



Safety and Health Program Manual

**Safety & Risk Management
Facilities Management Department
(828) 227-7443**

UNIVERSITY POLICY

POLICY #44

Safe and Healthful Working Conditions

It is the policy of Western Carolina University to provide safe and healthful working conditions for its employees. The University Safety and Health Program is intended to serve that policy objective and to achieve compliance with statutory mandates which impose standards related to occupational safety and environmental health.

The program's effectiveness depends upon awareness of and active participation in its components by faculty members, administrators, and staff employees. It is recognized that the workplace cannot always be risk free. However, through work planning and management, the safety hazards associated with jobs can usually be identified, and safety measures can be applied to eliminate those that are controllable. It is a basic responsibility of unit supervisors to know the safety and health procedures that are required, instruct their employees, provide equipment to do the job safely, and monitor compliance. Employees have an obligation to follow safety procedures and to use safety equipment.

The University Safety and Health Program Manual contains the organizational structure, policies, and procedures necessary to administer compliance with the program. Deans, directors, and department heads should familiarize themselves with this manual and work closely with the campus Safety Officer on specific safety and health matters to ensure that compliance is achieved and maintained.

Formerly Executive Memorandum 91-100

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Administering office: Safety & Risk Management (Facilities Management Department)

**SAFETY AND HEALTH PROGRAM MANUAL
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EMERGENCY PROCEDURES

A. Purpose of Manual

This manual is intended to set forth-official policies, procedures, and administrative responsibilities for the operation of a safety and health program at Western Carolina University.

B. Personnel Coverage

The provisions of this manual are applicable to all faculty, staff, students and visitors throughout the Western Carolina campus and facilities.

C. Legal Requirements (Employee Safety and Health OSHA)

In 1970 Congress passed a comprehensive national safety law, known as the Occupational Safety and Health Act of 1970, referred to as "OSHA"... "to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources..." The Act became effective on April 28, 1971.

OSHA allows those states that meet all qualifications as defined in the Act, to administer the Act if the states' occupational safety and health standards are equally as effective as the Federal standards. A Plan set forth by the State of North Carolina was approved by the U.S. Department of Labor, and enabling legislation, the Occupational Safety and Health Act of North Carolina, commonly known as OSHA-NC, was ratified by the North Carolina General Assembly on May 1, 1973.

OSHA-NC requires each University to establish and maintain an effective and comprehensive occupational Safety and Health Program, which is consistent with the safety standards in OSHA. OSHA is enforced by the North Carolina Department of Labor, OSHA Division.

Workers Compensation

The General Assembly enacted the Workers Compensation Act in 1929. The intent of this law is to provide for medical and disability benefits for workers who are injured by accident in the course of employment or who suffers an occupational illness. As a self-insured employer the University is responsible for monitoring and processing claims from its employees. The Act is administered by the North Carolina Industrial Commission.

Building Fire Protection

In order to "protect the public from dangerous and unsanitary buildings" the General Assembly of 1933 created a Building Code Council and authorized it, in cooperation with the commissioner of Insurance, to prepare and adopt a State Building Code. The first State code was ratified by the 1941 General Assembly and has since been extensively rewritten. The Commissioner of Insurance is responsible for administration and enforcement of the code in university buildings. The code sets minimum fire protection standards for both new and existing buildings and has adopted several operational "Life Safety" requirements of the National Fire Codes.

Radiation Safety

The North Carolina Radiation Protection Act of 1975 established the North Carolina Radiation Protection Commission with the powers to adopt, promulgate, amend and repeal regulations and standards relating to radioactive materials and radiation machines in research laboratories, Health Care Clinics, etc. The N.C. Department of Environment Health and Natural Resources, Radiation Protection Section administers the regulations by licensing of individual faculty members who use radioactive materials and equipment.

Environmental Compliance

Since 1960 numerous federal environmental protection laws have been enacted which govern air emissions from various processes and release or disposal of solid or liquid substances into the environment. The laws cover fuel maintenance and utility chemicals, laboratory chemicals and biological material.

A. Staff Organization

As Chief Administrative Officer, the Chancellor of Western Carolina University is responsible for Safety and Health at Western Carolina University. The Chancellor has authorized the Vice Chancellor for Administration and Finance to appoint a Director of Safety and Risk Management, who is responsible for management and implementation of a safety program. The Safety & Risk Management Office is located within the Facilities Management Division of Administration and Finance, reporting to the Associate Vice Chancellor for Facilities Management.

B. Safety and Risk Management Functions

The Director of Safety and Risk Management oversees the development and implementation of the safety and environmental health program and the administration of insurance coverage.

The Director of Safety and Risk Management evaluates University operations procedures and facilities to determine applicable OSHA, fire protection, environmental regulations and insurance needs, devises methods to comply with these regulations, reduce the risk of accidents and financial loss.

C. Supervisor/Faculty Member

Each supervisor has as his/her responsibility to provide safe working conditions for those being supervised and for following-up reports of violations of safe working conditions. Each supervisor is also responsible for knowing the safety and health guidelines, investigating accidents, reporting of accidents and properly advising higher management of appropriate situations.

The safety and health program is the responsibility of each employee, supervisor, and manager and should be an important factor in evaluating the work performance of each.

D. Employee

Each employee is to place safety and health requirements as first importance in the performance of their work duties. The protection of fellow employees and the public on University property is a shared responsibility of every employee.

An employee is responsible for notifying his/her immediate supervisor of a violation or deficiency in safe and healthful working conditions and for recommending corrective measures, if possible. Additionally, the employee's immediate supervisor is to be notified of every injury or accident regardless of how trivial such accident may appear at that time.

General

The Occupational Safety and Health Act of North Carolina provides that employees may request an inspection or evaluation of conditions which they believe may constitute a health or safety hazard. University employees are encouraged to report such conditions to the Safety Officer and to request a "Special Investigation" into the need for corrective action.

The Safety Officer conducts periodic inspections and will respond to any request or complaint. University employees who are aware of a health hazard or unsafe condition should notify Safety & Risk Management, Facilities Management, 7443.

Employee Rights

Employees are encouraged to seek resolution of hazardous conditions through University Safety & Risk Management, but under Section II (d) (I) of the North Carolina Occupational Safety and Health Act, an employee is guaranteed the right to request an inspection from the State Department of Labor (733-4880, Raleigh, N.C.) by giving notice to them of a violation of a safety or health standard that he/she believes threatens physical harm or constitutes immediate danger.

Confidentiality

Persons requesting an inspection by the Safety Officer (or Department of Labor) may request confidentiality and, by law, their name will not appear on any record published, released, or made available to the public or to their immediate supervisor or department head.

Notification of Findings

If the Safety Officer or the Department of Labor determines that there are reasonable grounds for believing that a violation or danger exists, it will notify the employees or representative of the employees in writing of such determination.

Results of Special Investigations

After the Safety Officer has concluded his investigation, the results will be communicated to the party requesting the investigation and to other appropriate University personnel with due consideration of requests for anonymity. If action is called for that does not constitute a capital improvement such as minor repairs, change of procedure, limitations of access, etc., recommendations will be made to the proper departments.

Conditions That Should Be Reported

The types of hazardous conditions that may be reported include, but are not limited to, the following:

Unsafe work practices

Suspected health hazards

Failure to wear required safety equipment

Failure to guard machines and cutting instruments

Improper storage of chemicals, supplies, and other excess material

Presence of irritating or noxious odors

Fire hazards

Interference with safe egress

Near miss incidents (close calls)

General

This procedure covers administrative reports of accidents, occupational illnesses and fires. Documentation of such events, even minor accidents which do not require emergency assistance is required to meet Federal and State recordkeeping regulations. For emergency notification see Emergency Procedures.

Accidental Injuries

Accidental injuries to students, staff and visitors while on University property and in the course of University employment or activity must be reported to the Safety Officer in writing within seven (7) days.

Occupational Illness

Occupational illnesses are medical disorders resulting from exposures to workplace environmental factors such as chemicals, biological agents, noise, repetitive motion, radiation, etc. The exposure may be a short term over-exposure or may occur over a long period of time. Acute illness from short term over-exposure and any direct exposure to blood or body fluids are to be reported to the Safety Officer following the same procedure as accidental injuries. Illness from long term suspected exposures are to be reported within five (5) days of the time the employee is informed of a possible chronic illness by a medical physician.

Near Miss Incidents (Close Calls)

Incidents, which do not result in an injury or illness but could have under slightly different circumstances, should be reported to the Safety Officer within (7) days.

University Health Service

The University Health Service generates an initial report to Safety & Risk Management for all cases, which are referred to the Health Service. For cases, which are not referred to the University Health Service, the employee's or student's department must report the case to the Safety Officer.

Fire Incidents

Fire incidents including false alarms are reported by University Police and Housing Incident Reports or the Steam Plant. University Police should be notified of all fire incidents regardless of how minor.

Employee Statement Form

Employees involved in an accident or occupational illness will be required to complete an "Employee Statement" form providing factual information about the accident or illness. The immediate supervisor of an employee involved in an accident or occupational illness is responsible for determining the cause of the accident or illness and forwarding the Employee Statement form to the Safety Officer. As the manager in charge of daily work activities supervisors are expected to know what happened, why it happened and how it happened.

Follow-up Investigation

All accidents, illnesses and fires will be investigated by the Safety Officer for the purpose of analyzing the circumstances surrounding the event, the possible need for corrective action to prevent future occurrence, and the compensability of a reported injury or illness under the terms of the North Carolina Workers' Compensation Act. A safety follow-up report will be completed for all accidents.

General

Workers' Compensation benefits are available to any employee who suffers an accidental injury or occupational disease arising out of, and in the course of, his or her employment, according to the provisions of the North Carolina Workers' Compensation Act. All University employees are eligible for Workers' Compensation benefits.

Medical Benefits

The full cost of medical treatment is covered by Workers' Compensation if the injury/illness is compensable under the Workers' Compensation Act.

Medical Treatment

For injuries, which do not require emergency transportation to Harris Regional Hospital, the supervisor is responsible for insuring that the employee receives prompt treatment of the injury by obtaining first aid or medical treatment at the University Health Services. The Supervisor or another person must accompany the injured enroute to the University Health Services for treatment, i.e., injured employees are not to be sent unescorted to seek medical attention. For off-campus injuries first medical treatment may be provided by a local physician or hospital.

If the employee is dissatisfied with the medical treatment provided by the University Health Services, Harris Regional Hospital or physicians referred to by the University Health Services or Harris Regional Hospital, or, if the hospital physicians are inconvenient because of the employee's residence location, he or she can request treatment be provided by a physician of their choice. Except for emergencies, this request for change must be approved by the Safety Officer prior to any treatment.

All chiropractic services must be approved by the University Safety Officer before treatment.

Workers' Compensation Benefits

Employees who suffer lost work-time due to compensable injuries/illnesses are eligible to receive Workers' Compensation weekly benefits equivalent to two-thirds of their weekly wage, with a maximum equal to the average wage in North Carolina.

Waiting Period

Workers' Compensation weekly benefits are not payable for a seven (7) day waiting period following an accident unless the total lost work-time exceeds 21 calendar days. During the seven-day waiting period, the employee may elect to use earned vacation leave, sick leave or workers' compensation leave without pay.

Employees are not charged leave for time lost from work on the day of the injury. Employees are expected to return to work unless the treating physician indicates the employee must go home for the day. A written statement shall be obtained from the treating physician if the employee cannot return to work. In situations where the employee cannot return to work the employee shall be paid full salary for normal working hours on the day of the injury.

Employees injured on the job in a compensable accident who have returned to work, but continue to require medical or therapy visits to reach maximum medical improvement, shall not be charged leave for time lost from work for required medical or therapy treatment.

