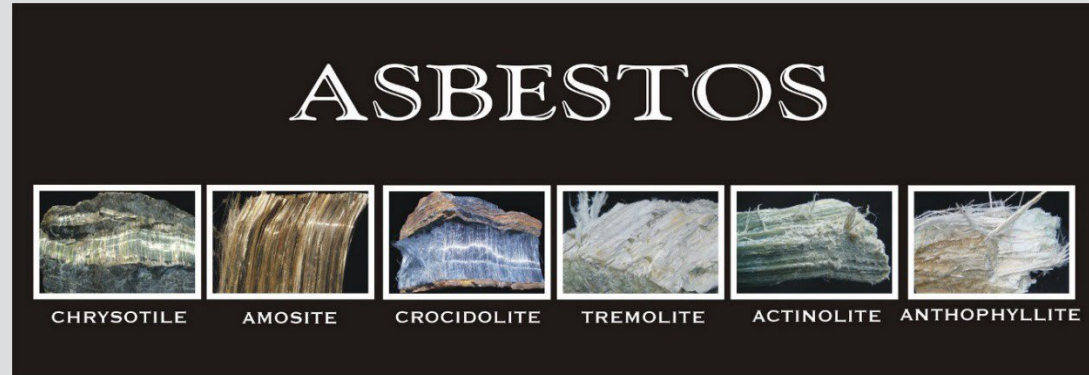
- [OSHA 29 CFR 1910.95](#) online and available in the workplace
- EHS maintains records of noise monitoring and exposure evaluations for 2 years
- Audiometric test records are kept for the duration of employment

Environmental Awareness



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Asbestos

Group of naturally occurring minerals resistant to heat and corrosion

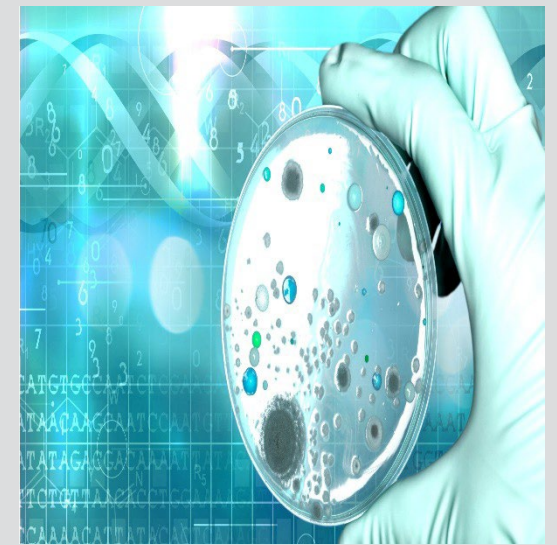
Commonly includes fibers from six different minerals and any of these minerals that have been chemically treated or altered

Asbestos Containing Materials (ACM)

- As an NCCU employee, EHS is informing you of the presence of ACM in campus buildings
 - May be found in flooring, ceilings, walls, thermal system insulation and others
- According to the [U.S. Environmental Protection Agency](#), ACM “that is in good condition and left undisturbed is unlikely to present a health risk”
- NCCU [Asbestos Control Plan](#) describes measures for containing these materials so they do not release asbestos fibers into the air

Moisture and Mold

- Mold is a common term referring to fungal growth
- Mold can be found on almost any organic substance as long as water and oxygen are present
- Mold spores are naturally occurring and can never be prevented completely from finding a place to grow
- No EPA or other federal limits have been set for mold or mold spores
- Mold exposure does not always present a health problem but sensitive persons can experience allergic reactions



What Can You Do?