Lost Work-Time More Than 7 Days

If the lost work-time exceeds seven days, the days in excess of seven days is charged to Workers' Compensation benefits. The weekly benefit may be supplemented by the use of partial earned sick or vacation leave in accordance with a schedule published by the Office of State Personnel each year. If the employee elects not to receive Workers Compensation benefits a waiver of benefit statement must be signed by the employee.

Compensatory time may be substituted for sick or vacation leave if applied within the time frames provided under the Hours of Work and Overtime Compensation Policy.

Lost Work-Time 21 Days or More

The seven calendar day waiting period is waived if the lost work-time exceeds 21 days, thus workers' compensation weekly benefits can be received for the first seven days. If this occurs in the case of an employee who elected to use leave during the waiting period, no adjustment shall be made in the leave used for these workdays.

Employee Responsibility

Employees must give notice of an accident to his or her supervisor as soon as possible. For occupational diseases the time frame for notice begins when the employee is first informed by a medical authority.

Department Responsibility

The department must record all accidents that result in lost work time or medical treatment beyond first aid on North Carolina Industrial Commission form 19. The completed forms must then be returned to Safety & Risk Management. Copies of the form and assistance in completing the information is available from Safety & Risk Management.

Continuation of Benefits

While on workers' compensation leave an employee is eligible for continuation of the following benefits:

Performance Increase: Upon reinstatement, an employee's salary will be computed based on the last salary plus any legislative increase to which entitled. Any performance increase which would have been given had the employee been at work may also be included in the reinstatement salary, or it may be given on any payment date following reinstatement.

Vacation and Sick Leave: While on workers' compensation leave, the employee will continue to accumulate vacation and sick leave to be credited to his/her account for use upon return. If the employee does not return, vacation and sick leave accumulated during the first twelve months of leave will be paid in a lump sum along with other unused vacation.

Hospitalization Insurance: While on workers' compensation leave, an employee is in pay status and will continue coverage under the State's health insurance program. Monthly premiums for the employee will be paid by the State. Premiums for any dependent coverage must be paid directly by the employee.

Retirement Service Credit: While on workers' compensation leave an employee does not receive retirement credit. As a member of the Retirement System, the employee may purchase credits for the period of time on an approved leave of absence.

Inspections and Reports

Inspections of physical facilities, and the function performed therein, are conducted in accordance with the schedule listed in this procedure. Each such inspection report records pertinent safety and health violations, non-compliance items, and observed deficiencies. Reports of inspections are prepared by the Safety Officer.

Administrators responsible for the facilities or function being inspected are encouraged to participate in the inspection process.

Notification of Violations and Corrective Action

Observed violations of safety and health standards, deficiencies, and non-compliance items are reported in written inspection reports.

Notification of all such recorded violations are given to the person in charge of the facility or function being inspected, and the Associate Vice Chancellor for Facilities Management, for the arrangement for and accomplishment of appropriate corrective action. The responsible person is to respond to Safety & Risk Management indicating corrective action accomplished with regard to each reported violation.

Imminent Danger Action

In the event that any manipulation, process, action or condition is discovered which in the opinion of the Safety Officer is considered to constitute an immediate threat to the life of an employee or public, the Safety Officer may order the immediate cessation or modification of such manipulation, action or condition.

Reports

The Safety Officer will make such periodic reports as required by the North Carolina Department of Labor, Insurance and the North Carolina Office of State Personnel.

Rights of Employees

Any employee of the State agency who has a direct personal involvement in the facilities being inspected is permitted and encouraged to participate in such inspections, including calling possible violations to the attention of the inspector.

Insurance Inspection

In addition to the Safety Officer inspections the State Department of Insurance and the Industrial Risk Insurers conducts an Annual Building Code, Life Safety and Loss Prevention Inspection of Campus facilities. These reports are forwarded to Safety & Risk Management and the Associate Vice Chancellor for Facilities Management. The Safety Officer assigns priorities and coordinates implementation of the recommendations provided by Insurance inspectors. For facility modification recommendations the Associate Vice Chancellor for Facilities Management prepares project estimates and, when necessary, OSHA Capital Improvement request. Maintenance and Operations type recommendations are coordinated directly with the affected department.

Fire and Safety Equipment Inspections

To assure proper operation, fire and life safety equipment is inspected and tested, if appropriate, in accordance with the following schedule:

Fire Alarms	- Yearly
Sprinklers	- Yearly
Fire Hose	- Yearly
Fire Extinguishers	- Monthly
Emergency Lights	- Semi-Annually
Fume Hoods	- Yearly
Restaurant Fire Systems	- Semi-Annually

Health Hazard Exposure Monitoring

Monitoring for health hazards (air contaminants, noise, heat stress, biological agents, radiation) is conducted by or contracted through the Safety Officer. The need for surveys is based on; 1) Workplace review (planned inspections, investigations, complaints 2) Exposure incidents 3) Review of Material Safety Data Sheets 4) Job safety analysis.

SAFETY INSPECTION SCHEDULE

January	<ul style="list-style-type: none">- University Book Store- Print Shop
February	<ul style="list-style-type: none">- Reid Gym- Breese Gym- Alumni House- Chancellor Guest House- Chancellor Home- NCCAT
March	<ul style="list-style-type: none">- Dodson Cafeteria- Brown Cafeteria- Hinds University Center- Old Student Union
April	<ul style="list-style-type: none">- Stillwell- Natural Science Building- Hoey Auditorium
May	<ul style="list-style-type: none">- Highlands Biological Station- Asheville
June	<ul style="list-style-type: none">- Moore- Graham- Hunter Library- Outreach Center
July	<ul style="list-style-type: none">- Facilities Management/Recycle/Steam Plant/Water Plant- Warehouse- McKee
August	<ul style="list-style-type: none">- Housing- Belk
September	<ul style="list-style-type: none">- Ramsey Activity Center- Fieldhouse- Whitmire Stadium
October	<ul style="list-style-type: none">- Coulter- Forsyth
November	<ul style="list-style-type: none">- Killian- Killian Annex- Bird

December

- **H. F. Robinson Administration**
- **Labor Force**
- **Fine and Performing Arts Center-**

General

All new construction or renovation projects are to be designed in accordance with applicable workplace safety and health codes in addition to the State Building Code.

Additionally, minimum safety and health standards for construction (29 CFR 1926) are to be enforced in the actual performance of construction or renovation projects.

The safety and health review of capital improvements is an internal review for the purpose of assuring compliance with OSHA engineering standards and providing recommendations for the most practical means of achieving code compliance.

- **During all design phases of each proposed new construction project or renovation project the Facilities Management Department, is to make available a copy of the proposed specifications and drawing plans to the Safety Officer.**

Renovation of existing facilities - If a change in usage or type of occupancy is anticipated, this information is also to be provided to the Safety Officer

- **The Safety Officer reviews each project and communicates all safety and health recommendations concerning the specifications of design to the Facilities Management Department.**

A written "Safety Plan" for public protection may be required by the Safety Officer for those projects which may cause disruption of fire exits, traffic lanes, etc. or create physical hazards such as open trenches etc. The purpose of this plan is to establish and document the necessary safety provisions. However, the absence of a written plan does not relieve the contractor or employees in construction projects of the provisions of the State Construction guidelines or the public protection provisions of the North Carolina General Conditions of Contracts. This plan, if required, is to be developed during the design phase of the project and finalized during the pre-construction phase.

- **The Facilities Management resolves all safety discrepancies by a revision to the specifications or design plan.**
- **The Facilities Management notifies Safety & Risk Management when:**

The project is scheduled

Significant change orders occur

Construction inspections are scheduled

The final inspections are scheduled prior to acceptance for occupancy

- **To ensure compliance with the public protection provisions, the Safety Officer inspects each project periodically and reports findings to the Facilities Management Department.**
- **The Safety Officer accompanies a representative from the Facilities Management during inspections to assure that the recommended safety features have been incorporated.**
- **Planned safety features not incorporated are reported as part of the Facilities Management's "punch list" to the designer.**
- **The Facilities Management notifies the Safety Officer when safety related discrepancies are corrected. Any such discrepancies should be corrected prior to occupancy.**

08 REVIEW OF REQUISITIONS FOR SAFETY RELATED EQUIPMENT AND HAZARDOUS CHEMICALS

Purpose

The purpose of this requirement is to provide a control mechanism which will:

- Assure that specifications for applicable safety design features are considered when purchasing equipment and machinery.
- Regulate the storage and use of highly toxic, carcinogenic, explosive or reactive chemicals.
- Assure proper design specifications for equipment used for safety, health protection, and fire prevention and protection purposes.

Procedure

- The Safety Officer is to maintain a list of equipment, machinery and chemicals that are to be reviewed prior to purchase.
- The Purchasing department is to forward a copy of all purchase requests for the designated machinery or material to the Safety Officer for review.
- The Safety Officer reviews each request and determines product compliance with standards, regulations or guides. Results of the review are to be forwarded to the Purchasing department.

Purchase Review List

Industrial trucks (forklifts)
Woodworking machinery
Welding machinery
Power presses
Mechanical cutters
Metal forming machinery
Ladders exceeding 20'
Man lifts
Respirators
Safety belts and life lines
Eye protection devices
Hearing protection devices
Eye washes and safety showers

Fire extinguishers
Fire suppression devices
Toxic chemicals ordered
By non-science departments
Carcinogenic materials
(see Attached List)
Biological agents
Highly explosive materials
Biological safety cabinets
Accident prevention signs
Refrigerators in laboratories
Flammable liquid cans and cabinets

OSHA Regulated Carcinogens:

Formaldehyde
4-Nitrobiphenyl
Alpha-Naphthylamine
Methyl chlorometehyl ether
3,3'-Dichlorobenzidine (and its salts)

08 REVIEW OF REQUISITIONS FOR SAFETY RELATED EQUIPMENT AND HAZARDOUS CHEMICALS

Bis-Chloromethyl ether
Beta-Naphthylamine
Benzidine
4-Aminodiphenyl

Benzene
Ethyleneimine
Beta-Propiolactone
2-Acetylaminofluorene
4-Dimethylaminoazobenzene
N-Nitrosodimethylamine
Vinyl chloride
Inorganic arsenic
1,2-dibromo-3-chloropropane
Acrylonitrile
Ethylene Oxide
Methylenedianiline
1,3-Butadiene
Methylene Chloride

General

Subject areas in which employee safety training programs are required by OSHA are listed below.

<u>OSHA REF.</u>	<u>Subject</u>	<u>WCU Safety Manual Reference</u>
Subpart A	Cumulative Trauma	Sect. 20
Subpart E	Emergency Plans/Fire Prevention	Sect.11-14, Emer Plans
Subpart G	Occupational Noise Exposure	F.M. Manual
Subpart H	Flammable Liquids	Sect. 14
	Emergency Response to Releases	Emer Plan
Subpart I	Respirators	Sect. 23
	Powered Hand Tools	F.M. Manual
	Scaffolding	F.M. Manual
	Shoring and Trenching	F.M. Manual
Subpart J	Confined Space	F.M. Manual
	Lockout	F.P. Manual
Subpart L	Portable Fire Extinguishers	Sect. 12
Subpart N	Rim Wheels	F.M. Manual
	Powered Industrial Truck	F.M. Manual
Subpart Q	Welding	F.M. Manual
Subpart S	Electrical Safety	F.M. Manual
Subpart Z	Asbestos	Sect. 26
	Lead	F.M. Manual
	Hazard Communication (Right-to-Know)	Sect. 24
	Bloodborne Pathogens	Chem/Bio

Employees whose job duties include these areas are required to receive training before being assigned to work in these areas. Personnel orientation provides employees with a brief description of OSHA and Workers Compensation and informs them of their legal rights. However, specific safety training is not provided during personnel orientation.

The department supervisor is responsible for knowing the safety procedures associated with specific subject areas, which apply to their employees and for instructing new employees in these procedures. This is the starting point in meeting the OSHA training requirements.

To supplement instructions provided by supervisors, the Safety Officer provides classroom training programs in all of the 20 areas covered by OSHA. Classes for new employees can be scheduled by calling 7443.

A Safety and Health Training Record form (page 3) should be maintained in each personnel file which records the initial safety instructions and attendance at the classroom training sessions required for each occupation. OSHA training requirements for different occupational groups are listed on this form.

Individual work plans include safety performance as a primary job factor. The effectiveness of training and the need for additional training should be evaluated as part of the employee's job performance review.

Training effectiveness and the need for additional training will also be reviewed during inspections, accident investigations and general observations.

OSHA TRAINING REQUIREMENTS BY OCCUPATIONAL GROUP

1. OFFICE WORKERS

**Emergency Procedures
Workers Compensation/Accidents
Ergonomics (Optional)**

2. HOUSEKEEPERS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Bloodborne Pathogen
Back Injury Prevention
Asbestos Awareness**

3. HVAC MECHANICS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Confined Spaces Entry
Lockout
Electrical Safety
Hand Tools
Shoring
Asbestos Awareness**

4. VEHICLE MECHANICS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Rim Wheels**

5. PAINTERS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Lead Base Paint
Asbestos Awareness
Scaffolding
Noise
Respirators**

6. CARPENTERS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Asbestos Awareness
Scaffolding
Powered Hand Tools
Trenching, Shoring**

7. GROUNDS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Powered Hand Tools
Noise
Respirators
Trenching, Shoring**

8. WATER PLANT

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)**

9. STEAM PLANT

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Confined Spaces
Lockout
Electrical Safety
Hand Tools
Asbestos Awareness**

10. UNIVERSITY POLICE

**Emergency Procedures
Portable Fire Extinguishers
Bloodborne Pathogens**

11. PLUMBERS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Confined Spaces
Lockout
Hand Tools
Shoring
Asbestos Awareness
Bloodborne Pathogens
Welding**

12. WAREHOUSE

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Forklift**

13. PRINT SHOP

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)**

14. ELECTRICIANS

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Confined Spaces
Lockout
Electrical Safety
Powered Hand Tools
Lineman School (Resale)
CPR/First Aid**

15. LABORATORY, APPLIED SCIENCE, ART FACULTY

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know/Chemical Hygiene
Bloodborne Pathogens (Health Sciences)**

16. UNIVERSITY HEALTH SERVICES

**Emergency Procedures
Portable Fire Extinguishers
Right-To-Know (Chemical)
Bloodborne Pathogens**

17. PUBLIC EVENT WORKERS (RAC, HOEY, MUSIC/ENGLISH)

**Emergency Procedures
Portable Fire Extinguishers**

18. LIBRARY

**Emergency Procedures
Portable Fire Extinguishers**

19. SUPERVISORS

OSHA Responsibilities

**WESTERN CAROLINA UNIVERSITY
SAFETY AND HEALTH PROGRAM MANUAL
09 SAFETY AND HEALTH ORIENTATION AND TRAINING PROGRAM**

Safety and Health Training Record

OCCUPATION: _____ NAME: _____
EMPLOYMENT DATE: _____

WCU MANUAL REF	TITLE	SUPERVISOR/REVIEW DATE/INITIAL	CLASSROOM DATE/INITIALS
Sect. 3	Safety Complaint Procedure All		
Sect. 4	Reporting Accidents All		
Sect. 5	Workers Compensation All		
Emerg.Sec.	Emergency Plans All		
Sect. 12	Fire Extinguishers 7, 11		
Section 20	Back Injury Prevention All		
Sect. 20	Office Safety 9		
Sect.24,28	Chemical Safety (RTK) 1-8, 13-17		
Chem/Bio	Chemical Hygiene 10		
PP Manual	Electrical Safety 1-6		
Sect.26	Asbestos Awareness 1-5, 7		
Chem/Bio	Bloodborne 2, 7, 11, 12		
Sect. 23	Respirators 1-4, 6, 13		
PP Manual	Hearing Safety 3, 6		
PP Manual	Confined Space 2, 3		
PP Manual	Lockout 2, 3		
PP Manual	Forklift 16, 17		
PP Manual	Rim Wheels 5		
PP Manual	Welding 2, 3, 5		
PP Manual	Lead Paint 1, 4		
PP Manual	Shoring/Trenching 1-3		
PP Manual	Scaffolding 1		
PP Manual	Hand Tools 1-6		
Sect. 21	Eye Safety 1-7, 10, 13, 16		

- | | | | |
|----------------------|-------------------|-------------------------------|---------------|
| 1. Carpenters | 6 . Grounds | 11. University Police | 16. RAC Shop |
| 2. Plumbers | 7. Housekeeping | 12. Health Care | 17. Warehouse |
| 3. Utilities | 8. Food Service | 13. Art | |
| 4. Painters | 9. Office Workers | 14. Industrial Tech Shop | |
| 5. Vehicle Mechanics | 10. Laboratories | 15. Print Shop/Photo Darkroom | |

General

The University Safety Officer is responsible for inspecting hallways and exits for compliance with the fire and Life Safety codes.

The University uses Occupational Safety and Health Regulations and recommendations of the NFPA Life Safety Code as minimum standards to be attained. The State Department of Insurance may also impose requirements as a condition for providing insurance on campus buildings and equipment.

Obstructions to Means of Egress:

No encumbrance of any kind shall be placed in front of or upon any fire escape, balcony, or other exit intended as a means of escape from a fire.

No aisle, exit access, or stairway in any place of occupancy shall be obstructed with tables, show cases, or other obstructions so as to reduce its required width as an exit way during the hours the facility is open to the public.

All exit doors shall be unlocked when the building or a portion of the building served by the exit is occupied.

Hallways:

Storage of any kind, or use of laboratory or office equipment in hallways is not permitted. Normally, only water fountains, fire protection equipment, and safety equipment will be installed in hallways.

Permanently attached lockers, bulletin boards, display cabinets, etc., may be permitted in some locations, subject to approval of the University Safety Officer. Transparent covers on bulletin boards and display cabinets must be safety glass or other non-splintering material.

Stairwells and Landings:

Storage of materials on stairs, landings, or under stairs is strictly forbidden. Items found in these locations will be removed.

Doors:

Fire doors separating stairwells from hallways and smoke partition doors are equipped with self-closing mechanisms or automatic release hold-open devices and must be maintained in working order, i.e., not blocked, wedged or tied open.

Lighting of Exit Ways:

Stairways, hallways, and other exit ways including the exterior open spaces to or through which exit ways lead, shall be kept adequately lighted at all times when the building served thereby is occupied.

Adequate lighting shall provide not less than 1.0 foot candle on walking surfaces.

Turnstiles and Similar Devices:

Turnstiles and similar devices, used to restrict travel in one direction or to collect fares or admission charges, etc., shall not be installed without prior approval of the Safety Officer.

Railings, Steps, and Walks:

The area immediately outside of building exits shall be maintained free of material at all times.

Bicycles:

Bicycles are not permitted in hallways, stairwells, or on sidewalks immediately adjacent to exits.

General

The provisions of this policy apply to the selection, distribution, inspection, maintenance and testing of portable extinguishing equipment. The requirements given herein are minimums. Portable extinguishers are intended as a first line of defense to cope with fires of limited size. They are needed even when a facility is equipped with automatic sprinklers, standpipe and hose, or other fixed protection equipment. Only those personnel who have been trained may use extinguishers.

Definitions

The basic types of fires are Classes A, B, C, and D as defined in the following:

Class A fires are fires in ordinary combustable materials, such as wood, cloth, paper, rubber, and many plastics.

Class B fires are fires in flammable liquids.

Class C fires are fires which involve energized electrical equipment where the electrical non-conductivity of the extinguishing media is of importance. (When electrical equipment is de-energized, extinguishers for Class A or B fires may be used safely.)

Class D fires are fires in combustable metals, such as magnesium, titanium, zirconium, sodium, and potassium.

Classification and Ratings of Fire Extinguishers

Portable fire extinguishers are classified for use on certain types of fires and rated by testing laboratories for relative extinguishing effectiveness. The classification and rating are based upon the preceding classification of fires and the fire-extinguishment potentials as determined by fire tests.

Selection of Extinguishers

The selection of extinguishers for a given situation is determined by the character of the fires anticipated.

Distribution of Extinguishers

Fire extinguishers shall be provided for the protection of the building and for the occupancy hazard contained therein:

- Required building protection shall be provided by fire extinguishers suitable for Class A fires.
- Protection against occupancy hazard shall be provided by fire extinguishers suitable for such Class A, B, C, or D fire potentials as may be present.

Mounting Locations

Extinguishers shall be conspicuously located where they will be readily accessible in the event of fire. They shall be located along normal paths of travel, including exits from an area.

Maintenance

Extinguishers needing to be recharged due to use or pressure leakage will be recharged by the Safety Officer at no cost to the department to which the extinguisher was assigned.

Exception: Receipt supported departments (Housing, Food Service, UC, Bookstore, Health Services, Student Recreation Center, NCCAT)

Inspections

Extinguishers are checked monthly by maintenance personnel and annually by the Safety Officer.

New Buildings

The Safety Officer will review plans and determine the types and number of fire extinguishers required for new buildings. The purchase of fire extinguishers and fire hoses for new buildings will normally be funded from the movable equipment allocation of the Capital Improvements budget for the new building. The building's using department must reserve sufficient funds in the movable equipment account to cover all costs of initial outfitting for fire extinguishers. The Safety Officer will designate the locations where extinguishers are to be installed.

Renovations

Each department will be responsible for funding additional extinguishers required by changes in the type of occupancy (e.g., conversion of space from office to laboratory). The Safety Officer will determine the type and location of extinguishers and will install them on request.

Extinguisher Loss Due to Damage or Theft

It is the responsibility of the using department to institute security measures to prevent losses due to theft. Replacement cost for extinguishers in Housing buildings, Auxiliary Service areas and assigned rooms will be charged to the department. Replacement of extinguishers in other public areas will be charged to the Facilities Management.

General

This section applies to gatherings of 50 or more persons for such activities as entertainment, dining, amusement, lectures, seminars, etc. and to libraries, museums and art galleries with more than 50 persons. The purpose of the section is to establish criteria for emergency planning and fire prevention practices to be employed by university departments responsible for public assembly events.

Emergency Planning

University departments sponsoring public assembly events with 100 or more persons in attendance shall develop an emergency evacuation plan which includes the following information:

- Emergency telephone numbers.
- The location of all fire exits.
- The location of fire extinguishers.
- The duties of attendants, technicians, PA announcers, stage managers, etc.
- The wording of emergency instructions given over the PA system and the specific person designated to make the announcements.

The emergency plan should be approved by the Safety Officer and reviewed with all employees and attendants prior to the event.

Open Flame Devices/Pyrotechnics

No open flame devices or pyrotechnics are to be used for ceremonies, theatrical performances, and the like, without prior approval from the Safety Officer. Pyrotechnics generally require a licensed supervisor.

Food Service Devices

Portable cooking devices not flue-connected are to be used only with prior approval from the Safety Officer. Candles may be used on tables for food services if securely supported on substantial non-combustible bases located in such a way as to avoid a danger of ignition of combustible materials. Candle flames must be protected.