- Immediately any moisture issue including water leaks, HVAC problems, high humidity or condensation issues by submitting a [Asset Essentials work order](#)
- Clean up spills of food or drink immediately and remove trash regularly
Temporary – results from intermittent exposure to noise; returns when away from the noise
- Do not block wall heating and cooling units with items that impede air flow
Permanent – results from exposure to moderate to high level of noise over a long period of time
- Submit an [EHS Hazard and Incident Report Form](#) to request a visual growth assessment if any of the following conditions exist:
 - Visible growth inside
 - Consistent moldy or musty smells within a building
 - Known episodes of major leaks or flooding



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Lead in Drinking Water



- 2022-23 NCCU completed voluntary testing for lead levels in drinking water in buildings built prior to 1989
 - 1986 amendment to the Safe Drinking Water Act significantly decreased amount of lead allowed in plumbing used for drinking water systems
- NCCU set 10 parts per billion (ppb) of lead as actionable level in drinking water which is more conservative than EPA actionable level of 15 ppb
- Information on testing and results can be viewed at nccu.edu/lead-testing

Confined Space Awareness



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Confined Spaces

- OSHA defines a confined space as
 - Large enough and so configured that an employee can bodily enter and perform assigned work;
 - Having limited or restricted means for entry or exit; and
 - Not designed for continuous employee occupancy



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Types of Confined Spaces

Confined Space

- Any space that meets the definition of a “confined space” per OSHA 1910.146
- Examples include tanks, vaults, storage bins, and pits



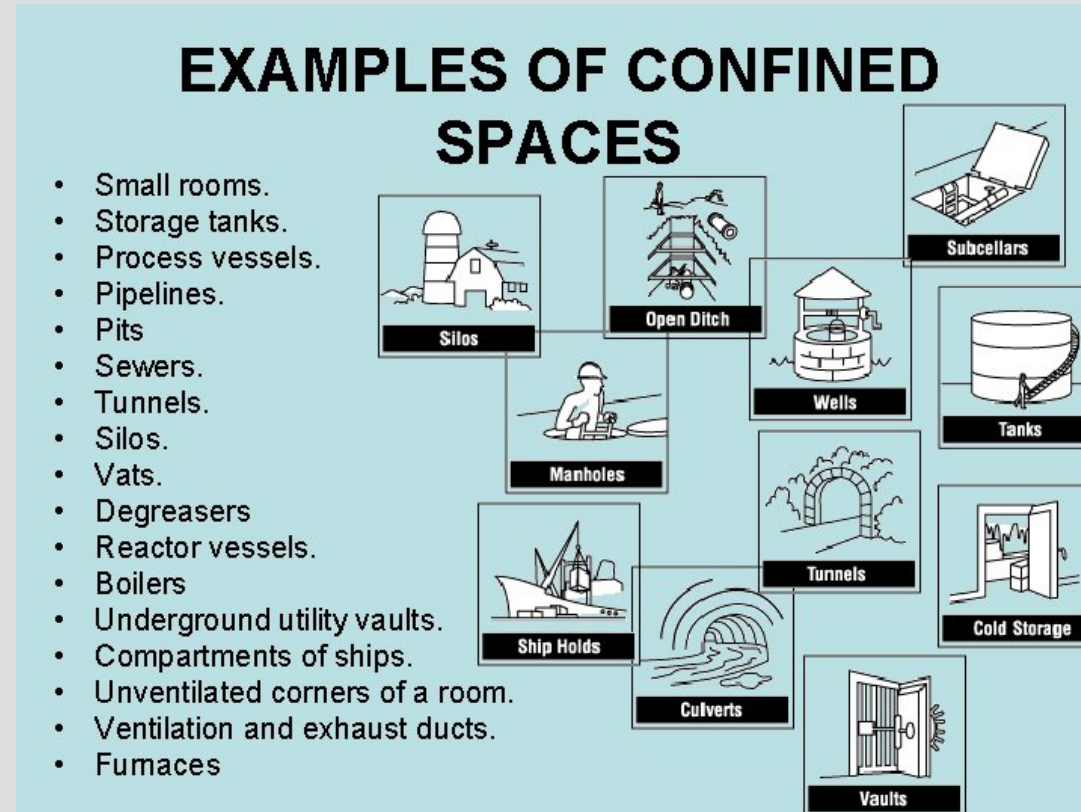
Permit-Required Confined Space

- Confined space with two or more of the following
 - Hazardous atmosphere
 - Potential engulfment hazard
 - Internal configuration that could trap or suffocate entrant
 - Any other serious safety or health hazard



Examples of Confined Spaces

Confined spaces are located throughout the campus



Confined Space Entry Procedures

- Any persons who enter an NCCU confined space must have received full training initially and annually
- This training does NOT qualify you to make a confined space entry

Rescue Operations – Confined Space

- The assigned Confined Space Attendant must notify UPD Communications Center at 919-530-6106 of a pending confined space entry and provide the location and anticipated start/end time
- The UPD Communications Center is responsible for notifying Durham Emergency Communications Center prior to the entry and once entry is safely completed
- If an emergency arises that requires a rescue team, Attendant will dial 911 and request the Durham Fire Department respond to a confined space emergency
- Durham Fire Department is allowed access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.
 - Durham Fire Department is responsible for providing documentation of this training to EHS.