Flammable Liquids

The storage or use of flammable liquids in assembly areas is prohibited.

Decorations and Stage Scenery

Combustible materials must be treated with an effective flame retardant materials. Stage settings made of combustible materials must likewise be treated with flame retardant materials as indicated below:

- Plywood, wood, particle board, and like material used for stage settings or decorations must be UL listed with a flame spread of 75 or less (class B) or be painted with fire retardant paint.

- **Fabrics such as draperies and curtains must be flame treated or non-combustible or must not exceed 10% of the wall or ceiling area.**
- **Plastics must not exceed 10% of the wall or ceiling area. Pyroxylin plastics are prohibited.**
- **Foam plastic panels must be UL listed and approved by the Safety Officer.**
- **Cardboard should be painted with fire retardant paint or must not exceed 10% of the wall/ceiling area.**
- **Carpet must meet Federal Flammability Standards. Carpet installed on walls or ceilings must have a flame spread of 25 or less.**
- **Bales of hay or cotton, sawdust etc. and other highly combustible materials are prohibited unless approved by the Safety Officer.**

Christmas Trees

Natural cut trees are prohibited in assembly occupancies unless the area is provided with a sprinkler system.

Seating

Non-fixed seating arrangements for gatherings of 100 or more persons require prior approval by the Safety Officer. Any increase in the seating capacity of assembly rooms with fixed seats requires approval from the Safety Officer.

Maintenance of Exit Ways

Aisles, passageways, and stairways must not be obstructed or restricted by tables, showcases, or other objects. All exit doors must remain unlocked during assembly to permit evacuation.

General

It is the policy of the University to use the recommendations contained in the National Fire Protection Association (NFPA) Codes as minimum guidelines to acceptable practices on Campus. A number of the NFPA Codes have been incorporated into the Occupational Safety and Health Act (OSHA) Standards, the North Carolina State Building Code, or are mandated as a condition of insurance coverage by the North Carolina Department of Insurance. Questions regarding the applicability of specific NFPA Codes should be directed to the University Safety and Risk Management Office.

The purpose of this policy statement is to list the basic standards for the storage and use of flammable and combustible liquids applicable to Campus operations. The standards listed here are by no means comprehensive but represent those cited most frequently during inspections of Campus facilities.

Definitions

Laboratory/Shop Unit:

A laboratory or shop unit is defined as a room, or suite of rooms, separated from adjacent areas by fire resistant walls and doors.

Flash Point

The minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture in air.

Flammable Liquids:

A flammable liquid is any liquid having a flash point below 100 F (37.8 C). Flammable liquids are also known as Class I liquids and subdivided according to flash point and boiling point as indicated in the Table below.

Combustible Liquids:

A combustible liquid is any liquid having a flash point at or above 100 F, and is known as a Class II or III liquid as indicated in the following Table:

Classes:

	Flammables			Combustibles	
	IA	IB	IC	II	III
Flash Point	<73°	<73°	<73° - 100°	100° - 140°	>140°
Boiling Point	<100°	>100°			

Maximum Container Size for Point of Use Storage

The potential fire hazard depends on the flash point and the quantity of liquid being used. The following table gives the maximum size container allowed for each class of liquid:

	<u>IA</u>	<u>IB</u>	<u>IC</u>	<u>II</u>	<u>III</u>
Glass or Plastic	1 gal	1 gal	1 gal	1 gal	1 gal
Metal	1 gal	5 gal	5 gal	5 gal	5 gal
Safety Cans	2 gal	5 gal	5 gal	5 gal	5 gal

Maximum Quantities

The potential fire hazard also depends on the total quantity of flammable and combustible liquids present within a containment unit and the type of containers in which the liquids are stored. The maximum quantity allowed per unit is as follows:

1) Shelf or open storage/use:

- | | | |
|----|-------------------------|------------|
| a) | Glass, plastic, or cans | 10 gallons |
| b) | Safety cans | 25 gallons |

- | | | | |
|----|---|---------------------------------|---------------------------|
| 2) | Approved storage cabinets
(maximum - 2 per unit) | a) Class I & II
b) Class III | 60 gallons
120 gallons |
|----|---|---------------------------------|---------------------------|

3) Inside Storage Room (meeting NFPA Code recommendations)

- | | | |
|----|-------------------|--------------------------|
| a) | with sprinkler | 4-10 gal/ft ² |
| b) | without sprinkler | 2- 4 gal/ft ² |

University Guidelines

It should be emphasized that the quantity of flammables on hand must be kept to a minimum and that only in unusual circumstances will the maximum quantities be permitted. The following guidelines have been adopted by the University:

- If a one-gallon quantity of one specific liquid represents more than a thirty-day supply of a Class IA or IB flammable, one-pint (IA) or one-quart (IB) shall be used.
- Multiple cans and/or bottles of any one specific flammable will not be permitted in open storage or storage cabinet if it represents more than a thirty-day supply of that flammable.
- Deviations from these guidelines may be granted in exceptional cases following approval by the University Safety Officer.

Approved Containers

Gasoline and other fuels must be stored and transported on campus in approved containers. The use of safety cans in laboratories is encouraged where practicable.

Dispensing

Flammable liquids shall not be transferred between metal containers unless the containers are electrically interconnected by direct bonding or by indirect bonding through a common ground. The maximum impedance of the bond shall not exceed 6 ohms. Gasoline powered equipment must be refueled outdoors.

Storage Cabinets

Storage cabinets constructed to NFPA standards should be used when required to meet quantity limits. Storage cabinets are not permitted in hallways.

Inside Storage Rooms

A central storage room is preferable to storage cabinets in each laboratory. This central storage alternative should be considered especially by departments and schools which have centralized supply rooms.

Laboratory Refrigerators

Flammable liquids must not be stored in domestic type refrigerators. Domestic type refrigerators should not be purchased for laboratory use, even if flammable storage is not contemplated, since future research needs may require the use of flammables. Safety refrigerators, which have the electrical contacts (door switch, light, thermostat, etc.) removed or exteriorized, are recommended for laboratory use. "Explosion Proof" refrigerators are not recommended except in unusual circumstances, such as in an inside storage room (for flammables) or in potentially hazardous atmospheres. Domestic type refrigerators currently in laboratories should be labeled "DANGER/UNSAFE FOR STORAGE OF FLAMMABLES".

Warning Signs

Bunsen burners and other open flames must not be used in the area where flammable liquids are being used. The area must be posted "NO SMOKING" and containers are to be labeled "DANGER-FLAMMABLE KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES, KEEP CLOSED WHEN NOT IN USE."

Variances/Specialized Needs

Variations from these guidelines may be granted when chemical purity or other considerations warrant. For further information, contact the University Safety Officer (7443).

Falls and Back Strains

The most common types of accidents in offices are falls and back strains from overexertion. In many cases these injuries are caused by the arrangement of storage and office furniture or articles left on the floor. To help avoid these type injuries the following safety considerations should be included in the arrangement plan for the office.

- **Arrange furniture so that aisles will not be obstructed by items such as electric cords, outlets, telephone cords, trashcans and open files drawers. Also avoid creating aisles with blind corners if possible.**
- **Arrange files and storage so that frequently used or heavy material is easy to get to without repetitive and excessive bending, reaching, climbing, or twisting and lifting at the same time. Minimize the distance you are required to carry heavy objects.**

Video Display Terminals (VDT'S)

Various vision and musculoskeletal problems have been associated with extended use of video display terminals. To minimize these problems it is important that each workstation be designed to reduce stress and that adequate breaks from VDT use be taken:

- **The distance from the screen to your eyes should be only slightly greater than the distance you normally maintain between reading material and your eyes. The viewing angle should be within 10 degrees of your eye level.**
- **Seat contours should follow the contours of your back. Adjust chair height so that you don't feel pressure on your tailbone (seat too low) or lower thighs (seat too high). If you must use a high seat use a footrest.**
- **Position your chair and keyboard to minimize reaches and so that the height is comfortable. If you often look at paper documents when you work, use a copy stand, mounted so that it puts your work in the same plane and at the same height as your screen.**
- **Avoid cradling a telephone between your neck and shoulders when talking and keying in. Use a headset.**
- **Use wrist support pads and keep the wrist in a neutral position.**
- **Avoid facing windows at your terminal.**
- **Lighting for frequent computer users should be 50% of the level for normal office lighting. Don't place the workstation directly underneath overhead lighting.**
- **If you can't control glare in your office use a filter screen for Macintosh use a "high light transmission" filter.**

- **A 15 minute break is to be taken after two hours of continuous VDT work under moderate visual demands.**

Frequent breaks are to be taken for every hour for jobs that require more than four hours of viewing time, constant rapid muscular action, fixed positions for extended periods of time or for jobs that are highly repetitive. This should be accomplished by supervisors scheduling alternative work assignments.

Employees whose job duties include constant VDT use exceeding 4 hours a day are required to attend a training session on VDT use. This program is provided by the Safety Officer.

Employees who experience vision or musculoskeletal problems they feel is associated with VDT use should report these problems to the University Health Service.

Small Heating Appliances

The most significant fire hazard in offices is associated with small cooking and heating appliances frequently used. Often these appliances overload circuits or are accidentally left on overnight.

Adequate clearance from combustibles such as paper must be maintained around space heaters and cooking appliances. In general, space heaters should not be connected to extension cords and should not be used near flammable liquids such as duplicating fluids, alcohol base cleaners, rubber cement. etc.

Most important an employee within the office should be assigned to assure that small appliances are turned off or unplugged at the end of the workday.

Storage in Mechanical Equipment Rooms or Hallways

For fire safety reasons excess office and classroom supplies and furniture are not to be placed in building mechanical equipment rooms, electrical closets, hallways, stairways or attics.

Extension Cords

Extension cords are permitted only with portable appliances or fixtures. While in immediate use:

- **Each extension cord shall be plugged directly into an approved receptacle and shall, except for approved multiplying extension cords, serve only one appliance or fixture.**
- **The current capacity of the cord shall not be less than the rated capacity of the appliance or fixture.**
- **The extension cord shall be maintained in good condition without splices, deterioration or damage.**
- **The extension cord shall be of the grounded type when servicing grounded appliances or fixtures.**

Extension cords and flexible cords shall not be affixed to structures, extended through walls, ceiling floors, under doors or floor coverings, nor be subject to environmental damaging physical impact.

The use of multiplug unfused cube adapters is prohibited.

Electrical Panels

A minimum of 30 inches of clearance shall be provided in front of electrical control panels for access.

Christmas Trees

- **Only listed electrical lights and wiring shall be used on Christmas trees and similar decorations.**
- **Open flame shall not be located on or within the height of the Christmas tree or other similar combustible materials.**
- **Natural cut Christmas trees shall not be located near heating vents or other fixed or portable heating devices that could cause the tree to dry out or to be ignited.**
- **When installing them indoors, natural cut Christmas trees shall have the bottom end of the trunk cut off at least one half inch above the end to help the tree absorb water. The tree shall be placed in a suitable stand with adequate water. The water level shall be checked and maintained on a daily basis. The tree shall be removed from the building immediately upon evidence of dryness.**

General

Required for Students

University policy on eye and face protection for students is derived from legislation enacted by the North Carolina General Assembly entitled "Policy for Eye and Face Protection," and passed in 1969. This Act requires that eye protective devices be worn by students in shops and laboratories where work involves:

- Hot solids, liquids, or, molten metals; or
- Milling, sawing, turning, shaping, cutting, or stamping of
- any solid materials; or
- Heat treatment, tempering, or kiln firing of any metal or other materials; or
- Gas or electric arc welding; or
- Repair or servicing of any vehicle; or
- Caustic or explosive chemicals or materials.

Eye protective devices are to be worn at all times while participating in any of the above programs.

Required for Visitors

This act also provides that visitors to such shops and laboratories be furnished with and required to wear eye safety devices while such programs are in progress.

Required for Employees

University policy on eye and face protection for employees is derived from the Occupational Safety and Health Act of North Carolina (OSHANC). OSHANC states that:

Protective eye and face equipment shall be required where there is a reasonable probability of injury that can be prevented by such equipment. In such cases, employers shall make conveniently available a type of protector suitable for the work to be performed, and employees shall use such protectors. No unprotected person shall knowingly be subjected to a hazardous environmental condition. Suitable eye protectors shall be provided where machines or operations present the hazards of flying objects, glare, liquids, injurious radiation, or a combination of these hazards.

Standards and Types of Equipment

Equipment Standards

The North Carolina legislation and OSHA-NC specify that eye and face protective devices, which include spectacles, goggles, and face shields, shall comply with American National Standards Institute (ANSI) Z87.1-1979 and later revisions thereof. All eye and face protective devices currently on State Contract meet ANSI standards.

Selection of Appropriate Devices Based on Hazard

The type of device required will depend on the nature of the hazard and the frequency with which it is encountered. There are three basic types of eye protection which will meet the majority of University maintenance, shop, and laboratory requirements. These are: safety spectacles (with or without side shields), dust goggles, and chemical goggles. Each of these meets the basic eye protection standards for frontal exposure to flying particles.

Side Shields

Safety Glasses with side shields, or goggles, are required where flying particles are likely to enter at an angle, and are usually required where two or more people are working in close proximity. Safety glasses with permanently attached side shields, or impact goggles, will provide this protection. Clip-on side shields do not meet ANSI standards.

Chemical Goggles

Safety chemical goggles are required to provide protection against corrosive or hot liquids or fine particles capable of penetrating the ventilation holes in dust goggles.

Special Eye Protection

Detailed information on eye protection requirements is available from the Safety Officer for the following hazards:

- **Welding and brazing operations**
- **Lasers**
- **Ultraviolet radiation**
- **Ionizing particulate radiation**

Selection Based on Frequency of Use

Dust or chemical goggles are the least expensive approved eye protection devices available, fit most head sized and facial shapes, and may be worn over ordinary glasses. They are recommended for visitors, employees, and students who require eye protection periodically for short durations (less than two hours per day).

Adjustable safety glasses and prescription safety glasses are generally more comfortable than goggles and are therefore recommended for employees who require eye protection frequently or for long duration (more than 2 hours)

Photogray Lenses

Photogray lenses will not be approved unless a medical need is certified by an eye professional. Photogray lenses will only be provided for employees needing eye protection whose job assignments are largely out-of-doors.

Face Shields

Face Shields do not meet eye protection standards and are only for face protection. Appropriate eye protection devices must be worn under the face shield.

Cost, Care, and Reclamation

Providing Protection

The University is committed to a policy of providing eye and face protective devices without cost to employees. Each department is responsible for the funding of its employee eye and face protection program. Departments may loan eye protective devices to students or may require students to purchase devices at the University Book Store. Visitors should be furnished with temporary eye protection without cost.

Eye Examinations and Prescription Frames

Scheduling and payment for eye examinations to obtain prescriptions and professional fittings for safety glasses are the responsibility of the employee and/or student.

Frames and lenses for prescription and non-prescription safety glasses will be paid for by the University from a selection currently on a statewide contract. Only those items listed on the state contract will be furnished by the University.

Return of Protective Devices

Non-prescription eye protective devices issued to employees, students, and visitors remain the property of the University and are to be returned when the use of the devices is no longer necessary. For students this will normally be at the end of each semester and for employees it will be on termination of employment or change in duties where eye protection is no longer required.

Replacement of Damaged Devices

Glasses damaged during normal wear and use may be replaced without charge to the employee or student at the discretion of the department head or designated administrative officer.

Replacing Lost Devices

Replacement of lost or stolen devices will be the responsibility of the employee or student to whom they were issued.

Cleaning Material

Eye protective devices are personal items and should be issued for the exclusive use of each individual. Materials for cleaning eye and face protective devices are to be made available to employees and students by each department.

Disinfection Before Reissuance

Eye protective devices must be thoroughly cleaned and disinfected before being issued to another person. Information on procedures for disinfection is available from the Safety Officer (7443).

Eye Contamination

Eye Wash Facilities

Every laboratory or work place using caustic and/or corrosive chemicals shall be equipped with emergency eye wash facilities.

First Aid - Chemical Burns

When the eye has received chemical irritation, the preferred first aid is to flood the eye with water immediately for at least 15 minutes and seek medical treatment as soon as possible. Neutralizers or other medication should be used only on the advice, or under the direction, of a physician.

General

Employees

Employees are expected to wear footwear appropriate for the duties of their employment. Sandals or other open-toe style shoes are not permitted to be worn in laboratories, shops, or other job locations where glass, caustic or corrosive chemicals or hot materials are used or handled.

Students

Students are expected to wear appropriate footwear while participating in laboratory exercises, or other instructional activities involving the use of glass, caustic or corrosive chemicals, or hot materials. Generally, sandals or other open-toe style shoes should not be worn in laboratories.

Safety Shoes

Safety shoes which protect toes from impact are required for employees whose routine job duties require the lifting, carrying, or moving, etc of objects weighing more than fifteen pounds, which, if dropped, would likely result in foot or toe injury. In general, this would not apply to office workers.

Insole Protection

Flexible steel midsoles are required for employees who are likely to step on sharp objects, such as nails in boards, or stakes that could possibly penetrate normal shoe soles.

Ankle Protection

Six or eight-inch safety shoes are recommended for employees involved in activities where ankle abrasions are likely. These activities include, but are not limited to, climbing, crawling, construction, and demolition.

Wet Locations

Over-the-shoe rubber footwear to be worn over standard (or safety) footwear or boots are required in wet locations. The boots are required in addition to the safety footwear recommendations listed above.

Rubber boots with toe and metal tarsal protection are recommended for employees working in flooded trenches or other locations where ordinary over-the-shoe protection would be inadequate to insure that the employee's shoes would remain dry.

Specialized Footwear

Specialized footwear that would not customarily be worn off the job will be provided without cost to employees by their department. Examples of such specialized footwear include slip-on rubbers, and calf-length and knee-length rubber boots.

Safety Shoes

When safety shoes are required, the cost of one pair per year (not to exceed \$80.00) will be paid for by the department. Employees are to purchase the shoes and submit an original receipt for reimbursement.

New Employees

Employees whose job duties require safety shoes will be required to obtain safety shoes before starting employment.

Enforcement

Once a job has been designated as requiring safety shoes, employees will not be allowed to work without the required foot protection.

RESPIRATORY PROTECTION

General

Individual respirators are required whenever work is performed in atmospheres where harmful particulate, gas or vapor contaminants exceed OSHA specified limits or is which there is an oxygen deficiency. In order for a respirator to adequately provide the degree of protection needed the equipment selected must match the nature of hazard and the respirator must be maintained and worn properly. Provisions in this procedure focus on the fulfillment of these requirements.

Atmospheric contaminants will be eliminated as far as feasible by engineering control methods such as enclosure of the operation, general and local ventilation or by substitution of less toxic materials.

Medical

Employees cannot be assigned any job requiring respiratory protection until the University Health Service has determined that they are physically and physiologically capable of using a respirator. Supervisors who wish to schedule an employee for a respirator medical exam should first contact from the Safety Officer so that a description of the job, harmful materials used exposure level and respirator type can be developed. This information must be provided to the University Health Services for each person evaluated. The Health Service notifies the Safety Officer of their determination for each employee.

Fit Test

Employees cannot wear respirators in hazardous atmospheres until they have been qualitatively fit tested for their respirator. These tests are necessary to assure leaks do not occur between the respirator and face and that all contaminated air is actually inhaled through the filter cartridges. The Safety Officer should be contacted to arrange fit testing. Positive pressure air supplied hoods do not require fit testing.

Employees with beards are not allowed to perform tasks which require respirators unless they use a positive pressure air supplied hood. The presence of facial hair prevents an airtight seal between the respirator and the face causing contaminated air to leak into the breathing zone.

Training

Employees cannot wear respirators in hazardous atmospheres until they are trained in the selection, use and limitations of respirators. The Safety Officer should be contacted to arrange for training of employees.

Assignment of Respirators

Respirators are maintained by the Safety Officer and usually assigned to individuals for specific jobs. Each respirator is assigned to a specific individual and must not be shared among employees. At the completion of the job the respirator must be returned to the Safety Officer.

Employees whose job duties frequently require a respirator are permanently assigned an individual respirator.

Cleaning/Storage

Respirators must be cleaned and disinfected after each use. Between uses the respirator must be stored in a clean and dry location.

UNIVERSITY JOBS WHICH COULD REQUIRE A RESPIRATOR

	<u>Task</u>	<u>Exposure</u>	<u>Control</u>	<u>Monitor</u>
1	Wood Floor Finishing And Coating	Organic Vapors	Half-Mask/Organic Vapor Cartridge	Hydrocarbons (<50 Ppm)
2	Spray Painting	Organic Vapors/Mists	Half-Mask/Organic Vapor Cartridge Mist Filter.	
3	Painting Inside With Oil Base Paint And Coatings	Organic Vapors	Half-Mask/Organic Vapor	
4	Sandblasting	Silica Dust	Supplied Air Hood	
5	Pesticide Application	Organic Vapors Toxic Vapors Mist	Half-Mask/Pesticide Cartridge	
6	Boiler Cleaning	Boiler Scale	Supplied Air Hood	
7	Asbestos Maintenance	Asbestos	Half-Mask/HEPA Filter	Asbestos (Hydrocarbons <50 PPM)
8	Application Of Adhesive	Organic Vapors	Half-Mask/Organic Vapor	Hydrocarbons <50 PPM)
9	Ceramic Glaze	Toxic Dusts	Vented	
10	Clay Mixing	Clay Dusts	Vented	
11	Etching Bath	Nitric Acid	Vented	
12	Screen Wash	Organic Vapors	Vented	
13	Plate Wash	Organic Vapors	Vented	Formaldehyde (no reading)
14	Human Dissection	Formaldehyde	Vented	Formaldehyde (no reading)
15	Laboratory	Various	Fume Hood	Benzene (no reading)

CHEMICAL SAFETY PROCEDURES

Toxic Effect of Chemicals

All chemicals have toxic effects at some dose level for some route of exposure. It is therefore wise to minimize exposure to chemicals. Chemicals can have local or systemic effects. Local toxicity refers to the direct action of chemicals at the point of contact. Systemic toxicity occurs when the chemical agent is absorbed into the bloodstream and distributed throughout the body, affecting one or more organs. Toxic effects are also classified as acute or chronic. Acute effects are observed shortly after exposure. Chronic effects result from long term exposures or appear after a latency period.

Routes of Exposure

DERMAL CONTACT: One of the most frequent exposures to chemicals is by contact with the skin. Spills and splash can result in overt contamination of the skin. A common result of skin contact is localized irritation or burns. However, some materials are also absorbed through the skin to produce systemic poisoning. Skin contact hazards are often associated with caustic or acidic cleaners which are highly corrosive to skin tissue on contact or with petroleum base products which are irritating on repeated contact.

Inhalation: Inhalation of toxic vapors, mists gases, or dusts can produce poisoning by absorption through the mucous membrane of the mouth, throat, and lungs and can seriously damage these tissues, by local action. Inhaled gases or vapors may pass rapidly into the capillaries of the lungs and be carried into the circulatory system. The degree of injury resulting from inhalation of toxic substances depends on the toxicity of the material, its solubility in tissue fluids, its concentration, and the duration exposure.