Lockout Tagout Awareness



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Purpose

- Satisfies awareness level training requirement for compliance with the Control of Hazardous Energy standard 1910.147
- All employees are required to know
 - Why equipment may be locked and tagged out
 - Who is authorized to place LOTO equipment
 - NOT ever to remove a lock or tag that you did not place

Lockout/Tagout (LOTO)

- Prevents unexpected energization or startup of equipment and from the release of hazardous energy
- An **authorized person** places a lock on an energy source so that maintenance, service, or inspection can take place safely
- Tag serves as warning and provides contact information



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Authorized Personnel

- ONLY AUTHORIZED PERSONS MAY APPLY OR REMOVE LOCKS/TAGS
- Authorized Persons
 - Completed full LOTO training course and certification
 - Members of EHS, Facilities, and IT are Authorized



- Only Authorized Employees may place or remove LOTO devices
- Unauthorized Employees
 - Never attempt to start LOTO equipment
 - Never place or remove locks or tags

Ergonomics

The study of people's efficiency in their working environment with respect to safety, comfort, ease of use, productivity/performance, and aesthetics



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Musculoskeletal Disorders (MSD)

- Disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs resulting from
 - **Contact pressure** - pressure from resting part of the body against a sharp edge or corner.
 - **Extreme posture** - when muscles are required to work at a level near or at their maximum capacity
 - **Static posture** - when a body part is not moving, but is still doing work. Examples include sitting in a chair or holding an object.
 - **Stressor** - Conditions that cause biomechanical stress to the body; increases risk for MSD

Examples of MSDs

- Carpal tunnel syndrome
- Rotator cuff syndrome
- De Quervain's disease
- Trigger finger
- Tarsal tunnel syndrome
- Sciatica
- Epicondylitis
- Tendinitis
- Raynaud's phenomenon
- Low back pain



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Symptoms of MSDs

- Numbness
- Tightness
- Tingling
- Swelling
- Pain
- Stiffness
- Redness

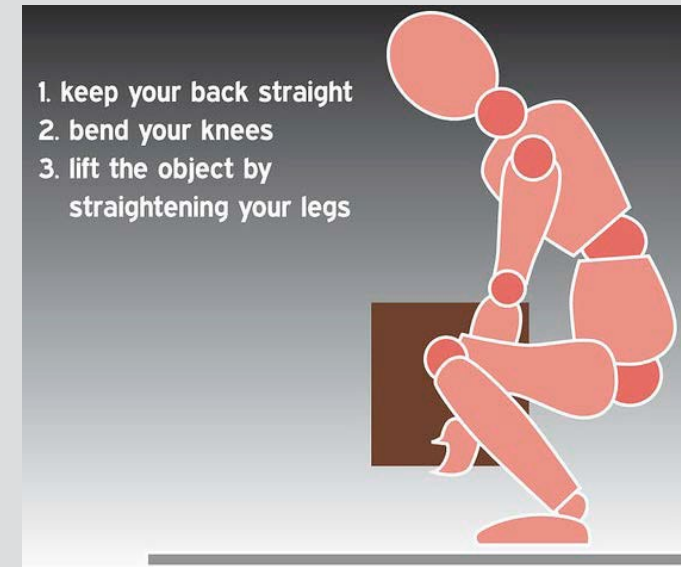


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Safe Lifting

- Lifting a 25-pound box from the floor requires about 700 pounds of back muscle force
- Try out the load first. If it is too bulky or heavy, get help
- Avoid stretching or bending to reach the load – lift objects close to the body and from waist height
- Don't lift awkward objects such as long pipes or large boxes by yourself
- Keep your back straight and lift with your legs
- Lift slowly and carefully and don't jerk the load around
- Keep the load as close to your body as possible while lifting it
- Don't twist or turn your spine while carrying the load