Inhalation hazards are most often associated with gases and volatile products such as adhesives, wood finishes or paint thinners. Dust and non-volatile liquids can also present an inhalation hazard. Materials in the form of dusts and particulates can become airborne when transferred from one container to another or by grinding and crushing. Splash created from spills and during vigorous shaking and mixing also results in aerosol formation. Many of the particulates generated during such procedures do not settle out but remain suspended in the air and are carried about by air currents in the room. Some of these particulates are capable of being inhaled and deposited in the respiratory tract. For many operations it is not obvious that an aerosol is being generated and personnel may not be aware that a hazardous situation exists.

Ingestion: Ingestion of toxic materials can occur when contaminated hands come in contact with the mouth or with food items which are placed in the mouth. Food items and utensils themselves can become contaminated when stored near chemicals.

Ocular: The eyes are of particular concern because they are so sensitive to irritants. Ocular exposure can occur via splash or when contaminated hands rub the eyes. Few substances are innocuous in contact with the eyes and a considerable number are capable of causing burns and loss of vision. The eyes are very vascular and provide for rapid absorption of many chemicals.

Safe Handling Practices:

- Read label on the container of the material you are working with. **DO NOT USE A MATERIAL IF YOU ARE NOT ABSOLUTELY SURE OF WHAT IT IS**
- If you are not sure of the chemical hazards after reading the label contact your supervisor or the Safety Officer to review the Material Safety Data Sheet (MSDS).
- Use protective gloves, goggles etc as instructed on the label. If you do not have these items contact the Safety Officer.
- Determine the amount of ventilation you will need or if respiratory protection may be required. In general this will depend on the following:
 - 1) The evaporation rate of the product. Flammables have high evaporation rates.
 - 2) The corrosiveness of the fumes (Ammonia, bleach) or the toxicity of the fumes.
 - 3) The length of potential exposure.
 - 4) The open surface area created and method of application. A large surface area would be created by applying a thin coat such as in wood finishing or cleaning. Spray application is more hazardous than brush application.
 - 5) The temperature of the product. Heating will increase evaporation.

IF ADEQUATE VENTILATION IS NOT IN PLACE A SERIOUS HEALTH HAZARD OR EXPLOSION HAZARD MAY BE CREATED.

- If the materials are corrosive, note where the nearest eyewash, shower or other water source is located. Plan how you will quickly flush your eyes or skin if an accident should occur.
- To prevent ingestion always wash your hands when you finish using chemicals. Also rinse your gloves and periodically clean your eye- goggles.
- Store all chemical products at eye level or below. Make sure all containers are resealed after use.
- Gas cylinders must be secure in the upright position at all times and not left free standing.
- If a spill occurs contain the material if safe to do so, evacuate people from the area and contact the Safety Officer. See WCU Emergency Procedures.

Background and Scope

NC-OSHA has adopted the "Safety and Health hazard communication Standard" for workplace chemicals and gases. The basic provisions in the Standard require chemical manufacturers to evaluate the hazards presented by the chemicals they produce and to provide safety information to employers who purchase the products. Employers are required to maintain the information provided and establish an internal "hazard communication" program to insure that employees are informed of the hazards and the measures necessary to protect themselves from any harmful exposure which may result from using the chemicals.

This program applies to any chemical which is used by Western Carolina University employees, except as follows:

- **Wood products**
- **Drugs or cosmetics for personal use**
- **Consumer products (subject to the Consumer Product Safety Act) less than 5 gallons or 50 pounds so long as employee exposure is not greater than ordinary consumer use.**
- **Hazardous wastes subject to Environmental Protection Agency regulations.**

Responsibilities

The University Safety Officer is responsible for overall management and coordination of the program.

University departments who use chemicals are responsible for:

- **Providing the Safety Officer with information on existing chemicals used and chemicals purchased.**
- **Forwarding to the Safety Officer Material Safety Data Sheets received.**
- **Assuring that chemical containers are clearly labeled.**
- **Employee attendance at chemical safety training sessions.**

Hazardous Chemical List

A list of the hazardous chemicals used or stored in the workplace is to be available to employees of each department. The Safety Officer maintains a list of chemicals based on an annual survey of each department. When new chemicals are introduced, the chemical list must be updated before the chemical is used in the workplace. To accomplish this, the Purchasing Department furnishes a copy of purchase requisitions for chemicals to the Safety Officer.

NOTE: Laboratories are not required to keep a list of chemicals.

Maintenance of Material Safety Data Sheets (MSDS)

Chemical manufacturers are required to provide MSDS's for all chemicals sold to Western Carolina University. The MSDS's provide essential safety and health information on the chemical and must be maintained in the University's files so that they are accessible to employees.

The University Safety Officer is responsible for collecting and distributing MSDS's. MSDS's are maintained on file in the University Safety & Risk Management Office or the using Departmental Office. MSDS's may be reviewed by employees who use chemicals by contacting the Safety Officer at extension 7443 or by contacting their Department Office.

Warning Labels

Chemical manufacturers must provide labels on chemical containers which provide the identity of the hazardous chemical(s), the appropriate hazard warnings and the name and address of the manufacturer. These labels are to be maintained in legible condition at all times.

For "in-house" containers and tanks owned by the University, the Hazardous Materials Identification System (HMIS) is used. The HMIS labeling system uses both numerical and lettering system to identify the hazard(s) and recommend protective equipment. HMIS labels do not necessarily warn about every hazard listed in the MSDS. The hazards highlighted on the labels reflect some assessment of the weight of the severity regarding each hazard reported.

The Safety Officer will coordinate labeling of containers and is to be contacted when any label is not readable, missing, etc.

Portable containers, into which hazardous chemicals are transferred from labeled containers, are not required to be labeled if the portable container is to be used only by the employee making the transfer.

Employee Training

All employees who use chemicals are required to attend a Hazard Communication Training Program. In laboratory departments each faculty member responsible for a laboratory unit is responsible for providing training for employees within their laboratory unit. The Safety Officer will schedule and provide this program for staff departments. Employees are only required to attend one program unless (a) a new hazard is introduced into the work/place or (b) the employee transfers into a unit where different chemical hazards exist. In these cases updated training is required.

When new employees are hired, training is to be done at the time of the initial employment. University Departments are responsible for providing the Safety Officer with the names of new employees who use chemicals so that hazard communication training can be arranged.

Hazardous chemical safety training is to include at least the following information:

- Interpreting information on labels and MSDS's.**
- Location of hazardous materials in the workplace.**

- **Location and availability of material safety data sheets.**
- **Acute and chronic effects of chemicals.**
- **Safe handling procedures.**
- **Personal protective equipment**
- **Methods used to detect leaks and releases**
- **Spill clean-up and emergency procedures.**

Attendance records for each training session must be documented and forwarded to the Safety Officer.

Non-Routine Task/Outside Contractors

All jobs or projects involving hazardous chemicals, that are being done for the first time, shall be considered a "non-routine" task and shall be reviewed by the University Safety Officer prior to starting work.

When outside contractors come to the University, they also must be informed of the hazards they may encounter on campus. Contractors working near where chemicals are stored or used are to be informed before beginning their work of the chemical hazards present and are encouraged to ask responsible University faculty, staff or the Safety Officer about these potential hazards.

Contractors that bring hazardous chemicals on campus must maintain a list of hazardous chemicals and material safety data sheets to which the University has access. Questions regarding hazardous chemicals used by contractors should be directed to the Safety Officer.

HAZARDOUS WASTE

General

As a generator of small amounts of Hazardous Waste the University is required to comply with Federal Standards promulgated under the Resource Conservation and Recovery Act (RCRA). These regulations cover the storage, handling and documentation of transfer of hazardous waste from the point of generation to final disposal.

Definition

Hazardous waste is a solid material, chemical, fuel or compressed gas which is harmful to human health or the environment and is no longer useful and is intended to be discarded. It may be identified by name in chemical lists in the Federal Code, 40 Part 261, or if not specifically listed, by the characteristic of the waste material. Essentially if the waste material is ignitable, corrosive, reactive or toxic, it is subject to hazardous waste regulation. A second more limited category of hazardous waste is acutely hazardous waste which are all listed materials.

Landfill Restrictions

Some common items which are not ordinarily thought of as harmful when handled are included as hazardous waste because they "leach" small quantities of toxic material when disposed of in a landfill for long periods of time. These items must not be placed in the ordinary trash, instead they must be collected for recycling. The Facilities Management or surplus property collects these items:

- **Batteries**
- **Circuit Boards**
- **Computers and Monitors**
- **Fluorescent Lights (except "green" tip)**
- **Electronic Equipment**
- **Scrap Metal**
- **Thermostats**
- **Lamps (Hid, mercury vapor, sodium, metal halide)**
- **Articles Coated with Lead Base Paint**

Waste Reduction

The most significant impact that individual departments can have on hazardous waste costs is to reduce the volume of waste required to be handled. Faculty and supervisors are encouraged to consider ways of reducing the volume of waste or preserving the reuse of the materials through the redesign of experiments and work processes. Recyclable materials should be kept separate from other waste. Efforts should be made to decontaminate, detoxify, neutralize, or otherwise render the waste non-hazardous. Different waste materials should be kept segregated whenever possible.

Disposal Methods

Hazardous waste materials must be handled by means of one of the following:

- For Reagents treatment by the originating laboratory to render the waste non-hazardous.
- Recycled for energy recovery or other uses.
- Exchanged as a useful material for other industry or laboratories.
- Packaged for pick-up and incineration by a licensed hazardous waste firm.

It is unlawful to discharge any chemical product or oil into storm sewers, creeks or on the ground or to discharge hazardous chemicals such as strong corrosives, reactives, oils, varnishes, kerosene, gasoline insecticides etc. into the sanitary sewer. Also hazardous chemicals should not be placed in the ordinary trash for pick-up by Facilities Management

Inventory List

An essential step in the processing of hazardous waste materials is to develop and maintain an inventory list of stored hazardous waste materials. This list must include the chemical identity, quantity, container type and originator for each substance. Also, the chemical identity and originator must be affixed to each container. Without this information the material cannot be picked-up for disposal.

Each inventory list should be forwarded to the Safety Officer semi-annually so that the current aggregate amount and type of stored waste can be determined for the University and commercial pick-up can be arranged when necessary.

Quantity Limits

The University is currently classified by the EPA a "conditionally exempt small quantity" generator which allows it to be excluded from some of the more cumbersome recordkeeping and training aspects of the law. To maintain this classification, the university must never generate more than 100 kg (220 lbs.) of hazardous waste in a month and never store more than 1000 kg (2,200) lbs.

PROCEDURES FOR SPECIFIC WASTES

- 1. Individual Waste Streams:** A waste stream generated from a laboratory procedure or shop process should not be combined with other chemical wastes. The fewer the number of chemicals associated with a waste, the more economical is the disposal method for that waste. If this is not practical, the Safety Officer should be consulted about which wastes can be combined.
- 2. Non-Halogenated Flammable Solvents:** Non-halogenated flammable solvents are sent to an incinerator or recycler and must be free of heavy metals and reactive materials, e.g. sodium metal. Disposal of solvents to the sanitary sewer is limited to low-toxicity solvents, miscible in water, diluted to non-flammable concentrations.
- 3. Halogenated Solvents:** Halogenated solvents are disposed of separately and must not be combined with flammable non-halogenated solvents. Examples of halogenated solvents include methylene chloride, chloroform, and carbon tetrachloride
- 4. Acids and Bases:** Acids with a pH of greater than five can be diluted and discharged to the sanitary sewer. Small volumes of bases can be discharged to the sanitary sewer, but followed by flushing with copious volumes of water. Acids and bases containing heavy metals must not be disposed to the sewer system.
- 5. Oils:** Oil is sent to a recycler. Only trace quantities of oils associated with cleaning and washing operations should be released to the sanitary sewer. Oil wastes from vacuum pumps, transformers, motors, etc., should be accumulated for pick-up. Oily rags should be sent to a cleaning service.
- 6. Biocides:** Concentrated solutions are not to be released to the sanitary sewer. Disposal is to be limited to one gallon of "working strength" solution per laboratory per day. This applies primarily to germicides and occasional disposal of pesticides. Chemicals which are persistent in the environment should be released only in trace quantities.
- 7. Sodium Azide -** Solutions containing sodium azide, commonly used as a preservative in many in-vitro diagnostic products and with automatic blood cell counters, can be discharged to the sanitary sewer if done so with generous amounts of water and where drain lines are lead and copper-free. The accumulation of lead and/or copper azide in the drain pipes can produce a potentially explosive situation.
- 8. Toxic, Carcinogenic, Oxidizer, and Explosive Waste:** Are picked up for disposal.
- 9. Compressed Gas Cylinders:** Containing hazardous gas should be shipped back to the vendor.

10. **Needles and Syringes:** Must not be put in the regular trash. They should be accumulated in suitable hard wall containers. Needles and syringes contaminated with infectious agents must be autoclaved or otherwise decontaminated.
11. **Infectious and Radioactive Waste:** These guidelines do not apply to infectious or radioactive waste. Consult the Safety Officer for these types of waste.

Drain Disposal of Chemicals*

Limited quantities (generally not more than a few hundred grams or milliliters) can be disposed of in the sanitary sewer, but never in a storm sewer system. The disposal should be performed by flushing with at least 100-fold excess water at the sink, so that the chemicals become highly diluted. Only those compounds that are water soluble to at least 3% and present a low toxicity hazard are suitable for drain disposal. The following list comprises compounds that are suitable for drain disposal. In general, compounds that are not listed are not suitable.

I. Organic Chemicals

Alcohols:

Alkanols with less than 5 carbon atoms t-Amyl alcohol Alkanediols with less than 8 carbon atoms
Glycerol Sugar and sugar alcohols Alkoxyalkanol with less than 7 carbon atoms n-C
H₉OCH₂CH₂□CH₂CH₂□H 2-Chloroethanol

Aldehydes:

Aliphatic Aldehydes with less than 5 carbon atoms

Amides:

RCONH₂ and RCONHR with less than 5 carbon atoms
RCONR₂ and less than 11 carbon atoms

Amines:

Aliphatic amines with less than 7 carbon atoms
Aliphatic diamines with less than 7 carbon atoms
Benzylamine
Pyridine

Carboxylic Acids:

Alkanoic acids with less than 6 carbon atoms Alkanedioic acids with less than 6 carbon atoms
Hydroxyalkanoic acids with less than 6 carbon atoms Aminoalkanoic acids with less than 7 carbon atoms
Ammonium sodium, and potassium salts of the above acid classes with less than 21 carbon atoms
Chloroalkanedioic acids with less than 4 carbon atoms

Ethers:

Ether with less than 5 carbon atoms
Isopropyl acetate

Ethers:

Tetrahydrofuran
Dioxolane
Dioxane

Ketones:

Ketones with less than 6 carbon atoms

Nitriles:

Acetonitrile
Propionitrile

Sulfonic Acids:

Sodium or potassium salts of most are acceptable

"Those with a disagreeable odor, such as dimethylamine, 1.4-butanediamine, butyric acids, and valeric acids, should be neutralized and the resulting salt solutions flushed down the drain diluted with at least 1000 volumes of water."

II. Inorganic Chemicals

This list comprises water-soluble compounds of low-toxic-hazard cations and low-toxic-hazard anions. Compounds of any of these ions that are strongly acidic or basic should be neutralized before disposal down the drain.

Cations

Al³⁺
Ca²⁺
Cu²⁺
Fe^{2+,3+}
H⁺
K⁺
Li⁺
Mg²⁺
Na⁺
NH₄⁺
Sn²⁺
Sr²⁺

Anions

BO₃³⁻, B₄O₇²⁻
Br⁻
CO₃²⁻
Cl⁻
HSO₃⁻
OCN⁻
OH⁻
I⁻
NO₃⁻
PO₄³⁻
SO₄²⁻
SCN⁻

Cations

Anions

Ti^{3+,4+}

Zn²⁺

Zr²⁺

*This material is retyped from "Prudent Practices for Disposal of Chemicals from laboratories".
National Academy Press

ASBESTOS OPERATIONS AND MAINTENANCE POLICY

Introduction

Asbestos is a mineral based material composed of small, thin fibers. It is common in many building materials such as spray-on fire proofing, insulation or sound proofing, cementations finish material, pipe ducts and tank insulation, floor tiles, cement ducts, roofing shingles, etc. It has been found in a number of campus buildings in many different locations.

OSHA requires that surfacing texture, fire proofing, insulation and floor tile installed prior to 1980 be presumed to contain asbestos unless sample data proves otherwise. Buildings included in this requirement are:

Albright-Benton	Facilities Management	Scott
Belk (Partial)	Guest House	Univ. Club House
Bird Alumni House	H. F. Robinson Building	Walker
Brown	Highlands Complex	Young Drive Apts.
Buchanan	Hunter Library (old part)	
Chancellor's Residence	Killian	
Claxton House	Moore	
Coulter	Natural Science Building	
Dodson	Reid Gym	
Faculty Apartments	Robertson	

Asbestos is a proven human carcinogen. Exposure to airborne fibers can cause respiratory diseases, lung cancer, mesothelioma and other types of cancer. If asbestos containing material (ACM) remains in good condition and is unlikely to be disturbed, exposure will be negligible. However, when ACM is damaged or disturbed, asbestos fibers are released creating a potential hazard for maintenance workers and building occupants. Both North Carolina - OSHA and the EPA have set strict standards for personal exposure or environmental release of asbestos fibers.

Objectives

The objective of this program is to minimize exposure of building service workers and building occupants to airborne asbestos. To accomplish this the program is designed to (1) Monitor the physical condition of ACM. (2) Where appropriate, monitor airborne asbestos fiber levels in buildings. (3) Safely contain and remove ACM that may have been damaged by accident. (4) Establish safe work practices for activities where asbestos is encountered. The focus is on maintenance, repair and construction workers, since their activities are most likely to create major episodes of fiber release.

Responsibilities

The University Safety Officer is designated as Asbestos Control Manager and is responsible for identification and evaluation of ACM, air monitoring where necessary, planning repair, maintenance and custodial operations where asbestos is likely to be disturbed, selection and

maintenance of respirators and maintenance of records. The Associate Vice Chancellor for Facilities Management is responsible for designating employees or contracting to remove asbestos, employee attendance at Asbestos Awareness and Operations Training, medical examinations, and implementation of safe work practices and disposal methods.

Planned Projects

Asbestos may be encountered in virtually any project. The Safety Officer shall review all projects so that the affected area can be evaluated before work is started.

Maintenance Work Orders

When working near asbestos employees must be careful not to disturb the material. If completion of a work order would require disturbing what an employee thinks might be asbestos they are to stop their work and notify the Safety Officer.

Medical Exams/Respirators

Annual medical examinations are required for all employees engaged in work involving asbestos or are required to wear respirators. Examinations will be performed by the University Health Services. Records of examinations are maintained by the Safety Officer. Air purifying respirators with replaceable HEPA filters are to be worn at all times during repair and maintenance projects, clean-up projects and in confined areas with exposed asbestos. The Safety Officer will issue a respirator for the exclusive use of each employee and provide training in the use of the respirator. Periodically, each respirator will be cleaned and disinfected by the Safety Officer. (Reference Western Carolina University Safety Policy #23, "Respiratory Protection").

Work Practice

Facilities Management personnel must be trained in asbestos removal techniques in order to perform incidental asbestos removal jobs. The removal must be incidental to general maintenance and repair.

Before removing any asbestos type material, the Safety Officer must first take a bulk sample of the material being removed. The Safety Officer will develop a written plan for each removal job. This plan will include a description of the type of asbestos, quantity to be removed, method of removal and protective measures. Asbestos removal team members will then follow all of the procedures outlined in this plan and Asbestos Removal Training Program.

The Safety Officer will be responsible for making sure appropriate safety gear and equipment is on the job site prior to beginning the work.

The Safety Officer will be responsible for monitoring the safe work practice of employees while removing asbestos.

When the job is complete, the Asbestos removal worker will be responsible for job site clean-up, coordination with the Safety Officer for disposal of asbestos and protective clothing, cleaning of tools and return of asbestos removal equipment, HEPA vacuum, filters, etc.

Asbestos will be disposed of by placing bags in drums labeled "CAUTION ASBESTOS CONTAINING MATERIAL". The drums will be stored in the Chemical Storage Building for pick-up by the asbestos contractor.

After the asbestos has been removed from the work site area, the assigned worker will then complete the job. If the job should require reinstallation, the new insulation will be non-asbestos insulation.

Prohibited Activities

The following work practices are prohibited:

- **Drilling holes in ACM, Sawing or sanding transite duct or slate roof singles.**
- **Hanging anything on a structure with surface ACM.**
- **Sanding floor tile or stripping floor tile wax with machines greater than 300 rpm or using abrasive pads (black pads).**
- **Using an ordinary vacuum, sweeping dust etc. to clean-up ACM.**
- **Changing car brakes or clutches dry, using air to blow off brakes.**

Records

The Safety Officer will also maintain records of team members, training, medical examinations, health monitors, air samples and other documents necessary to comply with the North Carolina State Law.

Shop Safety

This policy applies to work areas that use machinery for woodworking, metal grinding, drilling etc. NC-OSHA contains a number of safety standards which are directed toward the safety of employees who operate these type machines.

Point of Operation Guarding

NC-OSHA requires that points of operation such as saw blades, grinding wheels, drive belts etc. be enclosed with a guard or shielded, to protect against operator contact. Generally these protective features are provided with the machine and should not be removed.

First Aid Kits

It is recommended that all shop areas be supplied with first aid kits.

Eye Protection

Cutting, grinding and drilling operations present a hazard of flying chips and pieces. Eye protection such as dust goggles or safety glasses are always required when using these machines. Signs should be posted "Eye Protection Required When Using This Machine".

Electrical

All shop machinery must be properly grounded and the electrical disconnect or circuit breaker identified. Also the electrical connection must be arranged so that activated machines do not automatically restart after power failures.

Extension cords are permitted only with portable appliances or fixtures. While in immediate use:

- **Each extension cord shall be plugged directly into an approved receptacle and shall, except for approved multiplying extension cords, serve only one appliance or fixture.**
- **The current capacity of the cord shall not be less than the rated capacity of the appliance or fixture.**
- **The extension cord shall be maintained in good condition without splices, deterioration or damage.**
- **The extension cord shall be of the grounded type when servicing grounded appliances or fixtures.**

Extension cords and flexible cords shall not be affixed to structures, extended through walls, ceiling floors, under doors or floor coverings, nor be subject to environmental damaging physical impact.