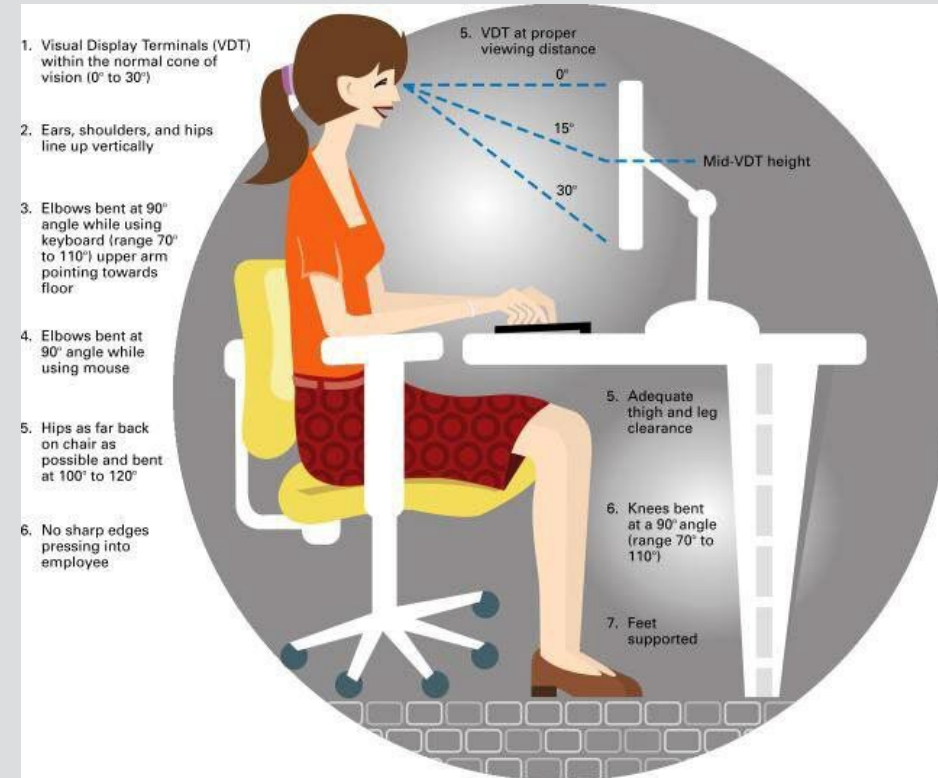


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Ergonomic Services Provided by EHS

- Provide information and consultation services
- Provide ergonomic assessments for persons with documented medical issues resulting from poor ergonomics



NCCU Employee Safety Committee

- Committee of peers - see EHS website to identify your building representative
 - Analyze injury and illness statistical records and recommend mitigation strategies
 - Review accident trends and recommend changes to prevent future occurrences
 - Respond to employee concerns regarding hazards and implement corrective actions
 - Review inspection reports from regulatory entities & identify areas for improvement
 - Review annual inspections
 - Make recommendations on behalf of Committee to the Executive Leadership Team

Health and Safety Committee

The purpose of the NCCU Safety and Health Committee Program is to establish a multi-tiered, management- and employee-balanced safety and health committee in compliance with the following: North Carolina General Statutes: Chapter 95, Article 22, Section 95-252, North Carolina General Statutes: Chapter 143, Article 63, Section 143-584, North Carolina Administrative Code: 13 NCAC 07A.0605 and North Carolina Administrative Code: 25 NCAC 1N.0106.

[Learn More](#)



Always
accepting new
members!



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Next Steps

- Right Now

- Complete New Police Department Employee [Quiz](#) to obtain credit for this training
- Review the [NC State Government Safety and Health Handbook](#)

- Within 30 days of starting to work

- Work with Supervisor to complete and submit [NCCU Employee Health and Safety Assessment](#)

Remember that some re-training is required annually or at other regular intervals

Welcome to NCCU!!!

Thank you for completing the
NCCU Police Department General Safety Training