Dust Control

NC-OSHA currently does not classify wood dust as a toxic dust. However, excessive accumulation vac and be cleaned frequently of dust in the air and on surfaces is a serious fire hazard. The toxicity of metal dust depends on the type of material being used in the machine. As a general rule the need for special ventilation depends on the size of shop and frequency of use. However, all shops should have a portable shop

Finish Coatings, Adhesives and Oil Base Paints

Section 14 of the Safety and Health Program Manual covers flammable liquids. Each shop area is encouraged to minimize the quantity of flammables such as finishes, glues and oil based paints which are stored. In no case shall the total quantity on hand exceed 10 gallons. Most flammable liquids can also present a health hazard due to inhalation of fumes if the work area is not properly ventilated.

Gas Cylinders

Gas cylinders must be secured and used in an upright position. The valve protection covers must be in place when the cylinder is taken out of service or moved.

Oxygen cylinders must be kept oil free and stored separated from flammable gases and other ignition sources.

Gasoline

Gasoline powered equipment must be refueled outdoors.

General

The provisions of this program apply to the operation of motor vehicles by University employees and students. It does not apply to off road vehicles such as forklifts, riding lawn mowers, street sweepers, backhoe digger and tractors. The purpose of the program is to minimize accidents and losses by ensuring that drivers of university vehicles are qualified, ensuring that vehicles are maintained and operated safely and that all accidents are properly reported, investigated and corrective actions to prevent recurrence are taken where appropriate.

Driver Selection

To drive a State vehicle a person must be a State employee or a currently enrolled student. The employee or student must have a valid operator's license from North Carolina appropriate for the class of vehicle being driven (See WCU Policy 30).

All drivers of passenger vans must attend a van driver safety awareness program prior to driving.

Departments with vehicles assigned (listed below) should initially and annually review the driving record of each passenger van driver, maintain records of authorized drivers and issue vehicles only to authorized drivers.

- **Facilities Management**
- **Motor Pool**
- **Housing**
- **University Center**
- **Auxiliary Services**
- **University Police**
- **Biology**

Vehicle Operation

Drivers shall perform a pre-trip safety check of their vehicle before each trip off-campus or for campus vehicles at the beginning of the workday. The check shall include tires, brakes, wipers, lights, horn and any new damage to the vehicle. Any unsafe conditions discovered or damage shall be reported to the department and Facilities Management. The vehicle should not be used until each unsafe condition is corrected.

All drivers and passengers shall wear seat belts at all times except in maintenance/delivery vehicles which make frequent stops.

Vehicles must be used only for authorized and official purposes. The authorized driver must not allow unauthorized persons to drive or ride in the vehicle. Every passenger should have a seat. Passengers should not be allowed to ride unrestrained in the rear of a truck or on a trailer.

Vehicle Maintenance

Each department with vehicles assigned shall assign an individual who is responsible for maintenance on vehicles. This person shall complete a periodic safety maintenance check of the vehicle, ensure that the state inspection is up to date and coordinate for repair of the vehicles with Facilities Management.

Passenger Vans

The number of passengers which may be transported in vans is limited to nine (9) including the driver. All passengers must wear seatbelts.

Low Speed Vehicles

Operation of low speed vehicles EZ-Go Carts, Gems and similar vehicles must conform to WCU Policy #90

All drivers of low speed vehicles must attend a low speed vehicle driver training session. This is offered by the Safety & Risk Management Office.

Accidents

In addition to Police reports the driver must report all accidents to his department head. The department head is responsible for notifying Safety & Risk Management and Facilities Management so that the appropriate insurance forms can be completed. All accidents are reviewed by the Safety Officer to determine common cases and remedial actions to correct any accident causing deficiencies.

Emergency Response Notification

Persons discovering a fire, smoke, gas leak, chemical spill or other emergency are to call 911 and report the nature of the emergency:

The following information should be provided:

- Callers name and the telephone number in which the caller can be reached.
- Location and nature of emergency, and special considerations (if known) i.e., hazardous chemicals, radiation, injured person, etc.

The University Police will dispatch an officer to the scene of the report and will summons emergency responders in accordance with the nature of the emergency.

The caller or other person knowledgeable in the area where the emergency occurs should meet the responding Police Officer.

Building Evacuation Procedures

The following procedures are to be followed in evacuating buildings. In many university departments an emergency evacuation of the building will present unique considerations (libraries, food service, childcare, Ramsey Center, etc.), which require additional employee duties. These should be addressed in individualized departmental procedures.

- When fire alarm signals are activated, occupants are to assume the emergency is real until they positively learn otherwise.
- Potential hazards should be secured, such as open flames, hot plates, laboratory ovens, small appliances, compressed gases, chemical containers etc.
- Evacuate the building, using the nearest stair tower to reach ground level.
- Room doors should be closed.
- Do not attempt to use elevators
- Use caution when approaching closed doors. If the door is hot, chances are a fire is on the other side. In this case, do not open the door. Instead, use an alternate means of exit or, if one is not available, find a room with an outside window for air and advise the fire department by any means available that you are unable to leave the building.
- If smoke is encountered, stay close to the floor. Crawl if necessary.
- Once outside the building, report to designated locations in accordance with department plans.

Disabled Persons

In general, emergency evacuation is dependent upon occupants being able to hear audible warnings, and walk down stairways (elevators are not safe to use in fire emergencies without fire department supervision). Therefore, special provisions may be needed to evacuate people with hearing or sight disabilities and for persons who are non-ambulatory. The following procedures describe the basic steps to follow:

- **If an immediate life threatening condition exist, classmates, fellow workers, the residence staff, etc. should assist handicapped persons in leaving the building.**
- **When the fire alarm is sounding but no immediate threat to life are apparent persons unable to leave the building without assistance should seek an area of refuge. University Police should be notified of this location by telephone and the officer in charge (Incident Commander) should be notified by people from the area. If evacuation is subsequently required, the fire department will supervise this.**

Notes:

Persons with disabilities should talk with other employees and students and develop a plan for emergency evacuation. Do this even if the disability is temporary.

In Libraries, the circulation desk should be notified of the locations of disabled persons working alone.

Disabled persons should assure that a telephone is readily available when working alone in University classroom or research buildings.

Emergency Management Procedures

Fire and Fire Alarms

The Cullowhee Fire Department responds to fire calls on campus. University personnel are to support the Fire Department's efforts by promptly evacuating the building, advising on specific hazards, managing building utilities and maintaining safe access to the site.

Fire Alarms

Alarms may be activated by pull boxes, smoke detectors, heat detectors, sprinklers or electrical faults. University personnel are to evacuate the building during fire alarms even when there is no immediate evidence of fire.

- The Fire Department is to proceed to the building Fire Alarm Control Panel (FACP) and determine from the FACP the zone or device number within the building where the alarm originated.
- After locating the area the Fire Department will investigate the indicated area checking for abnormal conditions such as smoke, dusts, paint mists, cooking fumes, vandalism, broken pull boxes, activated smoke detectors etc.
- If no evidence of fire is encountered, the signal or alarm silence switch on the FACP will be activated. This will silence the horns/bells but lock-in the lamps which indicate the device causing the alarm. This will also give notice to occupants that they may re-enter the building.
- For trouble shooting purposes responding campus Police Officer should obtain and record the location of the exact device causing the alarm and all suspected causes.
- The Fire Department will restore the alarm system as follows:

Pull boxes: Reset the box with a key or tool.

Smoke detectors: These will automatically reset when the FACP is reset unless smoke is still in the detector.

Heat detectors: Cannot be reset, must be replaced, notify Facilities Management.

Sprinklers: Shut off water, notify Facilities Management.

Activate the FACP Reset Switch to restore the system. If the system does not reset, wait 5 minutes and try again.

Use of Fire Extinguishers

Employees who have attended annual training in fire extinguisher use may operate Fire extinguishers all others must evacuate the building.

In general, fire extinguishers should not be relied upon to manage fires that are developing rapidly or in cases where fire spread may block your exit. Use of fire extinguishers is not a substitute for calling the fire department.

The types of fires one might encounter are classified A, B, C and D, as defined in the following:

- **Class A** fires are fires in ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.
- **Class B** fires are fires involving flammable liquids.
- **Class C** fires are fires which involve energized electrical equipment where the electrical non-conductivity of the extinguishing media is of importance. (When electrical equipment is de-energized, extinguishers for Class A or B fires may be used safely.)
- **Class D** fires are fires in combustible metals, such as magnesium, titanium, zirconium, sodium, and potassium.

The types of fires an extinguisher is effective on is indicated by one or more of the letters A, B, and C appearing on the extinguisher label. Class D fires require hand application of dry sand, graphite powder or a sodium chloride base powder. The fire department must be consulted on all metal fires.

Fire Extinguisher Operation

- Pull the ring pin in the handle of the extinguisher. This usually requires about 15 lb. pressure to break the seal, a slight twisting motion will help.
- Aim the extinguisher nozzle at the base of the fire.
- Sweep the discharge from side to side. In using some extinguishers on flammable liquids the fire may flare up momentarily when the agent is initially applied.
- Soak the fire thoroughly. Many deep-seated fires in cushions, trash piles, etc., and flammable liquids fires may reignite if not completely extinguished.

If possible, "Carbon Dioxide" extinguishers on fires in or around sensitive electronic equipment. These agents do not leave a residue after use.

Confinement of the Fire

Fire which cannot be put out with a fire extinguisher should be confined as much as possible by closing all doors to the room where the fire is.

Fire Hose

Operation of fire hoses requires special training, use of which should be left to the fire department.

Hazardous Materials Incidents

The scope of this section is limited to incidental spills or releases of chemicals or gases which can be safely corrected at the time of the release by either personnel in the work area or by maintenance personnel.

For spills and releases beyond the control of employees at the scene, university personnel will evacuate the release area and call for help from outside emergency responders. Designated Facilities Management workers will attempt to contain the release from a safe distance, keep it from spreading and prevent exposures.

Management of chemical spills and gas leaks usually requires the technical support of the supervisor or faculty member responsible for the material and/or the campus Safety Officer.

University Police Officers and/or the SECT team may be the first to arrive at the site. However, they should not enter spill or gas leak areas without knowledge of the material hazards and protective equipment required.

The following activities should be conducted prior to actual clean-up or leak correction:

- Determine the exact physical location of the release (e.g. in a room, hallway, or the floor, in a hood, storage room, on a table etc.) and the quantity.
- Isolate the spill or release as much as possible. Exhaust ventilation should be established if possible.
- Evacuate all personnel from the spill or release area and attend to persons who may have been contaminated.
- Obtain the Material Safety Data Sheet (MSDS) or consult the person responsible for the material to identify the material, its chemical and physical properties, hazards presented and the types of protective equipment needed.
- If the material is highly flammable attempt to turn off ignition sources if safe to do so.
- Clean-up personnel must wear protective clothing and equipment in accordance with the hazards of the material.

Spills of chemicals:

Confine the spill material as much as possible.

Use clay - Safety absorbent or diatomaceous solid absorbent to absorb any liquid.

Note: A neutralizing agent may be used on inorganic acids and bases but only under the supervision of a laboratory faculty member or the Safety Officer.

If the material is volatile let it evaporate and be exhausted by the mechanical exhaust system if safe to do so.

Carefully pickup cartons or bottles and place in a solid wall box.

Place the absorbed liquid or solid in a plastic or metal container and label the container.

Dispose of residue according to Hazardous Waste Policies.

Gas Leaks:

In cases involving highly flammable or toxic gases immediately dangerous to life the building should be evacuated.

Initial evacuation for small chlorine leaks (Water Plant) should be at least 250 feet in all directions.

Maintain the mechanical exhaust system if safe to do so.

Gases which are immediately life threatening should be shut off using a self contained breathing unit and full body protection for highly toxic gases.

Leaks which are not immediately life threatening may be localized with soapy water or a gas leak detector.

The supplier should be contacted for all leaks which cannot be remedied by a simple act such as tightening a valve gland or packing nut.